

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Terminal Adonai - Efeitos físicos

Simulações

H001

Base Case

CASE Name: Data

Path: \Terminal Adonai - Efeitos físicos\Simulações\H001

User-Defined Data

Material

Material Identifier ACETONE

Scenario

Building Wake Effect None

Vessel/Tank

Release Type Continuous

Location

Elevation 0 m
Use ERPG averaging time ERPG not selected
Use IDLH averaging time IDLH not selected
Use STEL averaging time STEL not selected
Supply a user defined averaging time Not supplied

Bund

Status of Bund Bund present
Bund Area 1.152E4 m2
[Type of Bund Surface User-Defined (Land)]
Bund Height 0.3 m
[Bund Failure Modeling Bund cannot fail]

Indoor/Outdoor

Location of release Open air release
Outdoor Release Direction Horizontal

Flammable

Explosion Method TNT
Jet Fire Method Cone Model

Dispersion

Number of Release Segments 1
Fluid Phase(1) Liquid
Discharge Velocity(1) 21.66 m/s
Droplet Diameter(1) 513 um
Duration of Discharge(1) 600 s
Final Temperature(1) 25.19 degC
Release Rate(1) 98.75 kg/s
Pre-Dilution Air Rates(1) 0 kg/s
Late Ignition Location No ignition location
Mass Inventory of material to Disperse 2.36E6 kg

Fireball Parameters

Date: 07/08/2015

1 of 2,112

Time: 10:10:31

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[Mass Modification Factor 3]
[Calculation method for fireball DNV Recommended]
[TNO model flame temperature 1727 degC]

Toxic Parameters

[Indoor Calculations Unselected]
[Wind Dependent Exchange Rate Case Specified]
[Building Exchange Rate 4 /hr]
[Tail Time 1800 s]
[Set averaging time equal to exposure time Use a fixed averaging time]
[Cut-off fraction of toxic load for exposure time calculation 0.05 fraction]
[Cut-off concentration for exposure time calculations 0 fraction]

Geometry

Shape Point
Dimension 2D
System Absolute
East(1) 0 m
North(1) 0 m

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Study Folder: Terminal Adonai - Efeitos físicos

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Consequence Results

Pool Vaporization Results

Path: \Terminal Adonai - Efeitos físicos\Simulações\H001

		Dia	Noite
	Release Segment 1		
Release Duration	s	600	600
Liquid Rainout	fraction	0.999999	0.999999
	Release Segment 1 Cloud Segment 1		
Cloud Segment Duration	s	166.41	162.563
Pool Vaporization Rate	kg/s	2.54168	1.88751
Total Vapor Flowrate	kg/s	2.54177	1.8876
	Release Segment 1 Cloud Segment 2		
Cloud Segment Duration	s	76.95	76.9131
Pool Vaporization Rate	kg/s	5.50406	4.00637
Total Vapor Flowrate	kg/s	5.50415	4.00646
	Release Segment 1 Cloud Segment 3		
Cloud Segment Duration	s	61.1425	61.5469
Pool Vaporization Rate	kg/s	6.89622	4.99141
Total Vapor Flowrate	kg/s	6.89631	4.9915
	Release Segment 1 Cloud Segment 4		
Cloud Segment Duration	s	53.6531	53.3581
Pool Vaporization Rate	kg/s	7.96299	5.73661
Total Vapor Flowrate	kg/s	7.96308	5.73669
	Release Segment 1 Cloud Segment 5		
Cloud Segment Duration	s	92.345	94
Pool Vaporization Rate	kg/s	9.22546	6.618
Total Vapor Flowrate	kg/s	9.22554	6.61809
	Release Segment 1 Cloud Segment 6		
Cloud Segment Duration	s	118.322	119.25
Pool Vaporization Rate	kg/s	10.9142	7.79054
Total Vapor Flowrate	kg/s	10.9143	7.79063
	Release Segment 1 Cloud Segment 7		
Cloud Segment Duration	s	31.1775	32.3694
Pool Vaporization Rate	kg/s	12.0429	8.57069
Total Vapor Flowrate	kg/s	12.043	8.57078
Maximum Pool Radius	m	27.1109	27.3284

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Distance to Concentration Results

Path: \Terminal Adonai - Efeitos físicos\Simulações\H001

The height for user defined concentrations is the user defined height 0 m

All toxic results are reported at the toxic effect height 1 m

All flammable results are reported at the flammable effect height 0 m

Concentration(ppm)	Averaging Time		Distance (m)	
			Dia	Noite
UFL (128000)	18.75	s	0	0
LFL (26000)	18.75	s	0	0
LFL Frac (26000)	18.75	s	0	0

Concentration(ppm)	Averaging Time		Heights (m) for above distances	
			Dia	Noite
UFL (128000)	18.75	s	0	0
LFL (26000)	18.75	s	0	0
LFL Frac (26000)	18.75	s	0	0

Jet Fire Hazard

Path: \Terminal Adonai - Efeitos físicos\Simulações\H001

Jet fire method used: Cone model - DNV recommended

	Dia	Noite
Jet Fire Status	Truncated	Truncated
Flame Direction	Horizontal	Horizontal

Radiation Effects: Jet Fire Ellipse

Path: \Terminal Adonai - Efeitos físicos\Simulações\H001

This table gives the distances to the specified radiation levels for each jet fire listed in the above hazard table

Radiation Level			Distance (m)	
			Dia	Noite
9.83	kW/m2	1.52459	1.58553	
19.46	kW/m2	Not Reached	Not Reached	
35	kW/m2	Not Reached	Not Reached	

Radiation Effects: Jet Fire Distance

Path: \Terminal Adonai - Efeitos físicos\Simulações\H001

	Dia	Radiation Level (kW/m2)
		Noite

Early Pool Fire Hazard

Path: \Terminal Adonai - Efeitos físicos\Simulações\H001

	Dia	Noite
Early Pool Fire Status	Hazard	Hazard

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Radiation Effects: Early Pool Fire Ellipse

Path: \Terminal Adonai - Efeitos físicos\Simulações\H001

			Dia	Noite
Radiation Level	9.83	kW/m2	97.193	95.6477
Radiation Level	19.46	kW/m2	73.8301	70.7478
Radiation Level	35	kW/m2	53.8835	50.3567

Radiation Effects: Early Pool Fire Distance

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Dia
Noite

Radiation Level (kW/m2)
Noite

Late Pool Fire Hazard

Path: \Terminal Adonai - Efeitos físicos\Simulações\H001

	Dia	Noite
Late Pool Fire Status	Hazard	Hazard

Radiation Effects: Late Pool Fire Ellipse

Path: \Terminal Adonai - Efeitos físicos\Simulações\H001

			Dia	Noite
Radiation Level	9.83	kW/m2	100.869	99.1588
Radiation Level	19.46	kW/m2	76.6617	73.404
Radiation Level	35	kW/m2	56.1189	52.3928

Radiation Effects: Late Pool Fire Distance

Path: \Terminal Adonai - Efeitos físicos\Simulações\H001

Dia
Noite

Radiation Level (kW/m2)
Noite

Weather Conditions

Path: \Terminal Adonai - Efeitos físicos\Simulações\H001

		Dia	Noite
Wind Speed	m/s	3	2
Pasquill Stability		C	E
Surface Roughness Length	mm	1000	1000
Surface Roughness Parameter		0.173718	0.173718
Atmospheric Temperature	degC	25	20
Surface Temperature	degC	30	20
Relative Humidity	fraction	0.8	0.8

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Study Folder: Terminal Adonai - Efeitos físicos

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H002

Base Case

CASE Name: Data

Path: \Terminal Adonai - Efeitos físicos\Simulações\H002

User-Defined Data

Material

Material Identifier ACETONE

Scenario

Building Wake Effect None

Vessel/Tank

Release Type Continuous

Location

Elevation 0 m
Use ERPG averaging time ERPG not selected
Use IDLH averaging time IDLH not selected
Use STEL averaging time STEL not selected
Supply a user defined averaging time Not supplied

Bund

Status of Bund Bund present
Bund Area 1.152E4 m2
[Type of Bund Surface User-Defined (Land)]
Bund Height 0.3 m
[Bund Failure Modeling Bund cannot fail]

Indoor/Outdoor

Location of release Open air release
Outdoor Release Direction Horizontal

Flammable

Explosion Method TNT
Jet Fire Method Cone Model

Dispersion

Number of Release Segments 1
Fluid Phase(1) Liquid
Discharge Velocity(1) 36.08 m/s
Droplet Diameter(1) 185.1 um
Duration of Discharge(1) 600 s
Final Temperature(1) 24.88 degC
Release Rate(1) 0.99 kg/s
Pre-Dilution Air Rates(1) 0 kg/s
Late Ignition Location No ignition location
Mass Inventory of material to Disperse 2.36E6 kg

Fireball Parameters

[Mass Modification Factor 3]
[Calculation method for fireball DNV Recommended]
[TNO model flame temperature 1727 degC]

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Study Folder: Terminal Adonai - Efeitos físicos

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Toxic Parameters

[Indoor Calculations	Unselected]
[Wind Dependent Exchange Rate	Case Specified]
[Building Exchange Rate	4 /hr]
[Tail Time	1800 s]
[Set averaging time equal to exposure time	Use a fixed averaging time]
[Cut-off fraction of toxic load for exposure time calculation	0.05 fraction]
[Cut-off concentration for exposure time calculations	0 fraction]

Geometry

Shape	Point
Dimension	2D
System	Absolute
East(1)	0 m
North(1)	0 m

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Consequence Results

Pool Vaporization Results

Path: \Terminal Adonai - Efeitos físicos\Simulações\H002

		Dia	Noite
	Release Segment 1		
Release Duration	s	600	600
Liquid Rainout	fraction	0.999999	0.999999
	Release Segment 1 Cloud Segment 1		
Cloud Segment Duration	s	172.923	169
Pool Vaporization Rate	kg/s	0.0357579	0.02367
Total Vapor Flowrate	kg/s	0.0357588	0.0236708
	Release Segment 1 Cloud Segment 2		
Cloud Segment Duration	s	78.3	78.2756
Pool Vaporization Rate	kg/s	0.0798029	0.0510018
Total Vapor Flowrate	kg/s	0.0798037	0.0510026
	Release Segment 1 Cloud Segment 3		
Cloud Segment Duration	s	61.1831	62.4844
Pool Vaporization Rate	kg/s	0.101364	0.0645339
Total Vapor Flowrate	kg/s	0.101365	0.0645347
	Release Segment 1 Cloud Segment 4		
Cloud Segment Duration	s	52.4044	53.1425
Pool Vaporization Rate	kg/s	0.118017	0.0751152
Total Vapor Flowrate	kg/s	0.118018	0.075116
	Release Segment 1 Cloud Segment 5		
Cloud Segment Duration	s	91.0125	91.8531
Pool Vaporization Rate	kg/s	0.138065	0.08784
Total Vapor Flowrate	kg/s	0.138066	0.0878409
	Release Segment 1 Cloud Segment 6		
Cloud Segment Duration	s	114.193	115.26
Pool Vaporization Rate	kg/s	0.165304	0.105239
Total Vapor Flowrate	kg/s	0.165305	0.10524
	Release Segment 1 Cloud Segment 7		
Cloud Segment Duration	s	29.9844	29.9844
Pool Vaporization Rate	kg/s	0.183651	0.11702
Total Vapor Flowrate	kg/s	0.183652	0.117021
Maximum Pool Radius	m	2.67378	2.71693

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Distance to Concentration Results

Path: \Terminal Adonai - Efeitos físicos\Simulações\H002

The height for user defined concentrations is the user defined height 0 m

All toxic results are reported at the toxic effect height 1 m

All flammable results are reported at the flammable effect height 0 m

Concentration(ppm)	Averaging Time		Distance (m)	
			Dia	Noite
UFL (128000)	18.75	s	0	0
LFL (26000)	18.75	s	0	0
LFL Frac (26000)	18.75	s	0	0

Concentration(ppm)	Averaging Time		Heights (m) for above distances	
			Dia	Noite
UFL (128000)	18.75	s	0	0
LFL (26000)	18.75	s	0	0
LFL Frac (26000)	18.75	s	0	0

Jet Fire Hazard

Path: \Terminal Adonai - Efeitos físicos\Simulações\H002

Jet fire method used: Cone model - DNV recommended

	Dia	Noite
Jet Fire Status	Truncated	Truncated
Flame Direction	Horizontal	Horizontal

Radiation Effects: Jet Fire Ellipse

Path: \Terminal Adonai - Efeitos físicos\Simulações\H002

This table gives the distances to the specified radiation levels for each jet fire listed in the above hazard table

Radiation Level			Distance (m)	
			Dia	Noite
9.83	kW/m2	1.06201	Not Reached	
19.46	kW/m2	Not Reached	Not Reached	
35	kW/m2	Not Reached	Not Reached	

Radiation Effects: Jet Fire Distance

Path: \Terminal Adonai - Efeitos físicos\Simulações\H002

	Dia	Radiation Level (kW/m2)
		Noite

Early Pool Fire Hazard

Path: \Terminal Adonai - Efeitos físicos\Simulações\H002

	Dia	Noite
Early Pool Fire Status	Hazard	Hazard

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Radiation Effects: Early Pool Fire Ellipse

Path: \Terminal Adonai - Efeitos físicos\Simulações\H002

			Dia	Noite
Radiation Level	9.83	kW/m2	12.4584	11.8478
Radiation Level	19.46	kW/m2	8.12593	7.52728
Radiation Level	35	kW/m2	3.95047	3.842

Radiation Effects: Early Pool Fire Distance

Path: \Terminal Adonai - Efeitos físicos\Simulações\H002

Dia
Noite
Radiation Level (kW/m2)

Late Pool Fire Hazard

Path: \Terminal Adonai - Efeitos físicos\Simulações\H002

	Dia	Noite
Late Pool Fire Status	Hazard	Hazard

Radiation Effects: Late Pool Fire Ellipse

Path: \Terminal Adonai - Efeitos físicos\Simulações\H002

			Dia	Noite
Radiation Level	9.83	kW/m2	12.755	12.207
Radiation Level	19.46	kW/m2	8.3427	7.82155
Radiation Level	35	kW/m2	4.07616	4.00093

Radiation Effects: Late Pool Fire Distance

Path: \Terminal Adonai - Efeitos físicos\Simulações\H002

Dia
Noite
Radiation Level (kW/m2)

Weather Conditions

Path: \Terminal Adonai - Efeitos físicos\Simulações\H002

		Dia	Noite
Wind Speed	m/s	3	2
Pasquill Stability		C	E
Surface Roughness Length	mm	1000	1000
Surface Roughness Parameter		0.173718	0.173718
Atmospheric Temperature	degC	25	20
Surface Temperature	degC	30	20
Relative Humidity	fraction	0.8	0.8

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Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

H003

Base Case

CASE Name: Data

Path: \Terminal Adonai - Efeitos físicos\Simulações\H003

User-Defined Data

Material

Material Identifier ACETONE

Scenario

Building Wake Effect None

Vessel/Tank

Release Type Continuous

Location

Elevation 1 m
Use ERPG averaging time ERPG not selected
Use IDLH averaging time IDLH not selected
Use STEL averaging time STEL not selected
Supply a user defined averaging time Not supplied

Bund

Status of Bund No bund present
[Type of Bund Surface User-Defined (Land)]
[Bund Height 0 m]
[Bund Failure Modeling Bund cannot fail]

Indoor/Outdoor

Location of release Open air release
Outdoor Release Direction Horizontal

Flammable

Explosion Method TNT
Jet Fire Method Cone Model

Dispersion

Number of Release Segments 1
Fluid Phase(1) Liquid
Discharge Velocity(1) 21.66 m/s
Droplet Diameter(1) 513 um
Duration of Discharge(1) 600 s
Final Temperature(1) 25.19 degC
Release Rate(1) 98.75 kg/s
Pre-Dilution Air Rates(1) 0 kg/s
Late Ignition Location No ignition location
Mass Inventory of material to Disperse 2.36E6 kg

Fireball Parameters

[Mass Modification Factor 3]
[Calculation method for fireball DNV Recommended]
[TNO model flame temperature 1727 degC]

Toxic Parameters

Date: 07/08/2015

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Time: 10:10:31

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[Indoor Calculations	Unselected]
[Wind Dependent Exchange Rate	Case Specified]
[Building Exchange Rate	4 /hr]
[Tail Time	1800 s]
[Set averaging time equal to exposure time	Use a fixed averaging time]
[Cut-off fraction of toxic load for exposure time calculation	0.05 fraction]
[Cut-off concentration for exposure time calculations	0 fraction]

Geometry

Shape	Point
Dimension	2D
System	Absolute
East(1)	0 m
North(1)	0 m

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Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Consequence Results

Pool Vaporization Results

Path: \Terminal Adonai - Efeitos físicos\Simulações\H003

		Dia	Noite
	Release Segment 1		
Release Duration	s	600	600
Liquid Rainout	fraction	0.912588	0.920409
	Release Segment 1 Cloud Segment 1		
Cloud Segment Duration	s	187.69	182.25
Pool Vaporization Rate	kg/s	1.39185	1.00788
Total Vapor Flowrate	kg/s	10.0238	8.86749
	Release Segment 1 Cloud Segment 2		
Cloud Segment Duration	s	78	77.7656
Pool Vaporization Rate	kg/s	3.36415	2.35993
Total Vapor Flowrate	kg/s	11.9961	10.2195
	Release Segment 1 Cloud Segment 3		
Cloud Segment Duration	s	60.1125	60.3944
Pool Vaporization Rate	kg/s	4.36041	3.03404
Total Vapor Flowrate	kg/s	12.9923	10.8936
	Release Segment 1 Cloud Segment 4		
Cloud Segment Duration	s	51.5281	52.08
Pool Vaporization Rate	kg/s	5.14575	3.56411
Total Vapor Flowrate	kg/s	13.7777	11.4237
	Release Segment 1 Cloud Segment 5		
Cloud Segment Duration	s	85.995	87.6125
Pool Vaporization Rate	kg/s	6.08679	4.20035
Total Vapor Flowrate	kg/s	14.7187	12.06
	Release Segment 1 Cloud Segment 6		
Cloud Segment Duration	s	107.884	109.913
Pool Vaporization Rate	kg/s	7.36857	5.0651
Total Vapor Flowrate	kg/s	16.0005	12.9247
	Release Segment 1 Cloud Segment 7		
Cloud Segment Duration	s	28.79	29.9844
Pool Vaporization Rate	kg/s	8.24473	5.65715
Total Vapor Flowrate	kg/s	16.8766	13.5168
Maximum Pool Radius	m	26.1013	26.3383

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Distance to Concentration Results

Path: \Terminal Adonai - Efeitos físicos\Simulações\H003

The height for user defined concentrations is the user defined height 0 m

All toxic results are reported at the toxic effect height 1 m

All flammable results are reported at the flammable effect height 0 m

Concentration(ppm)	Averaging Time		Distance (m)	
			Dia	Noite
UFL (128000)	18.75	s	10.6104	10.3347
LFL (26000)	18.75	s	51.6513	59.4713
LFL Frac (26000)	18.75	s	51.6513	59.4713

Concentration(ppm)	Averaging Time		Heights (m) for above distances	
			Dia	Noite
UFL (128000)	18.75	s	0	0
LFL (26000)	18.75	s	0	0
LFL Frac (26000)	18.75	s	0	0

Jet Fire Hazard

Path: \Terminal Adonai - Efeitos físicos\Simulações\H003

Jet fire method used: Cone model - DNV recommended

	Dia	Noite
Jet Fire Status	Truncated	Truncated
Flame Direction	Horizontal	Horizontal

Radiation Effects: Jet Fire Ellipse

Path: \Terminal Adonai - Efeitos físicos\Simulações\H003

This table gives the distances to the specified radiation levels for each jet fire listed in the above hazard table

Radiation Level			Distance (m)	
			Dia	Noite
9.83	kW/m2		101.373	104.612
19.46	kW/m2		89.5148	92.763
35	kW/m2		80.9866	83.9118

Radiation Effects: Jet Fire Distance

Path: \Terminal Adonai - Efeitos físicos\Simulações\H003

	Dia	Radiation Level (kW/m2)
		Noite

Early Pool Fire Hazard

Path: \Terminal Adonai - Efeitos físicos\Simulações\H003

	Dia	Noite
Early Pool Fire Status	Hazard	Hazard

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Radiation Effects: Early Pool Fire Ellipse

Path: \Terminal Adonai - Efeitos físicos\Simulações\H003

			Dia	Noite
Radiation Level	9.83	kW/m2	103.915	102.647
Radiation Level	19.46	kW/m2	81.4517	78.6054
Radiation Level	35	kW/m2	62.1341	58.8322

Radiation Effects: Early Pool Fire Distance

Path: \Terminal Adonai - Efeitos físicos\Simulações\H003

Dia
Noite

Radiation Level (kW/m2)

Late Pool Fire Hazard

Path: \Terminal Adonai - Efeitos físicos\Simulações\H003

	Dia	Noite
Late Pool Fire Status	Hazard	Hazard

Radiation Effects: Late Pool Fire Ellipse

Path: \Terminal Adonai - Efeitos físicos\Simulações\H003

			Dia	Noite
Radiation Level	9.83	kW/m2	108.12	106.425
Radiation Level	19.46	kW/m2	84.69	81.4622
Radiation Level	35	kW/m2	64.6928	61.026

Radiation Effects: Late Pool Fire Distance

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Dia

Radiation Level (kW/m2)

Noite

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Flash Fire Envelope

Path: \Terminal Adonai - Efeitos físicos\Simulações\H003

All flammable results are reported at the flammable effect height 0 m

				Distance (m)	
				Dia	Noite
Furthest Extent	26000	ppm	51.6513	51.6513	59.4713
Furthest Extent	26000	ppm	51.6513	51.6513	59.4713
				Heights (m) for above distances	
				Dia	Noite
Furthest Extent	26000	ppm	0	0	0
Furthest Extent	26000	ppm	0	0	0

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Explosion Effects: Late Ignition

Path: \Terminal Adonai - Efeitos físicos\Simulações\H003

Explosion Model Used : TNT

Explosion Location Criterion: Cloud Center

All distances are measured from the Source

All flammable results are reported at the flammable effect height 0 m

			Maximum Distance (m) at Overpressure Level	
			Dia	Noite
Overpressure	0.05	bar	84.1058	93.3244
Overpressure	0.1	bar	61.692	67.4149
Overpressure	0.3	bar	43.3216	46.1792

			Supplementary Data at 0.05 bar	
			Dia	Noite
Supplied Flammable Mass		kg	68.0819	105.165
Used Flammable Mass		kg	68.0819	105.165
Overpressure Radius		m	59.1058	68.3244
Distance to:				
- Ignition Source		m	50	50
- Cloud Front/Centre		m	50	50
- Explosion Centre		m	25	25

			Supplementary Data at 0.1 bar	
			Dia	Noite
Supplied Flammable Mass		kg	68.0819	105.165
Used Flammable Mass		kg	68.0819	105.165
Overpressure Radius		m	36.692	42.4149
Distance to:				
- Ignition Source		m	50	50
- Cloud Front/Centre		m	50	50
- Explosion Centre		m	25	25

			Supplementary Data at 0.3 bar	
			Dia	Noite
Supplied Flammable Mass		kg	68.0819	105.165
Used Flammable Mass		kg	68.0819	105.165
Overpressure Radius		m	18.3216	21.1792
Distance to:				
- Ignition Source		m	50	50
- Cloud Front/Centre		m	50	50
- Explosion Centre		m	25	25

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Study Folder: Terminal Adonai - Efeitos físicos

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Weather Conditions

Path: \Terminal Adonai - Efeitos físicos\Simulações\H003

		Dia	Noite
Wind Speed	m/s	3	2
Pasquill Stability		C	E
Surface Roughness Length	mm	1000	1000
Surface Roughness Parameter		0.173718	0.173718
Atmospheric Temperature	degC	25	20
Surface Temperature	degC	30	20
Relative Humidity	fraction	0.8	0.8

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

H004

Base Case

CASE Name: Data

Path: \Terminal Adonai - Efeitos físicos\Simulações\H004

User-Defined Data

Material

Material Identifier ACETONE

Scenario

Building Wake Effect None

Vessel/Tank

Release Type Continuous

Location

Elevation 1 m
Use ERPG averaging time ERPG not selected
Use IDLH averaging time IDLH not selected
Use STEL averaging time STEL not selected
Supply a user defined averaging time Not supplied

Bund

Status of Bund No bund present
[Type of Bund Surface User-Defined (Land)]
[Bund Height 0 m]
[Bund Failure Modeling Bund cannot fail]

Indoor/Outdoor

Location of release Open air release
Outdoor Release Direction Horizontal

Flammable

Explosion Method TNT
Jet Fire Method Cone Model

Dispersion

Number of Release Segments 1
Fluid Phase(1) Liquid
Discharge Velocity(1) 36.08 m/s
Droplet Diameter(1) 185.1 um
Duration of Discharge(1) 600 s
Final Temperature(1) 24.88 degC
Release Rate(1) 0.99 kg/s
Pre-Dilution Air Rates(1) 0 kg/s
Late Ignition Location No ignition location
Mass Inventory of material to Disperse 2.36E6 kg

Fireball Parameters

[Mass Modification Factor 3]
[Calculation method for fireball DNV Recommended]
[TNO model flame temperature 1727 degC]

Toxic Parameters

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

[Indoor Calculations	Unselected]
[Wind Dependent Exchange Rate	Case Specified]
[Building Exchange Rate	4 /hr]
[Tail Time	1800 s]
[Set averaging time equal to exposure time	Use a fixed averaging time]
[Cut-off fraction of toxic load for exposure time calculation	0.05 fraction]
[Cut-off concentration for exposure time calculations	0 fraction]

Geometry

Shape	Point
Dimension	2D
System	Absolute
East(1)	0 m
North(1)	0 m

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Consequence Results

Pool Vaporization Results

Path: \Terminal Adonai - Efeitos físicos\Simulações\H004

			Dia	Noite
		Release Segment 1		
Release Duration	s		600	600
Liquid Rainout	fraction		0.406227	0.514578
Maximum Pool Radius	m		1.71619	1.96063

Distance to Concentration Results

Path: \Terminal Adonai - Efeitos físicos\Simulações\H004

The height for user defined concentrations is the user defined height 0 m
All toxic results are reported at the toxic effect height 1 m
All flammable results are reported at the flammable effect height 0 m

Concentration(ppm)		Averaging Time		Distance (m)	
				Dia	Noite
UFL (128000)	18.75	s		No Hazard	No Hazard
LFL (26000)	18.75	s		No Hazard	7.77854
LFL Frac (26000)	18.75	s		No Hazard	7.77854
Concentration(ppm)		Averaging Time		Heights (m) for above distances	
				Dia	Noite
UFL (128000)	18.75	s		0	0
LFL (26000)	18.75	s		0	0
LFL Frac (26000)	18.75	s		0	0

Jet Fire Hazard

Path: \Terminal Adonai - Efeitos físicos\Simulações\H004

Jet fire method used: Cone model - DNV recommended

		Dia	Noite
Jet Fire Status		Truncated	Truncated
Flame Direction		Horizontal	Horizontal

Radiation Effects: Jet Fire Ellipse

Path: \Terminal Adonai - Efeitos físicos\Simulações\H004

This table gives the distances to the specified radiation levels
for each jet fire listed in the above hazard table

				Distance (m)	
				Dia	Noite
Radiation Level	9.83	kW/m2		23.3526	25.0946
Radiation Level	19.46	kW/m2		20.6841	22.3674
Radiation Level	35	kW/m2		18.6659	20.1975

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Radiation Effects: Jet Fire Distance

Path: \Terminal Adonai - Efeitos físicos\Simulações\H004

Dia Radiation Level (kW/m2)
Noite

Early Pool Fire Hazard

Path: \Terminal Adonai - Efeitos físicos\Simulações\H004

Early Pool Fire Status Dia Noite
Hazard Hazard

Radiation Effects: Early Pool Fire Ellipse

Path: \Terminal Adonai - Efeitos físicos\Simulações\H004

			Dia	Noite
Radiation Level	9.83	kW/m2	16.8209	16.6602
Radiation Level	19.46	kW/m2	13.2871	13.0742
Radiation Level	35	kW/m2	11.1397	10.8003

Radiation Effects: Early Pool Fire Distance

Path: \Terminal Adonai - Efeitos físicos\Simulações\H004

Dia Radiation Level (kW/m2)
Noite

Late Pool Fire Hazard

Path: \Terminal Adonai - Efeitos físicos\Simulações\H004

Late Pool Fire Status Dia Noite
Hazard Hazard

Radiation Effects: Late Pool Fire Ellipse

Path: \Terminal Adonai - Efeitos físicos\Simulações\H004

			Dia	Noite
Radiation Level	9.83	kW/m2	17.0698	16.976
Radiation Level	19.46	kW/m2	13.5043	13.3138
Radiation Level	35	kW/m2	11.1961	10.8748

Radiation Effects: Late Pool Fire Distance

Path: \Terminal Adonai - Efeitos físicos\Simulações\H004

Dia Radiation Level (kW/m2)
Noite

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Flash Fire Envelope

Path: \Terminal Adonai - Efeitos físicos\Simulações\H004

All flammable results are reported at the flammable effect height 0 m

				Distance (m)
				Noite
Furthest Extent	26000	ppm		7.77854
Furthest Extent	26000	ppm		7.77854
				Heights (m) for above distances
				Noite
Furthest Extent	26000	ppm		0
Furthest Extent	26000	ppm		0

Weather Conditions

Path: \Terminal Adonai - Efeitos físicos\Simulações\H004

		Dia	Noite
Wind Speed	m/s	3	2
Pasquill Stability		C	E
Surface Roughness Length	mm	1000	1000
Surface Roughness Parameter		0.173718	0.173718
Atmospheric Temperature	degC	25	20
Surface Temperature	degC	30	20
Relative Humidity	fraction	0.8	0.8

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

H005

Base Case

CASE Name: Data

Path: \Terminal Adonai - Efeitos físicos\Simulações\H005

User-Defined Data

Material

Material Identifier	ACETONE
Type of Vessel	Padded Liquid
Pressure Specification	Pressure specified
Storage Pressure - gauge	0.03 bar
Temperature	25 degC
Volume Inventory	3200 m3

Scenario

Scenario Type	Line rupture
Phase to be Released	Liquid
Building Wake Effect	None
Specify Pump Head	No pump head supplied
Number of Excess Flow Valves	0
Number of Non-Return Valves	0
Number of Shut-Off Valves	0

Pipe

Internal Diameter	203.2 mm
Line length	1 m

Vessel/Tank

Duration of Interest	600 s
Method Used for Time Varying Releases	Average Rates
Tank Type	Vertical
Tank Height	22.64 m
Tank Diameter	15 m
Height of Discharge from Vessel Bottom	1 m

Location

Elevation	1 m
Use ERPG averaging time	ERPG not selected
Use IDLH averaging time	IDLH not selected
Use STEL averaging time	STEL not selected
Supply a user defined averaging time	Not supplied

Bund

Status of Bund	Bund present
Bund Area	1940 m2
[Type of Bund Surface	User-Defined (Land)]
Bund Height	3 m
[Bund Failure Modeling	Bund cannot fail]

Indoor/Outdoor

Location of release	Open air release
Outdoor Release Direction	Horizontal

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Flammable

Explosion Method	TNT
Jet Fire Method	Cone Model

Dispersion

Late Ignition Location	No ignition location
Mass Inventory of material to Disperse	2.517E6 kg

Fireball Parameters

[Mass Modification Factor	3]
[Calculation method for fireball	DNV Recommended]
[TNO model flame temperature	1727 degC]

Toxic Parameters

[Indoor Calculations	Unselected]
[Wind Dependent Exchange Rate	Case Specified]
[Building Exchange Rate	4 /hr]
[Tail Time	1800 s]
[Set averaging time equal to exposure time	Use a fixed averaging time]
[Cut-off fraction of toxic load for exposure time calculation	0.05 fraction]
[Cut-off concentration for exposure time calculations	0 fraction]

Geometry

Shape	Point
Dimension	2D
System	Absolute
East(1)	0 m
North(1)	0 m

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Path: \Terminal Adonai - Efeitos físicos\Simulações\H005

DISCHARGE DATA for Weather: Global Weathers\Dia

Wind Speed: 3.00 m/s
Wind Speed at Height (Calculated) 1.78 m/s
Pasquill Stability: C

USER-DEFINED QUANTITIES

Material ACETONE
Scenario Line rupture
Inventory 2,517,057.75 kg
Fixed Duration n/a s

Stagnation data (data at upstream end for long pipe):

- Pressure 1.04 bar
- Temperature 25.00 degC
- Fluid State Non-saturated liquid

CALCULATED QUANTITIES

Mass Flow of Air (Vent from Vapor Space only) n/a
Mass Flowrate 3.10681E+002 kg/s
Release Duration 600.00 s

Orifice or pipe exit data (before atmospheric expansion):

- Pressure n/a bar
- Temperature n/a degC
- Vena Contracta Velocity (exit velocity for pipe releases) n/a m/s
- Discharge Coefficient n/a

Final data (after atmospheric expansion):

- Temperature 25.05 degC
- Liquid Mass Fraction 1.00 fraction
- Droplet Diameter 1,654.84 um
- Expanded Radius n/a m
- Velocity 12.18 m/s

DISCHARGE DATA for Weather: Global Weathers\Noite

Wind Speed: 2.00 m/s
Wind Speed at Height (Calculated) 0.83 m/s
Pasquill Stability: E

USER-DEFINED QUANTITIES

Material ACETONE
Scenario Line rupture
Inventory 2,517,057.75 kg
Fixed Duration n/a s

Stagnation data (data at upstream end for long pipe):

- Pressure 1.04 bar
- Temperature 25.00 degC
- Fluid State Non-saturated liquid

CALCULATED QUANTITIES

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Mass Flow of Air (Vent from Vapor Space only)	n/a
Mass Flowrate	3.10682E+002 kg/s
Release Duration	600.00 s
Orifice or pipe exit data (before atmospheric expansion):	
- Pressure	n/a bar
- Temperature	n/a degC
- Vena Contracta Velocity (exit velocity for pipe releases)	n/a m/s
- Discharge Coefficient	n/a
Final data (after atmospheric expansion):	
- Temperature	25.05 degC
- Liquid Mass Fraction	1.00 fraction
- Droplet Diameter	1,623.05 um
- Expanded Radius	n/a m
- Velocity	12.18 m/s

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Consequence Results

Pool Vaporization Results

Path: \Terminal Adonai - Efeitos físicos\Simulações\H005

		Dia	Noite
Release Segment 1			
Release Duration	s	600	600
Liquid Rainout	fraction	0.974221	0.977484
Release Segment 1 Cloud Segment 1			
Cloud Segment Duration	s	67.6506	66.4225
Pool Vaporization Rate	kg/s	2.56523	2.02383
Total Vapor Flowrate	kg/s	10.5743	9.01918
Release Segment 1 Cloud Segment 2			
Cloud Segment Duration	s	29.3719	29.1281
Pool Vaporization Rate	kg/s	5.96653	4.60629
Total Vapor Flowrate	kg/s	13.9756	11.6016
Release Segment 1 Cloud Segment 3			
Cloud Segment Duration	s	22.88	23.2594
Pool Vaporization Rate	kg/s	7.65198	5.86826
Total Vapor Flowrate	kg/s	15.661	12.8636
Release Segment 1 Cloud Segment 4			
Cloud Segment Duration	s	19.3375	19.8406
Pool Vaporization Rate	kg/s	8.96289	6.85509
Total Vapor Flowrate	kg/s	16.9719	13.8504
Release Segment 1 Cloud Segment 5			
Cloud Segment Duration	s	460.76	461.349
Pool Vaporization Rate	kg/s	9.65147	7.505
Total Vapor Flowrate	kg/s	17.6605	14.5003
Maximum Pool Radius	m	24.85	24.85

Distance to Concentration Results

Path: \Terminal Adonai - Efeitos físicos\Simulações\H005

The height for user defined concentrations is the user defined height 0 m

All toxic results are reported at the toxic effect height 1 m

All flammable results are reported at the flammable effect height 0 m

Concentration(ppm)	Averaging Time		Dia	Noite	Distance (m)
UFL (128000)	18.75	s	16.3379	19.4404	
LFL (26000)	18.75	s	43.5536	50.9361	
LFL Frac (26000)	18.75	s	43.5536	50.9361	
Concentration(ppm)	Averaging Time		Dia	Noite	Heights (m) for above distances
UFL (128000)	18.75	s	0	0	
LFL (26000)	18.75	s	0	0	
LFL Frac (26000)	18.75	s	0	0	

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Jet Fire Hazard

Path: \Terminal Adonai - Efeitos físicos\Simulações\H005

Jet fire method used: Cone model - DNV recommended

	Dia	Noite
Jet Fire Status	Truncated	Truncated
Flame Direction	Horizontal	Horizontal

Radiation Effects: Jet Fire Ellipse

Path: \Terminal Adonai - Efeitos físicos\Simulações\H005

This table gives the distances to the specified radiation levels for each jet fire listed in the above hazard table

			Distance (m)	
			Dia	Noite
Radiation Level	9.83	kW/m2	99.8254	101.313
Radiation Level	19.46	kW/m2	88.4873	89.9522
Radiation Level	35	kW/m2	80.2785	81.1882

Radiation Effects: Jet Fire Distance

Path: \Terminal Adonai - Efeitos físicos\Simulações\H005

	Radiation Level (kW/m2)	
	Dia	Noite

Early Pool Fire Hazard

Path: \Terminal Adonai - Efeitos físicos\Simulações\H005

	Dia	Noite
Early Pool Fire Status	Hazard	Hazard

Radiation Effects: Early Pool Fire Ellipse

Path: \Terminal Adonai - Efeitos físicos\Simulações\H005

			Distance (m)	
			Dia	Noite
Radiation Level	9.83	kW/m2	93.3124	90.9896
Radiation Level	19.46	kW/m2	70.8452	67.2255
Radiation Level	35	kW/m2	51.5249	47.6521

Radiation Effects: Early Pool Fire Distance

Path: \Terminal Adonai - Efeitos físicos\Simulações\H005

	Radiation Level (kW/m2)	
	Dia	Noite

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Late Pool Fire Hazard

Path: \Terminal Adonai - Efeitos físicos\Simulações\H005

	Dia	Noite
Late Pool Fire Status	Hazard	Hazard

Radiation Effects: Late Pool Fire Ellipse

Path: \Terminal Adonai - Efeitos físicos\Simulações\H005

			Dia	Noite
				Distance (m)
Radiation Level	9.83	kW/m2	93.3124	90.9896
Radiation Level	19.46	kW/m2	70.8452	67.2255
Radiation Level	35	kW/m2	51.5249	47.6521

Radiation Effects: Late Pool Fire Distance

Path: \Terminal Adonai - Efeitos físicos\Simulações\H005

	Dia	Noite
		Radiation Level (kW/m2)
		Noite

Flash Fire Envelope

Path: \Terminal Adonai - Efeitos físicos\Simulações\H005

All flammable results are reported at the flammable effect height 0 m

			Dia	Noite
				Distance (m)
Furthest Extent	26000	ppm	43.5536	50.9361
Furthest Extent	26000	ppm	43.5536	50.9361
				Heights (m) for above distances
			Dia	Noite
Furthest Extent	26000	ppm	0	0
Furthest Extent	26000	ppm	0	0

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Explosion Effects: Late Ignition

Path: \Terminal Adonai - Efeitos físicos\Simulações\H005

Explosion Model Used : TNT

Explosion Location Criterion: Cloud Center

All distances are measured from the Source

All flammable results are reported at the flammable effect height 0 m

			Maximum Distance (m) at Overpressure Level	
			Dia	Noite
Overpressure	0.05	bar	82.1305	121.774
Overpressure	0.1	bar	58.5698	84.9819
Overpressure	0.3	bar	39.2592	54.8269

			Supplementary Data at 0.05 bar	
			Dia	Noite
Supplied Flammable Mass		kg	79.0783	301.128
Used Flammable Mass		kg	79.0783	301.128
Overpressure Radius		m	62.1305	97.0218
Distance to:				
- Ignition Source		m	40	50
- Cloud Front/Centre		m	40	50
- Explosion Centre		m	20	24.7521

			Supplementary Data at 0.1 bar	
			Dia	Noite
Supplied Flammable Mass		kg	79.0783	301.128
Used Flammable Mass		kg	79.0783	301.128
Overpressure Radius		m	38.5698	60.2298
Distance to:				
- Ignition Source		m	40	50
- Cloud Front/Centre		m	40	50
- Explosion Centre		m	20	24.7521

			Supplementary Data at 0.3 bar	
			Dia	Noite
Supplied Flammable Mass		kg	79.0783	301.128
Used Flammable Mass		kg	79.0783	301.128
Overpressure Radius		m	19.2592	30.0749
Distance to:				
- Ignition Source		m	40	50
- Cloud Front/Centre		m	40	50
- Explosion Centre		m	20	24.7521

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Weather Conditions

Path: \Terminal Adonai - Efeitos físicos\Simulações\H005

		Dia	Noite
Wind Speed	m/s	3	2
Pasquill Stability		C	E
Surface Roughness Length	mm	1000	1000
Surface Roughness Parameter		0.173718	0.173718
Atmospheric Temperature	degC	25	20
Surface Temperature	degC	30	20
Relative Humidity	fraction	0.8	0.8

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

H006

Base Case

CASE Name: Data

Path: \Terminal Adonai - Efeitos físicos\Simulações\H006

User-Defined Data

Material

Material Identifier	ACETONE
Type of Vessel	Padded Liquid
Pressure Specification	Pressure specified
Storage Pressure - gauge	0.03 bar
Temperature	25 degC
Volume Inventory	3200 m3

Scenario

Scenario Type	Leak
Phase to be Released	Liquid
Hole Diameter	20.32 mm
Building Wake Effect	None

Vessel/Tank

Duration of Interest	600 s
Method Used for Time Varying Releases	Average Rates
Tank Type	Vertical
Tank Height	22.64 m
Tank Diameter	15 m
Height of Discharge from Vessel Bottom	1 m

Location

Elevation	1 m
Use ERPG averaging time	ERPG not selected
Use IDLH averaging time	IDLH not selected
Use STEL averaging time	STEL not selected
Supply a user defined averaging time	Not supplied

Bund

Status of Bund	Bund present
Bund Area	1940 m2
[Type of Bund Surface	User-Defined (Land)]
Bund Height	3 m
[Bund Failure Modeling	Bund cannot fail]

Indoor/Outdoor

Location of release	Open air release
Outdoor Release Direction	Horizontal

Flammable

Explosion Method	TNT
Jet Fire Method	Cone Model

Dispersion

Late Ignition Location	No ignition location
Mass Inventory of material to Disperse	2.517E6 kg

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Fireball Parameters

[Mass Modification Factor	3]
[Calculation method for fireball	DNV Recommended]
[TNO model flame temperature	1727 degC]

Toxic Parameters

[Indoor Calculations	Unselected]
[Wind Dependent Exchange Rate	Case Specified]
[Building Exchange Rate	4 /hr]
[Tail Time	1800 s]
[Set averaging time equal to exposure time	Use a fixed averaging time]
[Cut-off fraction of toxic load for exposure time calculation	0.05 fraction]
[Cut-off concentration for exposure time calculations	0 fraction]

Geometry

Shape	Point
Dimension	2D
System	Absolute
East(1)	0 m
North(1)	0 m

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Path: \Terminal Adonai - Efeitos físicos\Simulações\H006

DISCHARGE DATA for Weather: Global Weathers\Dia

Wind Speed: 3.00 m/s
Wind Speed at Height (Calculated) 1.78 m/s
Pasquill Stability: C

USER-DEFINED QUANTITIES

Material ACETONE
Scenario Leak
Inventory 2,517,057.75 kg
Fixed Duration n/a s

Stagnation data (data at upstream end for long pipe):

- Pressure 1.04 bar
- Temperature 25.00 degC
- Fluid State Non-saturated liquid

CALCULATED QUANTITIES

Mass Flow of Air (Vent from Vapor Space only) n/a
Mass Flowrate 3.20634E+000 kg/s
Release Duration 600.00 s

Orifice or pipe exit data (before atmospheric expansion):

- Pressure n/a bar
- Temperature n/a degC
- Vena Contracta Velocity (exit velocity for pipe releases) n/a m/s
- Discharge Coefficient n/a

Final data (after atmospheric expansion):

- Temperature 24.96 degC
- Liquid Mass Fraction 1.00 fraction
- Droplet Diameter 559.75 um
- Expanded Radius n/a m
- Velocity 20.95 m/s

DISCHARGE DATA for Weather: Global Weathers\Noite

Wind Speed: 2.00 m/s
Wind Speed at Height (Calculated) 0.83 m/s
Pasquill Stability: E

USER-DEFINED QUANTITIES

Material ACETONE
Scenario Leak
Inventory 2,517,057.75 kg
Fixed Duration n/a s

Stagnation data (data at upstream end for long pipe):

- Pressure 1.04 bar
- Temperature 25.00 degC
- Fluid State Non-saturated liquid

CALCULATED QUANTITIES

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Mass Flow of Air (Vent from Vapor Space only)	n/a
Mass Flowrate	3.20634E+000 kg/s
Release Duration	600.00 s
Orifice or pipe exit data (before atmospheric expansion):	
- Pressure	n/a bar
- Temperature	n/a degC
- Vena Contracta Velocity (exit velocity for pipe releases)	n/a m/s
- Discharge Coefficient	n/a
Final data (after atmospheric expansion):	
- Temperature	24.96 degC
- Liquid Mass Fraction	1.00 fraction
- Droplet Diameter	548.99 um
- Expanded Radius	n/a m
- Velocity	20.95 m/s

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Consequence Results

Pool Vaporization Results

Path: \Terminal Adonai - Efeitos físicos\Simulações\H006

		Dia	Noite
	Release Segment 1		
Release Duration	s	600	600
Liquid Rainout	fraction	0.840026	0.848848
	Release Segment 1 Cloud Segment 1		
Cloud Segment Duration	s	208.081	203.063
Pool Vaporization Rate	kg/s	0.0473645	0.0309044
Total Vapor Flowrate	kg/s	0.560294	0.51555
	Release Segment 1 Cloud Segment 2		
Cloud Segment Duration	s	76.685	77.5
Pool Vaporization Rate	kg/s	0.129169	0.0815723
Total Vapor Flowrate	kg/s	0.642098	0.566218
	Release Segment 1 Cloud Segment 3		
Cloud Segment Duration	s	57.4844	58.9181
Pool Vaporization Rate	kg/s	0.170491	0.107639
Total Vapor Flowrate	kg/s	0.68342	0.592285
	Release Segment 1 Cloud Segment 4		
Cloud Segment Duration	s	48.8006	49.595
Pool Vaporization Rate	kg/s	0.203048	0.128345
Total Vapor Flowrate	kg/s	0.715977	0.612991
	Release Segment 1 Cloud Segment 5		
Cloud Segment Duration	s	42.63	43.5644
Pool Vaporization Rate	kg/s	0.23075	0.146005
Total Vapor Flowrate	kg/s	0.743679	0.630651
	Release Segment 1 Cloud Segment 6		
Cloud Segment Duration	s	74.8219	75.8625
Pool Vaporization Rate	kg/s	0.265772	0.168408
Total Vapor Flowrate	kg/s	0.778701	0.653054
	Release Segment 1 Cloud Segment 7		
Cloud Segment Duration	s	91.4975	91.4975
Pool Vaporization Rate	kg/s	0.314246	0.199321
Total Vapor Flowrate	kg/s	0.827175	0.683967
Maximum Pool Radius	m	4.49043	4.54838

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Distance to Concentration Results

Path: \Terminal Adonai - Efeitos físicos\Simulações\H006

The height for user defined concentrations is the user defined height 0 m

All toxic results are reported at the toxic effect height 1 m

All flammable results are reported at the flammable effect height 0 m

Concentration(ppm)	Averaging Time		Distance (m)	
			Dia	Noite
UFL (128000)	18.75	s	No Hazard	No Hazard
LFL (26000)	18.75	s	6.04858	10.5762
LFL Frac (26000)	18.75	s	6.04858	10.5762

Concentration(ppm)	Averaging Time		Heights (m) for above distances	
			Dia	Noite
UFL (128000)	18.75	s	0	0
LFL (26000)	18.75	s	0	0
LFL Frac (26000)	18.75	s	0	0

Jet Fire Hazard

Path: \Terminal Adonai - Efeitos físicos\Simulações\H006

Jet fire method used: Cone model - DNV recommended

	Dia	Noite
Jet Fire Status	Truncated	Truncated
Flame Direction	Horizontal	Horizontal

Radiation Effects: Jet Fire Ellipse

Path: \Terminal Adonai - Efeitos físicos\Simulações\H006

This table gives the distances to the specified radiation levels for each jet fire listed in the above hazard table

			Distance (m)	
Radiation Level			Dia	Noite
9.83	kW/m2		29.3416	30.8108
19.46	kW/m2		25.9989	27.3658
35	kW/m2		23.4214	24.3957

Radiation Effects: Jet Fire Distance

Path: \Terminal Adonai - Efeitos físicos\Simulações\H006

	Dia	Radiation Level (kW/m2)
		Noite

Early Pool Fire Hazard

Path: \Terminal Adonai - Efeitos físicos\Simulações\H006

	Dia	Noite
Early Pool Fire Status	Hazard	Hazard

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos fisicos

Phast 6.7

Radiation Effects: Early Pool Fire Ellipse

Path: \Terminal Adonai - Efeitos fisicos\Simulações\H006

			Dia	Noite
Radiation Level	9.83	kW/m2	25.6248	25.0215
Radiation Level	19.46	kW/m2	20.1554	19.1746
Radiation Level	35	kW/m2	13.4716	13.2844

Radiation Effects: Early Pool Fire Distance

Path: \Terminal Adonai - Efeitos fisicos\Simulações\H006

	Dia	Noite
Radiation Level (kW/m2)		

Late Pool Fire Hazard

Path: \Terminal Adonai - Efeitos fisicos\Simulações\H006

	Dia	Noite
Late Pool Fire Status	Hazard	Hazard

Radiation Effects: Late Pool Fire Ellipse

Path: \Terminal Adonai - Efeitos fisicos\Simulações\H006

			Dia	Noite
Radiation Level	9.83	kW/m2	26.4103	25.7586
Radiation Level	19.46	kW/m2	20.7745	19.7295
Radiation Level	35	kW/m2	13.8911	13.6074

Radiation Effects: Late Pool Fire Distance

Path: \Terminal Adonai - Efeitos fisicos\Simulações\H006

	Dia	Noite
Radiation Level (kW/m2)		

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Flash Fire Envelope

Path: \Terminal Adonai - Efeitos físicos\Simulações\H006

All flammable results are reported at the flammable effect height 0 m

				Distance (m)	
				Dia	Noite
Furthest Extent	26000	ppm	6.04858	10.5762	
Furthest Extent	26000	ppm	6.04858	10.5762	
				Heights (m) for above distances	
				Dia	Noite
Furthest Extent	26000	ppm	0	0	
Furthest Extent	26000	ppm	0	0	

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Explosion Effects: Late Ignition

Path: \Terminal Adonai - Efeitos físicos\Simulações\H006

Explosion Model Used : TNT

Explosion Location Criterion: Cloud Center

All distances are measured from the Source

All flammable results are reported at the flammable effect height 0 m

			Maximum Distance (m) at Overpressure Level
			Noite
Overpressure	0.05	bar	14.426
Overpressure	0.1	bar	10.8571
Overpressure	0.3	bar	7.93201
			Supplementary Data at 0.05 bar
			Noite
Supplied Flammable Mass		kg	0.27485
Used Flammable Mass		kg	0.27485
Overpressure Radius		m	9.41133
Distance to:			
- Ignition Source		m	10
- Cloud Front/Centre		m	10
- Explosion Centre		m	5.01469
			Supplementary Data at 0.1 bar
			Noite
Supplied Flammable Mass		kg	0.27485
Used Flammable Mass		kg	0.27485
Overpressure Radius		m	5.84242
Distance to:			
- Ignition Source		m	10
- Cloud Front/Centre		m	10
- Explosion Centre		m	5.01469
			Supplementary Data at 0.3 bar
			Noite
Supplied Flammable Mass		kg	0.27485
Used Flammable Mass		kg	0.27485
Overpressure Radius		m	2.91733
Distance to:			
- Ignition Source		m	10
- Cloud Front/Centre		m	10
- Explosion Centre		m	5.01469

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Weather Conditions

Path: \Terminal Adonai - Efeitos físicos\Simulações\H006

		Dia	Noite
Wind Speed	m/s	3	2
Pasquill Stability		C	E
Surface Roughness Length	mm	1000	1000
Surface Roughness Parameter		0.173718	0.173718
Atmospheric Temperature	degC	25	20
Surface Temperature	degC	30	20
Relative Humidity	fraction	0.8	0.8

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

H007

Base Case

CASE Name: Data

Path: \Terminal Adonai - Efeitos físicos\Simulações\H007

User-Defined Data

Material

Material Identifier ACETONE

Scenario

Building Wake Effect None

Vessel/Tank

Release Type Continuous

Location

Elevation 1 m
Use ERPG averaging time ERPG not selected
Use IDLH averaging time IDLH not selected
Use STEL averaging time STEL not selected
Supply a user defined averaging time Not supplied

Bund

Status of Bund No bund present
[Type of Bund Surface User-Defined (Land)]
[Bund Height 0 m]
[Bund Failure Modeling Bund cannot fail]

Indoor/Outdoor

Location of release Open air release
Outdoor Release Direction Horizontal

Flammable

Explosion Method TNT
Jet Fire Method Cone Model

Dispersion

Number of Release Segments 1
Fluid Phase(1) Liquid
Discharge Velocity(1) 21.66 m/s
Droplet Diameter(1) 513 um
Duration of Discharge(1) 600 s
Final Temperature(1) 25.19 degC
Release Rate(1) 98.75 kg/s
Pre-Dilution Air Rates(1) 0 kg/s
Late Ignition Location No ignition location
Mass Inventory of material to Disperse 2.517E6 kg

Fireball Parameters

[Mass Modification Factor 3]
[Calculation method for fireball DNV Recommended]
[TNO model flame temperature 1727 degC]

Toxic Parameters

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

[Indoor Calculations	Unselected]
[Wind Dependent Exchange Rate	Case Specified]
[Building Exchange Rate	4 /hr]
[Tail Time	1800 s]
[Set averaging time equal to exposure time	Use a fixed averaging time]
[Cut-off fraction of toxic load for exposure time calculation	0.05 fraction]
[Cut-off concentration for exposure time calculations	0 fraction]

Geometry

Shape	Point
Dimension	2D
System	Absolute
East(1)	0 m
North(1)	0 m

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Consequence Results

Pool Vaporization Results

Path: \Terminal Adonai - Efeitos físicos\Simulações\H007

		Dia	Noite
	Release Segment 1		
Release Duration	s	600	600
Liquid Rainout	fraction	0.912588	0.920409
	Release Segment 1 Cloud Segment 1		
Cloud Segment Duration	s	187.69	182.25
Pool Vaporization Rate	kg/s	1.39185	1.00788
Total Vapor Flowrate	kg/s	10.0238	8.86749
	Release Segment 1 Cloud Segment 2		
Cloud Segment Duration	s	78	77.7656
Pool Vaporization Rate	kg/s	3.36415	2.35993
Total Vapor Flowrate	kg/s	11.9961	10.2195
	Release Segment 1 Cloud Segment 3		
Cloud Segment Duration	s	60.1125	60.3944
Pool Vaporization Rate	kg/s	4.36041	3.03404
Total Vapor Flowrate	kg/s	12.9923	10.8936
	Release Segment 1 Cloud Segment 4		
Cloud Segment Duration	s	51.5281	52.08
Pool Vaporization Rate	kg/s	5.14575	3.56411
Total Vapor Flowrate	kg/s	13.7777	11.4237
	Release Segment 1 Cloud Segment 5		
Cloud Segment Duration	s	85.995	87.6125
Pool Vaporization Rate	kg/s	6.08679	4.20035
Total Vapor Flowrate	kg/s	14.7187	12.06
	Release Segment 1 Cloud Segment 6		
Cloud Segment Duration	s	107.884	109.913
Pool Vaporization Rate	kg/s	7.36857	5.0651
Total Vapor Flowrate	kg/s	16.0005	12.9247
	Release Segment 1 Cloud Segment 7		
Cloud Segment Duration	s	28.79	29.9844
Pool Vaporization Rate	kg/s	8.24473	5.65715
Total Vapor Flowrate	kg/s	16.8766	13.5168
Maximum Pool Radius	m	26.1013	26.3383

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Distance to Concentration Results

Path: \Terminal Adonai - Efeitos físicos\Simulações\H007

The height for user defined concentrations is the user defined height 0 m
All toxic results are reported at the toxic effect height 1 m
All flammable results are reported at the flammable effect height 0 m

Concentration(ppm)	Averaging Time		Distance (m)	
			Dia	Noite
UFL (128000)	18.75	s	10.6104	10.3347
LFL (26000)	18.75	s	51.6513	59.4713
LFL Frac (26000)	18.75	s	51.6513	59.4713

Concentration(ppm)	Averaging Time		Heights (m) for above distances	
			Dia	Noite
UFL (128000)	18.75	s	0	0
LFL (26000)	18.75	s	0	0
LFL Frac (26000)	18.75	s	0	0

Jet Fire Hazard

Path: \Terminal Adonai - Efeitos físicos\Simulações\H007

Jet fire method used: Cone model - DNV recommended

	Dia	Noite
Jet Fire Status	Truncated	Truncated
Flame Direction	Horizontal	Horizontal

Radiation Effects: Jet Fire Ellipse

Path: \Terminal Adonai - Efeitos físicos\Simulações\H007

This table gives the distances to the specified radiation levels
for each jet fire listed in the above hazard table

Radiation Level			Distance (m)	
			Dia	Noite
9.83	kW/m2		101.373	104.612
19.46	kW/m2		89.5148	92.763
35	kW/m2		80.9866	83.9118

Radiation Effects: Jet Fire Distance

Path: \Terminal Adonai - Efeitos físicos\Simulações\H007

	Dia	Radiation Level (kW/m2)
		Noite

Early Pool Fire Hazard

Path: \Terminal Adonai - Efeitos físicos\Simulações\H007

	Dia	Noite
Early Pool Fire Status	Hazard	Hazard

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Radiation Effects: Early Pool Fire Ellipse

Path: \Terminal Adonai - Efeitos físicos\Simulações\H007

			Dia	Noite
Radiation Level	9.83	kW/m2	103.915	102.647
Radiation Level	19.46	kW/m2	81.4517	78.6054
Radiation Level	35	kW/m2	62.1341	58.8322

Radiation Effects: Early Pool Fire Distance

Path: \Terminal Adonai - Efeitos físicos\Simulações\H007

Dia
Noite
Radiation Level (kW/m2)

Late Pool Fire Hazard

Path: \Terminal Adonai - Efeitos físicos\Simulações\H007

	Dia	Noite
Late Pool Fire Status	Hazard	Hazard

Radiation Effects: Late Pool Fire Ellipse

Path: \Terminal Adonai - Efeitos físicos\Simulações\H007

			Dia	Noite
Radiation Level	9.83	kW/m2	108.12	106.425
Radiation Level	19.46	kW/m2	84.69	81.4622
Radiation Level	35	kW/m2	64.6928	61.026

Radiation Effects: Late Pool Fire Distance

Path: \Terminal Adonai - Efeitos físicos\Simulações\H007

Dia
Noite
Radiation Level (kW/m2)

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Flash Fire Envelope

Path: \Terminal Adonai - Efeitos físicos\Simulações\H007

All flammable results are reported at the flammable effect height 0 m

				Distance (m)	
				Dia	Noite
Furthest Extent	26000	ppm	51.6513	51.6513	59.4713
Furthest Extent	26000	ppm	51.6513	51.6513	59.4713
				Heights (m) for above distances	
				Dia	Noite
Furthest Extent	26000	ppm	0	0	0
Furthest Extent	26000	ppm	0	0	0

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Explosion Effects: Late Ignition

Path: \Terminal Adonai - Efeitos físicos\Simulações\H007

Explosion Model Used : TNT

Explosion Location Criterion: Cloud Center

All distances are measured from the Source

All flammable results are reported at the flammable effect height 0 m

			Maximum Distance (m) at Overpressure Level	
			Dia	Noite
Overpressure	0.05	bar	84.1058	93.3244
Overpressure	0.1	bar	61.692	67.4149
Overpressure	0.3	bar	43.3216	46.1792

			Supplementary Data at 0.05 bar	
			Dia	Noite
Supplied Flammable Mass		kg	68.0819	105.165
Used Flammable Mass		kg	68.0819	105.165
Overpressure Radius		m	59.1058	68.3244
Distance to:				
- Ignition Source		m	50	50
- Cloud Front/Centre		m	50	50
- Explosion Centre		m	25	25

			Supplementary Data at 0.1 bar	
			Dia	Noite
Supplied Flammable Mass		kg	68.0819	105.165
Used Flammable Mass		kg	68.0819	105.165
Overpressure Radius		m	36.692	42.4149
Distance to:				
- Ignition Source		m	50	50
- Cloud Front/Centre		m	50	50
- Explosion Centre		m	25	25

			Supplementary Data at 0.3 bar	
			Dia	Noite
Supplied Flammable Mass		kg	68.0819	105.165
Used Flammable Mass		kg	68.0819	105.165
Overpressure Radius		m	18.3216	21.1792
Distance to:				
- Ignition Source		m	50	50
- Cloud Front/Centre		m	50	50
- Explosion Centre		m	25	25

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Weather Conditions

Path: \Terminal Adonai - Efeitos físicos\Simulações\H007

		Dia	Noite
Wind Speed	m/s	3	2
Pasquill Stability		C	E
Surface Roughness Length	mm	1000	1000
Surface Roughness Parameter		0.173718	0.173718
Atmospheric Temperature	degC	25	20
Surface Temperature	degC	30	20
Relative Humidity	fraction	0.8	0.8

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

H008

Base Case

CASE Name: Data

Path: \Terminal Adonai - Efeitos físicos\Simulações\H008

User-Defined Data

Material

Material Identifier ACETONE

Scenario

Building Wake Effect None

Vessel/Tank

Release Type Continuous

Location

Elevation 1 m
Use ERPG averaging time ERPG not selected
Use IDLH averaging time IDLH not selected
Use STEL averaging time STEL not selected
Supply a user defined averaging time Not supplied

Bund

Status of Bund No bund present
[Type of Bund Surface User-Defined (Land)]
[Bund Height 0 m]
[Bund Failure Modeling Bund cannot fail]

Indoor/Outdoor

Location of release Open air release
Outdoor Release Direction Horizontal

Flammable

Explosion Method TNT
Jet Fire Method Cone Model

Dispersion

Number of Release Segments 1
Fluid Phase(1) Liquid
Discharge Velocity(1) 36.08 m/s
Droplet Diameter(1) 185.1 um
Duration of Discharge(1) 600 s
Final Temperature(1) 24.88 degC
Release Rate(1) 0.99 kg/s
Pre-Dilution Air Rates(1) 0 kg/s
Late Ignition Location No ignition location
Mass Inventory of material to Disperse 2.517E6 kg

Fireball Parameters

[Mass Modification Factor 3]
[Calculation method for fireball DNV Recommended]
[TNO model flame temperature 1727 degC]

Toxic Parameters

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

[Indoor Calculations	Unselected]
[Wind Dependent Exchange Rate	Case Specified]
[Building Exchange Rate	4 /hr]
[Tail Time	1800 s]
[Set averaging time equal to exposure time	Use a fixed averaging time]
[Cut-off fraction of toxic load for exposure time calculation	0.05 fraction]
[Cut-off concentration for exposure time calculations	0 fraction]

Geometry

Shape	Point
Dimension	2D
System	Absolute
East(1)	0 m
North(1)	0 m

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Consequence Results

Pool Vaporization Results

Path: \Terminal Adonai - Efeitos físicos\Simulações\H008

			Dia	Noite
		Release Segment 1		
Release Duration	s		600	600
Liquid Rainout	fraction		0.406227	0.514578
Maximum Pool Radius	m		1.71619	1.96063

Distance to Concentration Results

Path: \Terminal Adonai - Efeitos físicos\Simulações\H008

The height for user defined concentrations is the user defined height 0 m
All toxic results are reported at the toxic effect height 1 m
All flammable results are reported at the flammable effect height 0 m

Concentration(ppm)		Averaging Time		Distance (m)	
				Dia	Noite
UFL (128000)	18.75	s		No Hazard	No Hazard
LFL (26000)	18.75	s		No Hazard	7.77854
LFL Frac (26000)	18.75	s		No Hazard	7.77854
Concentration(ppm)		Averaging Time		Heights (m) for above distances	
				Dia	Noite
UFL (128000)	18.75	s		0	0
LFL (26000)	18.75	s		0	0
LFL Frac (26000)	18.75	s		0	0

Jet Fire Hazard

Path: \Terminal Adonai - Efeitos físicos\Simulações\H008

Jet fire method used: Cone model - DNV recommended

		Dia	Noite
Jet Fire Status		Truncated	Truncated
Flame Direction		Horizontal	Horizontal

Radiation Effects: Jet Fire Ellipse

Path: \Terminal Adonai - Efeitos físicos\Simulações\H008

This table gives the distances to the specified radiation levels
for each jet fire listed in the above hazard table

			Distance (m)	
			Dia	Noite
Radiation Level	9.83	kW/m2	23.3526	25.0946
Radiation Level	19.46	kW/m2	20.6841	22.3674
Radiation Level	35	kW/m2	18.6659	20.1975

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Radiation Effects: Jet Fire Distance

Path: \Terminal Adonai - Efeitos físicos\Simulações\H008

Dia Radiation Level (kW/m2)
Noite

Early Pool Fire Hazard

Path: \Terminal Adonai - Efeitos físicos\Simulações\H008

Early Pool Fire Status Dia Noite
Hazard Hazard

Radiation Effects: Early Pool Fire Ellipse

Path: \Terminal Adonai - Efeitos físicos\Simulações\H008

			Dia	Noite
Radiation Level	9.83	kW/m2	16.8209	16.6602
Radiation Level	19.46	kW/m2	13.2871	13.0742
Radiation Level	35	kW/m2	11.1397	10.8003

Radiation Effects: Early Pool Fire Distance

Path: \Terminal Adonai - Efeitos físicos\Simulações\H008

Dia Radiation Level (kW/m2)
Noite

Late Pool Fire Hazard

Path: \Terminal Adonai - Efeitos físicos\Simulações\H008

Late Pool Fire Status Dia Noite
Hazard Hazard

Radiation Effects: Late Pool Fire Ellipse

Path: \Terminal Adonai - Efeitos físicos\Simulações\H008

			Dia	Noite
Radiation Level	9.83	kW/m2	17.0698	16.976
Radiation Level	19.46	kW/m2	13.5043	13.3138
Radiation Level	35	kW/m2	11.1961	10.8748

Radiation Effects: Late Pool Fire Distance

Path: \Terminal Adonai - Efeitos físicos\Simulações\H008

Dia Radiation Level (kW/m2)
Noite

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Flash Fire Envelope

Path: \Terminal Adonai - Efeitos físicos\Simulações\H008

All flammable results are reported at the flammable effect height 0 m

				Distance (m)
				Noite
Furthest Extent	26000	ppm		7.77854
Furthest Extent	26000	ppm		7.77854
				Heights (m) for above distances
				Noite
Furthest Extent	26000	ppm		0
Furthest Extent	26000	ppm		0

Weather Conditions

Path: \Terminal Adonai - Efeitos físicos\Simulações\H008

		Dia	Noite
Wind Speed	m/s	3	2
Pasquill Stability		C	E
Surface Roughness Length	mm	1000	1000
Surface Roughness Parameter		0.173718	0.173718
Atmospheric Temperature	degC	25	20
Surface Temperature	degC	30	20
Relative Humidity	fraction	0.8	0.8

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

H009

Base Case

CASE Name: Data

Path: \Terminal Adonai - Efeitos físicos\Simulações\H009

User-Defined Data

Material

Material Identifier ACETONE

Scenario

Building Wake Effect None

Vessel/Tank

Release Type Continuous

Location

Elevation 0 m
Use ERPG averaging time ERPG not selected
Use IDLH averaging time IDLH not selected
Use STEL averaging time STEL not selected
Supply a user defined averaging time Not supplied

Bund

Status of Bund Bund present
Bund Area 1.152E4 m2
[Type of Bund Surface User-Defined (Land)]
Bund Height 0.3 m
[Bund Failure Modeling Bund cannot fail]

Indoor/Outdoor

Location of release Open air release
Outdoor Release Direction Horizontal

Flammable

Explosion Method TNT
Jet Fire Method Cone Model

Dispersion

Number of Release Segments 1
Fluid Phase(1) Liquid
Discharge Velocity(1) 21.66 m/s
Droplet Diameter(1) 513 um
Duration of Discharge(1) 600 s
Final Temperature(1) 25.19 degC
Release Rate(1) 98.75 kg/s
Pre-Dilution Air Rates(1) 0 kg/s
Late Ignition Location No ignition location
Mass Inventory of material to Disperse 2.517E6 kg

Fireball Parameters

[Mass Modification Factor 3]
[Calculation method for fireball DNV Recommended]
[TNO model flame temperature 1727 degC]

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Toxic Parameters

[Indoor Calculations	Unselected]
[Wind Dependent Exchange Rate	Case Specified]
[Building Exchange Rate	4 /hr]
[Tail Time	1800 s]
[Set averaging time equal to exposure time	Use a fixed averaging time]
[Cut-off fraction of toxic load for exposure time calculation	0.05 fraction]
[Cut-off concentration for exposure time calculations	0 fraction]

Geometry

Shape	Point
Dimension	2D
System	Absolute
East(1)	0 m
North(1)	0 m

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Consequence Results

Pool Vaporization Results

Path: \Terminal Adonai - Efeitos físicos\Simulações\H009

		Dia	Noite
	Release Segment 1		
Release Duration	s	600	600
Liquid Rainout	fraction	0.999999	0.999999
	Release Segment 1 Cloud Segment 1		
Cloud Segment Duration	s	166.41	162.563
Pool Vaporization Rate	kg/s	2.54168	1.88751
Total Vapor Flowrate	kg/s	2.54177	1.8876
	Release Segment 1 Cloud Segment 2		
Cloud Segment Duration	s	76.95	76.9131
Pool Vaporization Rate	kg/s	5.50406	4.00637
Total Vapor Flowrate	kg/s	5.50415	4.00646
	Release Segment 1 Cloud Segment 3		
Cloud Segment Duration	s	61.1425	61.5469
Pool Vaporization Rate	kg/s	6.89622	4.99141
Total Vapor Flowrate	kg/s	6.89631	4.9915
	Release Segment 1 Cloud Segment 4		
Cloud Segment Duration	s	53.6531	53.3581
Pool Vaporization Rate	kg/s	7.96299	5.73661
Total Vapor Flowrate	kg/s	7.96308	5.73669
	Release Segment 1 Cloud Segment 5		
Cloud Segment Duration	s	92.345	94
Pool Vaporization Rate	kg/s	9.22546	6.618
Total Vapor Flowrate	kg/s	9.22554	6.61809
	Release Segment 1 Cloud Segment 6		
Cloud Segment Duration	s	118.322	119.25
Pool Vaporization Rate	kg/s	10.9142	7.79054
Total Vapor Flowrate	kg/s	10.9143	7.79063
	Release Segment 1 Cloud Segment 7		
Cloud Segment Duration	s	31.1775	32.3694
Pool Vaporization Rate	kg/s	12.0429	8.57069
Total Vapor Flowrate	kg/s	12.043	8.57078
Maximum Pool Radius	m	27.1109	27.3284

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Distance to Concentration Results

Path: \Terminal Adonai - Efeitos físicos\Simulações\H009

The height for user defined concentrations is the user defined height 0 m

All toxic results are reported at the toxic effect height 1 m

All flammable results are reported at the flammable effect height 0 m

Concentration(ppm)	Averaging Time		Distance (m)	
			Dia	Noite
UFL (128000)	18.75	s	0	0
LFL (26000)	18.75	s	0	0
LFL Frac (26000)	18.75	s	0	0

Concentration(ppm)	Averaging Time		Heights (m) for above distances	
			Dia	Noite
UFL (128000)	18.75	s	0	0
LFL (26000)	18.75	s	0	0
LFL Frac (26000)	18.75	s	0	0

Jet Fire Hazard

Path: \Terminal Adonai - Efeitos físicos\Simulações\H009

Jet fire method used: Cone model - DNV recommended

	Dia	Noite
Jet Fire Status	Truncated	Truncated
Flame Direction	Horizontal	Horizontal

Radiation Effects: Jet Fire Ellipse

Path: \Terminal Adonai - Efeitos físicos\Simulações\H009

This table gives the distances to the specified radiation levels for each jet fire listed in the above hazard table

Radiation Level			Distance (m)	
			Dia	Noite
9.83	kW/m2		1.52459	1.58553
19.46	kW/m2		Not Reached	Not Reached
35	kW/m2		Not Reached	Not Reached

Radiation Effects: Jet Fire Distance

Path: \Terminal Adonai - Efeitos físicos\Simulações\H009

	Dia	Radiation Level (kW/m2)
		Noite

Early Pool Fire Hazard

Path: \Terminal Adonai - Efeitos físicos\Simulações\H009

	Dia	Noite
Early Pool Fire Status	Hazard	Hazard

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Radiation Effects: Early Pool Fire Ellipse

Path: \Terminal Adonai - Efeitos físicos\Simulações\H009

			Dia	Noite
Radiation Level	9.83	kW/m2	97.193	95.6477
Radiation Level	19.46	kW/m2	73.8301	70.7478
Radiation Level	35	kW/m2	53.8835	50.3567

Radiation Effects: Early Pool Fire Distance

Path: \Terminal Adonai - Efeitos físicos\Simulações\H009

Dia
Radiation Level (kW/m2)
Noite

Late Pool Fire Hazard

Path: \Terminal Adonai - Efeitos físicos\Simulações\H009

	Dia	Noite
Late Pool Fire Status	Hazard	Hazard

Radiation Effects: Late Pool Fire Ellipse

Path: \Terminal Adonai - Efeitos físicos\Simulações\H009

			Dia	Noite
Radiation Level	9.83	kW/m2	100.869	99.1588
Radiation Level	19.46	kW/m2	76.6617	73.404
Radiation Level	35	kW/m2	56.1189	52.3928

Radiation Effects: Late Pool Fire Distance

Path: \Terminal Adonai - Efeitos físicos\Simulações\H009

Dia
Radiation Level (kW/m2)
Noite

Weather Conditions

Path: \Terminal Adonai - Efeitos físicos\Simulações\H009

		Dia	Noite
Wind Speed	m/s	3	2
Pasquill Stability		C	E
Surface Roughness Length	mm	1000	1000
Surface Roughness Parameter		0.173718	0.173718
Atmospheric Temperature	degC	25	20
Surface Temperature	degC	30	20
Relative Humidity	fraction	0.8	0.8

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

H010

Base Case

CASE Name: Data

Path: \Terminal Adonai - Efeitos físicos\Simulações\H010

User-Defined Data

Material

Material Identifier ACETONE

Scenario

Building Wake Effect None

Vessel/Tank

Release Type Continuous

Location

Elevation 0 m
Use ERPG averaging time ERPG not selected
Use IDLH averaging time IDLH not selected
Use STEL averaging time STEL not selected
Supply a user defined averaging time Not supplied

Bund

Status of Bund Bund present
Bund Area 1.152E4 m2
[Type of Bund Surface User-Defined (Land)]
Bund Height 0.3 m
[Bund Failure Modeling Bund cannot fail]

Indoor/Outdoor

Location of release Open air release
Outdoor Release Direction Horizontal

Flammable

Explosion Method TNT
Jet Fire Method Cone Model

Dispersion

Number of Release Segments 1
Fluid Phase(1) Liquid
Discharge Velocity(1) 36.08 m/s
Droplet Diameter(1) 185.1 um
Duration of Discharge(1) 600 s
Final Temperature(1) 24.88 degC
Release Rate(1) 0.99 kg/s
Pre-Dilution Air Rates(1) 0 kg/s
Late Ignition Location No ignition location
Mass Inventory of material to Disperse 2.517E6 kg

Fireball Parameters

[Mass Modification Factor 3]
[Calculation method for fireball DNV Recommended]
[TNO model flame temperature 1727 degC]

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Toxic Parameters

[Indoor Calculations	Unselected]
[Wind Dependent Exchange Rate	Case Specified]
[Building Exchange Rate	4 /hr]
[Tail Time	1800 s]
[Set averaging time equal to exposure time	Use a fixed averaging time]
[Cut-off fraction of toxic load for exposure time calculation	0.05 fraction]
[Cut-off concentration for exposure time calculations	0 fraction]

Geometry

Shape	Point
Dimension	2D
System	Absolute
East(1)	0 m
North(1)	0 m

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Consequence Results

Pool Vaporization Results

Path: \Terminal Adonai - Efeitos físicos\Simulações\H010

		Dia	Noite
	Release Segment 1		
Release Duration	s	600	600
Liquid Rainout	fraction	0.999999	0.999999
	Release Segment 1 Cloud Segment 1		
Cloud Segment Duration	s	172.923	169
Pool Vaporization Rate	kg/s	0.0357579	0.02367
Total Vapor Flowrate	kg/s	0.0357588	0.0236708
	Release Segment 1 Cloud Segment 2		
Cloud Segment Duration	s	78.3	78.2756
Pool Vaporization Rate	kg/s	0.0798029	0.0510018
Total Vapor Flowrate	kg/s	0.0798037	0.0510026
	Release Segment 1 Cloud Segment 3		
Cloud Segment Duration	s	61.1831	62.4844
Pool Vaporization Rate	kg/s	0.101364	0.0645339
Total Vapor Flowrate	kg/s	0.101365	0.0645347
	Release Segment 1 Cloud Segment 4		
Cloud Segment Duration	s	52.4044	53.1425
Pool Vaporization Rate	kg/s	0.118017	0.0751152
Total Vapor Flowrate	kg/s	0.118018	0.075116
	Release Segment 1 Cloud Segment 5		
Cloud Segment Duration	s	91.0125	91.8531
Pool Vaporization Rate	kg/s	0.138065	0.08784
Total Vapor Flowrate	kg/s	0.138066	0.0878409
	Release Segment 1 Cloud Segment 6		
Cloud Segment Duration	s	114.193	115.26
Pool Vaporization Rate	kg/s	0.165304	0.105239
Total Vapor Flowrate	kg/s	0.165305	0.10524
	Release Segment 1 Cloud Segment 7		
Cloud Segment Duration	s	29.9844	29.9844
Pool Vaporization Rate	kg/s	0.183651	0.11702
Total Vapor Flowrate	kg/s	0.183652	0.117021
Maximum Pool Radius	m	2.67378	2.71693

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Distance to Concentration Results

Path: \Terminal Adonai - Efeitos físicos\Simulações\H010

The height for user defined concentrations is the user defined height 0 m

All toxic results are reported at the toxic effect height 1 m

All flammable results are reported at the flammable effect height 0 m

Concentration(ppm)	Averaging Time		Distance (m)	
			Dia	Noite
UFL (128000)	18.75	s	0	0
LFL (26000)	18.75	s	0	0
LFL Frac (26000)	18.75	s	0	0

Concentration(ppm)	Averaging Time		Heights (m) for above distances	
			Dia	Noite
UFL (128000)	18.75	s	0	0
LFL (26000)	18.75	s	0	0
LFL Frac (26000)	18.75	s	0	0

Jet Fire Hazard

Path: \Terminal Adonai - Efeitos físicos\Simulações\H010

Jet fire method used: Cone model - DNV recommended

	Dia	Noite
Jet Fire Status	Truncated	Truncated
Flame Direction	Horizontal	Horizontal

Radiation Effects: Jet Fire Ellipse

Path: \Terminal Adonai - Efeitos físicos\Simulações\H010

This table gives the distances to the specified radiation levels for each jet fire listed in the above hazard table

Radiation Level			Distance (m)	
			Dia	Noite
9.83	kW/m2	1.06201	Not Reached	
19.46	kW/m2	Not Reached	Not Reached	
35	kW/m2	Not Reached	Not Reached	

Radiation Effects: Jet Fire Distance

Path: \Terminal Adonai - Efeitos físicos\Simulações\H010

	Dia	Radiation Level (kW/m2)
		Noite

Early Pool Fire Hazard

Path: \Terminal Adonai - Efeitos físicos\Simulações\H010

	Dia	Noite
Early Pool Fire Status	Hazard	Hazard

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Radiation Effects: Early Pool Fire Ellipse

Path: \Terminal Adonai - Efeitos físicos\Simulações\H010

			Dia	Noite
Radiation Level	9.83	kW/m2	12.4584	11.8478
Radiation Level	19.46	kW/m2	8.12593	7.52728
Radiation Level	35	kW/m2	3.95047	3.842

Radiation Effects: Early Pool Fire Distance

Path: \Terminal Adonai - Efeitos físicos\Simulações\H010

Dia
Noite

Radiation Level (kW/m2)

Late Pool Fire Hazard

Path: \Terminal Adonai - Efeitos físicos\Simulações\H010

	Dia	Noite
Late Pool Fire Status	Hazard	Hazard

Radiation Effects: Late Pool Fire Ellipse

Path: \Terminal Adonai - Efeitos físicos\Simulações\H010

			Dia	Noite
Radiation Level	9.83	kW/m2	12.755	12.207
Radiation Level	19.46	kW/m2	8.3427	7.82155
Radiation Level	35	kW/m2	4.07616	4.00093

Radiation Effects: Late Pool Fire Distance

Path: \Terminal Adonai - Efeitos físicos\Simulações\H010

Dia

Radiation Level (kW/m2)

Noite

Weather Conditions

Path: \Terminal Adonai - Efeitos físicos\Simulações\H010

		Dia	Noite
Wind Speed	m/s	3	2
Pasquill Stability		C	E
Surface Roughness Length	mm	1000	1000
Surface Roughness Parameter		0.173718	0.173718
Atmospheric Temperature	degC	25	20
Surface Temperature	degC	30	20
Relative Humidity	fraction	0.8	0.8

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

H011

Base Case

CASE Name: Data

Path: \Terminal Adonai - Efeitos físicos\Simulações\H011

User-Defined Data

Toxic Parameters

[Cut-off fraction of toxic load for exposure time calculation 0.05 fraction]
[Cut-off concentration for exposure time calculations 0 fraction]

Geometry

Shape Point
Dimension 2D
System Absolute
East(1) 0 m
North(1) 0 m

Material

Material Identifier ACETONE

Scenario

Building Wake Effect None

Vessel/Tank

Release Type Continuous

Location

Elevation 0 m
Use ERPG averaging time ERPG not selected
Use IDLH averaging time IDLH not selected
Use STEL averaging time STEL not selected
Supply a user defined averaging time Not supplied

Bund

Status of Bund No bund present
[Type of Bund Surface User-Defined (Land)]
[Bund Height 0 m]
[Bund Failure Modeling Bund cannot fail]

Indoor/Outdoor

Location of release Open air release
Outdoor Release Direction Horizontal

Flammable

Explosion Method TNT
Jet Fire Method Cone Model

Dispersion

Number of Release Segments 1
Fluid Phase(1) Liquid
Discharge Velocity(1) 18.76 m/s
Droplet Diameter(1) 684.2 um
Duration of Discharge(1) 600 s

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Final Temperature(1)	25.14 degC
Release Rate(1)	39.5 kg/s
Pre-Dilution Air Rates(1)	0 kg/s
Late Ignition Location	No ignition location
Mass Inventory of material to Disperse	4.719E4 kg

Fireball Parameters

[Mass Modification Factor	3]
[Calculation method for fireball	DNV Recommended]
[TNO model flame temperature	1727 degC]

Toxic Parameters

[Indoor Calculations	Unselected]
[Wind Dependent Exchange Rate	Case Specified]
[Building Exchange Rate	4 /hr]
[Tail Time	1800 s]
[Set averaging time equal to exposure time	Use a fixed averaging time]

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Consequence Results

Pool Vaporization Results

Path: \Terminal Adonai - Efeitos físicos\Simulações\H011

		Dia	Noite
	Release Segment 1		
Release Duration	s	600	600
Liquid Rainout	fraction	0.999999	0.999999
	Release Segment 1 Cloud Segment 1		
Cloud Segment Duration	s	166.41	162.563
Pool Vaporization Rate	kg/s	1.06633	0.785936
Total Vapor Flowrate	kg/s	1.06636	0.785971
	Release Segment 1 Cloud Segment 2		
Cloud Segment Duration	s	76.95	76.9131
Pool Vaporization Rate	kg/s	2.30947	1.66558
Total Vapor Flowrate	kg/s	2.3095	1.66562
	Release Segment 1 Cloud Segment 3		
Cloud Segment Duration	s	62.0156	61.5469
Pool Vaporization Rate	kg/s	2.89853	2.07566
Total Vapor Flowrate	kg/s	2.89857	2.0757
	Release Segment 1 Cloud Segment 4		
Cloud Segment Duration	s	53.7269	53.3581
Pool Vaporization Rate	kg/s	3.35147	2.38681
Total Vapor Flowrate	kg/s	3.3515	2.38685
	Release Segment 1 Cloud Segment 5		
Cloud Segment Duration	s	92.46	94
Pool Vaporization Rate	kg/s	3.88487	2.75604
Total Vapor Flowrate	kg/s	3.8849	2.75608
	Release Segment 1 Cloud Segment 6		
Cloud Segment Duration	s	117.26	119.25
Pool Vaporization Rate	kg/s	4.59626	3.24926
Total Vapor Flowrate	kg/s	4.5963	3.24929
	Release Segment 1 Cloud Segment 7		
Cloud Segment Duration	s	31.1775	32.3694
Pool Vaporization Rate	kg/s	5.07154	3.57859
Total Vapor Flowrate	kg/s	5.07157	3.57863
Maximum Pool Radius	m	17.1143	17.2633

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Distance to Concentration Results

Path: \Terminal Adonai - Efeitos físicos\Simulações\H011

The height for user defined concentrations is the user defined height 0 m

All toxic results are reported at the toxic effect height 1 m

All flammable results are reported at the flammable effect height 0 m

Concentration(ppm)	Averaging Time		Distance (m)	
			Dia	Noite
UFL (128000)	18.75	s	0	0
LFL (26000)	18.75	s	0	0
LFL Frac (26000)	18.75	s	0	0

Concentration(ppm)	Averaging Time		Heights (m) for above distances	
			Dia	Noite
UFL (128000)	18.75	s	0	0
LFL (26000)	18.75	s	0	0
LFL Frac (26000)	18.75	s	0	0

Jet Fire Hazard

Path: \Terminal Adonai - Efeitos físicos\Simulações\H011

Jet fire method used: Cone model - DNV recommended

	Dia	Noite
Jet Fire Status	Truncated	Truncated
Flame Direction	Horizontal	Horizontal

Radiation Effects: Jet Fire Ellipse

Path: \Terminal Adonai - Efeitos físicos\Simulações\H011

This table gives the distances to the specified radiation levels for each jet fire listed in the above hazard table

			Distance (m)	
Radiation Level			Dia	Noite
9.83	kW/m2		1.36101	1.40296
19.46	kW/m2		Not Reached	Not Reached
35	kW/m2		Not Reached	Not Reached

Radiation Effects: Jet Fire Distance

Path: \Terminal Adonai - Efeitos físicos\Simulações\H011

	Dia	Radiation Level (kW/m2)
		Noite

Early Pool Fire Hazard

Path: \Terminal Adonai - Efeitos físicos\Simulações\H011

	Dia	Noite
Early Pool Fire Status	Hazard	Hazard

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Radiation Effects: Early Pool Fire Ellipse

Path: \Terminal Adonai - Efeitos físicos\Simulações\H011

			Dia	Noite
Radiation Level	9.83	kW/m2	64.5077	63.1786
Radiation Level	19.46	kW/m2	48.7009	46.2448
Radiation Level	35	kW/m2	33.5841	31.5419

Radiation Effects: Early Pool Fire Distance

Path: \Terminal Adonai - Efeitos físicos\Simulações\H011

	Dia	Noite
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Late Pool Fire Hazard

Path: \Terminal Adonai - Efeitos físicos\Simulações\H011

	Dia	Noite
Late Pool Fire Status	Hazard	Hazard

Radiation Effects: Late Pool Fire Ellipse

Path: \Terminal Adonai - Efeitos físicos\Simulações\H011

			Dia	Noite
Radiation Level	9.83	kW/m2	66.8354	65.4312
Radiation Level	19.46	kW/m2	50.4915	47.9406
Radiation Level	35	kW/m2	34.9911	32.8569

Radiation Effects: Late Pool Fire Distance

Path: \Terminal Adonai - Efeitos físicos\Simulações\H011

	Dia	Noite
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Weather Conditions

Path: \Terminal Adonai - Efeitos físicos\Simulações\H011

		Dia	Noite
Wind Speed	m/s	3	2
Pasquill Stability		C	E
Surface Roughness Length	mm	1000	1000
Surface Roughness Parameter		0.173718	0.173718
Atmospheric Temperature	degC	25	20
Surface Temperature	degC	30	20
Relative Humidity	fraction	0.8	0.8

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

H012

Base Case

CASE Name: Data

Path: \Terminal Adonai - Efeitos físicos\Simulações\H012

User-Defined Data

Material

Material Identifier ACETONE

Scenario

Building Wake Effect None

Vessel/Tank

Release Type Continuous

Location

Elevation 0 m
Use ERPG averaging time ERPG not selected
Use IDLH averaging time IDLH not selected
Use STEL averaging time STEL not selected
Supply a user defined averaging time Not supplied

Bund

Status of Bund No bund present
[Type of Bund Surface User-Defined (Land)]
[Bund Height 0 m]
[Bund Failure Modeling Bund cannot fail]

Indoor/Outdoor

Location of release Open air release
Outdoor Release Direction Horizontal

Flammable

Explosion Method TNT
Jet Fire Method Cone Model

Dispersion

Number of Release Segments 1
Fluid Phase(1) Liquid
Discharge Velocity(1) 31.25 m/s
Droplet Diameter(1) 246.8 um
Duration of Discharge(1) 600 s
Final Temperature(1) 24.91 degC
Release Rate(1) 0.4 kg/s
Pre-Dilution Air Rates(1) 0 kg/s
Late Ignition Location No ignition location
Mass Inventory of material to Disperse 4.719E4 kg

Fireball Parameters

[Mass Modification Factor 3]
[Calculation method for fireball DNV Recommended]
[TNO model flame temperature 1727 degC]

Toxic Parameters

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

[Indoor Calculations	Unselected]
[Wind Dependent Exchange Rate	Case Specified]
[Building Exchange Rate	4 /hr]
[Tail Time	1800 s]
[Set averaging time equal to exposure time	Use a fixed averaging time]
[Cut-off fraction of toxic load for exposure time calculation	0.05 fraction]
[Cut-off concentration for exposure time calculations	0 fraction]

Geometry

Shape	Point
Dimension	2D
System	Absolute
East(1)	0 m
North(1)	0 m

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Consequence Results

Pool Vaporization Results

Path: \Terminal Adonai - Efeitos físicos\Simulações\H012

			Dia	Noite
		Release Segment 1		
Release Duration		s	600	600
Liquid Rainout		fraction	0.999999	0.999999
Maximum Pool Radius		m	1.69004	1.72341

Distance to Concentration Results

Path: \Terminal Adonai - Efeitos físicos\Simulações\H012

The height for user defined concentrations is the user defined height 0 m
 All toxic results are reported at the toxic effect height 1 m
 All flammable results are reported at the flammable effect height 0 m

Concentration(ppm)	Averaging Time		Dia	Noite	Distance (m)
UFL (128000)	18.75	s	0.00719551	0.00974045	
LFL (26000)	18.75	s	0.011405	0.0154387	
LFL Frac (26000)	18.75	s	0.011405	0.0154387	
Concentration(ppm)	Averaging Time		Dia	Noite	Heights (m) for above distances
UFL (128000)	18.75	s	0	0	
LFL (26000)	18.75	s	0	0	
LFL Frac (26000)	18.75	s	0	0	

Jet Fire Hazard

Path: \Terminal Adonai - Efeitos físicos\Simulações\H012

Jet fire method used: Cone model - DNV recommended

	Dia	Noite
Jet Fire Status	Truncated	Truncated
Flame Direction	Horizontal	Horizontal

Radiation Effects: Jet Fire Ellipse

Path: \Terminal Adonai - Efeitos físicos\Simulações\H012

This table gives the distances to the specified radiation levels for each jet fire listed in the above hazard table

			Dia	Noite	Distance (m)
Radiation Level	9.83	kW/m2	Not Reached	Not Reached	
Radiation Level	19.46	kW/m2	Not Reached	Not Reached	
Radiation Level	35	kW/m2	Not Reached	Not Reached	

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Radiation Effects: Jet Fire Distance

Path: \\Terminal Adonai - Efeitos físicos\Simulações\H012

Dia Radiation Level (kW/m2)
Noite

Early Pool Fire Hazard

Path: \\Terminal Adonai - Efeitos físicos\Simulações\H012

Early Pool Fire Status Dia Noite
Hazard Hazard

Radiation Effects: Early Pool Fire Ellipse

Path: \\Terminal Adonai - Efeitos físicos\Simulações\H012

			Dia	Noite
Radiation Level	9.83	kW/m2	8.32084	7.82813
Radiation Level	19.46	kW/m2	4.7933	4.48428
Radiation Level	35	kW/m2	2.65525	2.67133

Radiation Effects: Early Pool Fire Distance

Path: \\Terminal Adonai - Efeitos físicos\Simulações\H012

Dia Radiation Level (kW/m2)
Noite

Late Pool Fire Hazard

Path: \\Terminal Adonai - Efeitos físicos\Simulações\H012

Late Pool Fire Status Dia Noite
Hazard Hazard

Radiation Effects: Late Pool Fire Ellipse

Path: \\Terminal Adonai - Efeitos físicos\Simulações\H012

			Dia	Noite
Radiation Level	9.83	kW/m2	8.47226	8.05135
Radiation Level	19.46	kW/m2	4.92027	4.63644
Radiation Level	35	kW/m2	2.69004	2.72341

Radiation Effects: Late Pool Fire Distance

Path: \\Terminal Adonai - Efeitos físicos\Simulações\H012

Dia Radiation Level (kW/m2)
Noite

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Flash Fire Envelope

Path: \Terminal Adonai - Efeitos físicos\Simulações\H012

All flammable results are reported at the flammable effect height 0 m

				Distance (m)	
				Dia	Noite
Furthest Extent	26000	ppm	0.011405	0.0154387	
Furthest Extent	26000	ppm	0.011405	0.0154387	
				Heights (m) for above distances	
				Dia	Noite
Furthest Extent	26000	ppm	0	0	
Furthest Extent	26000	ppm	0	0	

Weather Conditions

Path: \Terminal Adonai - Efeitos físicos\Simulações\H012

			Dia	Noite
Wind Speed	m/s		3	2
Pasquill Stability			C	E
Surface Roughness Length	mm		1000	1000
Surface Roughness Parameter			0.173718	0.173718
Atmospheric Temperature	degC		25	20
Surface Temperature	degC		30	20
Relative Humidity	fraction		0.8	0.8

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

H013

Base Case

CASE Name: Data

Path: \Terminal Adonai - Efeitos físicos\Simulações\H013

User-Defined Data

Material

Material Identifier ACETONE

Scenario

Building Wake Effect None

Vessel/Tank

Release Type Continuous

Location

Elevation 1 m
Use ERPG averaging time ERPG not selected
Use IDLH averaging time IDLH not selected
Use STEL averaging time STEL not selected
Supply a user defined averaging time Not supplied

Bund

Status of Bund No bund present
[Type of Bund Surface User-Defined (Land)]
[Bund Height 0 m]
[Bund Failure Modeling Bund cannot fail]

Indoor/Outdoor

Location of release Open air release
Outdoor Release Direction Horizontal

Flammable

Explosion Method TNT
Jet Fire Method Cone Model

Dispersion

Number of Release Segments 1
Fluid Phase(1) Liquid
Discharge Velocity(1) 18.76 m/s
Droplet Diameter(1) 684.2 um
Duration of Discharge(1) 600 s
Final Temperature(1) 25.14 degC
Release Rate(1) 39.5 kg/s
Pre-Dilution Air Rates(1) 0 kg/s
Late Ignition Location No ignition location
Mass Inventory of material to Disperse 4.719E4 kg

Fireball Parameters

[Mass Modification Factor 3]
[Calculation method for fireball DNV Recommended]
[TNO model flame temperature 1727 degC]

Toxic Parameters

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

[Indoor Calculations	Unselected]
[Wind Dependent Exchange Rate	Case Specified]
[Building Exchange Rate	4 /hr]
[Tail Time	1800 s]
[Set averaging time equal to exposure time	Use a fixed averaging time]
[Cut-off fraction of toxic load for exposure time calculation	0.05 fraction]
[Cut-off concentration for exposure time calculations	0 fraction]

Geometry

Shape	Point
Dimension	2D
System	Absolute
East(1)	0 m
North(1)	0 m

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Consequence Results

Pool Vaporization Results

Path: \Terminal Adonai - Efeitos físicos\Simulações\H013

		Dia	Noite
	Release Segment 1		
Release Duration	s	600	600
Liquid Rainout	fraction	0.904939	0.912919
	Release Segment 1 Cloud Segment 1		
Cloud Segment Duration	s	191.822	184.96
Pool Vaporization Rate	kg/s	0.554789	0.399339
Total Vapor Flowrate	kg/s	4.30971	3.83904
	Release Segment 1 Cloud Segment 2		
Cloud Segment Duration	s	77.9581	78.2906
Pool Vaporization Rate	kg/s	1.36737	0.950918
Total Vapor Flowrate	kg/s	5.12229	4.39062
	Release Segment 1 Cloud Segment 3		
Cloud Segment Duration	s	59.6419	60.7494
Pool Vaporization Rate	kg/s	1.77931	1.23003
Total Vapor Flowrate	kg/s	5.53423	4.66973
	Release Segment 1 Cloud Segment 4		
Cloud Segment Duration	s	50.8275	51.3906
Pool Vaporization Rate	kg/s	2.10397	1.44905
Total Vapor Flowrate	kg/s	5.85889	4.88875
	Release Segment 1 Cloud Segment 5		
Cloud Segment Duration	s	45.1406	45.885
Pool Vaporization Rate	kg/s	2.38102	1.63482
Total Vapor Flowrate	kg/s	6.13594	5.07452
	Release Segment 1 Cloud Segment 6		
Cloud Segment Duration	s	78.6119	80.4844
Pool Vaporization Rate	kg/s	2.73071	1.87028
Total Vapor Flowrate	kg/s	6.48563	5.30998
	Release Segment 1 Cloud Segment 7		
Cloud Segment Duration	s	95.9975	98.24
Pool Vaporization Rate	kg/s	3.21065	2.1935
Total Vapor Flowrate	kg/s	6.96557	5.6332
Maximum Pool Radius	m	16.4266	16.5808

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Distance to Concentration Results

Path: \Terminal Adonai - Efeitos físicos\Simulações\H013

The height for user defined concentrations is the user defined height 0 m
All toxic results are reported at the toxic effect height 1 m
All flammable results are reported at the flammable effect height 0 m

Concentration(ppm)	Averaging Time		Distance (m)	
			Dia	Noite
UFL (128000)	18.75	s	7.96105	7.99231
LFL (26000)	18.75	s	35.1416	40.1065
LFL Frac (26000)	18.75	s	35.1416	40.1065

Concentration(ppm)	Averaging Time		Heights (m) for above distances	
			Dia	Noite
UFL (128000)	18.75	s	0	0
LFL (26000)	18.75	s	0	0
LFL Frac (26000)	18.75	s	0	0

Jet Fire Hazard

Path: \Terminal Adonai - Efeitos físicos\Simulações\H013

Jet fire method used: Cone model - DNV recommended

	Dia	Noite
Jet Fire Status	Truncated	Truncated
Flame Direction	Horizontal	Horizontal

Radiation Effects: Jet Fire Ellipse

Path: \Terminal Adonai - Efeitos físicos\Simulações\H013

This table gives the distances to the specified radiation levels
for each jet fire listed in the above hazard table

Radiation Level			Distance (m)	
			Dia	Noite
9.83	kW/m2		70.7654	73.2821
19.46	kW/m2		62.6182	65.0388
35	kW/m2		56.6341	58.6286

Radiation Effects: Jet Fire Distance

Path: \Terminal Adonai - Efeitos físicos\Simulações\H013

	Dia	Radiation Level (kW/m2)
		Noite

Early Pool Fire Hazard

Path: \Terminal Adonai - Efeitos físicos\Simulações\H013

	Dia	Noite
Early Pool Fire Status	Hazard	Hazard

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Radiation Effects: Early Pool Fire Ellipse

Path: \Terminal Adonai - Efeitos físicos\Simulações\H013

			Dia	Noite
Radiation Level	9.83	kW/m2	69.7259	68.6774
Radiation Level	19.46	kW/m2	54.5716	52.3757
Radiation Level	35	kW/m2	39.8897	38.0915

Radiation Effects: Early Pool Fire Distance

Path: \Terminal Adonai - Efeitos físicos\Simulações\H013

	Dia	Noite
Radiation Level (kW/m2)		

Late Pool Fire Hazard

Path: \Terminal Adonai - Efeitos físicos\Simulações\H013

	Dia	Noite
Late Pool Fire Status	Hazard	Hazard

Radiation Effects: Late Pool Fire Ellipse

Path: \Terminal Adonai - Efeitos físicos\Simulações\H013

			Dia	Noite
Radiation Level	9.83	kW/m2	72.4667	71.1366
Radiation Level	19.46	kW/m2	56.6778	54.2263
Radiation Level	35	kW/m2	41.5736	39.5396

Radiation Effects: Late Pool Fire Distance

Path: \Terminal Adonai - Efeitos físicos\Simulações\H013

	Dia	Noite
Radiation Level (kW/m2)		

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Flash Fire Envelope

Path: \Terminal Adonai - Efeitos físicos\Simulações\H013

All flammable results are reported at the flammable effect height 0 m

				Distance (m)	
				Dia	Noite
Furthest Extent	26000	ppm	35.1416	40.1065	
Furthest Extent	26000	ppm	35.1416	40.1065	
				Heights (m) for above distances	
				Dia	Noite
Furthest Extent	26000	ppm	0	0	
Furthest Extent	26000	ppm	0	0	

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Explosion Effects: Late Ignition

Path: \Terminal Adonai - Efeitos físicos\Simulações\H013

Explosion Model Used : TNT

Explosion Location Criterion: Cloud Center

All distances are measured from the Source

All flammable results are reported at the flammable effect height 0 m

			Maximum Distance (m) at Overpressure Level	
			Dia	Noite
Overpressure	0.05	bar	47.8195	75.5381
Overpressure	0.1	bar	35.3739	54.4773
Overpressure	0.3	bar	25.1734	37.2157

			Supplementary Data at 0.05 bar	
			Dia	Noite
Supplied Flammable Mass		kg	11.6557	56.4826
Used Flammable Mass		kg	11.6557	56.4826
Overpressure Radius		m	32.8195	55.5381
Distance to:				
- Ignition Source		m	30	40
- Cloud Front/Centre		m	30	40
- Explosion Centre		m	15	20

			Supplementary Data at 0.1 bar	
			Dia	Noite
Supplied Flammable Mass		kg	11.6557	56.4826
Used Flammable Mass		kg	11.6557	56.4826
Overpressure Radius		m	20.3739	34.4773
Distance to:				
- Ignition Source		m	30	40
- Cloud Front/Centre		m	30	40
- Explosion Centre		m	15	20

			Supplementary Data at 0.3 bar	
			Dia	Noite
Supplied Flammable Mass		kg	11.6557	56.4826
Used Flammable Mass		kg	11.6557	56.4826
Overpressure Radius		m	10.1734	17.2157
Distance to:				
- Ignition Source		m	30	40
- Cloud Front/Centre		m	30	40
- Explosion Centre		m	15	20

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Weather Conditions

Path: \Terminal Adonai - Efeitos físicos\Simulações\H013

		Dia	Noite
Wind Speed	m/s	3	2
Pasquill Stability		C	E
Surface Roughness Length	mm	1000	1000
Surface Roughness Parameter		0.173718	0.173718
Atmospheric Temperature	degC	25	20
Surface Temperature	degC	30	20
Relative Humidity	fraction	0.8	0.8

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

H014

Base Case

CASE Name: Data

Path: \Terminal Adonai - Efeitos físicos\Simulações\H014

User-Defined Data

Material

Material Identifier ACETONE

Scenario

Building Wake Effect None

Vessel/Tank

Release Type Continuous

Location

Elevation 1 m
Use ERPG averaging time ERPG not selected
Use IDLH averaging time IDLH not selected
Use STEL averaging time STEL not selected
Supply a user defined averaging time Not supplied

Bund

Status of Bund No bund present
[Type of Bund Surface User-Defined (Land)]
[Bund Height 0 m]
[Bund Failure Modeling Bund cannot fail]

Indoor/Outdoor

Location of release Open air release
Outdoor Release Direction Horizontal

Flammable

Explosion Method TNT
Jet Fire Method Cone Model

Dispersion

Number of Release Segments 1
Fluid Phase(1) Liquid
Discharge Velocity(1) 31.25 m/s
Droplet Diameter(1) 246.8 um
Duration of Discharge(1) 600 s
Final Temperature(1) 24.91 degC
Release Rate(1) 0.4 kg/s
Pre-Dilution Air Rates(1) 0 kg/s
Late Ignition Location No ignition location
Mass Inventory of material to Disperse 4.719E4 kg

Fireball Parameters

[Mass Modification Factor 3]
[Calculation method for fireball DNV Recommended]
[TNO model flame temperature 1727 degC]

Toxic Parameters

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

[Indoor Calculations	Unselected]
[Wind Dependent Exchange Rate	Case Specified]
[Building Exchange Rate	4 /hr]
[Tail Time	1800 s]
[Set averaging time equal to exposure time	Use a fixed averaging time]
[Cut-off fraction of toxic load for exposure time calculation	0.05 fraction]
[Cut-off concentration for exposure time calculations	0 fraction]

Geometry

Shape	Point
Dimension	2D
System	Absolute
East(1)	0 m
North(1)	0 m

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Consequence Results

Pool Vaporization Results

Path: \Terminal Adonai - Efeitos físicos\Simulações\H014

			Dia	Noite
		Release Segment 1		
Release Duration	s		600	600
Liquid Rainout	fraction		0.565649	0.6251
Maximum Pool Radius	m		1.28091	1.3701

Distance to Concentration Results

Path: \Terminal Adonai - Efeitos físicos\Simulações\H014

The height for user defined concentrations is the user defined height 0 m
All toxic results are reported at the toxic effect height 1 m
All flammable results are reported at the flammable effect height 0 m

Concentration(ppm)		Averaging Time		Distance (m)	
				Dia	Noite
UFL (128000)	18.75	s		No Hazard	No Hazard
LFL (26000)	18.75	s		No Hazard	No Hazard
LFL Frac (26000)	18.75	s		No Hazard	No Hazard
Concentration(ppm)		Averaging Time		Heights (m) for above distances	
				Dia	Noite
UFL (128000)	18.75	s		0	0
LFL (26000)	18.75	s		0	0
LFL Frac (26000)	18.75	s		0	0

Jet Fire Hazard

Path: \Terminal Adonai - Efeitos físicos\Simulações\H014

Jet fire method used: Cone model - DNV recommended

		Dia	Noite
Jet Fire Status		Truncated	Truncated
Flame Direction		Horizontal	Horizontal

Radiation Effects: Jet Fire Ellipse

Path: \Terminal Adonai - Efeitos físicos\Simulações\H014

This table gives the distances to the specified radiation levels
for each jet fire listed in the above hazard table

			Distance (m)	
			Dia	Noite
Radiation Level	9.83	kW/m2	15.7036	16.9066
Radiation Level	19.46	kW/m2	13.8932	15.0382
Radiation Level	35	kW/m2	12.4824	13.6167

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Radiation Effects: Jet Fire Distance

Path: \Terminal Adonai - Efeitos físicos\Simulações\H014

Dia Radiation Level (kW/m2)
Noite

Early Pool Fire Hazard

Path: \Terminal Adonai - Efeitos físicos\Simulações\H014

Early Pool Fire Status Dia Noite
Hazard Hazard

Radiation Effects: Early Pool Fire Ellipse

Path: \Terminal Adonai - Efeitos físicos\Simulações\H014

			Dia	Noite
Radiation Level	9.83	kW/m2	12.4957	12.0151
Radiation Level	19.46	kW/m2	9.47913	9.09405
Radiation Level	35	kW/m2	8.29606	8.03355

Radiation Effects: Early Pool Fire Distance

Path: \Terminal Adonai - Efeitos físicos\Simulações\H014

Dia Radiation Level (kW/m2)
Noite

Late Pool Fire Hazard

Path: \Terminal Adonai - Efeitos físicos\Simulações\H014

Late Pool Fire Status Dia Noite
Hazard Hazard

Radiation Effects: Late Pool Fire Ellipse

Path: \Terminal Adonai - Efeitos físicos\Simulações\H014

			Dia	Noite
Radiation Level	9.83	kW/m2	12.663	12.2311
Radiation Level	19.46	kW/m2	9.57343	9.26046
Radiation Level	35	kW/m2	8.33206	8.08224

Radiation Effects: Late Pool Fire Distance

Path: \Terminal Adonai - Efeitos físicos\Simulações\H014

Dia Radiation Level (kW/m2)
Noite

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Weather Conditions

Path: \Terminal Adonai - Efeitos físicos\Simulações\H014

		Dia	Noite
Wind Speed	m/s	3	2
Pasquill Stability		C	E
Surface Roughness Length	mm	1000	1000
Surface Roughness Parameter		0.173718	0.173718
Atmospheric Temperature	degC	25	20
Surface Temperature	degC	30	20
Relative Humidity	fraction	0.8	0.8

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

H015

Base Case

CASE Name: Data

Path: \Terminal Adonai - Efeitos físicos\Simulações\H015

User-Defined Data

Material

Material Identifier	ACETONE
Type of Vessel	Padded Liquid
Pressure Specification	Pressure specified
Storage Pressure - gauge	0.03 bar
Temperature	25 degC
Volume Inventory	3200 m3

Scenario

Scenario Type	Line rupture
Phase to be Released	Liquid
Building Wake Effect	None
Specify Pump Head	No pump head supplied
Number of Excess Flow Valves	0
Number of Non-Return Valves	0
Number of Shut-Off Valves	0

Pipe

Internal Diameter	152.4 mm
Line length	1 m

Vessel/Tank

Duration of Interest	600 s
Method Used for Time Varying Releases	Average Rates
Tank Type	Vertical
Tank Height	22.64 m
Tank Diameter	15 m
Height of Discharge from Vessel Bottom	1 m

Location

Elevation	1 m
Use ERPG averaging time	ERPG not selected
Use IDLH averaging time	IDLH not selected
Use STEL averaging time	STEL not selected
Supply a user defined averaging time	Not supplied

Bund

Status of Bund	Bund present
Bund Area	1940 m2
[Type of Bund Surface	User-Defined (Land)]
Bund Height	3 m
[Bund Failure Modeling	Bund cannot fail]

Indoor/Outdoor

Location of release	Open air release
Outdoor Release Direction	Horizontal

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Flammable

Explosion Method TNT
Jet Fire Method Cone Model

Dispersion

Late Ignition Location No ignition location
Mass Inventory of material to Disperse 2.517E6 kg

Fireball Parameters

[Mass Modification Factor 3]
[Calculation method for fireball DNV Recommended]
[TNO model flame temperature 1727 degC]

Toxic Parameters

[Indoor Calculations Unselected]
[Wind Dependent Exchange Rate Case Specified]
[Building Exchange Rate 4 /hr]
[Tail Time 1800 s]
[Set averaging time equal to exposure time Use a fixed averaging time]
[Cut-off fraction of toxic load for exposure time calculation 0.05 fraction]
[Cut-off concentration for exposure time calculations 0 fraction]

Geometry

Shape Point
Dimension 2D
System Absolute
East(1) 0 m
North(1) 0 m

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Path: \Terminal Adonai - Efeitos físicos\Simulações\H015

DISCHARGE DATA for Weather: Global Weathers\Dia

Wind Speed: 3.00 m/s
Wind Speed at Height (Calculated) 1.78 m/s
Pasquill Stability: C

USER-DEFINED QUANTITIES

Material ACETONE
Scenario Line rupture
Inventory 2,517,057.75 kg
Fixed Duration n/a s

Stagnation data (data at upstream end for long pipe):

- Pressure 1.04 bar
- Temperature 25.00 degC
- Fluid State Non-saturated liquid

CALCULATED QUANTITIES

Mass Flow of Air (Vent from Vapor Space only) n/a
Mass Flowrate 1.76786E+002 kg/s
Release Duration 600.00 s

Orifice or pipe exit data (before atmospheric expansion):

- Pressure n/a bar
- Temperature n/a degC
- Vena Contracta Velocity (exit velocity for pipe releases) n/a m/s
- Discharge Coefficient n/a

Final data (after atmospheric expansion):

- Temperature 25.06 degC
- Liquid Mass Fraction 1.00 fraction
- Droplet Diameter 1,617.86 um
- Expanded Radius n/a m
- Velocity 12.32 m/s

DISCHARGE DATA for Weather: Global Weathers\Noite

Wind Speed: 2.00 m/s
Wind Speed at Height (Calculated) 0.83 m/s
Pasquill Stability: E

USER-DEFINED QUANTITIES

Material ACETONE
Scenario Line rupture
Inventory 2,517,057.75 kg
Fixed Duration n/a s

Stagnation data (data at upstream end for long pipe):

- Pressure 1.04 bar
- Temperature 25.00 degC
- Fluid State Non-saturated liquid

CALCULATED QUANTITIES

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Mass Flow of Air (Vent from Vapor Space only)	n/a
Mass Flowrate	1.76786E+002 kg/s
Release Duration	600.00 s
Orifice or pipe exit data (before atmospheric expansion):	
- Pressure	n/a bar
- Temperature	n/a degC
- Vena Contracta Velocity (exit velocity for pipe releases)	n/a m/s
- Discharge Coefficient	n/a
Final data (after atmospheric expansion):	
- Temperature	25.05 degC
- Liquid Mass Fraction	1.00 fraction
- Droplet Diameter	1,586.78 um
- Expanded Radius	n/a m
- Velocity	12.32 m/s

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Consequence Results

Pool Vaporization Results

Path: \Terminal Adonai - Efeitos físicos\Simulações\H015

		Dia	Noite
	Release Segment 1		
Release Duration	s	600	600
Liquid Rainout	fraction	0.965697	0.970021
	Release Segment 1 Cloud Segment 1		
Cloud Segment Duration	s	88.8306	86.0256
Pool Vaporization Rate	kg/s	1.78364	1.38562
Total Vapor Flowrate	kg/s	7.84784	6.68539
	Release Segment 1 Cloud Segment 2		
Cloud Segment Duration	s	38.295	38.2969
Pool Vaporization Rate	kg/s	4.13474	3.14015
Total Vapor Flowrate	kg/s	10.1989	8.43993
	Release Segment 1 Cloud Segment 3		
Cloud Segment Duration	s	30.3769	30.0581
Pool Vaporization Rate	kg/s	5.31043	4.00191
Total Vapor Flowrate	kg/s	11.3746	9.30169
	Release Segment 1 Cloud Segment 4		
Cloud Segment Duration	s	25.4231	25.85
Pool Vaporization Rate	kg/s	6.22942	4.67067
Total Vapor Flowrate	kg/s	12.2936	9.97045
	Release Segment 1 Cloud Segment 5		
Cloud Segment Duration	s	44.33	44.02
Pool Vaporization Rate	kg/s	7.33547	5.46642
Total Vapor Flowrate	kg/s	13.3997	10.7662
	Release Segment 1 Cloud Segment 6		
Cloud Segment Duration	s	372.744	375.749
Pool Vaporization Rate	kg/s	8.83031	6.61622
Total Vapor Flowrate	kg/s	14.8945	11.916
Maximum Pool Radius	m	24.85	24.85

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Distance to Concentration Results

Path: \Terminal Adonai - Efeitos físicos\Simulações\H015

The height for user defined concentrations is the user defined height 0 m

All toxic results are reported at the toxic effect height 1 m

All flammable results are reported at the flammable effect height 0 m

Concentration(ppm)	Averaging Time		Distance (m)	
			Dia	Noite
UFL (128000)	18.75	s	13.0964	14.9149
LFL (26000)	18.75	s	38.7436	45.5684
LFL Frac (26000)	18.75	s	38.7436	45.5684

Concentration(ppm)	Averaging Time		Heights (m) for above distances	
			Dia	Noite
UFL (128000)	18.75	s	0	0
LFL (26000)	18.75	s	0	0
LFL Frac (26000)	18.75	s	0	0

Jet Fire Hazard

Path: \Terminal Adonai - Efeitos físicos\Simulações\H015

Jet fire method used: Cone model - DNV recommended

	Dia	Noite
Jet Fire Status	Truncated	Truncated
Flame Direction	Horizontal	Horizontal

Radiation Effects: Jet Fire Ellipse

Path: \Terminal Adonai - Efeitos físicos\Simulações\H015

This table gives the distances to the specified radiation levels for each jet fire listed in the above hazard table

Radiation Level			Distance (m)	
			Dia	Noite
9.83	kW/m2		88.4099	89.7528
19.46	kW/m2		78.3985	79.7062
35	kW/m2		71.1064	71.8652

Radiation Effects: Jet Fire Distance

Path: \Terminal Adonai - Efeitos físicos\Simulações\H015

	Dia	Radiation Level (kW/m2)
		Noite

Early Pool Fire Hazard

Path: \Terminal Adonai - Efeitos físicos\Simulações\H015

	Dia	Noite
Early Pool Fire Status	Hazard	Hazard

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos fisicos

Phast 6.7

Radiation Effects: Early Pool Fire Ellipse

Path: \Terminal Adonai - Efeitos fisicos\Simulações\H015

			Dia	Noite
Radiation Level	9.83	kW/m2	93.3124	90.9896
Radiation Level	19.46	kW/m2	70.8452	67.2255
Radiation Level	35	kW/m2	51.5249	47.6521

Radiation Effects: Early Pool Fire Distance

Path: \Terminal Adonai - Efeitos fisicos\Simulações\H015

Dia
Noite

Radiation Level (kW/m2)

Late Pool Fire Hazard

Path: \Terminal Adonai - Efeitos fisicos\Simulações\H015

	Dia	Noite
Late Pool Fire Status	Hazard	Hazard

Radiation Effects: Late Pool Fire Ellipse

Path: \Terminal Adonai - Efeitos fisicos\Simulações\H015

			Dia	Noite
Radiation Level	9.83	kW/m2	93.3124	90.9896
Radiation Level	19.46	kW/m2	70.8452	67.2255
Radiation Level	35	kW/m2	51.5249	47.6521

Radiation Effects: Late Pool Fire Distance

Path: \Terminal Adonai - Efeitos fisicos\Simulações\H015

Dia

Radiation Level (kW/m2)

Noite

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Flash Fire Envelope

Path: \Terminal Adonai - Efeitos físicos\Simulações\H015

All flammable results are reported at the flammable effect height 0 m

				Distance (m)	
				Dia	Noite
Furthest Extent	26000	ppm	38.7436	45.5684	
Furthest Extent	26000	ppm	38.7436	45.5684	
				Heights (m) for above distances	
				Dia	Noite
Furthest Extent	26000	ppm	0	0	
Furthest Extent	26000	ppm	0	0	

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Explosion Effects: Late Ignition

Path: \Terminal Adonai - Efeitos físicos\Simulações\H015

Explosion Model Used : TNT

Explosion Location Criterion: Cloud Center

All distances are measured from the Source

All flammable results are reported at the flammable effect height 0 m

			Maximum Distance (m) at Overpressure Level	
			Dia	Noite
Overpressure	0.05	bar	65.869	89.0911
Overpressure	0.1	bar	46.5788	62.8908
Overpressure	0.3	bar	30.7684	41.4169

			Supplementary Data at 0.05 bar	
			Dia	Noite
Supplied Flammable Mass		kg	43.4013	108.745
Used Flammable Mass		kg	43.4013	108.745
Overpressure Radius		m	50.869	69.0911
Distance to:				
- Ignition Source		m	30	40
- Cloud Front/Centre		m	30	40
- Explosion Centre		m	15	20

			Supplementary Data at 0.1 bar	
			Dia	Noite
Supplied Flammable Mass		kg	43.4013	108.745
Used Flammable Mass		kg	43.4013	108.745
Overpressure Radius		m	31.5788	42.8908
Distance to:				
- Ignition Source		m	30	40
- Cloud Front/Centre		m	30	40
- Explosion Centre		m	15	20

			Supplementary Data at 0.3 bar	
			Dia	Noite
Supplied Flammable Mass		kg	43.4013	108.745
Used Flammable Mass		kg	43.4013	108.745
Overpressure Radius		m	15.7684	21.4169
Distance to:				
- Ignition Source		m	30	40
- Cloud Front/Centre		m	30	40
- Explosion Centre		m	15	20

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Weather Conditions

Path: \Terminal Adonai - Efeitos físicos\Simulações\H015

		Dia	Noite
Wind Speed	m/s	3	2
Pasquill Stability		C	E
Surface Roughness Length	mm	1000	1000
Surface Roughness Parameter		0.173718	0.173718
Atmospheric Temperature	degC	25	20
Surface Temperature	degC	30	20
Relative Humidity	fraction	0.8	0.8

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

H016

Base Case

CASE Name: Data

Path: \Terminal Adonai - Efeitos físicos\Simulações\H016

User-Defined Data

Material

Material Identifier	ACETONE
Type of Vessel	Padded Liquid
Pressure Specification	Pressure specified
Storage Pressure - gauge	0.03 bar
Temperature	25 degC
Volume Inventory	3200 m3

Scenario

Scenario Type	Leak
Phase to be Released	Liquid
Hole Diameter	15.24 mm
Building Wake Effect	None

Vessel/Tank

Duration of Interest	600 s
Method Used for Time Varying Releases	Average Rates
Tank Type	Vertical
Tank Height	22.64 m
Tank Diameter	15 m
Height of Discharge from Vessel Bottom	1 m

Location

Elevation	1 m
Use ERPG averaging time	ERPG not selected
Use IDLH averaging time	IDLH not selected
Use STEL averaging time	STEL not selected
Supply a user defined averaging time	Not supplied

Bund

Status of Bund	Bund present
Bund Area	1940 m2
[Type of Bund Surface	User-Defined (Land)]
Bund Height	3 m
[Bund Failure Modeling	Bund cannot fail]

Indoor/Outdoor

Location of release	Open air release
Outdoor Release Direction	Horizontal

Flammable

Explosion Method	TNT
Jet Fire Method	Cone Model

Dispersion

Late Ignition Location	No ignition location
Mass Inventory of material to Disperse	2.517E6 kg

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Fireball Parameters

[Mass Modification Factor	3]
[Calculation method for fireball	DNV Recommended]
[TNO model flame temperature	1727 degC]

Toxic Parameters

[Indoor Calculations	Unselected]
[Wind Dependent Exchange Rate	Case Specified]
[Building Exchange Rate	4 /hr]
[Tail Time	1800 s]
[Set averaging time equal to exposure time	Use a fixed averaging time]
[Cut-off fraction of toxic load for exposure time calculation	0.05 fraction]
[Cut-off concentration for exposure time calculations	0 fraction]

Geometry

Shape	Point
Dimension	2D
System	Absolute
East(1)	0 m
North(1)	0 m

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Path: \Terminal Adonai - Efeitos físicos\Simulações\H016

DISCHARGE DATA for Weather: Global Weathers\Dia

Wind Speed: 3.00 m/s
Wind Speed at Height (Calculated) 1.78 m/s
Pasquill Stability: C

USER-DEFINED QUANTITIES

Material ACETONE
Scenario Leak
Inventory 2,517,057.75 kg
Fixed Duration n/a s

Stagnation data (data at upstream end for long pipe):

- Pressure 1.04 bar
- Temperature 25.00 degC
- Fluid State Non-saturated liquid

CALCULATED QUANTITIES

Mass Flow of Air (Vent from Vapor Space only) n/a
Mass Flowrate 1.80396E+000 kg/s
Release Duration 600.00 s

Orifice or pipe exit data (before atmospheric expansion):

- Pressure n/a bar
- Temperature n/a degC
- Vena Contracta Velocity (exit velocity for pipe releases) n/a m/s
- Discharge Coefficient n/a

Final data (after atmospheric expansion):

- Temperature 24.96 degC
- Liquid Mass Fraction 1.00 fraction
- Droplet Diameter 559.49 um
- Expanded Radius n/a m
- Velocity 20.95 m/s

DISCHARGE DATA for Weather: Global Weathers\Noite

Wind Speed: 2.00 m/s
Wind Speed at Height (Calculated) 0.83 m/s
Pasquill Stability: E

USER-DEFINED QUANTITIES

Material ACETONE
Scenario Leak
Inventory 2,517,057.75 kg
Fixed Duration n/a s

Stagnation data (data at upstream end for long pipe):

- Pressure 1.04 bar
- Temperature 25.00 degC
- Fluid State Non-saturated liquid

CALCULATED QUANTITIES

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Mass Flow of Air (Vent from Vapor Space only)	n/a
Mass Flowrate	1.80396E+000 kg/s
Release Duration	600.00 s
Orifice or pipe exit data (before atmospheric expansion):	
- Pressure	n/a bar
- Temperature	n/a degC
- Vena Contracta Velocity (exit velocity for pipe releases)	n/a m/s
- Discharge Coefficient	n/a
Final data (after atmospheric expansion):	
- Temperature	24.96 degC
- Liquid Mass Fraction	1.00 fraction
- Droplet Diameter	548.75 um
- Expanded Radius	n/a m
- Velocity	20.95 m/s

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Consequence Results

Pool Vaporization Results

Path: \Terminal Adonai - Efeitos físicos\Simulações\H016

		Dia	Noite
	Release Segment 1		
Release Duration	s	600	600
Liquid Rainout	fraction	0.831106	0.839497
	Release Segment 1 Cloud Segment 1		
Cloud Segment Duration	s	208.081	204.49
Pool Vaporization Rate	kg/s	0.0293341	0.018738
Total Vapor Flowrate	kg/s	0.334011	0.308279
	Release Segment 1 Cloud Segment 2		
Cloud Segment Duration	s	75.8419	76.9106
Pool Vaporization Rate	kg/s	0.0805293	0.0499728
Total Vapor Flowrate	kg/s	0.385206	0.339514
	Release Segment 1 Cloud Segment 3		
Cloud Segment Duration	s	58.3275	58.08
Pool Vaporization Rate	kg/s	0.106261	0.0657929
Total Vapor Flowrate	kg/s	0.410938	0.355334
	Release Segment 1 Cloud Segment 4		
Cloud Segment Duration	s	48.8006	49.595
Pool Vaporization Rate	kg/s	0.126629	0.0783616
Total Vapor Flowrate	kg/s	0.431306	0.367902
	Release Segment 1 Cloud Segment 5		
Cloud Segment Duration	s	42.63	43.5644
Pool Vaporization Rate	kg/s	0.143761	0.0891506
Total Vapor Flowrate	kg/s	0.448438	0.378692
	Release Segment 1 Cloud Segment 6		
Cloud Segment Duration	s	74.8219	75.8625
Pool Vaporization Rate	kg/s	0.165326	0.102828
Total Vapor Flowrate	kg/s	0.470003	0.392369
	Release Segment 1 Cloud Segment 7		
Cloud Segment Duration	s	91.4975	91.4975
Pool Vaporization Rate	kg/s	0.195067	0.121708
Total Vapor Flowrate	kg/s	0.499744	0.411249
Maximum Pool Radius	m	3.34141	3.3893

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Distance to Concentration Results

Path: \Terminal Adonai - Efeitos físicos\Simulações\H016

The height for user defined concentrations is the user defined height 0 m

All toxic results are reported at the toxic effect height 1 m

All flammable results are reported at the flammable effect height 0 m

Concentration(ppm)	Averaging Time		Distance (m)	
			Dia	Noite
UFL (128000)	18.75	s	No Hazard	No Hazard
LFL (26000)	18.75	s	5.30741	5.46858
LFL Frac (26000)	18.75	s	5.30741	5.46858

Concentration(ppm)	Averaging Time		Heights (m) for above distances	
			Dia	Noite
UFL (128000)	18.75	s	0	0
LFL (26000)	18.75	s	0	0
LFL Frac (26000)	18.75	s	0	0

Jet Fire Hazard

Path: \Terminal Adonai - Efeitos físicos\Simulações\H016

Jet fire method used: Cone model - DNV recommended

	Dia	Noite
Jet Fire Status	Truncated	Truncated
Flame Direction	Horizontal	Horizontal

Radiation Effects: Jet Fire Ellipse

Path: \Terminal Adonai - Efeitos físicos\Simulações\H016

This table gives the distances to the specified radiation levels for each jet fire listed in the above hazard table

Radiation Level			Distance (m)	
			Dia	Noite
9.83	kW/m2		23.2874	24.5186
19.46	kW/m2		20.6338	21.7701
35	kW/m2		18.5254	19.1438

Radiation Effects: Jet Fire Distance

Path: \Terminal Adonai - Efeitos físicos\Simulações\H016

	Dia	Radiation Level (kW/m2)
		Noite

Early Pool Fire Hazard

Path: \Terminal Adonai - Efeitos físicos\Simulações\H016

	Dia	Noite
Early Pool Fire Status	Hazard	Hazard

SUMMARY REPORT

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Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Radiation Effects: Early Pool Fire Ellipse

Path: \Terminal Adonai - Efeitos físicos\Simulações\H016

			Dia	Noite
Radiation Level	9.83	kW/m2	20.5858	20.0308
Radiation Level	19.46	kW/m2	15.8806	15.2099
Radiation Level	35	kW/m2	10.7403	10.6066

Radiation Effects: Early Pool Fire Distance

Path: \Terminal Adonai - Efeitos físicos\Simulações\H016

	Dia	Noite
Radiation Level (kW/m2)		

Late Pool Fire Hazard

Path: \Terminal Adonai - Efeitos físicos\Simulações\H016

	Dia	Noite
Late Pool Fire Status	Hazard	Hazard

Radiation Effects: Late Pool Fire Ellipse

Path: \Terminal Adonai - Efeitos físicos\Simulações\H016

			Dia	Noite
Radiation Level	9.83	kW/m2	21.1539	20.5821
Radiation Level	19.46	kW/m2	16.4073	15.6571
Radiation Level	35	kW/m2	10.9797	10.8298

Radiation Effects: Late Pool Fire Distance

Path: \Terminal Adonai - Efeitos físicos\Simulações\H016

	Dia	Noite
Radiation Level (kW/m2)		

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Flash Fire Envelope

Path: \Terminal Adonai - Efeitos físicos\Simulações\H016

All flammable results are reported at the flammable effect height 0 m

				Distance (m)	
				Dia	Noite
Furthest Extent	26000	ppm	5.30741	5.46858	
Furthest Extent	26000	ppm	5.30741	5.46858	
				Heights (m) for above distances	
				Dia	Noite
Furthest Extent	26000	ppm	0	0	
Furthest Extent	26000	ppm	0	0	

Weather Conditions

Path: \Terminal Adonai - Efeitos físicos\Simulações\H016

			Dia	Noite
Wind Speed	m/s		3	2
Pasquill Stability			C	E
Surface Roughness Length	mm		1000	1000
Surface Roughness Parameter			0.173718	0.173718
Atmospheric Temperature	degC		25	20
Surface Temperature	degC		30	20
Relative Humidity	fraction		0.8	0.8

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

H017

Base Case

CASE Name: Data

Path: \Terminal Adonai - Efeitos físicos\Simulações\H017

User-Defined Data

Material

Material Identifier ACETONE

Scenario

Building Wake Effect None

Vessel/Tank

Release Type Continuous

Location

Elevation 1 m
Use ERPG averaging time ERPG not selected
Use IDLH averaging time IDLH not selected
Use STEL averaging time STEL not selected
Supply a user defined averaging time Not supplied

Bund

Status of Bund No bund present
[Type of Bund Surface User-Defined (Land)]
[Bund Height 0 m]
[Bund Failure Modeling Bund cannot fail]

Indoor/Outdoor

Location of release Open air release
Outdoor Release Direction Horizontal

Flammable

Explosion Method TNT
Jet Fire Method Cone Model

Dispersion

Number of Release Segments 1
Fluid Phase(1) Liquid
Discharge Velocity(1) 18.76 m/s
Droplet Diameter(1) 684.2 um
Duration of Discharge(1) 600 s
Final Temperature(1) 25.14 degC
Release Rate(1) 19.75 kg/s
Pre-Dilution Air Rates(1) 0 kg/s
Late Ignition Location No ignition location
Mass Inventory of material to Disperse 2.517E6 kg

Fireball Parameters

[Mass Modification Factor 3]
[Calculation method for fireball DNV Recommended]
[TNO model flame temperature 1727 degC]

Toxic Parameters

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

[Indoor Calculations	Unselected]
[Wind Dependent Exchange Rate	Case Specified]
[Building Exchange Rate	4 /hr]
[Tail Time	1800 s]
[Set averaging time equal to exposure time	Use a fixed averaging time]
[Cut-off fraction of toxic load for exposure time calculation	0.05 fraction]
[Cut-off concentration for exposure time calculations	0 fraction]

Geometry

Shape	Point
Dimension	2D
System	Absolute
East(1)	0 m
North(1)	0 m

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Consequence Results

Pool Vaporization Results

Path: \Terminal Adonai - Efeitos físicos\Simulações\H017

		Dia	Noite
	Release Segment 1		
Release Duration	s	600	600
Liquid Rainout	fraction	0.889657	0.897992
	Release Segment 1 Cloud Segment 1		
Cloud Segment Duration	s	196.701	190.44
Pool Vaporization Rate	kg/s	0.269717	0.191204
Total Vapor Flowrate	kg/s	2.449	2.20586
	Release Segment 1 Cloud Segment 2		
Cloud Segment Duration	s	78.03	77.7006
Pool Vaporization Rate	kg/s	0.683708	0.46604
Total Vapor Flowrate	kg/s	2.86299	2.48069
	Release Segment 1 Cloud Segment 3		
Cloud Segment Duration	s	59.245	60.375
Pool Vaporization Rate	kg/s	0.895515	0.606061
Total Vapor Flowrate	kg/s	3.07479	2.62071
	Release Segment 1 Cloud Segment 4		
Cloud Segment Duration	s	50.1844	50.76
Pool Vaporization Rate	kg/s	1.06264	0.716919
Total Vapor Flowrate	kg/s	3.24192	2.73157
	Release Segment 1 Cloud Segment 5		
Cloud Segment Duration	s	44.33	45.0844
Pool Vaporization Rate	kg/s	1.20516	0.811063
Total Vapor Flowrate	kg/s	3.38443	2.82572
	Release Segment 1 Cloud Segment 6		
Cloud Segment Duration	s	77.76	78.5206
Pool Vaporization Rate	kg/s	1.38612	0.930302
Total Vapor Flowrate	kg/s	3.5654	2.94495
	Release Segment 1 Cloud Segment 7		
Cloud Segment Duration	s	93.75	97.1194
Pool Vaporization Rate	kg/s	1.63444	1.09585
Total Vapor Flowrate	kg/s	3.81372	3.1105
Maximum Pool Radius	m	11.512	11.6258

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Distance to Concentration Results

Path: \Terminal Adonai - Efeitos físicos\Simulações\H017

The height for user defined concentrations is the user defined height 0 m

All toxic results are reported at the toxic effect height 1 m

All flammable results are reported at the flammable effect height 0 m

Concentration(ppm)	Averaging Time		Distance (m)	
			Dia	Noite
UFL (128000)	18.75	s	7.07356	7.16107
LFL (26000)	18.75	s	27.7982	31.8306
LFL Frac (26000)	18.75	s	27.7982	31.8306

Concentration(ppm)	Averaging Time		Heights (m) for above distances	
			Dia	Noite
UFL (128000)	18.75	s	0	0
LFL (26000)	18.75	s	0	0
LFL Frac (26000)	18.75	s	0	0

Jet Fire Hazard

Path: \Terminal Adonai - Efeitos físicos\Simulações\H017

Jet fire method used: Cone model - DNV recommended

	Dia	Noite
Jet Fire Status	Truncated	Truncated
Flame Direction	Horizontal	Horizontal

Radiation Effects: Jet Fire Ellipse

Path: \Terminal Adonai - Efeitos físicos\Simulações\H017

This table gives the distances to the specified radiation levels for each jet fire listed in the above hazard table

Radiation Level			Distance (m)	
			Dia	Noite
9.83	kW/m2		55.7492	57.972
19.46	kW/m2		49.3685	51.4738
35	kW/m2		44.6141	46.2896

Radiation Effects: Jet Fire Distance

Path: \Terminal Adonai - Efeitos físicos\Simulações\H017

	Dia	Radiation Level (kW/m2)
		Noite

Early Pool Fire Hazard

Path: \Terminal Adonai - Efeitos físicos\Simulações\H017

	Dia	Noite
Early Pool Fire Status	Hazard	Hazard

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Radiation Effects: Early Pool Fire Ellipse

Path: \Terminal Adonai - Efeitos físicos\Simulações\H017

			Dia	Noite
Radiation Level	9.83	kW/m2	52.3063	51.3995
Radiation Level	19.46	kW/m2	41.0423	39.2443
Radiation Level	35	kW/m2	28.9438	27.8288

Radiation Effects: Early Pool Fire Distance

Path: \Terminal Adonai - Efeitos físicos\Simulações\H017

Dia
Noite
Radiation Level (kW/m2)

Late Pool Fire Hazard

Path: \Terminal Adonai - Efeitos físicos\Simulações\H017

	Dia	Noite
Late Pool Fire Status	Hazard	Hazard

Radiation Effects: Late Pool Fire Ellipse

Path: \Terminal Adonai - Efeitos físicos\Simulações\H017

			Dia	Noite
Radiation Level	9.83	kW/m2	54.2823	53.1751
Radiation Level	19.46	kW/m2	42.5613	40.5767
Radiation Level	35	kW/m2	30.1375	28.8105

Radiation Effects: Late Pool Fire Distance

Path: \Terminal Adonai - Efeitos físicos\Simulações\H017

Dia
Noite
Radiation Level (kW/m2)

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Flash Fire Envelope

Path: \Terminal Adonai - Efeitos físicos\Simulações\H017

All flammable results are reported at the flammable effect height 0 m

				Distance (m)	
				Dia	Noite
Furthest Extent	26000	ppm		27.7982	31.8306
Furthest Extent	26000	ppm		27.7982	31.8306
				Heights (m) for above distances	
				Dia	Noite
Furthest Extent	26000	ppm		0	0
Furthest Extent	26000	ppm		0	0

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Explosion Effects: Late Ignition

Path: \Terminal Adonai - Efeitos físicos\Simulações\H017

Explosion Model Used : TNT

Explosion Location Criterion: Cloud Center

All distances are measured from the Source

All flammable results are reported at the flammable effect height 0 m

			Maximum Distance (m) at Overpressure Level	
			Dia	Noite
Overpressure	0.05	bar	30.9467	47.2955
Overpressure	0.1	bar	23.0034	35.0486
Overpressure	0.3	bar	16.4931	25.011

			Supplementary Data at 0.05 bar	
			Dia	Noite
Supplied Flammable Mass		kg	3.03032	11.1062
Used Flammable Mass		kg	3.03032	11.1062
Overpressure Radius		m	20.9467	32.2955
Distance to:				
- Ignition Source		m	20	30
- Cloud Front/Centre		m	20	30
- Explosion Centre		m	10	15

			Supplementary Data at 0.1 bar	
			Dia	Noite
Supplied Flammable Mass		kg	3.03032	11.1062
Used Flammable Mass		kg	3.03032	11.1062
Overpressure Radius		m	13.0034	20.0486
Distance to:				
- Ignition Source		m	20	30
- Cloud Front/Centre		m	20	30
- Explosion Centre		m	10	15

			Supplementary Data at 0.3 bar	
			Dia	Noite
Supplied Flammable Mass		kg	3.03032	11.1062
Used Flammable Mass		kg	3.03032	11.1062
Overpressure Radius		m	6.49306	10.011
Distance to:				
- Ignition Source		m	20	30
- Cloud Front/Centre		m	20	30
- Explosion Centre		m	10	15

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Weather Conditions

Path: \Terminal Adonai - Efeitos físicos\Simulações\H017

		Dia	Noite
Wind Speed	m/s	3	2
Pasquill Stability		C	E
Surface Roughness Length	mm	1000	1000
Surface Roughness Parameter		0.173718	0.173718
Atmospheric Temperature	degC	25	20
Surface Temperature	degC	30	20
Relative Humidity	fraction	0.8	0.8

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

H018

Base Case

CASE Name: Data

Path: \Terminal Adonai - Efeitos físicos\Simulações\H018

User-Defined Data

Material

Material Identifier ACETONE

Scenario

Building Wake Effect None

Vessel/Tank

Release Type Continuous

Location

Elevation 1 m
Use ERPG averaging time ERPG not selected
Use IDLH averaging time IDLH not selected
Use STEL averaging time STEL not selected
Supply a user defined averaging time Not supplied

Bund

Status of Bund No bund present
[Type of Bund Surface User-Defined (Land)]
[Bund Height 0 m]
[Bund Failure Modeling Bund cannot fail]

Indoor/Outdoor

Location of release Open air release
Outdoor Release Direction Horizontal

Flammable

Explosion Method TNT
Jet Fire Method Cone Model

Dispersion

Number of Release Segments 1
Fluid Phase(1) Liquid
Discharge Velocity(1) 31.25 m/s
Droplet Diameter(1) 246.8 um
Duration of Discharge(1) 600 s
Final Temperature(1) 24.91 degC
Release Rate(1) 0.2 kg/s
Pre-Dilution Air Rates(1) 0 kg/s
Late Ignition Location No ignition location
Mass Inventory of material to Disperse 2.517E6 kg

Fireball Parameters

[Mass Modification Factor 3]
[Calculation method for fireball DNV Recommended]
[TNO model flame temperature 1727 degC]

Toxic Parameters

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

[Indoor Calculations	Unselected]
[Wind Dependent Exchange Rate	Case Specified]
[Building Exchange Rate	4 /hr]
[Tail Time	1800 s]
[Set averaging time equal to exposure time	Use a fixed averaging time]
[Cut-off fraction of toxic load for exposure time calculation	0.05 fraction]
[Cut-off concentration for exposure time calculations	0 fraction]

Geometry

Shape	Point
Dimension	2D
System	Absolute
East(1)	0 m
North(1)	0 m

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Consequence Results

Pool Vaporization Results

Path: \Terminal Adonai - Efeitos físicos\Simulações\H018

			Dia	Noite
		Release Segment 1		
Release Duration	s		600	600
Liquid Rainout	fraction		0.533898	0.596405
Maximum Pool Radius	m		0.873245	0.943315

Distance to Concentration Results

Path: \Terminal Adonai - Efeitos físicos\Simulações\H018

The height for user defined concentrations is the user defined height 0 m
All toxic results are reported at the toxic effect height 1 m
All flammable results are reported at the flammable effect height 0 m

Concentration(ppm)		Averaging Time		Distance (m)	
				Dia	Noite
UFL (128000)	18.75	s		No Hazard	No Hazard
LFL (26000)	18.75	s		No Hazard	No Hazard
LFL Frac (26000)	18.75	s		No Hazard	No Hazard
Concentration(ppm)		Averaging Time		Heights (m) for above distances	
				Dia	Noite
UFL (128000)	18.75	s		0	0
LFL (26000)	18.75	s		0	0
LFL Frac (26000)	18.75	s		0	0

Jet Fire Hazard

Path: \Terminal Adonai - Efeitos físicos\Simulações\H018

Jet fire method used: Cone model - DNV recommended

		Dia	Noite
Jet Fire Status		Truncated	Truncated
Flame Direction		Horizontal	Horizontal

Radiation Effects: Jet Fire Ellipse

Path: \Terminal Adonai - Efeitos físicos\Simulações\H018

This table gives the distances to the specified radiation levels
for each jet fire listed in the above hazard table

				Distance (m)	
				Dia	Noite
Radiation Level	9.83	kW/m2		11.43	12.325
Radiation Level	19.46	kW/m2		10.0884	10.9408
Radiation Level	35	kW/m2		9.43089	10.4205

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Radiation Effects: Jet Fire Distance

Path: \Terminal Adonai - Efeitos físicos\Simulações\H018

Dia Radiation Level (kW/m2)
Noite

Early Pool Fire Hazard

Path: \Terminal Adonai - Efeitos físicos\Simulações\H018

Early Pool Fire Status Dia Noite
Hazard Hazard

Radiation Effects: Early Pool Fire Ellipse

Path: \Terminal Adonai - Efeitos físicos\Simulações\H018

			Dia	Distance (m) Noite
Radiation Level	9.83	kW/m2	9.99192	9.43363
Radiation Level	19.46	kW/m2	7.55882	7.15045
Radiation Level	35	kW/m2	7.26329	6.8866

Radiation Effects: Early Pool Fire Distance

Path: \Terminal Adonai - Efeitos físicos\Simulações\H018

Dia Radiation Level (kW/m2)
Noite

Late Pool Fire Hazard

Path: \Terminal Adonai - Efeitos físicos\Simulações\H018

Late Pool Fire Status Dia Noite
Hazard Hazard

Radiation Effects: Late Pool Fire Ellipse

Path: \Terminal Adonai - Efeitos físicos\Simulações\H018

			Dia	Distance (m) Noite
Radiation Level	9.83	kW/m2	10.0805	9.57139
Radiation Level	19.46	kW/m2	7.62113	7.24676
Radiation Level	35	kW/m2	7.28131	6.91724

Radiation Effects: Late Pool Fire Distance

Path: \Terminal Adonai - Efeitos físicos\Simulações\H018

Dia Radiation Level (kW/m2)
Noite

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Weather Conditions

Path: \Terminal Adonai - Efeitos físicos\Simulações\H018

		Dia	Noite
Wind Speed	m/s	3	2
Pasquill Stability		C	E
Surface Roughness Length	mm	1000	1000
Surface Roughness Parameter		0.173718	0.173718
Atmospheric Temperature	degC	25	20
Surface Temperature	degC	30	20
Relative Humidity	fraction	0.8	0.8

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

H019

Base Case

CASE Name: Data

Path: \Terminal Adonai - Efeitos físicos\Simulações\H019

User-Defined Data

Material

Material Identifier ACETONE

Scenario

Building Wake Effect None

Vessel/Tank

Release Type Continuous

Location

Elevation 3 m
Use ERPG averaging time ERPG not selected
Use IDLH averaging time IDLH not selected
Use STEL averaging time STEL not selected
Supply a user defined averaging time Not supplied

Bund

Status of Bund No bund present
[Type of Bund Surface User-Defined (Land)]
[Bund Height 0 m]
[Bund Failure Modeling Bund cannot fail]

Indoor/Outdoor

Location of release Open air release
Outdoor Release Direction Horizontal

Flammable

Explosion Method TNT
Jet Fire Method Cone Model

Dispersion

Number of Release Segments 1
Fluid Phase(1) Liquid
Discharge Velocity(1) 18.76 m/s
Droplet Diameter(1) 684.2 um
Duration of Discharge(1) 600 s
Final Temperature(1) 25.14 degC
Release Rate(1) 19.75 kg/s
Pre-Dilution Air Rates(1) 0 kg/s
Late Ignition Location No ignition location
Mass Inventory of material to Disperse 2.517E6 kg

Fireball Parameters

[Mass Modification Factor 3]
[Calculation method for fireball DNV Recommended]
[TNO model flame temperature 1727 degC]

Toxic Parameters

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

[Indoor Calculations	Unselected]
[Wind Dependent Exchange Rate	Case Specified]
[Building Exchange Rate	4 /hr]
[Tail Time	1800 s]
[Set averaging time equal to exposure time	Use a fixed averaging time]
[Cut-off fraction of toxic load for exposure time calculation	0.05 fraction]
[Cut-off concentration for exposure time calculations	0 fraction]

Geometry

Shape	Point
Dimension	2D
System	Absolute
East(1)	0 m
North(1)	0 m

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Consequence Results

Pool Vaporization Results

Path: \Terminal Adonai - Efeitos físicos\Simulações\H019

		Dia	Noite
	Release Segment 1		
Release Duration	s	600	600
Liquid Rainout	fraction	0.835633	0.852381
	Release Segment 1 Cloud Segment 1		
Cloud Segment Duration	s	205.923	198.81
Pool Vaporization Rate	kg/s	0.21103	0.149458
Total Vapor Flowrate	kg/s	3.45728	3.06493
	Release Segment 1 Cloud Segment 2		
Cloud Segment Duration	s	77.1581	78.4125
Pool Vaporization Rate	kg/s	0.56015	0.381167
Total Vapor Flowrate	kg/s	3.8064	3.29664
	Release Segment 1 Cloud Segment 3		
Cloud Segment Duration	s	58.245	59.5
Pool Vaporization Rate	kg/s	0.741232	0.501691
Total Vapor Flowrate	kg/s	3.98748	3.41716
	Release Segment 1 Cloud Segment 4		
Cloud Segment Duration	s	48.7369	50.3831
Pool Vaporization Rate	kg/s	0.885472	0.597912
Total Vapor Flowrate	kg/s	4.13172	3.51338
	Release Segment 1 Cloud Segment 5		
Cloud Segment Duration	s	43.6181	43.4569
Pool Vaporization Rate	kg/s	1.00986	0.679809
Total Vapor Flowrate	kg/s	4.25612	3.59528
	Release Segment 1 Cloud Segment 6		
Cloud Segment Duration	s	74.8219	76.8131
Pool Vaporization Rate	kg/s	1.16836	0.784023
Total Vapor Flowrate	kg/s	4.41461	3.69949
	Release Segment 1 Cloud Segment 7		
Cloud Segment Duration	s	91.4975	92.6244
Pool Vaporization Rate	kg/s	1.38806	0.929082
Total Vapor Flowrate	kg/s	4.63431	3.84455
Maximum Pool Radius	m	11.1784	11.3367

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Distance to Concentration Results

Path: \Terminal Adonai - Efeitos físicos\Simulações\H019

The height for user defined concentrations is the user defined height 0 m
All toxic results are reported at the toxic effect height 1 m
All flammable results are reported at the flammable effect height 0 m

Concentration(ppm)	Averaging Time		Distance (m)	
			Dia	Noite
UFL (128000)	18.75	s	No Hazard	No Hazard
LFL (26000)	18.75	s	26.9242	34.3857
LFL Frac (26000)	18.75	s	26.9242	34.3857

Concentration(ppm)	Averaging Time		Heights (m) for above distances	
			Dia	Noite
UFL (128000)	18.75	s	0	0
LFL (26000)	18.75	s	0	0
LFL Frac (26000)	18.75	s	0	0

Jet Fire Hazard

Path: \Terminal Adonai - Efeitos físicos\Simulações\H019

Jet fire method used: Cone model - DNV recommended

	Dia	Noite
Jet Fire Status	Truncated	Truncated
Flame Direction	Horizontal	Horizontal

Radiation Effects: Jet Fire Ellipse

Path: \Terminal Adonai - Efeitos físicos\Simulações\H019

This table gives the distances to the specified radiation levels for each jet fire listed in the above hazard table

Radiation Level			Distance (m)	
			Dia	Noite
9.83	kW/m2	66.095	67.8622	
19.46	kW/m2	58.3903	60.1481	
35	kW/m2	52.7607	54.1939	

Radiation Effects: Jet Fire Distance

Path: \Terminal Adonai - Efeitos físicos\Simulações\H019

	Dia	Radiation Level (kW/m2)
		Noite

Early Pool Fire Hazard

Path: \Terminal Adonai - Efeitos físicos\Simulações\H019

	Dia	Noite
Early Pool Fire Status	Hazard	Hazard

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Radiation Effects: Early Pool Fire Ellipse

Path: \Terminal Adonai - Efeitos físicos\Simulações\H019

			Dia	Noite
Radiation Level	9.83	kW/m2	55.2377	54.5583
Radiation Level	19.46	kW/m2	44.2605	42.6594
Radiation Level	35	kW/m2	32.2457	31.4344

Radiation Effects: Early Pool Fire Distance

Path: \Terminal Adonai - Efeitos físicos\Simulações\H019

	Dia	Noite
Radiation Level (kW/m2)		

Late Pool Fire Hazard

Path: \Terminal Adonai - Efeitos físicos\Simulações\H019

	Dia	Noite
Late Pool Fire Status	Hazard	Hazard

Radiation Effects: Late Pool Fire Ellipse

Path: \Terminal Adonai - Efeitos físicos\Simulações\H019

			Dia	Noite
Radiation Level	9.83	kW/m2	57.2371	56.3279
Radiation Level	19.46	kW/m2	45.7975	43.9872
Radiation Level	35	kW/m2	33.5894	32.4274

Radiation Effects: Late Pool Fire Distance

Path: \Terminal Adonai - Efeitos físicos\Simulações\H019

	Dia	Noite
Radiation Level (kW/m2)		

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Flash Fire Envelope

Path: \Terminal Adonai - Efeitos físicos\Simulações\H019

All flammable results are reported at the flammable effect height 0 m

				Distance (m)	
				Dia	Noite
Furthest Extent	26000	ppm	26.9242	26.9242	34.3857
Furthest Extent	26000	ppm	26.9242	26.9242	34.3857
				Heights (m) for above distances	
				Dia	Noite
Furthest Extent	26000	ppm	0	0	0
Furthest Extent	26000	ppm	0	0	0

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Explosion Effects: Late Ignition

Path: \Terminal Adonai - Efeitos físicos\Simulações\H019

Explosion Model Used : TNT

Explosion Location Criterion: Cloud Center

All distances are measured from the Source

All flammable results are reported at the flammable effect height 0 m

			Maximum Distance (m) at Overpressure Level	
			Dia	Noite
Overpressure	0.05	bar	29.2606	38.9641
Overpressure	0.1	bar	21.9574	29.8766
Overpressure	0.3	bar	15.9717	22.4284

Supplementary Data at 0.05 bar

			Dia	Noite
Supplied Flammable Mass		kg	2.35523	4.53757
Used Flammable Mass		kg	2.35523	4.53757
Overpressure Radius		m	19.2589	23.9641
Distance to:				
- Ignition Source		m	20	30
- Cloud Front/Centre		m	20	30
- Explosion Centre		m	10.0018	15

Supplementary Data at 0.1 bar

			Dia	Noite
Supplied Flammable Mass		kg	2.35523	4.53757
Used Flammable Mass		kg	2.35523	4.53757
Overpressure Radius		m	11.9556	14.8765
Distance to:				
- Ignition Source		m	20	30
- Cloud Front/Centre		m	20	30
- Explosion Centre		m	10.0018	15

Supplementary Data at 0.3 bar

			Dia	Noite
Supplied Flammable Mass		kg	2.35523	4.53757
Used Flammable Mass		kg	2.35523	4.53757
Overpressure Radius		m	5.96986	7.42838
Distance to:				
- Ignition Source		m	20	30
- Cloud Front/Centre		m	20	30
- Explosion Centre		m	10.0018	15

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Weather Conditions

Path: \Terminal Adonai - Efeitos físicos\Simulações\H019

		Dia	Noite
Wind Speed	m/s	3	2
Pasquill Stability		C	E
Surface Roughness Length	mm	1000	1000
Surface Roughness Parameter		0.173718	0.173718
Atmospheric Temperature	degC	25	20
Surface Temperature	degC	30	20
Relative Humidity	fraction	0.8	0.8

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

H020

Base Case

CASE Name: Data

Path: \Terminal Adonai - Efeitos físicos\Simulações\H020

User-Defined Data

Material

Material Identifier ACETONE

Scenario

Building Wake Effect None

Vessel/Tank

Release Type Continuous

Location

Elevation 3 m
Use ERPG averaging time ERPG not selected
Use IDLH averaging time IDLH not selected
Use STEL averaging time STEL not selected
Supply a user defined averaging time Not supplied

Bund

Status of Bund No bund present
[Type of Bund Surface User-Defined (Land)]
[Bund Height 0 m]
[Bund Failure Modeling Bund cannot fail]

Indoor/Outdoor

Location of release Open air release
Outdoor Release Direction Horizontal

Flammable

Explosion Method TNT
Jet Fire Method Cone Model

Dispersion

Number of Release Segments 1
Fluid Phase(1) Liquid
Discharge Velocity(1) 31.25 m/s
Droplet Diameter(1) 246.8 um
Duration of Discharge(1) 600 s
Final Temperature(1) 24.91 degC
Release Rate(1) 0.2 kg/s
Pre-Dilution Air Rates(1) 0 kg/s
Late Ignition Location No ignition location
Mass Inventory of material to Disperse 2.517E6 kg

Fireball Parameters

[Mass Modification Factor 3]
[Calculation method for fireball DNV Recommended]
[TNO model flame temperature 1727 degC]

Toxic Parameters

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

[Indoor Calculations	Unselected]
[Wind Dependent Exchange Rate	Case Specified]
[Building Exchange Rate	4 /hr]
[Tail Time	1800 s]
[Set averaging time equal to exposure time	Use a fixed averaging time]
[Cut-off fraction of toxic load for exposure time calculation	0.05 fraction]
[Cut-off concentration for exposure time calculations	0 fraction]

Geometry

Shape	Point
Dimension	2D
System	Absolute
East(1)	0 m
North(1)	0 m

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Consequence Results

Pool Vaporization Results

Path: \Terminal Adonai - Efeitos físicos\Simulações\H020

			Dia	Noite
		Release Segment 1		
Release Duration		s	600	600
Liquid Rainout		fraction	0.00573995	0.18344
Maximum Pool Radius		m	0.0866389	0.520325

Distance to Concentration Results

Path: \Terminal Adonai - Efeitos físicos\Simulações\H020

The height for user defined concentrations is the user defined height 0 m
 All toxic results are reported at the toxic effect height 1 m
 All flammable results are reported at the flammable effect height 0 m

Concentration(ppm)	Averaging Time		Dia	Noite	Distance (m)
UFL (128000)	18.75	s	No Hazard	No Hazard	No Hazard
LFL (26000)	18.75	s	No Hazard	No Hazard	No Hazard
LFL Frac (26000)	18.75	s	No Hazard	No Hazard	No Hazard
Concentration(ppm)	Averaging Time		Dia	Noite	Heights (m) for above distances
UFL (128000)	18.75	s	0	0	0
LFL (26000)	18.75	s	0	0	0
LFL Frac (26000)	18.75	s	0	0	0

Jet Fire Hazard

Path: \Terminal Adonai - Efeitos físicos\Simulações\H020

Jet fire method used: Cone model - DNV recommended

	Dia	Noite
Jet Fire Status	Hazard	Hazard
Flame Direction	Horizontal	Horizontal

Radiation Effects: Jet Fire Ellipse

Path: \Terminal Adonai - Efeitos físicos\Simulações\H020

This table gives the distances to the specified radiation levels for each jet fire listed in the above hazard table

			Dia	Noite	Distance (m)
Radiation Level	9.83	kW/m2	9.31148	10.1258	
Radiation Level	19.46	kW/m2	Not Reached	Not Reached	
Radiation Level	35	kW/m2	Not Reached	Not Reached	

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Radiation Effects: Jet Fire Distance

Path: \Terminal Adonai - Efeitos físicos\Simulações\H020

Dia Radiation Level (kW/m2)
Noite

Early Pool Fire Hazard

Path: \Terminal Adonai - Efeitos físicos\Simulações\H020

Early Pool Fire Status Dia Noite
Hazard Hazard

Radiation Effects: Early Pool Fire Ellipse

Path: \Terminal Adonai - Efeitos físicos\Simulações\H020

			Dia	Noite
Radiation Level	9.83	kW/m2	15.4747	11.6633
Radiation Level	19.46	kW/m2	15.4747	10.772
Radiation Level	35	kW/m2	Not Reached	10.772

Radiation Effects: Early Pool Fire Distance

Path: \Terminal Adonai - Efeitos físicos\Simulações\H020

Dia Radiation Level (kW/m2)
Noite

Late Pool Fire Hazard

Path: \Terminal Adonai - Efeitos físicos\Simulações\H020

Late Pool Fire Status Dia Noite
Hazard Hazard

Radiation Effects: Late Pool Fire Ellipse

Path: \Terminal Adonai - Efeitos físicos\Simulações\H020

			Dia	Noite
Radiation Level	9.83	kW/m2	15.4747	11.7499
Radiation Level	19.46	kW/m2	15.4747	10.7862
Radiation Level	35	kW/m2	Not Reached	10.7862

Radiation Effects: Late Pool Fire Distance

Path: \Terminal Adonai - Efeitos físicos\Simulações\H020

Dia Radiation Level (kW/m2)
Noite

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Weather Conditions

Path: \Terminal Adonai - Efeitos físicos\Simulações\H020

		Dia	Noite
Wind Speed	m/s	3	2
Pasquill Stability		C	E
Surface Roughness Length	mm	1000	1000
Surface Roughness Parameter		0.173718	0.173718
Atmospheric Temperature	degC	25	20
Surface Temperature	degC	30	20
Relative Humidity	fraction	0.8	0.8

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

H021

Base Case

CASE Name: Data

Path: \Terminal Adonai - Efeitos físicos\Simulações\H021

User-Defined Data

Material

Material Identifier BENZENE

Scenario

Building Wake Effect None

Vessel/Tank

Release Type Continuous

Location

Elevation 0 m
Use ERPG averaging time ERPG not selected
Use IDLH averaging time IDLH not selected
Use STEL averaging time STEL not selected
Supply a user defined averaging time Not supplied

Bund

Status of Bund Bund present
Bund Area 1.152E4 m2
[Type of Bund Surface User-Defined (Land)]
Bund Height 0.3 m
[Bund Failure Modeling Bund cannot fail]

Indoor/Outdoor

Location of release Open air release
Outdoor Release Direction Horizontal

Flammable

Explosion Method TNT
Jet Fire Method Cone Model

Dispersion

Number of Release Segments 1
Fluid Phase(1) Liquid
Discharge Velocity(1) 19.04 m/s
Droplet Diameter(1) 812.5 um
Duration of Discharge(1) 600 s
Final Temperature(1) 25.22 degC
Release Rate(1) 112.1 kg/s
Pre-Dilution Air Rates(1) 0 kg/s
Late Ignition Location No ignition location
Mass Inventory of material to Disperse 2.619E6 kg

Fireball Parameters

[Mass Modification Factor 3]
[Calculation method for fireball DNV Recommended]
[TNO model flame temperature 1727 degC]

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Toxic Parameters

[Indoor Calculations	Unselected]
[Wind Dependent Exchange Rate	Case Specified]
[Building Exchange Rate	4 /hr]
[Tail Time	1800 s]
[Set averaging time equal to exposure time	Use a fixed averaging time]
[Cut-off fraction of toxic load for exposure time calculation	0.05 fraction]
[Cut-off concentration for exposure time calculations	0 fraction]

Geometry

Shape	Point
Dimension	2D
System	Absolute
East(1)	0 m
North(1)	0 m

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Consequence Results

Pool Vaporization Results

Path: \Terminal Adonai - Efeitos físicos\Simulações\H021

		Dia	Noite
	Release Segment 1		
Release Duration	s	600	600
Liquid Rainout	fraction	1	1
	Release Segment 1 Cloud Segment 1		
Cloud Segment Duration	s	178.891	171.61
Pool Vaporization Rate	kg/s	1.40844	0.991951
Total Vapor Flowrate	kg/s	1.40848	0.991995
	Release Segment 1 Cloud Segment 2		
Cloud Segment Duration	s	77.91	78.03
Pool Vaporization Rate	kg/s	3.22732	2.19604
Total Vapor Flowrate	kg/s	3.22737	2.19608
	Release Segment 1 Cloud Segment 3		
Cloud Segment Duration	s	60.93	61.8825
Pool Vaporization Rate	kg/s	4.13186	2.78465
Total Vapor Flowrate	kg/s	4.13191	2.78469
	Release Segment 1 Cloud Segment 4		
Cloud Segment Duration	s	51.87	53.2875
Pool Vaporization Rate	kg/s	4.83967	3.24186
Total Vapor Flowrate	kg/s	4.83971	3.24191
	Release Segment 1 Cloud Segment 5		
Cloud Segment Duration	s	89.43	91.0125
Pool Vaporization Rate	kg/s	5.69626	3.78619
Total Vapor Flowrate	kg/s	5.6963	3.78624
	Release Segment 1 Cloud Segment 6		
Cloud Segment Duration	s	112.179	114.193
Pool Vaporization Rate	kg/s	6.87321	4.51986
Total Vapor Flowrate	kg/s	6.87326	4.5199
	Release Segment 1 Cloud Segment 7		
Cloud Segment Duration	s	28.79	29.9844
Pool Vaporization Rate	kg/s	7.67113	5.01384
Total Vapor Flowrate	kg/s	7.67117	5.01388
Maximum Pool Radius	m	28.0377	28.13

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Distance to Concentration Results

Path: \Terminal Adonai - Efeitos físicos\Simulações\H021

The height for user defined concentrations is the user defined height 0 m

All toxic results are reported at the toxic effect height 1 m

All flammable results are reported at the flammable effect height 0 m

Concentration(ppm)	Averaging Time		Distance (m)	
			Dia	Noite
UFL (79000)	18.75	s	0	0
LFL (13000)	18.75	s	0	0
LFL Frac (13000)	18.75	s	0	0

Concentration(ppm)	Averaging Time		Heights (m) for above distances	
			Dia	Noite
UFL (79000)	18.75	s	0	0
LFL (13000)	18.75	s	0	0
LFL Frac (13000)	18.75	s	0	0

Jet Fire Hazard

Path: \Terminal Adonai - Efeitos físicos\Simulações\H021

Jet fire method used: Cone model - DNV recommended

	Dia	Noite
Jet Fire Status	Truncated	Truncated
Flame Direction	Horizontal	Horizontal

Radiation Effects: Jet Fire Ellipse

Path: \Terminal Adonai - Efeitos físicos\Simulações\H021

This table gives the distances to the specified radiation levels for each jet fire listed in the above hazard table

Radiation Level			Distance (m)	
			Dia	Noite
9.83	kW/m2	1.35788	1.39946	
19.46	kW/m2	1.35788	Not Reached	
35	kW/m2	Not Reached	Not Reached	

Radiation Effects: Jet Fire Distance

Path: \Terminal Adonai - Efeitos físicos\Simulações\H021

	Dia	Radiation Level (kW/m2)
		Noite

Early Pool Fire Hazard

Path: \Terminal Adonai - Efeitos físicos\Simulações\H021

	Dia	Noite
Early Pool Fire Status	Hazard	Hazard

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Radiation Effects: Early Pool Fire Ellipse

Path: \Terminal Adonai - Efeitos físicos\Simulações\H021

			Dia	Noite
Radiation Level	9.83	kW/m2	28.7428	27.5638
Radiation Level	19.46	kW/m2	22.1338	22.3353
Radiation Level	35	kW/m2	Not Reached	Not Reached

Radiation Effects: Early Pool Fire Distance

Path: \Terminal Adonai - Efeitos físicos\Simulações\H021

	Dia	Noite
Radiation Level (kW/m2)		

Late Pool Fire Hazard

Path: \Terminal Adonai - Efeitos físicos\Simulações\H021

	Dia	Noite
Late Pool Fire Status	Hazard	Hazard

Radiation Effects: Late Pool Fire Ellipse

Path: \Terminal Adonai - Efeitos físicos\Simulações\H021

			Dia	Noite
Radiation Level	9.83	kW/m2	35.7754	34.3226
Radiation Level	19.46	kW/m2	29.0377	29.13
Radiation Level	35	kW/m2	Not Reached	Not Reached

Radiation Effects: Late Pool Fire Distance

Path: \Terminal Adonai - Efeitos físicos\Simulações\H021

	Dia	Noite
Radiation Level (kW/m2)		

Weather Conditions

Path: \Terminal Adonai - Efeitos físicos\Simulações\H021

		Dia	Noite
Wind Speed	m/s	3	2
Pasquill Stability		C	E
Surface Roughness Length	mm	1000	1000
Surface Roughness Parameter		0.173718	0.173718
Atmospheric Temperature	degC	25	20
Surface Temperature	degC	30	20
Relative Humidity	fraction	0.8	0.8

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

H022

Base Case

CASE Name: Data

Path: \Terminal Adonai - Efeitos físicos\Simulações\H022

User-Defined Data

Material

Material Identifier BENZENE

Scenario

Building Wake Effect None

Vessel/Tank

Release Type Continuous

Location

Elevation 0 m
Use ERPG averaging time ERPG not selected
Use IDLH averaging time IDLH not selected
Use STEL averaging time STEL not selected
Supply a user defined averaging time Not supplied

Bund

Status of Bund Bund present
Bund Area 1.152E4 m2
[Type of Bund Surface User-Defined (Land)]
Bund Height 0.3 m
[Bund Failure Modeling Bund cannot fail]

Indoor/Outdoor

Location of release Open air release
Outdoor Release Direction Horizontal

Flammable

Explosion Method TNT
Jet Fire Method Cone Model

Dispersion

Number of Release Segments 1
Fluid Phase(1) Liquid
Discharge Velocity(1) 31.72 m/s
Droplet Diameter(1) 293.1 um
Duration of Discharge(1) 600 s
Final Temperature(1) 24.9 degC
Release Rate(1) 1.12 kg/s
Pre-Dilution Air Rates(1) 0 kg/s
Late Ignition Location No ignition location
Mass Inventory of material to Disperse 2.619E6 kg

Fireball Parameters

[Mass Modification Factor 3]
[Calculation method for fireball DNV Recommended]
[TNO model flame temperature 1727 degC]

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Toxic Parameters

[Indoor Calculations	Unselected]
[Wind Dependent Exchange Rate	Case Specified]
[Building Exchange Rate	4 /hr]
[Tail Time	1800 s]
[Set averaging time equal to exposure time	Use a fixed averaging time]
[Cut-off fraction of toxic load for exposure time calculation	0.05 fraction]
[Cut-off concentration for exposure time calculations	0 fraction]

Geometry

Shape	Point
Dimension	2D
System	Absolute
East(1)	0 m
North(1)	0 m

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Consequence Results

Pool Vaporization Results

Path: \Terminal Adonai - Efeitos físicos\Simulações\H022

		Dia	Noite
	Release Segment 1		
Release Duration	s	600	600
Liquid Rainout	fraction	1	1
	Release Segment 1 Cloud Segment 1		
Cloud Segment Duration	s	181.576	
Pool Vaporization Rate	kg/s	0.0193829	
Total Vapor Flowrate	kg/s	0.0193833	4.3147e-007
	Release Segment 1 Cloud Segment 2		
Cloud Segment Duration	s	78.44	
Pool Vaporization Rate	kg/s	0.0451542	
Total Vapor Flowrate	kg/s	0.0451546	
	Release Segment 1 Cloud Segment 3		
Cloud Segment Duration	s	61.29	
Pool Vaporization Rate	kg/s	0.058159	
Total Vapor Flowrate	kg/s	0.0581594	
	Release Segment 1 Cloud Segment 4		
Cloud Segment Duration	s	52.15	
Pool Vaporization Rate	kg/s	0.0684144	
Total Vapor Flowrate	kg/s	0.0684148	
	Release Segment 1 Cloud Segment 5		
Cloud Segment Duration	s	87.72	
Pool Vaporization Rate	kg/s	0.0807248	
Total Vapor Flowrate	kg/s	0.0807252	
	Release Segment 1 Cloud Segment 6		
Cloud Segment Duration	s	110.034	
Pool Vaporization Rate	kg/s	0.097619	
Total Vapor Flowrate	kg/s	0.0976194	
	Release Segment 1 Cloud Segment 7		
Cloud Segment Duration	s	28.79	
Pool Vaporization Rate	kg/s	0.109187	
Total Vapor Flowrate	kg/s	0.109187	
Maximum Pool Radius	m	2.7842	2.80261

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Distance to Concentration Results

Path: \Terminal Adonai - Efeitos físicos\Simulações\H022

The height for user defined concentrations is the user defined height 0 m

All toxic results are reported at the toxic effect height 1 m

All flammable results are reported at the flammable effect height 0 m

Concentration(ppm)	Averaging Time		Distance (m)	
			Dia	Noite
UFL (79000)	18.75	s	0	0.00877426
LFL (13000)	18.75	s	0	0.021593
LFL Frac (13000)	18.75	s	0	0.021593

Concentration(ppm)	Averaging Time		Heights (m) for above distances	
			Dia	Noite
UFL (79000)	18.75	s	0	0
LFL (13000)	18.75	s	0	0
LFL Frac (13000)	18.75	s	0	0

Jet Fire Hazard

Path: \Terminal Adonai - Efeitos físicos\Simulações\H022

Jet fire method used: Cone model - DNV recommended

	Dia	Noite
Jet Fire Status	Truncated	Truncated
Flame Direction	Horizontal	Horizontal

Radiation Effects: Jet Fire Ellipse

Path: \Terminal Adonai - Efeitos físicos\Simulações\H022

This table gives the distances to the specified radiation levels for each jet fire listed in the above hazard table

Radiation Level			Distance (m)	
			Dia	Noite
9.83	kW/m2	1.04192	1.04679	
19.46	kW/m2	Not Reached	Not Reached	
35	kW/m2	Not Reached	Not Reached	

Radiation Effects: Jet Fire Distance

Path: \Terminal Adonai - Efeitos físicos\Simulações\H022

	Dia	Radiation Level (kW/m2)
		Noite

Early Pool Fire Hazard

Path: \Terminal Adonai - Efeitos físicos\Simulações\H022

	Dia	Noite
Early Pool Fire Status	Hazard	Hazard

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Radiation Effects: Early Pool Fire Ellipse

Path: \Terminal Adonai - Efeitos físicos\Simulações\H022

			Dia	Noite
Radiation Level	9.83	kW/m2	14.3086	13.5422
Radiation Level	19.46	kW/m2	9.90215	8.95758
Radiation Level	35	kW/m2	5.08575	4.72666

Radiation Effects: Early Pool Fire Distance

Path: \Terminal Adonai - Efeitos físicos\Simulações\H022

Dia
Noite
Radiation Level (kW/m2)

Late Pool Fire Hazard

Path: \Terminal Adonai - Efeitos físicos\Simulações\H022

	Dia	Noite
Late Pool Fire Status	Hazard	Hazard

Radiation Effects: Late Pool Fire Ellipse

Path: \Terminal Adonai - Efeitos físicos\Simulações\H022

			Dia	Noite
Radiation Level	9.83	kW/m2	16.8304	15.7844
Radiation Level	19.46	kW/m2	10.8421	9.88182
Radiation Level	35	kW/m2	5.49534	5.18193

Radiation Effects: Late Pool Fire Distance

Path: \Terminal Adonai - Efeitos físicos\Simulações\H022

Dia
Noite
Radiation Level (kW/m2)

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Flash Fire Envelope

Path: \Terminal Adonai - Efeitos físicos\Simulações\H022

All flammable results are reported at the flammable effect height 0 m

				Distance (m)
				Noite
Furthest Extent	13000	ppm		0.021593
Furthest Extent	13000	ppm		0.021593
				Heights (m) for above distances
				Noite
Furthest Extent	13000	ppm		0
Furthest Extent	13000	ppm		0

Weather Conditions

Path: \Terminal Adonai - Efeitos físicos\Simulações\H022

		Dia	Noite
Wind Speed	m/s	3	2
Pasquill Stability		C	E
Surface Roughness Length	mm	1000	1000
Surface Roughness Parameter		0.173718	0.173718
Atmospheric Temperature	degC	25	20
Surface Temperature	degC	30	20
Relative Humidity	fraction	0.8	0.8

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

H023

Base Case

CASE Name: Data

Path: \Terminal Adonai - Efeitos físicos\Simulações\H023

User-Defined Data

Material

Material Identifier BENZENE

Scenario

Building Wake Effect None

Vessel/Tank

Release Type Continuous

Location

Elevation 1 m
Use ERPG averaging time ERPG not selected
Use IDLH averaging time IDLH not selected
Use STEL averaging time STEL not selected
Supply a user defined averaging time Not supplied

Bund

Status of Bund No bund present
[Type of Bund Surface User-Defined (Land)]
[Bund Height 0 m]
[Bund Failure Modeling Bund cannot fail]

Indoor/Outdoor

Location of release Open air release
Outdoor Release Direction Horizontal

Flammable

Explosion Method TNT
Jet Fire Method Cone Model

Dispersion

Number of Release Segments 1
Fluid Phase(1) Liquid
Discharge Velocity(1) 19.04 m/s
Droplet Diameter(1) 812.5 um
Duration of Discharge(1) 600 s
Final Temperature(1) 25.22 degC
Release Rate(1) 112.1 kg/s
Pre-Dilution Air Rates(1) 0 kg/s
Late Ignition Location No ignition location
Mass Inventory of material to Disperse 2.619E6 kg

Fireball Parameters

[Mass Modification Factor 3]
[Calculation method for fireball DNV Recommended]
[TNO model flame temperature 1727 degC]

Toxic Parameters

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

[Indoor Calculations	Unselected]
[Wind Dependent Exchange Rate	Case Specified]
[Building Exchange Rate	4 /hr]
[Tail Time	1800 s]
[Set averaging time equal to exposure time	Use a fixed averaging time]
[Cut-off fraction of toxic load for exposure time calculation	0.05 fraction]
[Cut-off concentration for exposure time calculations	0 fraction]

Geometry

Shape	Point
Dimension	2D
System	Absolute
East(1)	0 m
North(1)	0 m

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Consequence Results

Pool Vaporization Results

Path: \Terminal Adonai - Efeitos físicos\Simulações\H023

		Dia	Noite
	Release Segment 1		
Release Duration	s	600	600
Liquid Rainout	fraction	0.959354	0.963487
	Release Segment 1 Cloud Segment 1		
Cloud Segment Duration	s	188.376	180.903
Pool Vaporization Rate	kg/s	1.0337	0.72398
Total Vapor Flowrate	kg/s	5.59091	4.81786
	Release Segment 1 Cloud Segment 2		
Cloud Segment Duration	s	78.9469	78.3075
Pool Vaporization Rate	kg/s	2.49278	1.67317
Total Vapor Flowrate	kg/s	7.05	5.76705
	Release Segment 1 Cloud Segment 3		
Cloud Segment Duration	s	60.2875	61.2
Pool Vaporization Rate	kg/s	3.24313	2.15014
Total Vapor Flowrate	kg/s	7.80034	6.24402
	Release Segment 1 Cloud Segment 4		
Cloud Segment Duration	s	51.6656	52.08
Pool Vaporization Rate	kg/s	3.8395	2.52551
Total Vapor Flowrate	kg/s	8.39671	6.61939
	Release Segment 1 Cloud Segment 5		
Cloud Segment Duration	s	45.0844	88.6856
Pool Vaporization Rate	kg/s	4.34956	2.97863
Total Vapor Flowrate	kg/s	8.90677	7.07251
	Release Segment 1 Cloud Segment 6		
Cloud Segment Duration	s	78.5206	110.034
Pool Vaporization Rate	kg/s	4.99325	3.59822
Total Vapor Flowrate	kg/s	9.55047	7.6921
	Release Segment 1 Cloud Segment 7		
Cloud Segment Duration	s	97.1194	28.79
Pool Vaporization Rate	kg/s	5.89332	4.01981
Total Vapor Flowrate	kg/s	10.4505	8.11369
Maximum Pool Radius	m	27.5071	27.6251

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Distance to Concentration Results

Path: \Terminal Adonai - Efeitos físicos\Simulações\H023

The height for user defined concentrations is the user defined height 0 m
All toxic results are reported at the toxic effect height 1 m
All flammable results are reported at the flammable effect height 0 m

Concentration(ppm)	Averaging Time		Distance (m)	
			Dia	Noite
UFL (79000)	18.75	s	8.90144	8.92531
LFL (13000)	18.75	s	47.6735	54.082
LFL Frac (13000)	18.75	s	47.6735	54.082

Concentration(ppm)	Averaging Time		Heights (m) for above distances	
			Dia	Noite
UFL (79000)	18.75	s	0	0
LFL (13000)	18.75	s	0	0
LFL Frac (13000)	18.75	s	0	0

Jet Fire Hazard

Path: \Terminal Adonai - Efeitos físicos\Simulações\H023

Jet fire method used: Cone model - DNV recommended

	Dia	Noite
Jet Fire Status	Truncated	Truncated
Flame Direction	Horizontal	Horizontal

Radiation Effects: Jet Fire Ellipse

Path: \Terminal Adonai - Efeitos físicos\Simulações\H023

This table gives the distances to the specified radiation levels
for each jet fire listed in the above hazard table

Radiation Level			Distance (m)	
			Dia	Noite
9.83	kW/m2		77.8837	79.5993
19.46	kW/m2		68.0133	69.8813
35	kW/m2		61.284	63.1155

Radiation Effects: Jet Fire Distance

Path: \Terminal Adonai - Efeitos físicos\Simulações\H023

	Dia	Radiation Level (kW/m2)
		Noite

Early Pool Fire Hazard

Path: \Terminal Adonai - Efeitos físicos\Simulações\H023

	Dia	Noite
Early Pool Fire Status	Hazard	Hazard

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Radiation Effects: Early Pool Fire Ellipse

Path: \Terminal Adonai - Efeitos físicos\Simulações\H023

			Dia	Noite
Radiation Level	9.83	kW/m2	37.381	36.2452
Radiation Level	19.46	kW/m2	30.7614	30.9875
Radiation Level	35	kW/m2	Not Reached	Not Reached

Radiation Effects: Early Pool Fire Distance

Path: \Terminal Adonai - Efeitos físicos\Simulações\H023

	Dia	Noite
Radiation Level (kW/m2)		

Late Pool Fire Hazard

Path: \Terminal Adonai - Efeitos físicos\Simulações\H023

	Dia	Noite
Late Pool Fire Status	Hazard	Hazard

Radiation Effects: Late Pool Fire Ellipse

Path: \Terminal Adonai - Efeitos físicos\Simulações\H023

			Dia	Noite
Radiation Level	9.83	kW/m2	44.265	42.851
Radiation Level	19.46	kW/m2	37.5686	37.6704
Radiation Level	35	kW/m2	Not Reached	Not Reached

Radiation Effects: Late Pool Fire Distance

Path: \Terminal Adonai - Efeitos físicos\Simulações\H023

	Dia	Noite
Radiation Level (kW/m2)		

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Flash Fire Envelope

Path: \Terminal Adonai - Efeitos físicos\Simulações\H023

All flammable results are reported at the flammable effect height 0 m

				Distance (m)	
				Dia	Noite
Furthest Extent	13000	ppm	47.6735	54.082	
Furthest Extent	13000	ppm	47.6735	54.082	
				Heights (m) for above distances	
				Dia	Noite
Furthest Extent	13000	ppm	0	0	
Furthest Extent	13000	ppm	0	0	

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Explosion Effects: Late Ignition

Path: \Terminal Adonai - Efeitos físicos\Simulações\H023

Explosion Model Used : TNT

Explosion Location Criterion: Cloud Center

All distances are measured from the Source

All flammable results are reported at the flammable effect height 0 m

			Maximum Distance (m) at Overpressure Level	
			Dia	Noite
Overpressure	0.05	bar	69.5246	96.4298
Overpressure	0.1	bar	50.7442	69.3426
Overpressure	0.3	bar	35.3517	47.1418

			Supplementary Data at 0.05 bar	
			Dia	Noite
Supplied Flammable Mass		kg	28.4955	85.497
Used Flammable Mass		kg	28.4955	85.497
Overpressure Radius		m	49.5246	71.4298
Distance to:				
- Ignition Source		m	40	50
- Cloud Front/Centre		m	40	50
- Explosion Centre		m	20	25

			Supplementary Data at 0.1 bar	
			Dia	Noite
Supplied Flammable Mass		kg	28.4955	85.497
Used Flammable Mass		kg	28.4955	85.497
Overpressure Radius		m	30.7442	44.3426
Distance to:				
- Ignition Source		m	40	50
- Cloud Front/Centre		m	40	50
- Explosion Centre		m	20	25

			Supplementary Data at 0.3 bar	
			Dia	Noite
Supplied Flammable Mass		kg	28.4955	85.497
Used Flammable Mass		kg	28.4955	85.497
Overpressure Radius		m	15.3517	22.1418
Distance to:				
- Ignition Source		m	40	50
- Cloud Front/Centre		m	40	50
- Explosion Centre		m	20	25

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Weather Conditions

Path: \Terminal Adonai - Efeitos físicos\Simulações\H023

		Dia	Noite
Wind Speed	m/s	3	2
Pasquill Stability		C	E
Surface Roughness Length	mm	1000	1000
Surface Roughness Parameter		0.173718	0.173718
Atmospheric Temperature	degC	25	20
Surface Temperature	degC	30	20
Relative Humidity	fraction	0.8	0.8

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

H024

Base Case

CASE Name: Data

Path: \Terminal Adonai - Efeitos físicos\Simulações\H024

User-Defined Data

Material

Material Identifier BENZENE

Scenario

Building Wake Effect None

Vessel/Tank

Release Type Continuous

Location

Elevation 1 m
Use ERPG averaging time ERPG not selected
Use IDLH averaging time IDLH not selected
Use STEL averaging time STEL not selected
Supply a user defined averaging time Not supplied

Bund

Status of Bund No bund present
[Type of Bund Surface User-Defined (Land)]
[Bund Height 0 m]
[Bund Failure Modeling Bund cannot fail]

Indoor/Outdoor

Location of release Open air release
Outdoor Release Direction Horizontal

Flammable

Explosion Method TNT
Jet Fire Method Cone Model

Dispersion

Number of Release Segments 1
Fluid Phase(1) Liquid
Discharge Velocity(1) 31.72 m/s
Droplet Diameter(1) 293.1 um
Duration of Discharge(1) 600 s
Final Temperature(1) 24.9 degC
Release Rate(1) 1.12 kg/s
Pre-Dilution Air Rates(1) 0 kg/s
Late Ignition Location No ignition location
Mass Inventory of material to Disperse 2.619E6 kg

Fireball Parameters

[Mass Modification Factor 3]
[Calculation method for fireball DNV Recommended]
[TNO model flame temperature 1727 degC]

Toxic Parameters

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

[Indoor Calculations	Unselected]
[Wind Dependent Exchange Rate	Case Specified]
[Building Exchange Rate	4 /hr]
[Tail Time	1800 s]
[Set averaging time equal to exposure time	Use a fixed averaging time]
[Cut-off fraction of toxic load for exposure time calculation	0.05 fraction]
[Cut-off concentration for exposure time calculations	0 fraction]

Geometry

Shape	Point
Dimension	2D
System	Absolute
East(1)	0 m
North(1)	0 m

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Consequence Results

Pool Vaporization Results

Path: \Terminal Adonai - Efeitos físicos\Simulações\H024

			Dia	Noite
		Release Segment 1		
Release Duration	s		600	600
Liquid Rainout	fraction		0.759056	0.788555
Maximum Pool Radius	m		2.43451	2.49293

Distance to Concentration Results

Path: \Terminal Adonai - Efeitos físicos\Simulações\H024

The height for user defined concentrations is the user defined height 0 m
All toxic results are reported at the toxic effect height 1 m
All flammable results are reported at the flammable effect height 0 m

Concentration(ppm)		Averaging Time		Distance (m)	
				Dia	Noite
UFL (79000)	18.75	s		No Hazard	No Hazard
LFL (13000)	18.75	s		6.71787	6.65389
LFL Frac (13000)	18.75	s		6.71787	6.65389
Concentration(ppm)		Averaging Time		Heights (m) for above distances	
				Dia	Noite
UFL (79000)	18.75	s		0	0
LFL (13000)	18.75	s		0	0
LFL Frac (13000)	18.75	s		0	0

Jet Fire Hazard

Path: \Terminal Adonai - Efeitos físicos\Simulações\H024

Jet fire method used: Cone model - DNV recommended

			Dia	Noite
Jet Fire Status			Truncated	Truncated
Flame Direction			Horizontal	Horizontal

Radiation Effects: Jet Fire Ellipse

Path: \Terminal Adonai - Efeitos físicos\Simulações\H024

This table gives the distances to the specified radiation levels
for each jet fire listed in the above hazard table

			Distance (m)	
			Dia	Noite
Radiation Level	9.83	kW/m ²	21.7022	21.8783
Radiation Level	19.46	kW/m ²	19.0044	19.3009
Radiation Level	35	kW/m ²	17.1279	17.4685

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Radiation Effects: Jet Fire Distance

Path: \\Terminal Adonai - Efeitos físicos\Simulações\H024

Dia Radiation Level (kW/m2)
Noite

Early Pool Fire Hazard

Path: \\Terminal Adonai - Efeitos físicos\Simulações\H024

Early Pool Fire Status Dia Noite
Hazard Hazard

Radiation Effects: Early Pool Fire Ellipse

Path: \\Terminal Adonai - Efeitos físicos\Simulações\H024

			Dia	Noite
Radiation Level	9.83	kW/m2	19.9655	19.3484
Radiation Level	19.46	kW/m2	16.132	15.2185
Radiation Level	35	kW/m2	11.6231	11.2475

Radiation Effects: Early Pool Fire Distance

Path: \\Terminal Adonai - Efeitos físicos\Simulações\H024

Dia Radiation Level (kW/m2)
Noite

Late Pool Fire Hazard

Path: \\Terminal Adonai - Efeitos físicos\Simulações\H024

Late Pool Fire Status Dia Noite
Hazard Hazard

Radiation Effects: Late Pool Fire Ellipse

Path: \\Terminal Adonai - Efeitos físicos\Simulações\H024

			Dia	Noite
Radiation Level	9.83	kW/m2	22.4231	21.5528
Radiation Level	19.46	kW/m2	17.264	16.2256
Radiation Level	35	kW/m2	12.1757	11.7449

Radiation Effects: Late Pool Fire Distance

Path: \\Terminal Adonai - Efeitos físicos\Simulações\H024

Dia Radiation Level (kW/m2)
Noite

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Flash Fire Envelope

Path: \Terminal Adonai - Efeitos físicos\Simulações\H024

All flammable results are reported at the flammable effect height 0 m

				Distance (m)	
				Dia	Noite
Furthest Extent	13000	ppm	6.71787	6.71787	6.65389
Furthest Extent	13000	ppm	6.71787	6.71787	6.65389

				Heights (m) for above distances	
				Dia	Noite
Furthest Extent	13000	ppm	0	0	0
Furthest Extent	13000	ppm	0	0	0

Weather Conditions

Path: \Terminal Adonai - Efeitos físicos\Simulações\H024

			Dia	Noite
Wind Speed	m/s		3	2
Pasquill Stability			C	E
Surface Roughness Length	mm		1000	1000
Surface Roughness Parameter			0.173718	0.173718
Atmospheric Temperature	degC		25	20
Surface Temperature	degC		30	20
Relative Humidity	fraction		0.8	0.8

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

H025

Base Case

CASE Name: Data

Path: \Terminal Adonai - Efeitos físicos\Simulações\H025

User-Defined Data

Material

Material Identifier	BENZENE
Type of Vessel	Padded Liquid
Pressure Specification	Pressure specified
Storage Pressure - gauge	0.03 bar
Temperature	25 degC
Volume Inventory	3200 m3

Scenario

Scenario Type	Line rupture
Phase to be Released	Liquid
Building Wake Effect	None
Specify Pump Head	No pump head supplied
Number of Excess Flow Valves	0
Number of Non-Return Valves	0
Number of Shut-Off Valves	0

Pipe

Internal Diameter	203.2 mm
Line length	1 m

Vessel/Tank

Duration of Interest	600 s
Method Used for Time Varying Releases	Average Rates
Tank Type	Vertical
Tank Height	22.64 m
Tank Diameter	15 m
Height of Discharge from Vessel Bottom	1 m

Location

Elevation	1 m
Use ERPG averaging time	ERPG not selected
Use IDLH averaging time	IDLH not selected
Use STEL averaging time	STEL not selected
Supply a user defined averaging time	Not supplied

Bund

Status of Bund	Bund present
Bund Area	1940 m2
[Type of Bund Surface	User-Defined (Land)]
Bund Height	3 m
[Bund Failure Modeling	Bund cannot fail]

Indoor/Outdoor

Location of release	Open air release
Outdoor Release Direction	Horizontal

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Flammable

Explosion Method	TNT
Jet Fire Method	Cone Model

Dispersion

Late Ignition Location	No ignition location
Mass Inventory of material to Disperse	2.794E6 kg

Fireball Parameters

[Mass Modification Factor	3]
[Calculation method for fireball	DNV Recommended]
[TNO model flame temperature	1727 degC]

Toxic Parameters

[Indoor Calculations	Unselected]
[Wind Dependent Exchange Rate	Case Specified]
[Building Exchange Rate	4 /hr]
[Tail Time	1800 s]
[Set averaging time equal to exposure time	Use a fixed averaging time]
[Cut-off fraction of toxic load for exposure time calculation	0.05 fraction]
[Cut-off concentration for exposure time calculations	0 fraction]

Geometry

Shape	Point
Dimension	2D
System	Absolute
East(1)	0 m
North(1)	0 m

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Path: \Terminal Adonai - Efeitos físicos\Simulações\H025

DISCHARGE DATA for Weather: Global Weathers\Dia

Wind Speed: 3.00 m/s
Wind Speed at Height (Calculated) 1.78 m/s
Pasquill Stability: C

USER-DEFINED QUANTITIES

Material BENZENE
Scenario Line rupture
Inventory 2,793,623.75 kg
Fixed Duration n/a s

Stagnation data (data at upstream end for long pipe):

- Pressure 1.04 bar
- Temperature 25.00 degC
- Fluid State Non-saturated liquid

CALCULATED QUANTITIES

Mass Flow of Air (Vent from Vapor Space only) n/a
Mass Flowrate 3.19832E+002 kg/s
Release Duration 600.00 s

Orifice or pipe exit data (before atmospheric expansion):

- Pressure n/a bar
- Temperature n/a degC
- Vena Contracta Velocity (exit velocity for pipe releases) n/a m/s
- Discharge Coefficient n/a

Final data (after atmospheric expansion):

- Temperature 25.07 degC
- Liquid Mass Fraction 1.00 fraction
- Droplet Diameter 2,354.40 um
- Expanded Radius n/a m
- Velocity 11.30 m/s

DISCHARGE DATA for Weather: Global Weathers\Noite

Wind Speed: 2.00 m/s
Wind Speed at Height (Calculated) 0.83 m/s
Pasquill Stability: E

USER-DEFINED QUANTITIES

Material BENZENE
Scenario Line rupture
Inventory 2,793,623.75 kg
Fixed Duration n/a s

Stagnation data (data at upstream end for long pipe):

- Pressure 1.04 bar
- Temperature 25.00 degC
- Fluid State Non-saturated liquid

CALCULATED QUANTITIES

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Mass Flow of Air (Vent from Vapor Space only)	n/a
Mass Flowrate	3.19833E+002 kg/s
Release Duration	600.00 s
Orifice or pipe exit data (before atmospheric expansion):	
- Pressure	n/a bar
- Temperature	n/a degC
- Vena Contracta Velocity (exit velocity for pipe releases)	n/a m/s
- Discharge Coefficient	n/a
Final data (after atmospheric expansion):	
- Temperature	25.07 degC
- Liquid Mass Fraction	1.00 fraction
- Droplet Diameter	2,309.17 um
- Expanded Radius	n/a m
- Velocity	11.30 m/s

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Consequence Results

Pool Vaporization Results

Path: \Terminal Adonai - Efeitos físicos\Simulações\H025

		Dia	Noite
Release Segment 1			
Release Duration	s	600	600
Liquid Rainout	fraction	0.989277	0.991056
Release Segment 1 Cloud Segment 1			
Cloud Segment Duration	s	71.4025	70.1406
Pool Vaporization Rate	kg/s	1.41603	1.08287
Total Vapor Flowrate	kg/s	4.8455	3.9434
Release Segment 1 Cloud Segment 2			
Cloud Segment Duration	s	30.6075	30.8619
Pool Vaporization Rate	kg/s	3.34133	2.48922
Total Vapor Flowrate	kg/s	6.77079	5.34976
Release Segment 1 Cloud Segment 3			
Cloud Segment Duration	s	23.43	23.8781
Pool Vaporization Rate	kg/s	4.31709	3.18725
Total Vapor Flowrate	kg/s	7.74656	6.04778
Release Segment 1 Cloud Segment 4			
Cloud Segment Duration	s	20.3656	20.3219
Pool Vaporization Rate	kg/s	5.09392	3.73082
Total Vapor Flowrate	kg/s	8.52338	6.59135
Release Segment 1 Cloud Segment 5			
Cloud Segment Duration	s	454.194	454.798
Pool Vaporization Rate	kg/s	5.76985	4.25991
Total Vapor Flowrate	kg/s	9.19932	7.12044
Maximum Pool Radius	m	24.85	24.85

Distance to Concentration Results

Path: \Terminal Adonai - Efeitos físicos\Simulações\H025

The height for user defined concentrations is the user defined height 0 m

All toxic results are reported at the toxic effect height 1 m

All flammable results are reported at the flammable effect height 0 m

Concentration(ppm)	Averaging Time		Dia	Noite	Distance (m)
UFL (79000)	18.75	s	10.3124	11.3939	
LFL (13000)	18.75	s	37.7923	43.0005	
LFL Frac (13000)	18.75	s	37.7923	43.0005	
Concentration(ppm)	Averaging Time		Dia	Noite	Heights (m) for above distances
UFL (79000)	18.75	s	0	0	
LFL (13000)	18.75	s	0	0	
LFL Frac (13000)	18.75	s	0	0	



Jet Fire Hazard

Path: \Terminal Adonai - Efeitos físicos\Simulações\H025

Jet fire method used: Cone model - DNV recommended

	Dia	Noite
Jet Fire Status	Truncated	Truncated
Flame Direction	Horizontal	Horizontal

Radiation Effects: Jet Fire Ellipse

Path: \Terminal Adonai - Efeitos físicos\Simulações\H025

This table gives the distances to the specified radiation levels for each jet fire listed in the above hazard table

			Distance (m)
			Dia
			Noite
Radiation Level	9.83	kW/m2	69.7047
Radiation Level	19.46	kW/m2	61.159
Radiation Level	35	kW/m2	55.3001

Radiation Effects: Jet Fire Distance

Path: \Terminal Adonai - Efeitos físicos\Simulações\H025

	Radiation Level (kW/m2)
Dia	Noite

Early Pool Fire Hazard

Path: \Terminal Adonai - Efeitos físicos\Simulações\H025

	Dia	Noite
Early Pool Fire Status	Hazard	Hazard

Radiation Effects: Early Pool Fire Ellipse

Path: \Terminal Adonai - Efeitos físicos\Simulações\H025

			Distance (m)
			Dia
			Noite
Radiation Level	9.83	kW/m2	32.3508
Radiation Level	19.46	kW/m2	25.85
Radiation Level	35	kW/m2	Not Reached

Radiation Effects: Early Pool Fire Distance

Path: \Terminal Adonai - Efeitos físicos\Simulações\H025

	Radiation Level (kW/m2)
Dia	Noite

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Late Pool Fire Hazard

Path: \Terminal Adonai - Efeitos físicos\Simulações\H025

	Dia	Noite
Late Pool Fire Status	Hazard	Hazard

Radiation Effects: Late Pool Fire Ellipse

Path: \Terminal Adonai - Efeitos físicos\Simulações\H025

			Dia	Noite
				Distance (m)
Radiation Level	9.83	kW/m2	32.3508	30.9618
Radiation Level	19.46	kW/m2	25.85	25.85
Radiation Level	35	kW/m2	Not Reached	Not Reached

Radiation Effects: Late Pool Fire Distance

Path: \Terminal Adonai - Efeitos físicos\Simulações\H025

	Dia	Noite
		Radiation Level (kW/m2)
		Noite

Flash Fire Envelope

Path: \Terminal Adonai - Efeitos físicos\Simulações\H025

All flammable results are reported at the flammable effect height 0 m

			Dia	Noite
				Distance (m)
Furthest Extent	13000	ppm	37.7923	43.0005
Furthest Extent	13000	ppm	37.7923	43.0005
				Heights (m) for above distances
			Dia	Noite
Furthest Extent	13000	ppm	0	0
Furthest Extent	13000	ppm	0	0

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Explosion Effects: Late Ignition

Path: \Terminal Adonai - Efeitos físicos\Simulações\H025

Explosion Model Used : TNT

Explosion Location Criterion: Cloud Center

All distances are measured from the Source

All flammable results are reported at the flammable effect height 0 m

			Maximum Distance (m) at Overpressure Level	
			Dia	Noite
Overpressure	0.05	bar	64.9177	98.8572
Overpressure	0.1	bar	45.9882	70.5123
Overpressure	0.3	bar	30.4735	47.2807

			Supplementary Data at 0.05 bar	
			Dia	Noite
Supplied Flammable Mass		kg	29.1793	97.9679
Used Flammable Mass		kg	29.1793	97.9679
Overpressure Radius		m	49.9177	74.7464
Distance to:				
- Ignition Source		m	30	40
- Cloud Front/Centre		m	30	40
- Explosion Centre		m	15	24.1108

			Supplementary Data at 0.1 bar	
			Dia	Noite
Supplied Flammable Mass		kg	29.1793	97.9679
Used Flammable Mass		kg	29.1793	97.9679
Overpressure Radius		m	30.9882	46.4015
Distance to:				
- Ignition Source		m	30	40
- Cloud Front/Centre		m	30	40
- Explosion Centre		m	15	24.1108

			Supplementary Data at 0.3 bar	
			Dia	Noite
Supplied Flammable Mass		kg	29.1793	97.9679
Used Flammable Mass		kg	29.1793	97.9679
Overpressure Radius		m	15.4735	23.1699
Distance to:				
- Ignition Source		m	30	40
- Cloud Front/Centre		m	30	40
- Explosion Centre		m	15	24.1108

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Weather Conditions

Path: \Terminal Adonai - Efeitos físicos\Simulações\H025

		Dia	Noite
Wind Speed	m/s	3	2
Pasquill Stability		C	E
Surface Roughness Length	mm	1000	1000
Surface Roughness Parameter		0.173718	0.173718
Atmospheric Temperature	degC	25	20
Surface Temperature	degC	30	20
Relative Humidity	fraction	0.8	0.8

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

H026

Base Case

CASE Name: Data

Path: \Terminal Adonai - Efeitos físicos\Simulações\H026

User-Defined Data

Material

Material Identifier	BENZENE
Type of Vessel	Padded Liquid
Pressure Specification	Pressure specified
Storage Pressure - gauge	0.03 bar
Temperature	25 degC
Volume Inventory	3200 m3

Scenario

Scenario Type	Leak
Phase to be Released	Liquid
Hole Diameter	20.32 mm
Building Wake Effect	None

Vessel/Tank

Duration of Interest	600 s
Method Used for Time Varying Releases	Average Rates
Tank Type	Vertical
Tank Height	22.64 m
Tank Diameter	15 m
Height of Discharge from Vessel Bottom	1 m

Location

Elevation	1 m
Use ERPG averaging time	ERPG not selected
Use IDLH averaging time	IDLH not selected
Use STEL averaging time	STEL not selected
Supply a user defined averaging time	Not supplied

Bund

Status of Bund	Bund present
Bund Area	1940 m2
[Type of Bund Surface	User-Defined (Land)]
Bund Height	3 m
[Bund Failure Modeling	Bund cannot fail]

Indoor/Outdoor

Location of release	Open air release
Outdoor Release Direction	Horizontal

Flammable

Explosion Method	TNT
Jet Fire Method	Cone Model

Dispersion

Late Ignition Location	No ignition location
Mass Inventory of material to Disperse	2.794E6 kg

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Fireball Parameters

[Mass Modification Factor	3]
[Calculation method for fireball	DNV Recommended]
[TNO model flame temperature	1727 degC]

Toxic Parameters

[Indoor Calculations	Unselected]
[Wind Dependent Exchange Rate	Case Specified]
[Building Exchange Rate	4 /hr]
[Tail Time	1800 s]
[Set averaging time equal to exposure time	Use a fixed averaging time]
[Cut-off fraction of toxic load for exposure time calculation	0.05 fraction]
[Cut-off concentration for exposure time calculations	0 fraction]

Geometry

Shape	Point
Dimension	2D
System	Absolute
East(1)	0 m
North(1)	0 m

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Path: \Terminal Adonai - Efeitos físicos\Simulações\H026

DISCHARGE DATA for Weather: Global Weathers\Dia

Wind Speed:	3.00 m/s
Wind Speed at Height (Calculated)	1.78 m/s
Pasquill Stability:	C

USER-DEFINED QUANTITIES

Material	BENZENE
Scenario	Leak
Inventory	2,793,623.75 kg
Fixed Duration	n/a s

Stagnation data (data at upstream end for long pipe):

- Pressure	1.04 bar
- Temperature	25.00 degC
- Fluid State	Non-saturated liquid

CALCULATED QUANTITIES

Mass Flow of Air (Vent from Vapor Space only)	n/a
Mass Flowrate	3.29245E+000 kg/s
Release Duration	600.00 s

Orifice or pipe exit data (before atmospheric expansion):

- Pressure	n/a bar
- Temperature	n/a degC
- Vena Contracta Velocity (exit velocity for pipe releases)	n/a m/s
- Discharge Coefficient	n/a

Final data (after atmospheric expansion):

- Temperature	24.96 degC
- Liquid Mass Fraction	1.00 fraction
- Droplet Diameter	800.42 um
- Expanded Radius	n/a m
- Velocity	19.38 m/s

DISCHARGE DATA for Weather: Global Weathers\Noite

Wind Speed:	2.00 m/s
Wind Speed at Height (Calculated)	0.83 m/s
Pasquill Stability:	E

USER-DEFINED QUANTITIES

Material	BENZENE
Scenario	Leak
Inventory	2,793,623.75 kg
Fixed Duration	n/a s

Stagnation data (data at upstream end for long pipe):

- Pressure	1.04 bar
- Temperature	25.00 degC
- Fluid State	Non-saturated liquid

CALCULATED QUANTITIES

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Mass Flow of Air (Vent from Vapor Space only)	n/a
Mass Flowrate	3.29246E+000 kg/s
Release Duration	600.00 s
Orifice or pipe exit data (before atmospheric expansion):	
- Pressure	n/a bar
- Temperature	n/a degC
- Vena Contracta Velocity (exit velocity for pipe releases)	n/a m/s
- Discharge Coefficient	n/a
Final data (after atmospheric expansion):	
- Temperature	24.96 degC
- Liquid Mass Fraction	1.00 fraction
- Droplet Diameter	785.05 um
- Expanded Radius	n/a m
- Velocity	19.38 m/s

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Consequence Results

Pool Vaporization Results

Path: \Terminal Adonai - Efeitos físicos\Simulações\H026

		Dia	Noite
	Release Segment 1		
Release Duration	s	600	600
Liquid Rainout	fraction	0.915607	0.918955
	Release Segment 1 Cloud Segment 1		
Cloud Segment Duration	s	200.931	193.906
Pool Vaporization Rate	kg/s	0.033751	0.0210127
Total Vapor Flowrate	kg/s	0.311611	0.287851
	Release Segment 1 Cloud Segment 2		
Cloud Segment Duration	s	77.125	78.3444
Pool Vaporization Rate	kg/s	0.0874041	0.0522858
Total Vapor Flowrate	kg/s	0.365264	0.319124
	Release Segment 1 Cloud Segment 3		
Cloud Segment Duration	s	59.585	59.9006
Pool Vaporization Rate	kg/s	0.114967	0.0683508
Total Vapor Flowrate	kg/s	0.392828	0.335189
	Release Segment 1 Cloud Segment 4		
Cloud Segment Duration	s	49.465	51.03
Pool Vaporization Rate	kg/s	0.136922	0.0811556
Total Vapor Flowrate	kg/s	0.414782	0.347993
	Release Segment 1 Cloud Segment 5		
Cloud Segment Duration	s	43.4569	44.275
Pool Vaporization Rate	kg/s	0.155534	0.0920756
Total Vapor Flowrate	kg/s	0.433394	0.358913
	Release Segment 1 Cloud Segment 6		
Cloud Segment Duration	s	75.6875	77.67
Pool Vaporization Rate	kg/s	0.17921	0.10592
Total Vapor Flowrate	kg/s	0.45707	0.372758
	Release Segment 1 Cloud Segment 7		
Cloud Segment Duration	s	93.75	94.8744
Pool Vaporization Rate	kg/s	0.212462	0.125277
Total Vapor Flowrate	kg/s	0.490322	0.392114
Maximum Pool Radius	m	4.59155	4.61637

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Distance to Concentration Results

Path: \Terminal Adonai - Efeitos físicos\Simulações\H026

The height for user defined concentrations is the user defined height 0 m
All toxic results are reported at the toxic effect height 1 m
All flammable results are reported at the flammable effect height 0 m

Concentration(ppm)	Averaging Time		Distance (m)	
			Dia	Noite
UFL (79000)	18.75	s	No Hazard	No Hazard
LFL (13000)	18.75	s	7.94214	10.1041
LFL Frac (13000)	18.75	s	7.94214	10.1041

Concentration(ppm)	Averaging Time		Heights (m) for above distances	
			Dia	Noite
UFL (79000)	18.75	s	0	0
LFL (13000)	18.75	s	0	0
LFL Frac (13000)	18.75	s	0	0

Jet Fire Hazard

Path: \Terminal Adonai - Efeitos físicos\Simulações\H026

Jet fire method used: Cone model - DNV recommended

	Dia	Noite
Jet Fire Status	Truncated	Truncated
Flame Direction	Horizontal	Horizontal

Radiation Effects: Jet Fire Ellipse

Path: \Terminal Adonai - Efeitos físicos\Simulações\H026

This table gives the distances to the specified radiation levels
for each jet fire listed in the above hazard table

Radiation Level			Distance (m)	
			Dia	Noite
9.83	kW/m2		22.5448	23.7629
19.46	kW/m2		19.7928	20.9586
35	kW/m2		17.8506	18.9121

Radiation Effects: Jet Fire Distance

Path: \Terminal Adonai - Efeitos físicos\Simulações\H026

	Dia	Radiation Level (kW/m2)
		Noite

Early Pool Fire Hazard

Path: \Terminal Adonai - Efeitos físicos\Simulações\H026

	Dia	Noite
Early Pool Fire Status	Hazard	Hazard

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Radiation Effects: Early Pool Fire Ellipse

Path: \Terminal Adonai - Efeitos físicos\Simulações\H026

			Dia	Noite
Radiation Level	9.83	kW/m2	24.7521	23.565
Radiation Level	19.46	kW/m2	17.3209	16.4188
Radiation Level	35	kW/m2	11.6039	11.4093

Radiation Effects: Early Pool Fire Distance

Path: \Terminal Adonai - Efeitos físicos\Simulações\H026

	Dia	Noite
Radiation Level (kW/m2)		

Late Pool Fire Hazard

Path: \Terminal Adonai - Efeitos físicos\Simulações\H026

	Dia	Noite
Late Pool Fire Status	Hazard	Hazard

Radiation Effects: Late Pool Fire Ellipse

Path: \Terminal Adonai - Efeitos físicos\Simulações\H026

			Dia	Noite
Radiation Level	9.83	kW/m2	27.2846	25.6333
Radiation Level	19.46	kW/m2	17.6231	16.8174
Radiation Level	35	kW/m2	11.7103	11.5919

Radiation Effects: Late Pool Fire Distance

Path: \Terminal Adonai - Efeitos físicos\Simulações\H026

	Dia	Noite
Radiation Level (kW/m2)		

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Flash Fire Envelope

Path: \Terminal Adonai - Efeitos físicos\Simulações\H026

All flammable results are reported at the flammable effect height 0 m

				Distance (m)	
				Dia	Noite
Furthest Extent	13000	ppm	7.94214	10.1041	
Furthest Extent	13000	ppm	7.94214	10.1041	
				Heights (m) for above distances	
				Dia	Noite
Furthest Extent	13000	ppm	0	0	
Furthest Extent	13000	ppm	0	0	

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Explosion Effects: Late Ignition

Path: \Terminal Adonai - Efeitos físicos\Simulações\H026

Explosion Model Used : TNT

Explosion Location Criterion: Cloud Center

All distances are measured from the Source

All flammable results are reported at the flammable effect height 0 m

			Maximum Distance (m) at Overpressure Level
			Noite
Overpressure	0.05	bar	12.9221
Overpressure	0.1	bar	9.91907
Overpressure	0.3	bar	7.45774
			Supplementary Data at 0.05 bar
			Noite
Supplied Flammable Mass		kg	0.116508
Used Flammable Mass		kg	0.116508
Overpressure Radius		m	7.9192
Distance to:			
- Ignition Source		m	10
- Cloud Front/Centre		m	10
- Explosion Centre		m	5.00294
			Supplementary Data at 0.1 bar
			Noite
Supplied Flammable Mass		kg	0.116508
Used Flammable Mass		kg	0.116508
Overpressure Radius		m	4.91613
Distance to:			
- Ignition Source		m	10
- Cloud Front/Centre		m	10
- Explosion Centre		m	5.00294
			Supplementary Data at 0.3 bar
			Noite
Supplied Flammable Mass		kg	0.116508
Used Flammable Mass		kg	0.116508
Overpressure Radius		m	2.4548
Distance to:			
- Ignition Source		m	10
- Cloud Front/Centre		m	10
- Explosion Centre		m	5.00294

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Weather Conditions

Path: \Terminal Adonai - Efeitos físicos\Simulações\H026

		Dia	Noite
Wind Speed	m/s	3	2
Pasquill Stability		C	E
Surface Roughness Length	mm	1000	1000
Surface Roughness Parameter		0.173718	0.173718
Atmospheric Temperature	degC	25	20
Surface Temperature	degC	30	20
Relative Humidity	fraction	0.8	0.8

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

H027

Base Case

CASE Name: Data

Path: \Terminal Adonai - Efeitos físicos\Simulações\H027

User-Defined Data

Material

Material Identifier BENZENE

Scenario

Building Wake Effect None

Vessel/Tank

Release Type Continuous

Location

Elevation 1 m
Use ERPG averaging time ERPG not selected
Use IDLH averaging time IDLH not selected
Use STEL averaging time STEL not selected
Supply a user defined averaging time Not supplied

Bund

Status of Bund No bund present
[Type of Bund Surface User-Defined (Land)]
[Bund Height 0 m]
[Bund Failure Modeling Bund cannot fail]

Indoor/Outdoor

Location of release Open air release
Outdoor Release Direction Horizontal

Flammable

Explosion Method TNT
Jet Fire Method Cone Model

Dispersion

Number of Release Segments 1
Fluid Phase(1) Liquid
Discharge Velocity(1) 19.04 m/s
Droplet Diameter(1) 812.5 um
Duration of Discharge(1) 600 s
Final Temperature(1) 25.22 degC
Release Rate(1) 112.1 kg/s
Pre-Dilution Air Rates(1) 0 kg/s
Late Ignition Location No ignition location
Mass Inventory of material to Disperse 2.794E6 kg

Fireball Parameters

[Mass Modification Factor 3]
[Calculation method for fireball DNV Recommended]
[TNO model flame temperature 1727 degC]

Toxic Parameters

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

[Indoor Calculations	Unselected]
[Wind Dependent Exchange Rate	Case Specified]
[Building Exchange Rate	4 /hr]
[Tail Time	1800 s]
[Set averaging time equal to exposure time	Use a fixed averaging time]
[Cut-off fraction of toxic load for exposure time calculation	0.05 fraction]
[Cut-off concentration for exposure time calculations	0 fraction]

Geometry

Shape	Point
Dimension	2D
System	Absolute
East(1)	0 m
North(1)	0 m

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Consequence Results

Pool Vaporization Results

Path: \Terminal Adonai - Efeitos físicos\Simulações\H027

		Dia	Noite
	Release Segment 1		
Release Duration	s	600	600
Liquid Rainout	fraction	0.959354	0.963487
	Release Segment 1 Cloud Segment 1		
Cloud Segment Duration	s	188.376	180.903
Pool Vaporization Rate	kg/s	1.0337	0.72398
Total Vapor Flowrate	kg/s	5.59091	4.81786
	Release Segment 1 Cloud Segment 2		
Cloud Segment Duration	s	78.9469	78.3075
Pool Vaporization Rate	kg/s	2.49278	1.67317
Total Vapor Flowrate	kg/s	7.05	5.76705
	Release Segment 1 Cloud Segment 3		
Cloud Segment Duration	s	60.2875	61.2
Pool Vaporization Rate	kg/s	3.24313	2.15014
Total Vapor Flowrate	kg/s	7.80034	6.24402
	Release Segment 1 Cloud Segment 4		
Cloud Segment Duration	s	51.6656	52.08
Pool Vaporization Rate	kg/s	3.8395	2.52551
Total Vapor Flowrate	kg/s	8.39671	6.61939
	Release Segment 1 Cloud Segment 5		
Cloud Segment Duration	s	45.0844	88.6856
Pool Vaporization Rate	kg/s	4.34956	2.97863
Total Vapor Flowrate	kg/s	8.90677	7.07251
	Release Segment 1 Cloud Segment 6		
Cloud Segment Duration	s	78.5206	110.034
Pool Vaporization Rate	kg/s	4.99325	3.59822
Total Vapor Flowrate	kg/s	9.55047	7.6921
	Release Segment 1 Cloud Segment 7		
Cloud Segment Duration	s	97.1194	28.79
Pool Vaporization Rate	kg/s	5.89332	4.01981
Total Vapor Flowrate	kg/s	10.4505	8.11369
Maximum Pool Radius	m	27.5071	27.6251

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Distance to Concentration Results

Path: \Terminal Adonai - Efeitos físicos\Simulações\H027

The height for user defined concentrations is the user defined height 0 m

All toxic results are reported at the toxic effect height 1 m

All flammable results are reported at the flammable effect height 0 m

Concentration(ppm)	Averaging Time		Distance (m)	
			Dia	Noite
UFL (79000)	18.75	s	8.90144	8.92531
LFL (13000)	18.75	s	47.6735	54.082
LFL Frac (13000)	18.75	s	47.6735	54.082

Concentration(ppm)	Averaging Time		Heights (m) for above distances	
			Dia	Noite
UFL (79000)	18.75	s	0	0
LFL (13000)	18.75	s	0	0
LFL Frac (13000)	18.75	s	0	0

Jet Fire Hazard

Path: \Terminal Adonai - Efeitos físicos\Simulações\H027

Jet fire method used: Cone model - DNV recommended

	Dia	Noite
Jet Fire Status	Truncated	Truncated
Flame Direction	Horizontal	Horizontal

Radiation Effects: Jet Fire Ellipse

Path: \Terminal Adonai - Efeitos físicos\Simulações\H027

This table gives the distances to the specified radiation levels for each jet fire listed in the above hazard table

Radiation Level			Distance (m)	
			Dia	Noite
9.83	kW/m2		77.8837	79.5993
19.46	kW/m2		68.0133	69.8813
35	kW/m2		61.284	63.1155

Radiation Effects: Jet Fire Distance

Path: \Terminal Adonai - Efeitos físicos\Simulações\H027

	Dia	Radiation Level (kW/m2)
		Noite

Early Pool Fire Hazard

Path: \Terminal Adonai - Efeitos físicos\Simulações\H027

	Dia	Noite
Early Pool Fire Status	Hazard	Hazard

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos fisicos

Phast 6.7

Radiation Effects: Early Pool Fire Ellipse

Path: \Terminal Adonai - Efeitos fisicos\Simulações\H027

			Dia	Noite
Radiation Level	9.83	kW/m2	37.381	36.2452
Radiation Level	19.46	kW/m2	30.7614	30.9875
Radiation Level	35	kW/m2	Not Reached	Not Reached

Radiation Effects: Early Pool Fire Distance

Path: \Terminal Adonai - Efeitos fisicos\Simulações\H027

	Dia	Noite
Radiation Level (kW/m2)		

Late Pool Fire Hazard

Path: \Terminal Adonai - Efeitos fisicos\Simulações\H027

	Dia	Noite
Late Pool Fire Status	Hazard	Hazard

Radiation Effects: Late Pool Fire Ellipse

Path: \Terminal Adonai - Efeitos fisicos\Simulações\H027

			Dia	Noite
Radiation Level	9.83	kW/m2	44.265	42.851
Radiation Level	19.46	kW/m2	37.5686	37.6704
Radiation Level	35	kW/m2	Not Reached	Not Reached

Radiation Effects: Late Pool Fire Distance

Path: \Terminal Adonai - Efeitos fisicos\Simulações\H027

	Dia	Noite
Radiation Level (kW/m2)		

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Flash Fire Envelope

Path: \Terminal Adonai - Efeitos físicos\Simulações\H027

All flammable results are reported at the flammable effect height 0 m

				Distance (m)	
				Dia	Noite
Furthest Extent	13000	ppm	47.6735	54.082	
Furthest Extent	13000	ppm	47.6735	54.082	
				Heights (m) for above distances	
				Dia	Noite
Furthest Extent	13000	ppm	0	0	
Furthest Extent	13000	ppm	0	0	

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Explosion Effects: Late Ignition

Path: \Terminal Adonai - Efeitos físicos\Simulações\H027

Explosion Model Used : TNT

Explosion Location Criterion: Cloud Center

All distances are measured from the Source

All flammable results are reported at the flammable effect height 0 m

			Maximum Distance (m) at Overpressure Level	
			Dia	Noite
Overpressure	0.05	bar	69.5246	96.4298
Overpressure	0.1	bar	50.7442	69.3426
Overpressure	0.3	bar	35.3517	47.1418

			Supplementary Data at 0.05 bar	
			Dia	Noite
Supplied Flammable Mass		kg	28.4955	85.497
Used Flammable Mass		kg	28.4955	85.497
Overpressure Radius		m	49.5246	71.4298
Distance to:				
- Ignition Source		m	40	50
- Cloud Front/Centre		m	40	50
- Explosion Centre		m	20	25

			Supplementary Data at 0.1 bar	
			Dia	Noite
Supplied Flammable Mass		kg	28.4955	85.497
Used Flammable Mass		kg	28.4955	85.497
Overpressure Radius		m	30.7442	44.3426
Distance to:				
- Ignition Source		m	40	50
- Cloud Front/Centre		m	40	50
- Explosion Centre		m	20	25

			Supplementary Data at 0.3 bar	
			Dia	Noite
Supplied Flammable Mass		kg	28.4955	85.497
Used Flammable Mass		kg	28.4955	85.497
Overpressure Radius		m	15.3517	22.1418
Distance to:				
- Ignition Source		m	40	50
- Cloud Front/Centre		m	40	50
- Explosion Centre		m	20	25

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Weather Conditions

Path: \Terminal Adonai - Efeitos físicos\Simulações\H027

		Dia	Noite
Wind Speed	m/s	3	2
Pasquill Stability		C	E
Surface Roughness Length	mm	1000	1000
Surface Roughness Parameter		0.173718	0.173718
Atmospheric Temperature	degC	25	20
Surface Temperature	degC	30	20
Relative Humidity	fraction	0.8	0.8

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

H028

Base Case

CASE Name: Data

Path: \Terminal Adonai - Efeitos físicos\Simulações\H028

User-Defined Data

Material

Material Identifier BENZENE

Scenario

Building Wake Effect None

Vessel/Tank

Release Type Continuous

Location

Elevation 1 m
Use ERPG averaging time ERPG not selected
Use IDLH averaging time IDLH not selected
Use STEL averaging time STEL not selected
Supply a user defined averaging time Not supplied

Bund

Status of Bund No bund present
[Type of Bund Surface User-Defined (Land)]
[Bund Height 0 m]
[Bund Failure Modeling Bund cannot fail]

Indoor/Outdoor

Location of release Open air release
Outdoor Release Direction Horizontal

Flammable

Explosion Method TNT
Jet Fire Method Cone Model

Dispersion

Number of Release Segments 1
Fluid Phase(1) Liquid
Discharge Velocity(1) 31.72 m/s
Droplet Diameter(1) 293.1 um
Duration of Discharge(1) 600 s
Final Temperature(1) 24.9 degC
Release Rate(1) 1.12 kg/s
Pre-Dilution Air Rates(1) 0 kg/s
Late Ignition Location No ignition location
Mass Inventory of material to Disperse 2.794E6 kg

Fireball Parameters

[Mass Modification Factor 3]
[Calculation method for fireball DNV Recommended]
[TNO model flame temperature 1727 degC]

Toxic Parameters

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

[Indoor Calculations	Unselected]
[Wind Dependent Exchange Rate	Case Specified]
[Building Exchange Rate	4 /hr]
[Tail Time	1800 s]
[Set averaging time equal to exposure time	Use a fixed averaging time]
[Cut-off fraction of toxic load for exposure time calculation	0.05 fraction]
[Cut-off concentration for exposure time calculations	0 fraction]

Geometry

Shape	Point
Dimension	2D
System	Absolute
East(1)	0 m
North(1)	0 m



Consequence Results

Pool Vaporization Results

Path: \Terminal Adonai - Efeitos físicos\Simulações\H028

			Dia	Noite
		Release Segment 1		
Release Duration	s		600	600
Liquid Rainout	fraction		0.759056	0.788555
Maximum Pool Radius	m		2.43451	2.49293

Distance to Concentration Results

Path: \Terminal Adonai - Efeitos físicos\Simulações\H028

The height for user defined concentrations is the user defined height 0 m
 All toxic results are reported at the toxic effect height 1 m
 All flammable results are reported at the flammable effect height 0 m

Concentration(ppm)	Averaging Time		Dia	Noite
UFL (79000)	18.75	s	No Hazard	No Hazard
LFL (13000)	18.75	s	6.71787	6.65389
LFL Frac (13000)	18.75	s	6.71787	6.65389

Concentration(ppm)	Averaging Time		Dia	Noite
UFL (79000)	18.75	s	0	0
LFL (13000)	18.75	s	0	0
LFL Frac (13000)	18.75	s	0	0

Jet Fire Hazard

Path: \Terminal Adonai - Efeitos físicos\Simulações\H028

Jet fire method used: Cone model - DNV recommended

		Dia	Noite
Jet Fire Status		Truncated	Truncated
Flame Direction		Horizontal	Horizontal

Radiation Effects: Jet Fire Ellipse

Path: \Terminal Adonai - Efeitos físicos\Simulações\H028

This table gives the distances to the specified radiation levels for each jet fire listed in the above hazard table

			Dia	Noite
Radiation Level	9.83	kW/m2	21.7022	21.8783
Radiation Level	19.46	kW/m2	19.0044	19.3009
Radiation Level	35	kW/m2	17.1279	17.4685

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Radiation Effects: Jet Fire Distance

Path: \Terminal Adonai - Efeitos físicos\Simulações\H028

Dia Radiation Level (kW/m2)
Noite

Early Pool Fire Hazard

Path: \Terminal Adonai - Efeitos físicos\Simulações\H028

Early Pool Fire Status Dia Noite
Hazard Hazard

Radiation Effects: Early Pool Fire Ellipse

Path: \Terminal Adonai - Efeitos físicos\Simulações\H028

			Dia	Noite
Radiation Level	9.83	kW/m2	19.9655	19.3484
Radiation Level	19.46	kW/m2	16.132	15.2185
Radiation Level	35	kW/m2	11.6231	11.2475

Radiation Effects: Early Pool Fire Distance

Path: \Terminal Adonai - Efeitos físicos\Simulações\H028

Dia Radiation Level (kW/m2)
Noite

Late Pool Fire Hazard

Path: \Terminal Adonai - Efeitos físicos\Simulações\H028

Late Pool Fire Status Dia Noite
Hazard Hazard

Radiation Effects: Late Pool Fire Ellipse

Path: \Terminal Adonai - Efeitos físicos\Simulações\H028

			Dia	Noite
Radiation Level	9.83	kW/m2	22.4231	21.5528
Radiation Level	19.46	kW/m2	17.264	16.2256
Radiation Level	35	kW/m2	12.1757	11.7449

Radiation Effects: Late Pool Fire Distance

Path: \Terminal Adonai - Efeitos físicos\Simulações\H028

Dia Radiation Level (kW/m2)
Noite

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Flash Fire Envelope

Path: \Terminal Adonai - Efeitos físicos\Simulações\H028

All flammable results are reported at the flammable effect height 0 m

				Distance (m)	
				Dia	Noite
Furthest Extent	13000	ppm	6.71787	6.71787	6.65389
Furthest Extent	13000	ppm	6.71787	6.71787	6.65389

				Heights (m) for above distances	
				Dia	Noite
Furthest Extent	13000	ppm	0	0	0
Furthest Extent	13000	ppm	0	0	0

Weather Conditions

Path: \Terminal Adonai - Efeitos físicos\Simulações\H028

			Dia	Noite
Wind Speed	m/s		3	2
Pasquill Stability			C	E
Surface Roughness Length	mm		1000	1000
Surface Roughness Parameter			0.173718	0.173718
Atmospheric Temperature	degC		25	20
Surface Temperature	degC		30	20
Relative Humidity	fraction		0.8	0.8

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

H029

Base Case

CASE Name: Data

Path: \Terminal Adonai - Efeitos físicos\Simulações\H029

User-Defined Data

Material

Material Identifier BENZENE

Scenario

Building Wake Effect None

Vessel/Tank

Release Type Continuous

Location

Elevation 0 m
Use ERPG averaging time ERPG not selected
Use IDLH averaging time IDLH not selected
Use STEL averaging time STEL not selected
Supply a user defined averaging time Not supplied

Bund

Status of Bund Bund present
Bund Area 1.152E4 m2
[Type of Bund Surface User-Defined (Land)]
Bund Height 0.3 m
[Bund Failure Modeling Bund cannot fail]

Indoor/Outdoor

Location of release Open air release
Outdoor Release Direction Horizontal

Flammable

Explosion Method TNT
Jet Fire Method Cone Model

Dispersion

Number of Release Segments 1
Fluid Phase(1) Liquid
Discharge Velocity(1) 19.04 m/s
Droplet Diameter(1) 812.5 um
Duration of Discharge(1) 600 s
Final Temperature(1) 25.22 degC
Release Rate(1) 112.1 kg/s
Pre-Dilution Air Rates(1) 0 kg/s
Late Ignition Location No ignition location
Mass Inventory of material to Disperse 2.794E6 kg

Fireball Parameters

[Mass Modification Factor 3]
[Calculation method for fireball DNV Recommended]
[TNO model flame temperature 1727 degC]

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Toxic Parameters

[Indoor Calculations	Unselected]
[Wind Dependent Exchange Rate	Case Specified]
[Building Exchange Rate	4 /hr]
[Tail Time	1800 s]
[Set averaging time equal to exposure time	Use a fixed averaging time]
[Cut-off fraction of toxic load for exposure time calculation	0.05 fraction]
[Cut-off concentration for exposure time calculations	0 fraction]

Geometry

Shape	Point
Dimension	2D
System	Absolute
East(1)	0 m
North(1)	0 m

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Consequence Results

Pool Vaporization Results

Path: \Terminal Adonai - Efeitos físicos\Simulações\H029

		Dia	Noite
	Release Segment 1		
Release Duration	s	600	600
Liquid Rainout	fraction	1	1
	Release Segment 1 Cloud Segment 1		
Cloud Segment Duration	s	178.891	171.61
Pool Vaporization Rate	kg/s	1.40844	0.991951
Total Vapor Flowrate	kg/s	1.40848	0.991995
	Release Segment 1 Cloud Segment 2		
Cloud Segment Duration	s	77.91	78.03
Pool Vaporization Rate	kg/s	3.22732	2.19604
Total Vapor Flowrate	kg/s	3.22737	2.19608
	Release Segment 1 Cloud Segment 3		
Cloud Segment Duration	s	60.93	61.8825
Pool Vaporization Rate	kg/s	4.13186	2.78465
Total Vapor Flowrate	kg/s	4.13191	2.78469
	Release Segment 1 Cloud Segment 4		
Cloud Segment Duration	s	51.87	53.2875
Pool Vaporization Rate	kg/s	4.83967	3.24186
Total Vapor Flowrate	kg/s	4.83971	3.24191
	Release Segment 1 Cloud Segment 5		
Cloud Segment Duration	s	89.43	91.0125
Pool Vaporization Rate	kg/s	5.69626	3.78619
Total Vapor Flowrate	kg/s	5.6963	3.78624
	Release Segment 1 Cloud Segment 6		
Cloud Segment Duration	s	112.179	114.193
Pool Vaporization Rate	kg/s	6.87321	4.51986
Total Vapor Flowrate	kg/s	6.87326	4.5199
	Release Segment 1 Cloud Segment 7		
Cloud Segment Duration	s	28.79	29.9844
Pool Vaporization Rate	kg/s	7.67113	5.01384
Total Vapor Flowrate	kg/s	7.67117	5.01388
Maximum Pool Radius	m	28.0377	28.13

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Distance to Concentration Results

Path: \Terminal Adonai - Efeitos físicos\Simulações\H029

The height for user defined concentrations is the user defined height 0 m
All toxic results are reported at the toxic effect height 1 m
All flammable results are reported at the flammable effect height 0 m

Concentration(ppm)	Averaging Time	Distance (m)	
		Dia	Noite
UFL (79000)	18.75 s	0	0
LFL (13000)	18.75 s	0	0
LFL Frac (13000)	18.75 s	0	0

Concentration(ppm)	Averaging Time	Heights (m) for above distances	
		Dia	Noite
UFL (79000)	18.75 s	0	0
LFL (13000)	18.75 s	0	0
LFL Frac (13000)	18.75 s	0	0

Jet Fire Hazard

Path: \Terminal Adonai - Efeitos físicos\Simulações\H029

Jet fire method used: Cone model - DNV recommended

	Dia	Noite
Jet Fire Status	Truncated	Truncated
Flame Direction	Horizontal	Horizontal

Radiation Effects: Jet Fire Ellipse

Path: \Terminal Adonai - Efeitos físicos\Simulações\H029

This table gives the distances to the specified radiation levels for each jet fire listed in the above hazard table

Radiation Level	kW/m2	Distance (m)	
		Dia	Noite
9.83	kW/m2	1.35788	1.39946
19.46	kW/m2	1.35788	Not Reached
35	kW/m2	Not Reached	Not Reached

Radiation Effects: Jet Fire Distance

Path: \Terminal Adonai - Efeitos físicos\Simulações\H029

	Dia	Radiation Level (kW/m2)
		Noite

Early Pool Fire Hazard

Path: \Terminal Adonai - Efeitos físicos\Simulações\H029

	Dia	Noite
Early Pool Fire Status	Hazard	Hazard

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Radiation Effects: Early Pool Fire Ellipse

Path: \Terminal Adonai - Efeitos físicos\Simulações\H029

			Dia	Noite
Radiation Level	9.83	kW/m2	28.7428	27.5638
Radiation Level	19.46	kW/m2	22.1338	22.3353
Radiation Level	35	kW/m2	Not Reached	Not Reached

Radiation Effects: Early Pool Fire Distance

Path: \Terminal Adonai - Efeitos físicos\Simulações\H029

	Dia	Noite
--	-----	-------

Late Pool Fire Hazard

Path: \Terminal Adonai - Efeitos físicos\Simulações\H029

	Dia	Noite
Late Pool Fire Status	Hazard	Hazard

Radiation Effects: Late Pool Fire Ellipse

Path: \Terminal Adonai - Efeitos físicos\Simulações\H029

			Dia	Noite
Radiation Level	9.83	kW/m2	35.7754	34.3226
Radiation Level	19.46	kW/m2	29.0377	29.13
Radiation Level	35	kW/m2	Not Reached	Not Reached

Radiation Effects: Late Pool Fire Distance

Path: \Terminal Adonai - Efeitos físicos\Simulações\H029

	Dia	Noite
--	-----	-------

Weather Conditions

Path: \Terminal Adonai - Efeitos físicos\Simulações\H029

		Dia	Noite
Wind Speed	m/s	3	2
Pasquill Stability		C	E
Surface Roughness Length	mm	1000	1000
Surface Roughness Parameter		0.173718	0.173718
Atmospheric Temperature	degC	25	20
Surface Temperature	degC	30	20
Relative Humidity	fraction	0.8	0.8

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

H030

Base Case

CASE Name: Data

Path: \Terminal Adonai - Efeitos físicos\Simulações\H030

User-Defined Data

Material

Material Identifier BENZENE

Scenario

Building Wake Effect None

Vessel/Tank

Release Type Continuous

Location

Elevation 0 m
Use ERPG averaging time ERPG not selected
Use IDLH averaging time IDLH not selected
Use STEL averaging time STEL not selected
Supply a user defined averaging time Not supplied

Bund

Status of Bund Bund present
Bund Area 1.152E4 m2
[Type of Bund Surface User-Defined (Land)]
Bund Height 0.3 m
[Bund Failure Modeling Bund cannot fail]

Indoor/Outdoor

Location of release Open air release
Outdoor Release Direction Horizontal

Flammable

Explosion Method TNT
Jet Fire Method Cone Model

Dispersion

Number of Release Segments 1
Fluid Phase(1) Liquid
Discharge Velocity(1) 31.72 m/s
Droplet Diameter(1) 293.1 um
Duration of Discharge(1) 600 s
Final Temperature(1) 24.9 degC
Release Rate(1) 1.12 kg/s
Pre-Dilution Air Rates(1) 0 kg/s
Late Ignition Location No ignition location
Mass Inventory of material to Disperse 2.794E6 kg

Fireball Parameters

[Mass Modification Factor 3]
[Calculation method for fireball DNV Recommended]
[TNO model flame temperature 1727 degC]

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Toxic Parameters

[Indoor Calculations	Unselected]
[Wind Dependent Exchange Rate	Case Specified]
[Building Exchange Rate	4 /hr]
[Tail Time	1800 s]
[Set averaging time equal to exposure time	Use a fixed averaging time]
[Cut-off fraction of toxic load for exposure time calculation	0.05 fraction]
[Cut-off concentration for exposure time calculations	0 fraction]

Geometry

Shape	Point
Dimension	2D
System	Absolute
East(1)	0 m
North(1)	0 m

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Consequence Results

Pool Vaporization Results

Path: \Terminal Adonai - Efeitos físicos\Simulações\H030

		Dia	Noite
	Release Segment 1		
Release Duration	s	600	600
Liquid Rainout	fraction	1	1
	Release Segment 1 Cloud Segment 1		
Cloud Segment Duration	s	181.576	
Pool Vaporization Rate	kg/s	0.0193829	
Total Vapor Flowrate	kg/s	0.0193833	4.3147e-007
	Release Segment 1 Cloud Segment 2		
Cloud Segment Duration	s	78.44	
Pool Vaporization Rate	kg/s	0.0451542	
Total Vapor Flowrate	kg/s	0.0451546	
	Release Segment 1 Cloud Segment 3		
Cloud Segment Duration	s	61.29	
Pool Vaporization Rate	kg/s	0.058159	
Total Vapor Flowrate	kg/s	0.0581594	
	Release Segment 1 Cloud Segment 4		
Cloud Segment Duration	s	52.15	
Pool Vaporization Rate	kg/s	0.0684144	
Total Vapor Flowrate	kg/s	0.0684148	
	Release Segment 1 Cloud Segment 5		
Cloud Segment Duration	s	87.72	
Pool Vaporization Rate	kg/s	0.0807248	
Total Vapor Flowrate	kg/s	0.0807252	
	Release Segment 1 Cloud Segment 6		
Cloud Segment Duration	s	110.034	
Pool Vaporization Rate	kg/s	0.097619	
Total Vapor Flowrate	kg/s	0.0976194	
	Release Segment 1 Cloud Segment 7		
Cloud Segment Duration	s	28.79	
Pool Vaporization Rate	kg/s	0.109187	
Total Vapor Flowrate	kg/s	0.109187	
Maximum Pool Radius	m	2.7842	2.80261

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Distance to Concentration Results

Path: \Terminal Adonai - Efeitos físicos\Simulações\H030

The height for user defined concentrations is the user defined height 0 m

All toxic results are reported at the toxic effect height 1 m

All flammable results are reported at the flammable effect height 0 m

Concentration(ppm)	Averaging Time		Distance (m)	
			Dia	Noite
UFL (79000)	18.75	s	0	0.00877426
LFL (13000)	18.75	s	0	0.021593
LFL Frac (13000)	18.75	s	0	0.021593

Concentration(ppm)	Averaging Time		Heights (m) for above distances	
			Dia	Noite
UFL (79000)	18.75	s	0	0
LFL (13000)	18.75	s	0	0
LFL Frac (13000)	18.75	s	0	0

Jet Fire Hazard

Path: \Terminal Adonai - Efeitos físicos\Simulações\H030

Jet fire method used: Cone model - DNV recommended

	Dia	Noite
Jet Fire Status	Truncated	Truncated
Flame Direction	Horizontal	Horizontal

Radiation Effects: Jet Fire Ellipse

Path: \Terminal Adonai - Efeitos físicos\Simulações\H030

This table gives the distances to the specified radiation levels for each jet fire listed in the above hazard table

Radiation Level			Distance (m)	
			Dia	Noite
9.83	kW/m2	1.04192	1.04679	
19.46	kW/m2	Not Reached	Not Reached	
35	kW/m2	Not Reached	Not Reached	

Radiation Effects: Jet Fire Distance

Path: \Terminal Adonai - Efeitos físicos\Simulações\H030

	Dia	Radiation Level (kW/m2)
		Noite

Early Pool Fire Hazard

Path: \Terminal Adonai - Efeitos físicos\Simulações\H030

	Dia	Noite
Early Pool Fire Status	Hazard	Hazard

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Radiation Effects: Early Pool Fire Ellipse

Path: \Terminal Adonai - Efeitos físicos\Simulações\H030

			Dia	Noite
Radiation Level	9.83	kW/m2	14.3086	13.5422
Radiation Level	19.46	kW/m2	9.90215	8.95758
Radiation Level	35	kW/m2	5.08575	4.72666

Radiation Effects: Early Pool Fire Distance

Path: \Terminal Adonai - Efeitos físicos\Simulações\H030

	Dia	Noite
Radiation Level (kW/m2)		

Late Pool Fire Hazard

Path: \Terminal Adonai - Efeitos físicos\Simulações\H030

	Dia	Noite
Late Pool Fire Status	Hazard	Hazard

Radiation Effects: Late Pool Fire Ellipse

Path: \Terminal Adonai - Efeitos físicos\Simulações\H030

			Dia	Noite
Radiation Level	9.83	kW/m2	16.8304	15.7844
Radiation Level	19.46	kW/m2	10.8421	9.88182
Radiation Level	35	kW/m2	5.49534	5.18193

Radiation Effects: Late Pool Fire Distance

Path: \Terminal Adonai - Efeitos físicos\Simulações\H030

	Dia	Noite
Radiation Level (kW/m2)		

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Flash Fire Envelope

Path: \Terminal Adonai - Efeitos físicos\Simulações\H030

All flammable results are reported at the flammable effect height 0 m

				Distance (m)
				Noite
Furthest Extent	13000	ppm		0.021593
Furthest Extent	13000	ppm		0.021593
				Heights (m) for above distances
				Noite
Furthest Extent	13000	ppm		0
Furthest Extent	13000	ppm		0

Weather Conditions

Path: \Terminal Adonai - Efeitos físicos\Simulações\H030

		Dia	Noite
Wind Speed	m/s	3	2
Pasquill Stability		C	E
Surface Roughness Length	mm	1000	1000
Surface Roughness Parameter		0.173718	0.173718
Atmospheric Temperature	degC	25	20
Surface Temperature	degC	30	20
Relative Humidity	fraction	0.8	0.8

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

H031

Base Case

CASE Name: Data

Path: \Terminal Adonai - Efeitos físicos\Simulações\H031

User-Defined Data

Material

Material Identifier BENZENE

Scenario

Building Wake Effect None

Vessel/Tank

Release Type Continuous

Location

Elevation 0 m
Use ERPG averaging time ERPG not selected
Use IDLH averaging time IDLH not selected
Use STEL averaging time STEL not selected
Supply a user defined averaging time Not supplied

Bund

Status of Bund No bund present
[Type of Bund Surface User-Defined (Land)]
[Bund Height 0 m]
[Bund Failure Modeling Bund cannot fail]

Indoor/Outdoor

Location of release Open air release
Outdoor Release Direction Horizontal

Flammable

Explosion Method TNT
Jet Fire Method Cone Model

Dispersion

Number of Release Segments 1
Fluid Phase(1) Liquid
Discharge Velocity(1) 16.49 m/s
Droplet Diameter(1) 1084 um
Duration of Discharge(1) 600 s
Final Temperature(1) 25.17 degC
Release Rate(1) 44.85 kg/s
Pre-Dilution Air Rates(1) 0 kg/s
Late Ignition Location No ignition location
Mass Inventory of material to Disperse 5.238E4 kg

Fireball Parameters

[Mass Modification Factor 3]
[Calculation method for fireball DNV Recommended]
[TNO model flame temperature 1727 degC]

Toxic Parameters

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

[Indoor Calculations	Unselected]
[Wind Dependent Exchange Rate	Case Specified]
[Building Exchange Rate	4 /hr]
[Tail Time	1800 s]
[Set averaging time equal to exposure time	Use a fixed averaging time]
[Cut-off fraction of toxic load for exposure time calculation	0.05 fraction]
[Cut-off concentration for exposure time calculations	0 fraction]

Geometry

Shape	Point
Dimension	2D
System	Absolute
East(1)	0 m
North(1)	0 m

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Consequence Results

Pool Vaporization Results

Path: \Terminal Adonai - Efeitos físicos\Simulações\H031

		Dia	Noite
	Release Segment 1		
Release Duration	s	600	600
Liquid Rainout	fraction	1	1
	Release Segment 1 Cloud Segment 1		
Cloud Segment Duration	s	178.891	171.61
Pool Vaporization Rate	kg/s	0.592808	0.413627
Total Vapor Flowrate	kg/s	0.592825	0.413644
	Release Segment 1 Cloud Segment 2		
Cloud Segment Duration	s	77.91	78.03
Pool Vaporization Rate	kg/s	1.35921	0.914225
Total Vapor Flowrate	kg/s	1.35923	0.914242
	Release Segment 1 Cloud Segment 3		
Cloud Segment Duration	s	60.93	61.8825
Pool Vaporization Rate	kg/s	1.74074	1.15916
Total Vapor Flowrate	kg/s	1.74076	1.15917
	Release Segment 1 Cloud Segment 4		
Cloud Segment Duration	s	51.87	53.2875
Pool Vaporization Rate	kg/s	2.03943	1.34973
Total Vapor Flowrate	kg/s	2.03945	1.34975
	Release Segment 1 Cloud Segment 5		
Cloud Segment Duration	s	89.43	91.0125
Pool Vaporization Rate	kg/s	2.40107	1.57709
Total Vapor Flowrate	kg/s	2.40108	1.57711
	Release Segment 1 Cloud Segment 6		
Cloud Segment Duration	s	112.179	114.193
Pool Vaporization Rate	kg/s	2.89815	1.88435
Total Vapor Flowrate	kg/s	2.89817	1.88437
	Release Segment 1 Cloud Segment 7		
Cloud Segment Duration	s	28.79	29.9844
Pool Vaporization Rate	kg/s	3.23524	2.09173
Total Vapor Flowrate	kg/s	3.23525	2.09174
Maximum Pool Radius	m	17.7156	17.7803

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Distance to Concentration Results

Path: \Terminal Adonai - Efeitos físicos\Simulações\H031

The height for user defined concentrations is the user defined height 0 m

All toxic results are reported at the toxic effect height 1 m

All flammable results are reported at the flammable effect height 0 m

Concentration(ppm)	Averaging Time		Distance (m)	
			Dia	Noite
UFL (79000)	18.75	s	0	0
LFL (13000)	18.75	s	0	0
LFL Frac (13000)	18.75	s	0	0

Concentration(ppm)	Averaging Time		Heights (m) for above distances	
			Dia	Noite
UFL (79000)	18.75	s	0	0
LFL (13000)	18.75	s	0	0
LFL Frac (13000)	18.75	s	0	0

Jet Fire Hazard

Path: \Terminal Adonai - Efeitos físicos\Simulações\H031

Jet fire method used: Cone model - DNV recommended

	Dia	Noite
Jet Fire Status	Truncated	Truncated
Flame Direction	Horizontal	Horizontal

Radiation Effects: Jet Fire Ellipse

Path: \Terminal Adonai - Efeitos físicos\Simulações\H031

This table gives the distances to the specified radiation levels for each jet fire listed in the above hazard table

Radiation Level			Distance (m)	
			Dia	Noite
9.83	kW/m2	1.24625	1.27486	
19.46	kW/m2	1.24625	Not Reached	
35	kW/m2	Not Reached	Not Reached	

Radiation Effects: Jet Fire Distance

Path: \Terminal Adonai - Efeitos físicos\Simulações\H031

	Dia	Radiation Level (kW/m2)
		Noite

Early Pool Fire Hazard

Path: \Terminal Adonai - Efeitos físicos\Simulações\H031

	Dia	Noite
Early Pool Fire Status	Hazard	Hazard

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Radiation Effects: Early Pool Fire Ellipse

Path: \Terminal Adonai - Efeitos físicos\Simulações\H031

			Distance (m)	
			Dia	Noite
Radiation Level	9.83	kW/m2	23.4115	21.9742
Radiation Level	19.46	kW/m2	14.3665	14.4939
Radiation Level	35	kW/m2	Not Reached	Not Reached

Radiation Effects: Early Pool Fire Distance

Path: \Terminal Adonai - Efeitos físicos\Simulações\H031

	Radiation Level (kW/m2)	
	Dia	Noite

Late Pool Fire Hazard

Path: \Terminal Adonai - Efeitos físicos\Simulações\H031

	Dia	Noite
Late Pool Fire Status	Hazard	Hazard

Radiation Effects: Late Pool Fire Ellipse

Path: \Terminal Adonai - Efeitos físicos\Simulações\H031

			Distance (m)	
			Dia	Noite
Radiation Level	9.83	kW/m2	25.7634	24.539
Radiation Level	19.46	kW/m2	18.7156	18.7803
Radiation Level	35	kW/m2	Not Reached	Not Reached

Radiation Effects: Late Pool Fire Distance

Path: \Terminal Adonai - Efeitos físicos\Simulações\H031

	Radiation Level (kW/m2)	
	Dia	Noite

Weather Conditions

Path: \Terminal Adonai - Efeitos físicos\Simulações\H031

		Dia	Noite
Wind Speed	m/s	3	2
Pasquill Stability		C	E
Surface Roughness Length	mm	1000	1000
Surface Roughness Parameter		0.173718	0.173718
Atmospheric Temperature	degC	25	20
Surface Temperature	degC	30	20
Relative Humidity	fraction	0.8	0.8

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

H032

Base Case

CASE Name: Data

Path: \Terminal Adonai - Efeitos físicos\Simulações\H032

User-Defined Data

Material

Material Identifier BENZENE

Scenario

Building Wake Effect None

Vessel/Tank

Release Type Continuous

Location

Elevation 0 m
Use ERPG averaging time ERPG not selected
Use IDLH averaging time IDLH not selected
Use STEL averaging time STEL not selected
Supply a user defined averaging time Not supplied

Bund

Status of Bund No bund present
[Type of Bund Surface User-Defined (Land)]
[Bund Height 0 m]
[Bund Failure Modeling Bund cannot fail]

Indoor/Outdoor

Location of release Open air release
Outdoor Release Direction Horizontal

Flammable

Explosion Method TNT
Jet Fire Method Cone Model

Dispersion

Number of Release Segments 1
Fluid Phase(1) Liquid
Discharge Velocity(1) 27.47 m/s
Droplet Diameter(1) 390.8 um
Duration of Discharge(1) 600 s
Final Temperature(1) 24.93 degC
Release Rate(1) 0.45 kg/s
Pre-Dilution Air Rates(1) 0 kg/s
Late Ignition Location No ignition location
Mass Inventory of material to Disperse 5.238E4 kg

Fireball Parameters

[Mass Modification Factor 3]
[Calculation method for fireball DNV Recommended]
[TNO model flame temperature 1727 degC]

Toxic Parameters

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

[Indoor Calculations	Unselected]
[Wind Dependent Exchange Rate	Case Specified]
[Building Exchange Rate	4 /hr]
[Tail Time	1800 s]
[Set averaging time equal to exposure time	Use a fixed averaging time]
[Cut-off fraction of toxic load for exposure time calculation	0.05 fraction]
[Cut-off concentration for exposure time calculations	0 fraction]

Geometry

Shape	Point
Dimension	2D
System	Absolute
East(1)	0 m
North(1)	0 m

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Consequence Results

Pool Vaporization Results

Path: \Terminal Adonai - Efeitos físicos\Simulações\H032

			Dia	Noite
		Release Segment 1		
Release Duration	s		600	600
Liquid Rainout	fraction		1	1
Maximum Pool Radius	m		1.76137	1.7752

Distance to Concentration Results

Path: \Terminal Adonai - Efeitos físicos\Simulações\H032

The height for user defined concentrations is the user defined height 0 m
All toxic results are reported at the toxic effect height 1 m
All flammable results are reported at the flammable effect height 0 m

Concentration(ppm)		Averaging Time		Distance (m)	
				Dia	Noite
UFL (79000)	18.75	s		0.00356443	0.00502361
LFL (13000)	18.75	s		0.00875555	0.0123398
LFL Frac (13000)	18.75	s		0.00875555	0.0123398

Concentration(ppm)		Averaging Time		Heights (m) for above distances	
				Dia	Noite
UFL (79000)	18.75	s		0	0
LFL (13000)	18.75	s		0	0
LFL Frac (13000)	18.75	s		0	0

Jet Fire Hazard

Path: \Terminal Adonai - Efeitos físicos\Simulações\H032

Jet fire method used: Cone model - DNV recommended

		Dia	Noite
Jet Fire Status		No Hazard	No Hazard
Flame Direction		Horizontal	Horizontal

Early Pool Fire Hazard

Path: \Terminal Adonai - Efeitos físicos\Simulações\H032

		Dia	Noite
Early Pool Fire Status		Hazard	Hazard

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos fisicos

Phast 6.7

Radiation Effects: Early Pool Fire Ellipse

Path: \Terminal Adonai - Efeitos fisicos\Simulações\H032

			Dia	Noite
Radiation Level	9.83	kW/m2	10.647	10.1622
Radiation Level	19.46	kW/m2	7.80262	7.05462
Radiation Level	35	kW/m2	4.14163	3.81712

Radiation Effects: Early Pool Fire Distance

Path: \Terminal Adonai - Efeitos fisicos\Simulações\H032

Dia
Noite
Radiation Level (kW/m2)

Late Pool Fire Hazard

Path: \Terminal Adonai - Efeitos fisicos\Simulações\H032

	Dia	Noite
Late Pool Fire Status	Hazard	Hazard

Radiation Effects: Late Pool Fire Ellipse

Path: \Terminal Adonai - Efeitos fisicos\Simulações\H032

			Dia	Noite
Radiation Level	9.83	kW/m2	12.7619	12.1154
Radiation Level	19.46	kW/m2	9.09998	8.21241
Radiation Level	35	kW/m2	4.70048	4.36843

Radiation Effects: Late Pool Fire Distance

Path: \Terminal Adonai - Efeitos fisicos\Simulações\H032

Dia
Noite
Radiation Level (kW/m2)

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Flash Fire Envelope

Path: \Terminal Adonai - Efeitos físicos\Simulações\H032

All flammable results are reported at the flammable effect height 0 m

				Distance (m)	
				Dia	Noite
Furthest Extent	13000	ppm	0.00875555	0.0123398	
Furthest Extent	13000	ppm	0.00875555	0.0123398	
				Heights (m) for above distances	
				Dia	Noite
Furthest Extent	13000	ppm	0	0	
Furthest Extent	13000	ppm	0	0	

Weather Conditions

Path: \Terminal Adonai - Efeitos físicos\Simulações\H032

			Dia	Noite
Wind Speed	m/s		3	2
Pasquill Stability			C	E
Surface Roughness Length	mm		1000	1000
Surface Roughness Parameter			0.173718	0.173718
Atmospheric Temperature	degC		25	20
Surface Temperature	degC		30	20
Relative Humidity	fraction		0.8	0.8

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

H033

Base Case

CASE Name: Data

Path: \Terminal Adonai - Efeitos físicos\Simulações\H033

User-Defined Data

Material

Material Identifier BENZENE

Scenario

Building Wake Effect None

Vessel/Tank

Release Type Continuous

Location

Elevation 1 m
Use ERPG averaging time ERPG not selected
Use IDLH averaging time IDLH not selected
Use STEL averaging time STEL not selected
Supply a user defined averaging time Not supplied

Bund

Status of Bund No bund present
[Type of Bund Surface User-Defined (Land)]
[Bund Height 0 m]
[Bund Failure Modeling Bund cannot fail]

Indoor/Outdoor

Location of release Open air release
Outdoor Release Direction Horizontal

Flammable

Explosion Method TNT
Jet Fire Method Cone Model

Dispersion

Number of Release Segments 1
Fluid Phase(1) Liquid
Discharge Velocity(1) 16.49 m/s
Droplet Diameter(1) 1084 um
Duration of Discharge(1) 600 s
Final Temperature(1) 25.17 degC
Release Rate(1) 44.85 kg/s
Pre-Dilution Air Rates(1) 0 kg/s
Late Ignition Location No ignition location
Mass Inventory of material to Disperse 5.238E4 kg

Fireball Parameters

[Mass Modification Factor 3]
[Calculation method for fireball DNV Recommended]
[TNO model flame temperature 1727 degC]

Toxic Parameters

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

[Indoor Calculations	Unselected]
[Wind Dependent Exchange Rate	Case Specified]
[Building Exchange Rate	4 /hr]
[Tail Time	1800 s]
[Set averaging time equal to exposure time	Use a fixed averaging time]
[Cut-off fraction of toxic load for exposure time calculation	0.05 fraction]
[Cut-off concentration for exposure time calculations	0 fraction]

Geometry

Shape	Point
Dimension	2D
System	Absolute
East(1)	0 m
North(1)	0 m

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Consequence Results

Pool Vaporization Results

Path: \Terminal Adonai - Efeitos físicos\Simulações\H033

		Dia	Noite
	Release Segment 1		
Release Duration	s	600	600
Liquid Rainout	fraction	0.955479	0.959506
	Release Segment 1 Cloud Segment 1		
Cloud Segment Duration	s	190.44	181.576
Pool Vaporization Rate	kg/s	0.427856	0.295323
Total Vapor Flowrate	kg/s	2.42464	2.11147
	Release Segment 1 Cloud Segment 2		
Cloud Segment Duration	s	78.52	78.44
Pool Vaporization Rate	kg/s	1.03906	0.68709
Total Vapor Flowrate	kg/s	3.03584	2.50323
	Release Segment 1 Cloud Segment 3		
Cloud Segment Duration	s	60.4625	61.29
Pool Vaporization Rate	kg/s	1.35346	0.885404
Total Vapor Flowrate	kg/s	3.35024	2.70155
	Release Segment 1 Cloud Segment 4		
Cloud Segment Duration	s	50.8275	52.15
Pool Vaporization Rate	kg/s	1.60275	1.04196
Total Vapor Flowrate	kg/s	3.59954	2.8581
	Release Segment 1 Cloud Segment 5		
Cloud Segment Duration	s	45.1406	87.72
Pool Vaporization Rate	kg/s	1.81566	1.23002
Total Vapor Flowrate	kg/s	3.81245	3.04616
	Release Segment 1 Cloud Segment 6		
Cloud Segment Duration	s	78.6119	110.034
Pool Vaporization Rate	kg/s	2.08703	1.48826
Total Vapor Flowrate	kg/s	4.08381	3.30441
	Release Segment 1 Cloud Segment 7		
Cloud Segment Duration	s	95.9975	28.79
Pool Vaporization Rate	kg/s	2.46406	1.66521
Total Vapor Flowrate	kg/s	4.46084	3.48135
Maximum Pool Radius	m	17.3503	17.4278

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Distance to Concentration Results

Path: \Terminal Adonai - Efeitos físicos\Simulações\H033

The height for user defined concentrations is the user defined height 0 m

All toxic results are reported at the toxic effect height 1 m

All flammable results are reported at the flammable effect height 0 m

Concentration(ppm)	Averaging Time		Distance (m)	
			Dia	Noite
UFL (79000)	18.75	s	7.17115	7.22619
LFL (13000)	18.75	s	33.9759	37.6664
LFL Frac (13000)	18.75	s	33.9759	37.6664

Concentration(ppm)	Averaging Time		Heights (m) for above distances	
			Dia	Noite
UFL (79000)	18.75	s	0	0
LFL (13000)	18.75	s	0	0
LFL Frac (13000)	18.75	s	0	0

Jet Fire Hazard

Path: \Terminal Adonai - Efeitos físicos\Simulações\H033

Jet fire method used: Cone model - DNV recommended

	Dia	Noite
Jet Fire Status	Truncated	Truncated
Flame Direction	Horizontal	Horizontal

Radiation Effects: Jet Fire Ellipse

Path: \Terminal Adonai - Efeitos físicos\Simulações\H033

This table gives the distances to the specified radiation levels for each jet fire listed in the above hazard table

Radiation Level			Distance (m)	
			Dia	Noite
9.83	kW/m2		54.3812	55.9456
19.46	kW/m2		47.6352	49.2273
35	kW/m2		42.9883	44.4713

Radiation Effects: Jet Fire Distance

Path: \Terminal Adonai - Efeitos físicos\Simulações\H033

	Dia	Radiation Level (kW/m2)
		Noite

Early Pool Fire Hazard

Path: \Terminal Adonai - Efeitos físicos\Simulações\H033

	Dia	Noite
Early Pool Fire Status	Hazard	Hazard

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Radiation Effects: Early Pool Fire Ellipse

Path: \Terminal Adonai - Efeitos físicos\Simulações\H033

			Dia	Noite
Radiation Level	9.83	kW/m2	30.597	29.199
Radiation Level	19.46	kW/m2	21.3297	21.5195
Radiation Level	35	kW/m2	Not Reached	Not Reached

Radiation Effects: Early Pool Fire Distance

Path: \Terminal Adonai - Efeitos físicos\Simulações\H033

	Dia	Noite
Radiation Level (kW/m2)		

Late Pool Fire Hazard

Path: \Terminal Adonai - Efeitos físicos\Simulações\H033

	Dia	Noite
Late Pool Fire Status	Hazard	Hazard

Radiation Effects: Late Pool Fire Ellipse

Path: \Terminal Adonai - Efeitos físicos\Simulações\H033

			Dia	Noite
Radiation Level	9.83	kW/m2	32.8226	31.5618
Radiation Level	19.46	kW/m2	25.6144	25.7294
Radiation Level	35	kW/m2	Not Reached	Not Reached

Radiation Effects: Late Pool Fire Distance

Path: \Terminal Adonai - Efeitos físicos\Simulações\H033

	Dia	Noite
Radiation Level (kW/m2)		

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Flash Fire Envelope

Path: \Terminal Adonai - Efeitos físicos\Simulações\H033

All flammable results are reported at the flammable effect height 0 m

				Distance (m)	
				Dia	Noite
Furthest Extent	13000	ppm	33.9759	37.6664	
Furthest Extent	13000	ppm	33.9759	37.6664	
				Heights (m) for above distances	
				Dia	Noite
Furthest Extent	13000	ppm	0	0	
Furthest Extent	13000	ppm	0	0	

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Explosion Effects: Late Ignition

Path: \Terminal Adonai - Efeitos físicos\Simulações\H033

Explosion Model Used : TNT

Explosion Location Criterion: Cloud Center

All distances are measured from the Source

All flammable results are reported at the flammable effect height 0 m

			Maximum Distance (m) at Overpressure Level	
			Dia	Noite
Overpressure	0.05	bar	46.5857	54.3687
Overpressure	0.1	bar	34.608	39.4395
Overpressure	0.3	bar	24.791	27.2035

			Supplementary Data at 0.05 bar	
			Dia	Noite
Supplied Flammable Mass		kg	7.39241	14.3141
Used Flammable Mass		kg	7.39241	14.3141
Overpressure Radius		m	31.5857	39.3687
Distance to:				
- Ignition Source		m	30	30
- Cloud Front/Centre		m	30	30
- Explosion Centre		m	15	15

			Supplementary Data at 0.1 bar	
			Dia	Noite
Supplied Flammable Mass		kg	7.39241	14.3141
Used Flammable Mass		kg	7.39241	14.3141
Overpressure Radius		m	19.608	24.4395
Distance to:				
- Ignition Source		m	30	30
- Cloud Front/Centre		m	30	30
- Explosion Centre		m	15	15

			Supplementary Data at 0.3 bar	
			Dia	Noite
Supplied Flammable Mass		kg	7.39241	14.3141
Used Flammable Mass		kg	7.39241	14.3141
Overpressure Radius		m	9.79096	12.2035
Distance to:				
- Ignition Source		m	30	30
- Cloud Front/Centre		m	30	30
- Explosion Centre		m	15	15

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Weather Conditions

Path: \Terminal Adonai - Efeitos físicos\Simulações\H033

		Dia	Noite
Wind Speed	m/s	3	2
Pasquill Stability		C	E
Surface Roughness Length	mm	1000	1000
Surface Roughness Parameter		0.173718	0.173718
Atmospheric Temperature	degC	25	20
Surface Temperature	degC	30	20
Relative Humidity	fraction	0.8	0.8

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

H034

Base Case

CASE Name: Data

Path: \Terminal Adonai - Efeitos físicos\Simulações\H034

User-Defined Data

Material

Material Identifier BENZENE

Scenario

Building Wake Effect None

Vessel/Tank

Release Type Continuous

Location

Elevation 1 m
Use ERPG averaging time ERPG not selected
Use IDLH averaging time IDLH not selected
Use STEL averaging time STEL not selected
Supply a user defined averaging time Not supplied

Bund

Status of Bund No bund present
[Type of Bund Surface User-Defined (Land)]
[Bund Height 0 m]
[Bund Failure Modeling Bund cannot fail]

Indoor/Outdoor

Location of release Open air release
Outdoor Release Direction Horizontal

Flammable

Explosion Method TNT
Jet Fire Method Cone Model

Dispersion

Number of Release Segments 1
Fluid Phase(1) Liquid
Discharge Velocity(1) 27.47 m/s
Droplet Diameter(1) 390.8 um
Duration of Discharge(1) 600 s
Final Temperature(1) 24.93 degC
Release Rate(1) 0.45 kg/s
Pre-Dilution Air Rates(1) 0 kg/s
Late Ignition Location No ignition location
Mass Inventory of material to Disperse 5.238E4 kg

Fireball Parameters

[Mass Modification Factor 3]
[Calculation method for fireball DNV Recommended]
[TNO model flame temperature 1727 degC]

Toxic Parameters

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

[Indoor Calculations	Unselected]
[Wind Dependent Exchange Rate	Case Specified]
[Building Exchange Rate	4 /hr]
[Tail Time	1800 s]
[Set averaging time equal to exposure time	Use a fixed averaging time]
[Cut-off fraction of toxic load for exposure time calculation	0.05 fraction]
[Cut-off concentration for exposure time calculations	0 fraction]

Geometry

Shape	Point
Dimension	2D
System	Absolute
East(1)	0 m
North(1)	0 m

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Consequence Results

Pool Vaporization Results

Path: \Terminal Adonai - Efeitos físicos\Simulações\H034

			Dia	Noite
		Release Segment 1		
Release Duration	s		600	600
Liquid Rainout	fraction		0.811011	0.827397
Maximum Pool Radius	m		1.59117	1.61715

Distance to Concentration Results

Path: \Terminal Adonai - Efeitos físicos\Simulações\H034

The height for user defined concentrations is the user defined height 0 m
All toxic results are reported at the toxic effect height 1 m
All flammable results are reported at the flammable effect height 0 m

Concentration(ppm)		Averaging Time		Distance (m)	
				Dia	Noite
UFL (79000)	18.75	s		No Hazard	No Hazard
LFL (13000)	18.75	s		No Hazard	No Hazard
LFL Frac (13000)	18.75	s		No Hazard	No Hazard
Concentration(ppm)		Averaging Time		Heights (m) for above distances	
				Dia	Noite
UFL (79000)	18.75	s		0	0
LFL (13000)	18.75	s		0	0
LFL Frac (13000)	18.75	s		0	0

Jet Fire Hazard

Path: \Terminal Adonai - Efeitos físicos\Simulações\H034

Jet fire method used: Cone model - DNV recommended

		Dia	Noite
Jet Fire Status		Truncated	Truncated
Flame Direction		Horizontal	Horizontal

Radiation Effects: Jet Fire Ellipse

Path: \Terminal Adonai - Efeitos físicos\Simulações\H034

This table gives the distances to the specified radiation levels
for each jet fire listed in the above hazard table

				Distance (m)	
				Dia	Noite
Radiation Level	9.83	kW/m2		12.9598	13.3319
Radiation Level	19.46	kW/m2		11.3389	11.7391
Radiation Level	35	kW/m2		10.1905	10.5888

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Radiation Effects: Jet Fire Distance

Path: \Terminal Adonai - Efeitos físicos\Simulações\H034

Dia Radiation Level (kW/m2)
Noite

Early Pool Fire Hazard

Path: \Terminal Adonai - Efeitos físicos\Simulações\H034

Early Pool Fire Status Dia Noite
Hazard Hazard

Radiation Effects: Early Pool Fire Ellipse

Path: \Terminal Adonai - Efeitos físicos\Simulações\H034

			Dia	Noite
Radiation Level	9.83	kW/m2	15.0011	14.5479
Radiation Level	19.46	kW/m2	12.4064	11.6707
Radiation Level	35	kW/m2	9.00593	8.62454

Radiation Effects: Early Pool Fire Distance

Path: \Terminal Adonai - Efeitos físicos\Simulações\H034

Dia Radiation Level (kW/m2)
Noite

Late Pool Fire Hazard

Path: \Terminal Adonai - Efeitos físicos\Simulações\H034

Late Pool Fire Status Dia Noite
Hazard Hazard

Radiation Effects: Late Pool Fire Ellipse

Path: \Terminal Adonai - Efeitos físicos\Simulações\H034

			Dia	Noite
Radiation Level	9.83	kW/m2	17.0361	16.4281
Radiation Level	19.46	kW/m2	13.7105	12.8231
Radiation Level	35	kW/m2	9.55147	9.17883

Radiation Effects: Late Pool Fire Distance

Path: \Terminal Adonai - Efeitos físicos\Simulações\H034

Dia Radiation Level (kW/m2)
Noite

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Weather Conditions

Path: \Terminal Adonai - Efeitos físicos\Simulações\H034

		Dia	Noite
Wind Speed	m/s	3	2
Pasquill Stability		C	E
Surface Roughness Length	mm	1000	1000
Surface Roughness Parameter		0.173718	0.173718
Atmospheric Temperature	degC	25	20
Surface Temperature	degC	30	20
Relative Humidity	fraction	0.8	0.8

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

H035

Base Case

CASE Name: Data

Path: \Terminal Adonai - Efeitos físicos\Simulações\H035

User-Defined Data

Material

Material Identifier	BENZENE
Type of Vessel	Padded Liquid
Pressure Specification	Pressure specified
Storage Pressure - gauge	0.03 bar
Temperature	25 degC
Volume Inventory	3200 m3

Scenario

Scenario Type	Line rupture
Phase to be Released	Liquid
Building Wake Effect	None
Specify Pump Head	No pump head supplied
Number of Excess Flow Valves	0
Number of Non-Return Valves	0
Number of Shut-Off Valves	0

Pipe

Internal Diameter	152.4 mm
Line length	1 m

Vessel/Tank

Duration of Interest	600 s
Method Used for Time Varying Releases	Average Rates
Tank Type	Vertical
Tank Height	22.64 m
Tank Diameter	15 m
Height of Discharge from Vessel Bottom	1 m

Location

Elevation	1 m
Use ERPG averaging time	ERPG not selected
Use IDLH averaging time	IDLH not selected
Use STEL averaging time	STEL not selected
Supply a user defined averaging time	Not supplied

Bund

Status of Bund	Bund present
Bund Area	1940 m2
[Type of Bund Surface	User-Defined (Land)]
Bund Height	3 m
[Bund Failure Modeling	Bund cannot fail]

Indoor/Outdoor

Location of release	Open air release
Outdoor Release Direction	Horizontal

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Flammable

Explosion Method TNT
Jet Fire Method Cone Model

Dispersion

Late Ignition Location No ignition location
Mass Inventory of material to Disperse 2.794E6 kg

Fireball Parameters

[Mass Modification Factor 3]
[Calculation method for fireball DNV Recommended]
[TNO model flame temperature 1727 degC]

Toxic Parameters

[Indoor Calculations Unselected]
[Wind Dependent Exchange Rate Case Specified]
[Building Exchange Rate 4 /hr]
[Tail Time 1800 s]
[Set averaging time equal to exposure time Use a fixed averaging time]
[Cut-off fraction of toxic load for exposure time calculation 0.05 fraction]
[Cut-off concentration for exposure time calculations 0 fraction]

Geometry

Shape Point
Dimension 2D
System Absolute
East(1) 0 m
North(1) 0 m

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Path: \Terminal Adonai - Efeitos físicos\Simulações\H035

DISCHARGE DATA for Weather: Global Weathers\Dia

Wind Speed: 3.00 m/s
Wind Speed at Height (Calculated) 1.78 m/s
Pasquill Stability: C

USER-DEFINED QUANTITIES

Material BENZENE
Scenario Line rupture
Inventory 2,793,623.75 kg
Fixed Duration n/a s

Stagnation data (data at upstream end for long pipe):

- Pressure 1.04 bar
- Temperature 25.00 degC
- Fluid State Non-saturated liquid

CALCULATED QUANTITIES

Mass Flow of Air (Vent from Vapor Space only) n/a
Mass Flowrate 1.81862E+002 kg/s
Release Duration 600.00 s

Orifice or pipe exit data (before atmospheric expansion):

- Pressure n/a bar
- Temperature n/a degC
- Vena Contracta Velocity (exit velocity for pipe releases) n/a m/s
- Discharge Coefficient n/a

Final data (after atmospheric expansion):

- Temperature 25.08 degC
- Liquid Mass Fraction 1.00 fraction
- Droplet Diameter 2,305.09 um
- Expanded Radius n/a m
- Velocity 11.42 m/s

DISCHARGE DATA for Weather: Global Weathers\Noite

Wind Speed: 2.00 m/s
Wind Speed at Height (Calculated) 0.83 m/s
Pasquill Stability: E

USER-DEFINED QUANTITIES

Material BENZENE
Scenario Line rupture
Inventory 2,793,623.75 kg
Fixed Duration n/a s

Stagnation data (data at upstream end for long pipe):

- Pressure 1.04 bar
- Temperature 25.00 degC
- Fluid State Non-saturated liquid

CALCULATED QUANTITIES

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Mass Flow of Air (Vent from Vapor Space only)	n/a
Mass Flowrate	1.81862E+002 kg/s
Release Duration	600.00 s
Orifice or pipe exit data (before atmospheric expansion):	
- Pressure	n/a bar
- Temperature	n/a degC
- Vena Contracta Velocity (exit velocity for pipe releases)	n/a m/s
- Discharge Coefficient	n/a
Final data (after atmospheric expansion):	
- Temperature	25.08 degC
- Liquid Mass Fraction	1.00 fraction
- Droplet Diameter	2,260.81 um
- Expanded Radius	n/a m
- Velocity	11.42 m/s

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Consequence Results

Pool Vaporization Results

Path: \Terminal Adonai - Efeitos físicos\Simulações\H035

		Dia	Noite
	Release Segment 1		
Release Duration	s	600	600
Liquid Rainout	fraction	0.984975	0.987394
	Release Segment 1 Cloud Segment 1		
Cloud Segment Duration	s	94.09	90.7256
Pool Vaporization Rate	kg/s	1.03855	0.773094
Total Vapor Flowrate	kg/s	3.77102	3.06562
	Release Segment 1 Cloud Segment 2		
Cloud Segment Duration	s	39.8906	39.805
Pool Vaporization Rate	kg/s	2.44152	1.76387
Total Vapor Flowrate	kg/s	5.17399	4.05639
	Release Segment 1 Cloud Segment 3		
Cloud Segment Duration	s	31.1419	31.395
Pool Vaporization Rate	kg/s	3.15674	2.25878
Total Vapor Flowrate	kg/s	5.88921	4.5513
	Release Segment 1 Cloud Segment 4		
Cloud Segment Duration	s	26.7	26.45
Pool Vaporization Rate	kg/s	3.72861	2.64579
Total Vapor Flowrate	kg/s	6.46108	4.93832
	Release Segment 1 Cloud Segment 5		
Cloud Segment Duration	s	23.5331	45.7144
Pool Vaporization Rate	kg/s	4.21825	3.112
Total Vapor Flowrate	kg/s	6.95072	5.40452
	Release Segment 1 Cloud Segment 6		
Cloud Segment Duration	s	40.6444	365.91
Pool Vaporization Rate	kg/s	4.8345	3.91278
Total Vapor Flowrate	kg/s	7.56698	6.2053
	Release Segment 1 Cloud Segment 7		
Cloud Segment Duration	s	344	
Pool Vaporization Rate	kg/s	5.60351	
Total Vapor Flowrate	kg/s	8.33599	
Maximum Pool Radius	m	24.85	24.85

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Distance to Concentration Results

Path: \Terminal Adonai - Efeitos físicos\Simulações\H035

The height for user defined concentrations is the user defined height 0 m

All toxic results are reported at the toxic effect height 1 m

All flammable results are reported at the flammable effect height 0 m

Concentration(ppm)	Averaging Time		Distance (m)	
			Dia	Noite
UFL (79000)	18.75	s	9.2215	9.69381
LFL (13000)	18.75	s	34.7854	39.661
LFL Frac (13000)	18.75	s	34.7854	39.661

Concentration(ppm)	Averaging Time		Heights (m) for above distances	
			Dia	Noite
UFL (79000)	18.75	s	0	0
LFL (13000)	18.75	s	0	0
LFL Frac (13000)	18.75	s	0	0

Jet Fire Hazard

Path: \Terminal Adonai - Efeitos físicos\Simulações\H035

Jet fire method used: Cone model - DNV recommended

	Dia	Noite
Jet Fire Status	Truncated	Truncated
Flame Direction	Horizontal	Horizontal

Radiation Effects: Jet Fire Ellipse

Path: \Terminal Adonai - Efeitos físicos\Simulações\H035

This table gives the distances to the specified radiation levels for each jet fire listed in the above hazard table

Radiation Level			Distance (m)	
			Dia	Noite
9.83	kW/m2		63.072	62.6982
19.46	kW/m2		55.3682	55.246
35	kW/m2		50.0741	49.9533

Radiation Effects: Jet Fire Distance

Path: \Terminal Adonai - Efeitos físicos\Simulações\H035

	Dia	Radiation Level (kW/m2)
		Noite

Early Pool Fire Hazard

Path: \Terminal Adonai - Efeitos físicos\Simulações\H035

	Dia	Noite
Early Pool Fire Status	Hazard	Hazard

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Radiation Effects: Early Pool Fire Ellipse

Path: \Terminal Adonai - Efeitos físicos\Simulações\H035

			Dia	Noite
Radiation Level	9.83	kW/m2	32.3508	30.9618
Radiation Level	19.46	kW/m2	25.85	25.85
Radiation Level	35	kW/m2	Not Reached	Not Reached

Radiation Effects: Early Pool Fire Distance

Path: \Terminal Adonai - Efeitos físicos\Simulações\H035

	Dia	Noite
Radiation Level (kW/m2)		

Late Pool Fire Hazard

Path: \Terminal Adonai - Efeitos físicos\Simulações\H035

	Dia	Noite
Late Pool Fire Status	Hazard	Hazard

Radiation Effects: Late Pool Fire Ellipse

Path: \Terminal Adonai - Efeitos físicos\Simulações\H035

			Dia	Noite
Radiation Level	9.83	kW/m2	32.3508	30.9618
Radiation Level	19.46	kW/m2	25.85	25.85
Radiation Level	35	kW/m2	Not Reached	Not Reached

Radiation Effects: Late Pool Fire Distance

Path: \Terminal Adonai - Efeitos físicos\Simulações\H035

	Dia	Noite
Radiation Level (kW/m2)		

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Flash Fire Envelope

Path: \Terminal Adonai - Efeitos físicos\Simulações\H035

All flammable results are reported at the flammable effect height 0 m

				Distance (m)	
				Dia	Noite
Furthest Extent	13000	ppm		34.7854	39.661
Furthest Extent	13000	ppm		34.7854	39.661
				Heights (m) for above distances	
				Dia	Noite
Furthest Extent	13000	ppm		0	0
Furthest Extent	13000	ppm		0	0

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Explosion Effects: Late Ignition

Path: \Terminal Adonai - Efeitos físicos\Simulações\H035

Explosion Model Used : TNT

Explosion Location Criterion: Cloud Center

All distances are measured from the Source

All flammable results are reported at the flammable effect height 0 m

			Maximum Distance (m) at Overpressure Level	
			Dia	Noite
Overpressure	0.05	bar	59.8908	69.9257
Overpressure	0.1	bar	42.8676	49.0971
Overpressure	0.3	bar	28.9153	32.0259

			Supplementary Data at 0.05 bar	
			Dia	Noite
Supplied Flammable Mass		kg	21.2219	38.8722
Used Flammable Mass		kg	21.2219	38.8722
Overpressure Radius		m	44.8908	54.9257
Distance to:				
- Ignition Source		m	30	30
- Cloud Front/Centre		m	30	30
- Explosion Centre		m	15	15

			Supplementary Data at 0.1 bar	
			Dia	Noite
Supplied Flammable Mass		kg	21.2219	38.8722
Used Flammable Mass		kg	21.2219	38.8722
Overpressure Radius		m	27.8676	34.0971
Distance to:				
- Ignition Source		m	30	30
- Cloud Front/Centre		m	30	30
- Explosion Centre		m	15	15

			Supplementary Data at 0.3 bar	
			Dia	Noite
Supplied Flammable Mass		kg	21.2219	38.8722
Used Flammable Mass		kg	21.2219	38.8722
Overpressure Radius		m	13.9153	17.0259
Distance to:				
- Ignition Source		m	30	30
- Cloud Front/Centre		m	30	30
- Explosion Centre		m	15	15

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Weather Conditions

Path: \Terminal Adonai - Efeitos físicos\Simulações\H035

		Dia	Noite
Wind Speed	m/s	3	2
Pasquill Stability		C	E
Surface Roughness Length	mm	1000	1000
Surface Roughness Parameter		0.173718	0.173718
Atmospheric Temperature	degC	25	20
Surface Temperature	degC	30	20
Relative Humidity	fraction	0.8	0.8

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

H036

Base Case

CASE Name: Data

Path: \Terminal Adonai - Efeitos físicos\Simulações\H036

User-Defined Data

Material

Material Identifier	BENZENE
Type of Vessel	Padded Liquid
Pressure Specification	Pressure specified
Storage Pressure - gauge	0.03 bar
Temperature	25 degC
Volume Inventory	3200 m3

Scenario

Scenario Type	Leak
Phase to be Released	Liquid
Hole Diameter	15.24 mm
Building Wake Effect	None

Vessel/Tank

Duration of Interest	600 s
Method Used for Time Varying Releases	Average Rates
Tank Type	Vertical
Tank Height	22.64 m
Tank Diameter	15 m
Height of Discharge from Vessel Bottom	1 m

Location

Elevation	1 m
Use ERPG averaging time	ERPG not selected
Use IDLH averaging time	IDLH not selected
Use STEL averaging time	STEL not selected
Supply a user defined averaging time	Not supplied

Bund

Status of Bund	Bund present
Bund Area	1940 m2
[Type of Bund Surface	User-Defined (Land)]
Bund Height	3 m
[Bund Failure Modeling	Bund cannot fail]

Indoor/Outdoor

Location of release	Open air release
Outdoor Release Direction	Horizontal

Flammable

Explosion Method	TNT
Jet Fire Method	Cone Model

Dispersion

Late Ignition Location	No ignition location
Mass Inventory of material to Disperse	2.794E6 kg

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Fireball Parameters

[Mass Modification Factor	3]
[Calculation method for fireball	DNV Recommended]
[TNO model flame temperature	1727 degC]

Toxic Parameters

[Indoor Calculations	Unselected]
[Wind Dependent Exchange Rate	Case Specified]
[Building Exchange Rate	4 /hr]
[Tail Time	1800 s]
[Set averaging time equal to exposure time	Use a fixed averaging time]
[Cut-off fraction of toxic load for exposure time calculation	0.05 fraction]
[Cut-off concentration for exposure time calculations	0 fraction]

Geometry

Shape	Point
Dimension	2D
System	Absolute
East(1)	0 m
North(1)	0 m

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Path: \Terminal Adonai - Efeitos físicos\Simulações\H036

DISCHARGE DATA for Weather: Global Weathers\Dia

Wind Speed: 3.00 m/s
Wind Speed at Height (Calculated) 1.78 m/s
Pasquill Stability: C

USER-DEFINED QUANTITIES

Material BENZENE
Scenario Leak
Inventory 2,793,623.75 kg
Fixed Duration n/a s

Stagnation data (data at upstream end for long pipe):

- Pressure 1.04 bar
- Temperature 25.00 degC
- Fluid State Non-saturated liquid

CALCULATED QUANTITIES

Mass Flow of Air (Vent from Vapor Space only) n/a
Mass Flowrate 1.85238E+000 kg/s
Release Duration 600.00 s

Orifice or pipe exit data (before atmospheric expansion):

- Pressure n/a bar
- Temperature n/a degC
- Vena Contracta Velocity (exit velocity for pipe releases) n/a m/s
- Discharge Coefficient n/a

Final data (after atmospheric expansion):

- Temperature 24.96 degC
- Liquid Mass Fraction 1.00 fraction
- Droplet Diameter 800.09 um
- Expanded Radius n/a m
- Velocity 19.39 m/s

DISCHARGE DATA for Weather: Global Weathers\Noite

Wind Speed: 2.00 m/s
Wind Speed at Height (Calculated) 0.83 m/s
Pasquill Stability: E

USER-DEFINED QUANTITIES

Material BENZENE
Scenario Leak
Inventory 2,793,623.75 kg
Fixed Duration n/a s

Stagnation data (data at upstream end for long pipe):

- Pressure 1.04 bar
- Temperature 25.00 degC
- Fluid State Non-saturated liquid

CALCULATED QUANTITIES

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Mass Flow of Air (Vent from Vapor Space only)	n/a
Mass Flowrate	1.85238E+000 kg/s
Release Duration	600.00 s
Orifice or pipe exit data (before atmospheric expansion):	
- Pressure	n/a bar
- Temperature	n/a degC
- Vena Contracta Velocity (exit velocity for pipe releases)	n/a m/s
- Discharge Coefficient	n/a
Final data (after atmospheric expansion):	
- Temperature	24.96 degC
- Liquid Mass Fraction	1.00 fraction
- Droplet Diameter	784.72 um
- Expanded Radius	n/a m
- Velocity	19.39 m/s

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Consequence Results

Pool Vaporization Results

Path: \Terminal Adonai - Efeitos físicos\Simulações\H036

		Dia	Noite
	Release Segment 1		
Release Duration	s	600	600
Liquid Rainout	fraction	0.911234	0.914219
	Release Segment 1 Cloud Segment 1		
Cloud Segment Duration	s	200.931	
Pool Vaporization Rate	kg/s	0.0204652	
Total Vapor Flowrate	kg/s	0.184894	0.158899
	Release Segment 1 Cloud Segment 2		
Cloud Segment Duration	s	77.125	
Pool Vaporization Rate	kg/s	0.0532315	
Total Vapor Flowrate	kg/s	0.21766	
	Release Segment 1 Cloud Segment 3		
Cloud Segment Duration	s	58.6669	
Pool Vaporization Rate	kg/s	0.0698162	
Total Vapor Flowrate	kg/s	0.234245	
	Release Segment 1 Cloud Segment 4		
Cloud Segment Duration	s	49.4	
Pool Vaporization Rate	kg/s	0.0829382	
Total Vapor Flowrate	kg/s	0.247367	
	Release Segment 1 Cloud Segment 5		
Cloud Segment Duration	s	44.44	
Pool Vaporization Rate	kg/s	0.0942406	
Total Vapor Flowrate	kg/s	0.258669	
	Release Segment 1 Cloud Segment 6		
Cloud Segment Duration	s	75.6875	
Pool Vaporization Rate	kg/s	0.108554	
Total Vapor Flowrate	kg/s	0.272983	
	Release Segment 1 Cloud Segment 7		
Cloud Segment Duration	s	93.75	
Pool Vaporization Rate	kg/s	0.128448	
Total Vapor Flowrate	kg/s	0.292876	
Maximum Pool Radius	m	3.43217	3.45242

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Distance to Concentration Results

Path: \Terminal Adonai - Efeitos físicos\Simulações\H036

The height for user defined concentrations is the user defined height 0 m

All toxic results are reported at the toxic effect height 1 m

All flammable results are reported at the flammable effect height 0 m

Concentration(ppm)	Averaging Time		Distance (m)	
			Dia	Noite
UFL (79000)	18.75	s	No Hazard	No Hazard
LFL (13000)	18.75	s	5.15382	5.25258
LFL Frac (13000)	18.75	s	5.15382	5.25258

Concentration(ppm)	Averaging Time		Heights (m) for above distances	
			Dia	Noite
UFL (79000)	18.75	s	0	0
LFL (13000)	18.75	s	0	0
LFL Frac (13000)	18.75	s	0	0

Jet Fire Hazard

Path: \Terminal Adonai - Efeitos físicos\Simulações\H036

Jet fire method used: Cone model - DNV recommended

	Dia	Noite
Jet Fire Status	Truncated	Truncated
Flame Direction	Horizontal	Horizontal

Radiation Effects: Jet Fire Ellipse

Path: \Terminal Adonai - Efeitos físicos\Simulações\H036

This table gives the distances to the specified radiation levels for each jet fire listed in the above hazard table

Radiation Level			Distance (m)	
			Dia	Noite
9.83	kW/m2		17.8172	18.8401
19.46	kW/m2		15.6435	16.6194
35	kW/m2		14.0961	14.978

Radiation Effects: Jet Fire Distance

Path: \Terminal Adonai - Efeitos físicos\Simulações\H036

	Dia	Radiation Level (kW/m2)
		Noite

Early Pool Fire Hazard

Path: \Terminal Adonai - Efeitos físicos\Simulações\H036

	Dia	Noite
Early Pool Fire Status	Hazard	Hazard

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Radiation Effects: Early Pool Fire Ellipse

Path: \Terminal Adonai - Efeitos físicos\Simulações\H036

			Dia	Noite
Radiation Level	9.83	kW/m2	21.4745	20.608
Radiation Level	19.46	kW/m2	15.9351	15.0528
Radiation Level	35	kW/m2	10.7325	10.4752

Radiation Effects: Early Pool Fire Distance

Path: \Terminal Adonai - Efeitos físicos\Simulações\H036

Dia
Radiation Level (kW/m2)
Noite

Late Pool Fire Hazard

Path: \Terminal Adonai - Efeitos físicos\Simulações\H036

Late Pool Fire Status
Dia
Hazard
Noite
Hazard

Radiation Effects: Late Pool Fire Ellipse

Path: \Terminal Adonai - Efeitos físicos\Simulações\H036

			Dia	Noite
Radiation Level	9.83	kW/m2	24.114	22.878
Radiation Level	19.46	kW/m2	16.7376	15.8187
Radiation Level	35	kW/m2	11.0462	10.8331

Radiation Effects: Late Pool Fire Distance

Path: \Terminal Adonai - Efeitos físicos\Simulações\H036

Dia
Radiation Level (kW/m2)
Noite

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Flash Fire Envelope

Path: \Terminal Adonai - Efeitos físicos\Simulações\H036

All flammable results are reported at the flammable effect height 0 m

				Distance (m)	
				Dia	Noite
Furthest Extent	13000	ppm	5.15382	5.25258	
Furthest Extent	13000	ppm	5.15382	5.25258	
				Heights (m) for above distances	
				Dia	Noite
Furthest Extent	13000	ppm	0	0	
Furthest Extent	13000	ppm	0	0	

Weather Conditions

Path: \Terminal Adonai - Efeitos físicos\Simulações\H036

			Dia	Noite
Wind Speed	m/s		3	2
Pasquill Stability			C	E
Surface Roughness Length	mm		1000	1000
Surface Roughness Parameter			0.173718	0.173718
Atmospheric Temperature	degC		25	20
Surface Temperature	degC		30	20
Relative Humidity	fraction		0.8	0.8

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

H037

Base Case

CASE Name: Data

Path: \Terminal Adonai - Efeitos físicos\Simulações\H037

User-Defined Data

Material

Material Identifier BENZENE

Scenario

Building Wake Effect None

Vessel/Tank

Release Type Continuous

Location

Elevation 1 m
Use ERPG averaging time ERPG not selected
Use IDLH averaging time IDLH not selected
Use STEL averaging time STEL not selected
Supply a user defined averaging time Not supplied

Bund

Status of Bund No bund present
[Type of Bund Surface User-Defined (Land)]
[Bund Height 0 m]
[Bund Failure Modeling Bund cannot fail]

Indoor/Outdoor

Location of release Open air release
Outdoor Release Direction Horizontal

Flammable

Explosion Method TNT
Jet Fire Method Cone Model

Dispersion

Number of Release Segments 1
Fluid Phase(1) Liquid
Discharge Velocity(1) 16.49 m/s
Droplet Diameter(1) 1084 um
Duration of Discharge(1) 600 s
Final Temperature(1) 25.17 degC
Release Rate(1) 22.42 kg/s
Pre-Dilution Air Rates(1) 0 kg/s
Late Ignition Location No ignition location
Mass Inventory of material to Disperse 2.794E6 kg

Fireball Parameters

[Mass Modification Factor 3]
[Calculation method for fireball DNV Recommended]
[TNO model flame temperature 1727 degC]

Toxic Parameters

Date: 07/08/2015

241 of 2,112

Time: 10:10:31

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Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

[Indoor Calculations	Unselected]
[Wind Dependent Exchange Rate	Case Specified]
[Building Exchange Rate	4 /hr]
[Tail Time	1800 s]
[Set averaging time equal to exposure time	Use a fixed averaging time]
[Cut-off fraction of toxic load for exposure time calculation	0.05 fraction]
[Cut-off concentration for exposure time calculations	0 fraction]

Geometry

Shape	Point
Dimension	2D
System	Absolute
East(1)	0 m
North(1)	0 m

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Consequence Results

Pool Vaporization Results

Path: \Terminal Adonai - Efeitos físicos\Simulações\H037

		Dia	Noite
	Release Segment 1		
Release Duration	s	600	600
Liquid Rainout	fraction	0.948801	0.952616
	Release Segment 1 Cloud Segment 1		
Cloud Segment Duration	s	192.516	184.281
Pool Vaporization Rate	kg/s	0.216862	0.147312
Total Vapor Flowrate	kg/s	1.36475	1.20966
	Release Segment 1 Cloud Segment 2		
Cloud Segment Duration	s	78.0869	78.1594
Pool Vaporization Rate	kg/s	0.532868	0.346075
Total Vapor Flowrate	kg/s	1.68075	1.40842
	Release Segment 1 Cloud Segment 3		
Cloud Segment Duration	s	59.7281	60.6606
Pool Vaporization Rate	kg/s	0.69513	0.446634
Total Vapor Flowrate	kg/s	1.84302	1.50898
	Release Segment 1 Cloud Segment 4		
Cloud Segment Duration	s	50.895	51.3219
Pool Vaporization Rate	kg/s	0.824526	0.525971
Total Vapor Flowrate	kg/s	1.97241	1.58831
	Release Segment 1 Cloud Segment 5		
Cloud Segment Duration	s	45.1969	45.8275
Pool Vaporization Rate	kg/s	0.936056	0.593629
Total Vapor Flowrate	kg/s	2.08394	1.65597
	Release Segment 1 Cloud Segment 6		
Cloud Segment Duration	s	77.58	80.3906
Pool Vaporization Rate	kg/s	1.07712	0.679963
Total Vapor Flowrate	kg/s	2.22501	1.74231
	Release Segment 1 Cloud Segment 7		
Cloud Segment Duration	s	95.9975	99.3594
Pool Vaporization Rate	kg/s	1.27377	0.800322
Total Vapor Flowrate	kg/s	2.42166	1.86267
Maximum Pool Radius	m	12.2181	12.274

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Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Distance to Concentration Results

Path: \Terminal Adonai - Efeitos físicos\Simulações\H037

The height for user defined concentrations is the user defined height 0 m

All toxic results are reported at the toxic effect height 1 m

All flammable results are reported at the flammable effect height 0 m

Concentration(ppm)	Averaging Time		Distance (m)	
			Dia	Noite
UFL (79000)	18.75	s	6.76693	6.82076
LFL (13000)	18.75	s	27.6409	30.2558
LFL Frac (13000)	18.75	s	27.6409	30.2558

Concentration(ppm)	Averaging Time		Heights (m) for above distances	
			Dia	Noite
UFL (79000)	18.75	s	0	0
LFL (13000)	18.75	s	0	0
LFL Frac (13000)	18.75	s	0	0

Jet Fire Hazard

Path: \Terminal Adonai - Efeitos físicos\Simulações\H037

Jet fire method used: Cone model - DNV recommended

	Dia	Noite
Jet Fire Status	Truncated	Truncated
Flame Direction	Horizontal	Horizontal

Radiation Effects: Jet Fire Ellipse

Path: \Terminal Adonai - Efeitos físicos\Simulações\H037

This table gives the distances to the specified radiation levels for each jet fire listed in the above hazard table

Radiation Level			Distance (m)	
			Dia	Noite
9.83	kW/m2		42.5916	44.1665
19.46	kW/m2		37.357	38.9062
35	kW/m2		33.7256	35.1417

Radiation Effects: Jet Fire Distance

Path: \Terminal Adonai - Efeitos físicos\Simulações\H037

	Dia	Radiation Level (kW/m2)
		Noite

Early Pool Fire Hazard

Path: \Terminal Adonai - Efeitos físicos\Simulações\H037

	Dia	Noite
Early Pool Fire Status	Hazard	Hazard

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Radiation Effects: Early Pool Fire Ellipse

Path: \Terminal Adonai - Efeitos físicos\Simulações\H037

			Dia	Noite
Radiation Level	9.83	kW/m2	30.1039	28.2843
Radiation Level	19.46	kW/m2	17.706	17.479
Radiation Level	35	kW/m2	Not Reached	Not Reached

Radiation Effects: Early Pool Fire Distance

Path: \Terminal Adonai - Efeitos físicos\Simulações\H037

	Dia	Noite
Radiation Level (kW/m2)		

Late Pool Fire Hazard

Path: \Terminal Adonai - Efeitos físicos\Simulações\H037

	Dia	Noite
Late Pool Fire Status	Hazard	Hazard

Radiation Effects: Late Pool Fire Ellipse

Path: \Terminal Adonai - Efeitos físicos\Simulações\H037

			Dia	Noite
Radiation Level	9.83	kW/m2	29.9414	28.4429
Radiation Level	19.46	kW/m2	20.0258	20.1379
Radiation Level	35	kW/m2	Not Reached	Not Reached

Radiation Effects: Late Pool Fire Distance

Path: \Terminal Adonai - Efeitos físicos\Simulações\H037

	Dia	Noite
Radiation Level (kW/m2)		

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Flash Fire Envelope

Path: \Terminal Adonai - Efeitos físicos\Simulações\H037

All flammable results are reported at the flammable effect height 0 m

				Distance (m)	
				Dia	Noite
Furthest Extent	13000	ppm	27.6409	30.2558	
Furthest Extent	13000	ppm	27.6409	30.2558	
				Heights (m) for above distances	
				Dia	Noite
Furthest Extent	13000	ppm	0	0	
Furthest Extent	13000	ppm	0	0	

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Explosion Effects: Late Ignition

Path: \Terminal Adonai - Efeitos físicos\Simulações\H037

Explosion Model Used : TNT

Explosion Location Criterion: Cloud Center

All distances are measured from the Source

All flammable results are reported at the flammable effect height 0 m

			Maximum Distance (m) at Overpressure Level	
			Dia	Noite
Overpressure	0.05	bar	30.0837	52.5667
Overpressure	0.1	bar	22.4677	38.3209
Overpressure	0.3	bar	16.2256	26.6449

			Supplementary Data at 0.05 bar	
			Dia	Noite
Supplied Flammable Mass		kg	1.9004	12.4372
Used Flammable Mass		kg	1.9004	12.4372
Overpressure Radius		m	20.0837	37.5667
Distance to:				
- Ignition Source		m	20	30
- Cloud Front/Centre		m	20	30
- Explosion Centre		m	10	15

			Supplementary Data at 0.1 bar	
			Dia	Noite
Supplied Flammable Mass		kg	1.9004	12.4372
Used Flammable Mass		kg	1.9004	12.4372
Overpressure Radius		m	12.4677	23.3209
Distance to:				
- Ignition Source		m	20	30
- Cloud Front/Centre		m	20	30
- Explosion Centre		m	10	15

			Supplementary Data at 0.3 bar	
			Dia	Noite
Supplied Flammable Mass		kg	1.9004	12.4372
Used Flammable Mass		kg	1.9004	12.4372
Overpressure Radius		m	6.22556	11.6449
Distance to:				
- Ignition Source		m	20	30
- Cloud Front/Centre		m	20	30
- Explosion Centre		m	10	15

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Weather Conditions

Path: \Terminal Adonai - Efeitos físicos\Simulações\H037

		Dia	Noite
Wind Speed	m/s	3	2
Pasquill Stability		C	E
Surface Roughness Length	mm	1000	1000
Surface Roughness Parameter		0.173718	0.173718
Atmospheric Temperature	degC	25	20
Surface Temperature	degC	30	20
Relative Humidity	fraction	0.8	0.8

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

H038

Base Case

CASE Name: Data

Path: \Terminal Adonai - Efeitos físicos\Simulações\H038

User-Defined Data

Material

Material Identifier BENZENE

Scenario

Building Wake Effect None

Vessel/Tank

Release Type Continuous

Location

Elevation 1 m
Use ERPG averaging time ERPG not selected
Use IDLH averaging time IDLH not selected
Use STEL averaging time STEL not selected
Supply a user defined averaging time Not supplied

Bund

Status of Bund No bund present
[Type of Bund Surface User-Defined (Land)]
[Bund Height 0 m]
[Bund Failure Modeling Bund cannot fail]

Indoor/Outdoor

Location of release Open air release
Outdoor Release Direction Horizontal

Flammable

Explosion Method TNT
Jet Fire Method Cone Model

Dispersion

Number of Release Segments 1
Fluid Phase(1) Liquid
Discharge Velocity(1) 27.47 m/s
Droplet Diameter(1) 390.8 um
Duration of Discharge(1) 600 s
Final Temperature(1) 24.93 degC
Release Rate(1) 0.22 kg/s
Pre-Dilution Air Rates(1) 0 kg/s
Late Ignition Location No ignition location
Mass Inventory of material to Disperse 2.794E6 kg

Fireball Parameters

[Mass Modification Factor 3]
[Calculation method for fireball DNV Recommended]
[TNO model flame temperature 1727 degC]

Toxic Parameters

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

[Indoor Calculations	Unselected]
[Wind Dependent Exchange Rate	Case Specified]
[Building Exchange Rate	4 /hr]
[Tail Time	1800 s]
[Set averaging time equal to exposure time	Use a fixed averaging time]
[Cut-off fraction of toxic load for exposure time calculation	0.05 fraction]
[Cut-off concentration for exposure time calculations	0 fraction]

Geometry

Shape	Point
Dimension	2D
System	Absolute
East(1)	0 m
North(1)	0 m



Consequence Results

Pool Vaporization Results

Path: \Terminal Adonai - Efeitos físicos\Simulações\H038

			Dia	Noite
		Release Segment 1		
Release Duration	s		600	600
Liquid Rainout	fraction		0.801793	0.818548
Maximum Pool Radius	m		1.10365	1.12366

Distance to Concentration Results

Path: \Terminal Adonai - Efeitos físicos\Simulações\H038

The height for user defined concentrations is the user defined height 0 m
 All toxic results are reported at the toxic effect height 1 m
 All flammable results are reported at the flammable effect height 0 m

Concentration(ppm)	Averaging Time		Dia	Noite	Distance (m)
UFL (79000)	18.75	s	No Hazard	No Hazard	No Hazard
LFL (13000)	18.75	s	No Hazard	No Hazard	No Hazard
LFL Frac (13000)	18.75	s	No Hazard	No Hazard	No Hazard
Concentration(ppm)	Averaging Time		Dia	Noite	Heights (m) for above distances
UFL (79000)	18.75	s	0	0	0
LFL (13000)	18.75	s	0	0	0
LFL Frac (13000)	18.75	s	0	0	0

Jet Fire Hazard

Path: \Terminal Adonai - Efeitos físicos\Simulações\H038

Jet fire method used: Cone model - DNV recommended

	Dia	Noite
Jet Fire Status	Truncated	Truncated
Flame Direction	Horizontal	Horizontal

Radiation Effects: Jet Fire Ellipse

Path: \Terminal Adonai - Efeitos físicos\Simulações\H038

This table gives the distances to the specified radiation levels for each jet fire listed in the above hazard table

			Dia	Noite	Distance (m)
Radiation Level	9.83	kW/m2	9.49179	9.78078	
Radiation Level	19.46	kW/m2	8.25799	8.5687	
Radiation Level	35	kW/m2	7.46251	7.95681	

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Radiation Effects: Jet Fire Distance

Path: \Terminal Adonai - Efeitos físicos\Simulações\H038

Dia Radiation Level (kW/m2)
Noite

Early Pool Fire Hazard

Path: \Terminal Adonai - Efeitos físicos\Simulações\H038

Early Pool Fire Status Dia Noite
Hazard Hazard

Radiation Effects: Early Pool Fire Ellipse

Path: \Terminal Adonai - Efeitos físicos\Simulações\H038

			Dia	Distance (m) Noite
Radiation Level	9.83	kW/m2	12.1325	11.7327
Radiation Level	19.46	kW/m2	10.2248	9.59043
Radiation Level	35	kW/m2	7.54573	7.17234

Radiation Effects: Early Pool Fire Distance

Path: \Terminal Adonai - Efeitos físicos\Simulações\H038

Dia Radiation Level (kW/m2)
Noite

Late Pool Fire Hazard

Path: \Terminal Adonai - Efeitos físicos\Simulações\H038

Late Pool Fire Status Dia Noite
Hazard Hazard

Radiation Effects: Late Pool Fire Ellipse

Path: \Terminal Adonai - Efeitos físicos\Simulações\H038

			Dia	Distance (m) Noite
Radiation Level	9.83	kW/m2	13.7756	13.2827
Radiation Level	19.46	kW/m2	11.3662	10.6097
Radiation Level	35	kW/m2	8.16009	7.71284

Radiation Effects: Late Pool Fire Distance

Path: \Terminal Adonai - Efeitos físicos\Simulações\H038

Dia Radiation Level (kW/m2)
Noite

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Weather Conditions

Path: \Terminal Adonai - Efeitos físicos\Simulações\H038

		Dia	Noite
Wind Speed	m/s	3	2
Pasquill Stability		C	E
Surface Roughness Length	mm	1000	1000
Surface Roughness Parameter		0.173718	0.173718
Atmospheric Temperature	degC	25	20
Surface Temperature	degC	30	20
Relative Humidity	fraction	0.8	0.8

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

H039

Base Case

CASE Name: Data

Path: \Terminal Adonai - Efeitos físicos\Simulações\H039

User-Defined Data

Material

Material Identifier BENZENE

Scenario

Building Wake Effect None

Vessel/Tank

Release Type Continuous

Location

Elevation 3 m
Use ERPG averaging time ERPG not selected
Use IDLH averaging time IDLH not selected
Use STEL averaging time STEL not selected
Supply a user defined averaging time Not supplied

Bund

Status of Bund No bund present
[Type of Bund Surface User-Defined (Land)]
[Bund Height 0 m]
[Bund Failure Modeling Bund cannot fail]

Indoor/Outdoor

Location of release Open air release
Outdoor Release Direction Horizontal

Flammable

Explosion Method TNT
Jet Fire Method Cone Model

Dispersion

Number of Release Segments 1
Fluid Phase(1) Liquid
Discharge Velocity(1) 16.49 m/s
Droplet Diameter(1) 1084 um
Duration of Discharge(1) 600 s
Final Temperature(1) 25.17 degC
Release Rate(1) 22.42 kg/s
Pre-Dilution Air Rates(1) 0 kg/s
Late Ignition Location No ignition location
Mass Inventory of material to Disperse 2.794E6 kg

Fireball Parameters

[Mass Modification Factor 3]
[Calculation method for fireball DNV Recommended]
[TNO model flame temperature 1727 degC]

Toxic Parameters

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

[Indoor Calculations	Unselected]
[Wind Dependent Exchange Rate	Case Specified]
[Building Exchange Rate	4 /hr]
[Tail Time	1800 s]
[Set averaging time equal to exposure time	Use a fixed averaging time]
[Cut-off fraction of toxic load for exposure time calculation	0.05 fraction]
[Cut-off concentration for exposure time calculations	0 fraction]

Geometry

Shape	Point
Dimension	2D
System	Absolute
East(1)	0 m
North(1)	0 m

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Consequence Results

Pool Vaporization Results

Path: \Terminal Adonai - Efeitos físicos\Simulações\H039

		Dia	Noite
	Release Segment 1		
Release Duration	s	600	600
Liquid Rainout	fraction	0.917073	0.924414
	Release Segment 1 Cloud Segment 1		
Cloud Segment Duration	s	199.516	190.44
Pool Vaporization Rate	kg/s	0.178508	0.120131
Total Vapor Flowrate	kg/s	2.03773	1.81477
	Release Segment 1 Cloud Segment 2		
Cloud Segment Duration	s	78.54	78.52
Pool Vaporization Rate	kg/s	0.45587	0.292585
Total Vapor Flowrate	kg/s	2.31509	1.98722
	Release Segment 1 Cloud Segment 3		
Cloud Segment Duration	s	59.585	60.4625
Pool Vaporization Rate	kg/s	0.601151	0.381769
Total Vapor Flowrate	kg/s	2.46037	2.07641
	Release Segment 1 Cloud Segment 4		
Cloud Segment Duration	s	49.465	50.8275
Pool Vaporization Rate	kg/s	0.716749	0.452692
Total Vapor Flowrate	kg/s	2.57597	2.14733
	Release Segment 1 Cloud Segment 5		
Cloud Segment Duration	s	44.495	45.1406
Pool Vaporization Rate	kg/s	0.816499	0.513412
Total Vapor Flowrate	kg/s	2.67572	2.20805
	Release Segment 1 Cloud Segment 6		
Cloud Segment Duration	s	75.775	78.6119
Pool Vaporization Rate	kg/s	0.943946	0.591008
Total Vapor Flowrate	kg/s	2.80316	2.28565
	Release Segment 1 Cloud Segment 7		
Cloud Segment Duration	s	92.6244	95.9975
Pool Vaporization Rate	kg/s	1.1214	0.699174
Total Vapor Flowrate	kg/s	2.98062	2.39381
Maximum Pool Radius	m	12.022	12.093

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Distance to Concentration Results

Path: \Terminal Adonai - Efeitos físicos\Simulações\H039

The height for user defined concentrations is the user defined height 0 m
All toxic results are reported at the toxic effect height 1 m
All flammable results are reported at the flammable effect height 0 m

Concentration(ppm)	Averaging Time		Distance (m)	
			Dia	Noite
UFL (79000)	18.75	s	10.0323	10.0787
LFL (13000)	18.75	s	29.4661	35.6515
LFL Frac (13000)	18.75	s	29.4661	35.6515

Concentration(ppm)	Averaging Time		Heights (m) for above distances	
			Dia	Noite
UFL (79000)	18.75	s	0	0
LFL (13000)	18.75	s	0	0
LFL Frac (13000)	18.75	s	0	0

Jet Fire Hazard

Path: \Terminal Adonai - Efeitos físicos\Simulações\H039

Jet fire method used: Cone model - DNV recommended

	Dia	Noite
Jet Fire Status	Truncated	Truncated
Flame Direction	Horizontal	Horizontal

Radiation Effects: Jet Fire Ellipse

Path: \Terminal Adonai - Efeitos físicos\Simulações\H039

This table gives the distances to the specified radiation levels
for each jet fire listed in the above hazard table

Radiation Level			Distance (m)	
			Dia	Noite
9.83	kW/m2		52.3477	53.9145
19.46	kW/m2		45.7108	47.305
35	kW/m2		41.128	42.6379

Radiation Effects: Jet Fire Distance

Path: \Terminal Adonai - Efeitos físicos\Simulações\H039

	Dia	Radiation Level (kW/m2)
		Noite

Early Pool Fire Hazard

Path: \Terminal Adonai - Efeitos físicos\Simulações\H039

	Dia	Noite
Early Pool Fire Status	Hazard	Hazard

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Radiation Effects: Early Pool Fire Ellipse

Path: \Terminal Adonai - Efeitos físicos\Simulações\H039

			Dia	Noite
Radiation Level	9.83	kW/m2	33.9251	32.0844
Radiation Level	19.46	kW/m2	21.4887	21.2904
Radiation Level	35	kW/m2	Not Reached	Not Reached

Radiation Effects: Early Pool Fire Distance

Path: \Terminal Adonai - Efeitos físicos\Simulações\H039

	Dia	Noite
Radiation Level (kW/m2)		

Late Pool Fire Hazard

Path: \Terminal Adonai - Efeitos físicos\Simulações\H039

	Dia	Noite
Late Pool Fire Status	Hazard	Hazard

Radiation Effects: Late Pool Fire Ellipse

Path: \Terminal Adonai - Efeitos físicos\Simulações\H039

			Dia	Noite
Radiation Level	9.83	kW/m2	33.7002	32.256
Radiation Level	19.46	kW/m2	23.5872	23.7708
Radiation Level	35	kW/m2	Not Reached	Not Reached

Radiation Effects: Late Pool Fire Distance

Path: \Terminal Adonai - Efeitos físicos\Simulações\H039

	Dia	Noite
Radiation Level (kW/m2)		

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Flash Fire Envelope

Path: \Terminal Adonai - Efeitos físicos\Simulações\H039

All flammable results are reported at the flammable effect height 0 m

				Distance (m)	
				Dia	Noite
Furthest Extent	13000	ppm	29.4661	29.4661	35.6515
Furthest Extent	13000	ppm	29.4661	29.4661	35.6515
				Heights (m) for above distances	
				Dia	Noite
Furthest Extent	13000	ppm	0	0	0
Furthest Extent	13000	ppm	0	0	0

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Explosion Effects: Late Ignition

Path: \Terminal Adonai - Efeitos físicos\Simulações\H039

Explosion Model Used : TNT

Explosion Location Criterion: Cloud Center

All distances are measured from the Source

All flammable results are reported at the flammable effect height 0 m

			Maximum Distance (m) at Overpressure Level	
			Dia	Noite
Overpressure	0.05	bar	27.7861	38.6909
Overpressure	0.1	bar	21.0414	29.707
Overpressure	0.3	bar	15.5133	22.3437

			Supplementary Data at 0.05 bar	
			Dia	Noite
Supplied Flammable Mass		kg	1.31994	3.1193
Used Flammable Mass		kg	1.31994	3.1193
Overpressure Radius		m	17.7861	23.6909
Distance to:				
- Ignition Source		m	20	30
- Cloud Front/Centre		m	20	30
- Explosion Centre		m	10	15

			Supplementary Data at 0.1 bar	
			Dia	Noite
Supplied Flammable Mass		kg	1.31994	3.1193
Used Flammable Mass		kg	1.31994	3.1193
Overpressure Radius		m	11.0413	14.707
Distance to:				
- Ignition Source		m	20	30
- Cloud Front/Centre		m	20	30
- Explosion Centre		m	10	15

			Supplementary Data at 0.3 bar	
			Dia	Noite
Supplied Flammable Mass		kg	1.31994	3.1193
Used Flammable Mass		kg	1.31994	3.1193
Overpressure Radius		m	5.51333	7.34371
Distance to:				
- Ignition Source		m	20	30
- Cloud Front/Centre		m	20	30
- Explosion Centre		m	10	15

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Weather Conditions

Path: \Terminal Adonai - Efeitos físicos\Simulações\H039

		Dia	Noite
Wind Speed	m/s	3	2
Pasquill Stability		C	E
Surface Roughness Length	mm	1000	1000
Surface Roughness Parameter		0.173718	0.173718
Atmospheric Temperature	degC	25	20
Surface Temperature	degC	30	20
Relative Humidity	fraction	0.8	0.8

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

H040

Base Case

CASE Name: Data

Path: \Terminal Adonai - Efeitos físicos\Simulações\H040

User-Defined Data

Material

Material Identifier BENZENE

Scenario

Building Wake Effect None

Vessel/Tank

Release Type Continuous

Location

Elevation 3 m
Use ERPG averaging time ERPG not selected
Use IDLH averaging time IDLH not selected
Use STEL averaging time STEL not selected
Supply a user defined averaging time Not supplied

Bund

Status of Bund No bund present
[Type of Bund Surface User-Defined (Land)]
[Bund Height 0 m]
[Bund Failure Modeling Bund cannot fail]

Indoor/Outdoor

Location of release Open air release
Outdoor Release Direction Horizontal

Flammable

Explosion Method TNT
Jet Fire Method Cone Model

Dispersion

Number of Release Segments 1
Fluid Phase(1) Liquid
Discharge Velocity(1) 27.47 m/s
Droplet Diameter(1) 390.8 um
Duration of Discharge(1) 600 s
Final Temperature(1) 24.93 degC
Release Rate(1) 0.22 kg/s
Pre-Dilution Air Rates(1) 0 kg/s
Late Ignition Location No ignition location
Mass Inventory of material to Disperse 2.794E6 kg

Fireball Parameters

[Mass Modification Factor 3]
[Calculation method for fireball DNV Recommended]
[TNO model flame temperature 1727 degC]

Toxic Parameters

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

[Indoor Calculations	Unselected]
[Wind Dependent Exchange Rate	Case Specified]
[Building Exchange Rate	4 /hr]
[Tail Time	1800 s]
[Set averaging time equal to exposure time	Use a fixed averaging time]
[Cut-off fraction of toxic load for exposure time calculation	0.05 fraction]
[Cut-off concentration for exposure time calculations	0 fraction]

Geometry

Shape	Point
Dimension	2D
System	Absolute
East(1)	0 m
North(1)	0 m

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Consequence Results

Pool Vaporization Results

Path: \Terminal Adonai - Efeitos físicos\Simulações\H040

			Dia	Noite
		Release Segment 1		
Release Duration	s		600	600
Liquid Rainout	fraction		0.610121	0.664469
Maximum Pool Radius	m		0.961946	1.01217

Distance to Concentration Results

Path: \Terminal Adonai - Efeitos físicos\Simulações\H040

The height for user defined concentrations is the user defined height 0 m
All toxic results are reported at the toxic effect height 1 m
All flammable results are reported at the flammable effect height 0 m

Concentration(ppm)		Averaging Time		Distance (m)	
				Dia	Noite
UFL (79000)	18.75	s		No Hazard	No Hazard
LFL (13000)	18.75	s		No Hazard	No Hazard
LFL Frac (13000)	18.75	s		No Hazard	No Hazard

Concentration(ppm)		Averaging Time		Heights (m) for above distances	
				Dia	Noite
UFL (79000)	18.75	s		0	0
LFL (13000)	18.75	s		0	0
LFL Frac (13000)	18.75	s		0	0

Jet Fire Hazard

Path: \Terminal Adonai - Efeitos físicos\Simulações\H040

Jet fire method used: Cone model - DNV recommended

			Dia	Noite
Jet Fire Status			Hazard	Hazard
Flame Direction			Horizontal	Horizontal

Radiation Effects: Jet Fire Ellipse

Path: \Terminal Adonai - Efeitos físicos\Simulações\H040

This table gives the distances to the specified radiation levels
for each jet fire listed in the above hazard table

			Distance (m)	
			Dia	Noite
Radiation Level	9.83	kW/m2	10.5107	11.2998
Radiation Level	19.46	kW/m2	7.88004	8.78705
Radiation Level	35	kW/m2	Not Reached	Not Reached

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Radiation Effects: Jet Fire Distance

Path: \Terminal Adonai - Efeitos físicos\Simulações\H040

Dia Radiation Level (kW/m2)
Noite

Early Pool Fire Hazard

Path: \Terminal Adonai - Efeitos físicos\Simulações\H040

Early Pool Fire Status Dia Noite
Hazard Hazard

Radiation Effects: Early Pool Fire Ellipse

Path: \Terminal Adonai - Efeitos físicos\Simulações\H040

			Dia	Noite
Radiation Level	9.83	kW/m2	15.6924	14.4699
Radiation Level	19.46	kW/m2	13.9894	12.4997
Radiation Level	35	kW/m2	11.5417	10.2432

Radiation Effects: Early Pool Fire Distance

Path: \Terminal Adonai - Efeitos físicos\Simulações\H040

Dia Radiation Level (kW/m2)
Noite

Late Pool Fire Hazard

Path: \Terminal Adonai - Efeitos físicos\Simulações\H040

Late Pool Fire Status Dia Noite
Hazard Hazard

Radiation Effects: Late Pool Fire Ellipse

Path: \Terminal Adonai - Efeitos físicos\Simulações\H040

			Dia	Noite
Radiation Level	9.83	kW/m2	17.1958	15.9258
Radiation Level	19.46	kW/m2	15.0541	13.4717
Radiation Level	35	kW/m2	12.1214	10.7748

Radiation Effects: Late Pool Fire Distance

Path: \Terminal Adonai - Efeitos físicos\Simulações\H040

Dia Radiation Level (kW/m2)
Noite

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Weather Conditions

Path: \Terminal Adonai - Efeitos físicos\Simulações\H040

		Dia	Noite
Wind Speed	m/s	3	2
Pasquill Stability		C	E
Surface Roughness Length	mm	1000	1000
Surface Roughness Parameter		0.173718	0.173718
Atmospheric Temperature	degC	25	20
Surface Temperature	degC	30	20
Relative Humidity	fraction	0.8	0.8

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

H041

Base Case

CASE Name: Data

Path: \Terminal Adonai - Efeitos físicos\Simulações\H041

User-Defined Data

Material

Material Identifier ETHANOL

Scenario

Building Wake Effect None

Vessel/Tank

Release Type Continuous

Location

Elevation 0 m
Use ERPG averaging time ERPG not selected
Use IDLH averaging time IDLH not selected
Use STEL averaging time STEL not selected
Supply a user defined averaging time Not supplied

Bund

Status of Bund Bund present
Bund Area 1.152E4 m2
[Type of Bund Surface User-Defined (Land)]
Bund Height 0.3 m
[Bund Failure Modeling Bund cannot fail]

Indoor/Outdoor

Location of release Open air release
Outdoor Release Direction Horizontal

Flammable

Explosion Method TNT
Jet Fire Method Cone Model

Dispersion

Number of Release Segments 1
Fluid Phase(1) Liquid
Discharge Velocity(1) 20.97 m/s
Droplet Diameter(1) 525.1 um
Duration of Discharge(1) 600 s
Final Temperature(1) 25.13 degC
Release Rate(1) 98.75 kg/s
Pre-Dilution Air Rates(1) 0 kg/s
Late Ignition Location No ignition location
Mass Inventory of material to Disperse 2.358E6 kg

Fireball Parameters

[Mass Modification Factor 3]
[Calculation method for fireball DNV Recommended]
[TNO model flame temperature 1727 degC]

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Toxic Parameters

[Indoor Calculations	Unselected]
[Wind Dependent Exchange Rate	Case Specified]
[Building Exchange Rate	4 /hr]
[Tail Time	1800 s]
[Set averaging time equal to exposure time	Use a fixed averaging time]
[Cut-off fraction of toxic load for exposure time calculation	0.05 fraction]
[Cut-off concentration for exposure time calculations	0 fraction]

Geometry

Shape	Point
Dimension	2D
System	Absolute
East(1)	0 m
North(1)	0 m

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Consequence Results

Pool Vaporization Results

Path: \Terminal Adonai - Efeitos físicos\Simulações\H041

		Dia	Noite
	Release Segment 1		
Release Duration	s	600	600
Liquid Rainout	fraction	1	1
	Release Segment 1 Cloud Segment 1		
Cloud Segment Duration	s	180.231	172.266
Pool Vaporization Rate	kg/s	0.596543	0.417026
Total Vapor Flowrate	kg/s	0.596557	0.41704
	Release Segment 1 Cloud Segment 2		
Cloud Segment Duration	s	78.175	77.3744
Pool Vaporization Rate	kg/s	1.37734	0.924012
Total Vapor Flowrate	kg/s	1.37735	0.924025
	Release Segment 1 Cloud Segment 3		
Cloud Segment Duration	s	61.11	61.8825
Pool Vaporization Rate	kg/s	1.76987	1.17116
Total Vapor Flowrate	kg/s	1.76988	1.17117
	Release Segment 1 Cloud Segment 4		
Cloud Segment Duration	s	52.01	53.2875
Pool Vaporization Rate	kg/s	2.07886	1.36404
Total Vapor Flowrate	kg/s	2.07887	1.36405
	Release Segment 1 Cloud Segment 5		
Cloud Segment Duration	s	88.5769	91.0125
Pool Vaporization Rate	kg/s	2.45203	1.59351
Total Vapor Flowrate	kg/s	2.45205	1.59352
	Release Segment 1 Cloud Segment 6		
Cloud Segment Duration	s	109.913	114.193
Pool Vaporization Rate	kg/s	2.96275	1.90249
Total Vapor Flowrate	kg/s	2.96276	1.90251
	Release Segment 1 Cloud Segment 7		
Cloud Segment Duration	s	29.9844	29.9844
Pool Vaporization Rate	kg/s	3.31361	2.11034
Total Vapor Flowrate	kg/s	3.31362	2.11036
Maximum Pool Radius	m	28.0163	28.0307

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Distance to Concentration Results

Path: \Terminal Adonai - Efeitos físicos\Simulações\H041

The height for user defined concentrations is the user defined height 0 m

All toxic results are reported at the toxic effect height 1 m

All flammable results are reported at the flammable effect height 0 m

Concentration(ppm)	Averaging Time		Distance (m)	
			Dia	Noite
UFL (190000)	18.75	s	0	0
LFL (43000)	18.75	s	0	0
LFL Frac (43000)	18.75	s	0	0

Concentration(ppm)	Averaging Time		Heights (m) for above distances	
			Dia	Noite
UFL (190000)	18.75	s	0	0
LFL (43000)	18.75	s	0	0
LFL Frac (43000)	18.75	s	0	0

Jet Fire Hazard

Path: \Terminal Adonai - Efeitos físicos\Simulações\H041

Jet fire method used: Cone model - DNV recommended

	Dia	Noite
Jet Fire Status	Truncated	Truncated
Flame Direction	Horizontal	Horizontal

Radiation Effects: Jet Fire Ellipse

Path: \Terminal Adonai - Efeitos físicos\Simulações\H041

This table gives the distances to the specified radiation levels for each jet fire listed in the above hazard table

Radiation Level			Distance (m)	
			Dia	Noite
9.83	kW/m2	Not Reached	Not Reached	
19.46	kW/m2	Not Reached	Not Reached	
35	kW/m2	Not Reached	Not Reached	

Radiation Effects: Jet Fire Distance

Path: \Terminal Adonai - Efeitos físicos\Simulações\H041

	Dia	Radiation Level (kW/m2)
		Noite

Early Pool Fire Hazard

Path: \Terminal Adonai - Efeitos físicos\Simulações\H041

	Dia	Noite
Early Pool Fire Status	Hazard	Hazard

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Radiation Effects: Early Pool Fire Ellipse

Path: \Terminal Adonai - Efeitos físicos\Simulações\H041

			Dia	Noite
Radiation Level	9.83	kW/m2	75.7228	73.9964
Radiation Level	19.46	kW/m2	58.0754	55.285
Radiation Level	35	kW/m2	39.3581	37.4944

Radiation Effects: Early Pool Fire Distance

Path: \Terminal Adonai - Efeitos físicos\Simulações\H041

	Dia	Noite
Radiation Level (kW/m2)		

Late Pool Fire Hazard

Path: \Terminal Adonai - Efeitos físicos\Simulações\H041

	Dia	Noite
Late Pool Fire Status	Hazard	Hazard

Radiation Effects: Late Pool Fire Ellipse

Path: \Terminal Adonai - Efeitos físicos\Simulações\H041

			Dia	Noite
Radiation Level	9.83	kW/m2	75.7228	73.9964
Radiation Level	19.46	kW/m2	58.0754	55.285
Radiation Level	35	kW/m2	39.3581	37.4944

Radiation Effects: Late Pool Fire Distance

Path: \Terminal Adonai - Efeitos físicos\Simulações\H041

	Dia	Noite
Radiation Level (kW/m2)		

Weather Conditions

Path: \Terminal Adonai - Efeitos físicos\Simulações\H041

		Dia	Noite
Wind Speed	m/s	3	2
Pasquill Stability		C	E
Surface Roughness Length	mm	1000	1000
Surface Roughness Parameter		0.173718	0.173718
Atmospheric Temperature	degC	25	20
Surface Temperature	degC	30	20
Relative Humidity	fraction	0.8	0.8

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

H042

Base Case

CASE Name: Data

Path: \Terminal Adonai - Efeitos físicos\Simulações\H042

User-Defined Data

Material

Material Identifier ETHANOL

Scenario

Building Wake Effect None

Vessel/Tank

Release Type Continuous

Location

Elevation 0 m
Use ERPG averaging time ERPG not selected
Use IDLH averaging time IDLH not selected
Use STEL averaging time STEL not selected
Supply a user defined averaging time Not supplied

Bund

Status of Bund Bund present
Bund Area 1.152E4 m2
[Type of Bund Surface User-Defined (Land)]
Bund Height 0.3 m
[Bund Failure Modeling Bund cannot fail]

Indoor/Outdoor

Location of release Open air release
Outdoor Release Direction Horizontal

Flammable

Explosion Method TNT
Jet Fire Method Cone Model

Dispersion

Number of Release Segments 1
Fluid Phase(1) Liquid
Discharge Velocity(1) 34.94 m/s
Droplet Diameter(1) 189.2 um
Duration of Discharge(1) 600 s
Final Temperature(1) 24.94 degC
Release Rate(1) 0.99 kg/s
Pre-Dilution Air Rates(1) 0 kg/s
Late Ignition Location No ignition location
Mass Inventory of material to Disperse 2.358E6 kg

Fireball Parameters

[Mass Modification Factor 3]
[Calculation method for fireball DNV Recommended]
[TNO model flame temperature 1727 degC]

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Toxic Parameters

[Indoor Calculations	Unselected]
[Wind Dependent Exchange Rate	Case Specified]
[Building Exchange Rate	4 /hr]
[Tail Time	1800 s]
[Set averaging time equal to exposure time	Use a fixed averaging time]
[Cut-off fraction of toxic load for exposure time calculation	0.05 fraction]
[Cut-off concentration for exposure time calculations	0 fraction]

Geometry

Shape	Point
Dimension	2D
System	Absolute
East(1)	0 m
North(1)	0 m

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Consequence Results

Pool Vaporization Results

Path: \Terminal Adonai - Efeitos físicos\Simulações\H042

			Dia	Noite
		Release Segment 1		
Release Duration	s		600	600
Liquid Rainout	fraction		1	1
Maximum Pool Radius	m		2.79761	2.80213

Distance to Concentration Results

Path: \Terminal Adonai - Efeitos físicos\Simulações\H042

The height for user defined concentrations is the user defined height 0 m
All toxic results are reported at the toxic effect height 1 m
All flammable results are reported at the flammable effect height 0 m

Concentration(ppm)		Averaging Time		Distance (m)	
				Dia	Noite
UFL (190000)	18.75	s		0	0
LFL (43000)	18.75	s		0.00081651	0.00107046
LFL Frac (43000)	18.75	s		0.00081651	0.00107046

Concentration(ppm)		Averaging Time		Heights (m) for above distances	
				Dia	Noite
UFL (190000)	18.75	s		0	0
LFL (43000)	18.75	s		0	0
LFL Frac (43000)	18.75	s		0	0

Jet Fire Hazard

Path: \Terminal Adonai - Efeitos físicos\Simulações\H042

Jet fire method used: Cone model - DNV recommended

		Dia	Noite
Jet Fire Status		No Hazard	No Hazard
Flame Direction		Horizontal	Horizontal

Early Pool Fire Hazard

Path: \Terminal Adonai - Efeitos físicos\Simulações\H042

		Dia	Noite
Early Pool Fire Status		Hazard	Hazard

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos fisicos

Phast 6.7

Radiation Effects: Early Pool Fire Ellipse

Path: \Terminal Adonai - Efeitos fisicos\Simulações\H042

			Dia	Noite
Radiation Level	9.83	kW/m2	9.54233	9.05034
Radiation Level	19.46	kW/m2	5.70467	5.37993
Radiation Level	35	kW/m2	3.79761	3.80213

Radiation Effects: Early Pool Fire Distance

Path: \Terminal Adonai - Efeitos fisicos\Simulações\H042

	Dia	Noite
Radiation Level (kW/m2)		

Late Pool Fire Hazard

Path: \Terminal Adonai - Efeitos fisicos\Simulações\H042

	Dia	Noite
Late Pool Fire Status	Hazard	Hazard

Radiation Effects: Late Pool Fire Ellipse

Path: \Terminal Adonai - Efeitos fisicos\Simulações\H042

			Dia	Noite
Radiation Level	9.83	kW/m2	9.54233	9.05034
Radiation Level	19.46	kW/m2	5.70467	5.37993
Radiation Level	35	kW/m2	3.79761	3.80213

Radiation Effects: Late Pool Fire Distance

Path: \Terminal Adonai - Efeitos fisicos\Simulações\H042

	Dia	Noite
Radiation Level (kW/m2)		

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Flash Fire Envelope

Path: \Terminal Adonai - Efeitos físicos\Simulações\H042

All flammable results are reported at the flammable effect height 0 m

				Distance (m)	
				Dia	Noite
Furthest Extent	43000	ppm	0.00081651	0.00107046	
Furthest Extent	43000	ppm	0.00081651	0.00107046	
				Heights (m) for above distances	
				Dia	Noite
Furthest Extent	43000	ppm	0	0	
Furthest Extent	43000	ppm	0	0	

Weather Conditions

Path: \Terminal Adonai - Efeitos físicos\Simulações\H042

			Dia	Noite
Wind Speed	m/s		3	2
Pasquill Stability			C	E
Surface Roughness Length	mm		1000	1000
Surface Roughness Parameter			0.173718	0.173718
Atmospheric Temperature	degC		25	20
Surface Temperature	degC		30	20
Relative Humidity	fraction		0.8	0.8

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

H043

Base Case

CASE Name: Data

Path: \Terminal Adonai - Efeitos físicos\Simulações\H043

User-Defined Data

Material

Material Identifier ETHANOL

Scenario

Building Wake Effect None

Vessel/Tank

Release Type Continuous

Location

Elevation 1 m
Use ERPG averaging time ERPG not selected
Use IDLH averaging time IDLH not selected
Use STEL averaging time STEL not selected
Supply a user defined averaging time Not supplied

Bund

Status of Bund No bund present
[Type of Bund Surface User-Defined (Land)]
[Bund Height 0 m]
[Bund Failure Modeling Bund cannot fail]

Indoor/Outdoor

Location of release Open air release
Outdoor Release Direction Horizontal

Flammable

Explosion Method TNT
Jet Fire Method Cone Model

Dispersion

Number of Release Segments 1
Fluid Phase(1) Liquid
Discharge Velocity(1) 20.97 m/s
Droplet Diameter(1) 525.1 um
Duration of Discharge(1) 600 s
Final Temperature(1) 25.13 degC
Release Rate(1) 98.75 kg/s
Pre-Dilution Air Rates(1) 0 kg/s
Late Ignition Location No ignition location
Mass Inventory of material to Disperse 2.358E6 kg

Fireball Parameters

[Mass Modification Factor 3]
[Calculation method for fireball DNV Recommended]
[TNO model flame temperature 1727 degC]

Toxic Parameters

Date: 07/08/2015

277 of 2,112

Time: 10:10:31

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

[Indoor Calculations	Unselected]
[Wind Dependent Exchange Rate	Case Specified]
[Building Exchange Rate	4 /hr]
[Tail Time	1800 s]
[Set averaging time equal to exposure time	Use a fixed averaging time]
[Cut-off fraction of toxic load for exposure time calculation	0.05 fraction]
[Cut-off concentration for exposure time calculations	0 fraction]

Geometry

Shape	Point
Dimension	2D
System	Absolute
East(1)	0 m
North(1)	0 m

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Consequence Results

Pool Vaporization Results

Path: \Terminal Adonai - Efeitos físicos\Simulações\H043

		Dia	Noite
	Release Segment 1		
Release Duration	s	600	600
Liquid Rainout	fraction	0.976324	0.978582
	Release Segment 1 Cloud Segment 1		
Cloud Segment Duration	s	188.376	178.891
Pool Vaporization Rate	kg/s	0.456953	0.31608
Total Vapor Flowrate	kg/s	2.795	2.43111
	Release Segment 1 Cloud Segment 2		
Cloud Segment Duration	s	78.9469	77.91
Pool Vaporization Rate	kg/s	1.09618	0.723436
Total Vapor Flowrate	kg/s	3.43422	2.83847
	Release Segment 1 Cloud Segment 3		
Cloud Segment Duration	s	60.2875	60.93
Pool Vaporization Rate	kg/s	1.42512	0.926599
Total Vapor Flowrate	kg/s	3.76317	3.04163
	Release Segment 1 Cloud Segment 4		
Cloud Segment Duration	s	51.6656	51.87
Pool Vaporization Rate	kg/s	1.68729	1.08592
Total Vapor Flowrate	kg/s	4.02533	3.20095
	Release Segment 1 Cloud Segment 5		
Cloud Segment Duration	s	45.0844	89.43
Pool Vaporization Rate	kg/s	1.91208	1.27915
Total Vapor Flowrate	kg/s	4.25013	3.39418
	Release Segment 1 Cloud Segment 6		
Cloud Segment Duration	s	78.5206	110.985
Pool Vaporization Rate	kg/s	2.1967	1.54375
Total Vapor Flowrate	kg/s	4.53475	3.65878
	Release Segment 1 Cloud Segment 7		
Cloud Segment Duration	s	97.1194	29.9844
Pool Vaporization Rate	kg/s	2.59653	1.72459
Total Vapor Flowrate	kg/s	4.93458	3.83962
Maximum Pool Radius	m	27.6853	27.7154

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Distance to Concentration Results

Path: \Terminal Adonai - Efeitos físicos\Simulações\H043

The height for user defined concentrations is the user defined height 0 m
All toxic results are reported at the toxic effect height 1 m
All flammable results are reported at the flammable effect height 0 m

Concentration(ppm)	Averaging Time		Distance (m)	
			Dia	Noite
UFL (190000)	18.75	s	9.93623	9.95417
LFL (43000)	18.75	s	19.7073	18.6199
LFL Frac (43000)	18.75	s	19.7073	18.6199

Concentration(ppm)	Averaging Time		Heights (m) for above distances	
			Dia	Noite
UFL (190000)	18.75	s	0	0
LFL (43000)	18.75	s	0	0
LFL Frac (43000)	18.75	s	0	0

Jet Fire Hazard

Path: \Terminal Adonai - Efeitos físicos\Simulações\H043

Jet fire method used: Cone model - DNV recommended

	Dia	Noite
Jet Fire Status	Truncated	Truncated
Flame Direction	Horizontal	Horizontal

Radiation Effects: Jet Fire Ellipse

Path: \Terminal Adonai - Efeitos físicos\Simulações\H043

This table gives the distances to the specified radiation levels
for each jet fire listed in the above hazard table

Radiation Level			Distance (m)	
			Dia	Noite
9.83	kW/m2		60.313	62.2623
19.46	kW/m2		53.6331	55.3819
35	kW/m2		47.7327	48.3139

Radiation Effects: Jet Fire Distance

Path: \Terminal Adonai - Efeitos físicos\Simulações\H043

	Dia	Radiation Level (kW/m2)
		Noite

Early Pool Fire Hazard

Path: \Terminal Adonai - Efeitos físicos\Simulações\H043

	Dia	Noite
Early Pool Fire Status	Hazard	Hazard

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Radiation Effects: Early Pool Fire Ellipse

Path: \Terminal Adonai - Efeitos físicos\Simulações\H043

			Dia	Noite
Radiation Level	9.83	kW/m2	85.4042	83.631
Radiation Level	19.46	kW/m2	67.9306	65.0928
Radiation Level	35	kW/m2	49.3701	47.4424

Radiation Effects: Early Pool Fire Distance

Path: \Terminal Adonai - Efeitos físicos\Simulações\H043

	Dia	Noite
Radiation Level (kW/m2)		

Late Pool Fire Hazard

Path: \Terminal Adonai - Efeitos físicos\Simulações\H043

	Dia	Noite
Late Pool Fire Status	Hazard	Hazard

Radiation Effects: Late Pool Fire Ellipse

Path: \Terminal Adonai - Efeitos físicos\Simulações\H043

			Dia	Noite
Radiation Level	9.83	kW/m2	85.4042	83.631
Radiation Level	19.46	kW/m2	67.9306	65.0928
Radiation Level	35	kW/m2	49.3701	47.4424

Radiation Effects: Late Pool Fire Distance

Path: \Terminal Adonai - Efeitos físicos\Simulações\H043

	Dia	Noite
Radiation Level (kW/m2)		

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Flash Fire Envelope

Path: \Terminal Adonai - Efeitos físicos\Simulações\H043

All flammable results are reported at the flammable effect height 0 m

				Distance (m)	
				Dia	Noite
Furthest Extent	43000	ppm	19.7073	18.6199	
Furthest Extent	43000	ppm	19.7073	18.6199	
				Heights (m) for above distances	
				Dia	Noite
Furthest Extent	43000	ppm	0	0	
Furthest Extent	43000	ppm	0	0	

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Explosion Effects: Late Ignition

Path: \Terminal Adonai - Efeitos físicos\Simulações\H043

Explosion Model Used : TNT

Explosion Location Criterion: Cloud Center

All distances are measured from the Source

All flammable results are reported at the flammable effect height 0 m

			Maximum Distance (m) at Overpressure Level	
			Dia	Noite
Overpressure	0.05	bar	11.6968	11.2054
Overpressure	0.1	bar	9.15872	8.85359
Overpressure	0.3	bar	7.07852	6.92604

Supplementary Data at 0.05 bar

			Dia	Noite
Supplied Flammable Mass		kg	0.10533	0.0838027
Used Flammable Mass		kg	0.10533	0.0838027
Overpressure Radius		m	6.69293	6.2018
Distance to:				
- Ignition Source		m	10	10
- Cloud Front/Centre		m	10	10
- Explosion Centre		m	5.00384	5.0036

Supplementary Data at 0.1 bar

			Dia	Noite
Supplied Flammable Mass		kg	0.10533	0.0838027
Used Flammable Mass		kg	0.10533	0.0838027
Overpressure Radius		m	4.15487	3.84999
Distance to:				
- Ignition Source		m	10	10
- Cloud Front/Centre		m	10	10
- Explosion Centre		m	5.00384	5.0036

Supplementary Data at 0.3 bar

			Dia	Noite
Supplied Flammable Mass		kg	0.10533	0.0838027
Used Flammable Mass		kg	0.10533	0.0838027
Overpressure Radius		m	2.07467	1.92244
Distance to:				
- Ignition Source		m	10	10
- Cloud Front/Centre		m	10	10
- Explosion Centre		m	5.00384	5.0036

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Weather Conditions

Path: \Terminal Adonai - Efeitos físicos\Simulações\H043

		Dia	Noite
Wind Speed	m/s	3	2
Pasquill Stability		C	E
Surface Roughness Length	mm	1000	1000
Surface Roughness Parameter		0.173718	0.173718
Atmospheric Temperature	degC	25	20
Surface Temperature	degC	30	20
Relative Humidity	fraction	0.8	0.8

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

H044

Base Case

CASE Name: Data

Path: \Terminal Adonai - Efeitos físicos\Simulações\H044

User-Defined Data

Material

Material Identifier ETHANOL

Scenario

Building Wake Effect None

Vessel/Tank

Release Type Continuous

Location

Elevation 1 m
Use ERPG averaging time ERPG not selected
Use IDLH averaging time IDLH not selected
Use STEL averaging time STEL not selected
Supply a user defined averaging time Not supplied

Bund

Status of Bund No bund present
[Type of Bund Surface User-Defined (Land)]
[Bund Height 0 m]
[Bund Failure Modeling Bund cannot fail]

Indoor/Outdoor

Location of release Open air release
Outdoor Release Direction Horizontal

Flammable

Explosion Method TNT
Jet Fire Method Cone Model

Dispersion

Number of Release Segments 1
Fluid Phase(1) Liquid
Discharge Velocity(1) 34.94 m/s
Droplet Diameter(1) 189.2 um
Duration of Discharge(1) 600 s
Final Temperature(1) 24.94 degC
Release Rate(1) 0.99 kg/s
Pre-Dilution Air Rates(1) 0 kg/s
Late Ignition Location No ignition location
Mass Inventory of material to Disperse 2.358E6 kg

Fireball Parameters

[Mass Modification Factor 3]
[Calculation method for fireball DNV Recommended]
[TNO model flame temperature 1727 degC]

Toxic Parameters

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

[Indoor Calculations	Unselected]
[Wind Dependent Exchange Rate	Case Specified]
[Building Exchange Rate	4 /hr]
[Tail Time	1800 s]
[Set averaging time equal to exposure time	Use a fixed averaging time]
[Cut-off fraction of toxic load for exposure time calculation	0.05 fraction]
[Cut-off concentration for exposure time calculations	0 fraction]

Geometry

Shape	Point
Dimension	2D
System	Absolute
East(1)	0 m
North(1)	0 m

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Consequence Results

Pool Vaporization Results

Path: \Terminal Adonai - Efeitos físicos\Simulações\H044

			Dia	Noite
		Release Segment 1		
Release Duration		s	600	600
Liquid Rainout		fraction	0.747226	0.807112
Maximum Pool Radius		m	2.42107	2.51724

Distance to Concentration Results

Path: \Terminal Adonai - Efeitos físicos\Simulações\H044

The height for user defined concentrations is the user defined height 0 m
 All toxic results are reported at the toxic effect height 1 m
 All flammable results are reported at the flammable effect height 0 m

Concentration(ppm)	Averaging Time		Dia	Noite	Distance (m)
UFL (190000)	18.75	s	No Hazard	No Hazard	No Hazard
LFL (43000)	18.75	s	No Hazard	No Hazard	No Hazard
LFL Frac (43000)	18.75	s	No Hazard	No Hazard	No Hazard
Concentration(ppm)	Averaging Time		Dia	Noite	Heights (m) for above distances
UFL (190000)	18.75	s	0	0	0
LFL (43000)	18.75	s	0	0	0
LFL Frac (43000)	18.75	s	0	0	0

Jet Fire Hazard

Path: \Terminal Adonai - Efeitos físicos\Simulações\H044

Jet fire method used: Cone model - DNV recommended

	Dia	Noite
Jet Fire Status	Truncated	Truncated
Flame Direction	Horizontal	Horizontal

Radiation Effects: Jet Fire Ellipse

Path: \Terminal Adonai - Efeitos físicos\Simulações\H044

This table gives the distances to the specified radiation levels for each jet fire listed in the above hazard table

			Dia	Noite	Distance (m)
Radiation Level	9.83	kW/m2	21.8061	20.862	
Radiation Level	19.46	kW/m2	19.3687	18.5584	
Radiation Level	35	kW/m2	17.6226	Not Reached	

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Radiation Effects: Jet Fire Distance

Path: \\Terminal Adonai - Efeitos físicos\Simulações\H044

Dia Radiation Level (kW/m2)
Noite

Early Pool Fire Hazard

Path: \\Terminal Adonai - Efeitos físicos\Simulações\H044

Early Pool Fire Status Dia Noite
Hazard Hazard

Radiation Effects: Early Pool Fire Ellipse

Path: \\Terminal Adonai - Efeitos físicos\Simulações\H044

			Dia	Noite
Radiation Level	9.83	kW/m2	16.541	15.9353
Radiation Level	19.46	kW/m2	12.9732	12.4616
Radiation Level	35	kW/m2	11.5851	11.2529

Radiation Effects: Early Pool Fire Distance

Path: \\Terminal Adonai - Efeitos físicos\Simulações\H044

Dia Radiation Level (kW/m2)
Noite

Late Pool Fire Hazard

Path: \\Terminal Adonai - Efeitos físicos\Simulações\H044

Late Pool Fire Status Dia Noite
Hazard Hazard

Radiation Effects: Late Pool Fire Ellipse

Path: \\Terminal Adonai - Efeitos físicos\Simulações\H044

			Dia	Noite
Radiation Level	9.83	kW/m2	16.541	15.9353
Radiation Level	19.46	kW/m2	12.9732	12.4616
Radiation Level	35	kW/m2	11.5851	11.2529

Radiation Effects: Late Pool Fire Distance

Path: \\Terminal Adonai - Efeitos físicos\Simulações\H044

Dia Radiation Level (kW/m2)
Noite

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Weather Conditions

Path: \Terminal Adonai - Efeitos físicos\Simulações\H044

		Dia	Noite
Wind Speed	m/s	3	2
Pasquill Stability		C	E
Surface Roughness Length	mm	1000	1000
Surface Roughness Parameter		0.173718	0.173718
Atmospheric Temperature	degC	25	20
Surface Temperature	degC	30	20
Relative Humidity	fraction	0.8	0.8

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

H045

Base Case

CASE Name: Data

Path: \Terminal Adonai - Efeitos físicos\Simulações\H045

User-Defined Data

Material

Material Identifier	ETHANOL
Type of Vessel	Padded Liquid
Pressure Specification	Pressure specified
Storage Pressure - gauge	0.03 bar
Temperature	25 degC
Volume Inventory	3200 m3

Scenario

Scenario Type	Line rupture
Phase to be Released	Liquid
Building Wake Effect	None
Specify Pump Head	No pump head supplied
Number of Excess Flow Valves	0
Number of Non-Return Valves	0
Number of Shut-Off Valves	0

Pipe

Internal Diameter	203.2 mm
Line length	1 m

Vessel/Tank

Duration of Interest	600 s
Method Used for Time Varying Releases	Average Rates
Tank Type	Vertical
Tank Height	22.64 m
Tank Diameter	15 m
Height of Discharge from Vessel Bottom	1 m

Location

Elevation	1 m
Use ERPG averaging time	ERPG not selected
Use IDLH averaging time	IDLH not selected
Use STEL averaging time	STEL not selected
Supply a user defined averaging time	Not supplied

Bund

Status of Bund	Bund present
Bund Area	1940 m2
[Type of Bund Surface	User-Defined (Land)]
Bund Height	3 m
[Bund Failure Modeling	Bund cannot fail]

Indoor/Outdoor

Location of release	Open air release
Outdoor Release Direction	Horizontal

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Flammable

Explosion Method TNT
Jet Fire Method Cone Model

Dispersion

Late Ignition Location No ignition location
Mass Inventory of material to Disperse 2.515E6 kg

Fireball Parameters

[Mass Modification Factor 3]
[Calculation method for fireball DNV Recommended]
[TNO model flame temperature 1727 degC]

Toxic Parameters

[Indoor Calculations Unselected]
[Wind Dependent Exchange Rate Case Specified]
[Building Exchange Rate 4 /hr]
[Tail Time 1800 s]
[Set averaging time equal to exposure time Use a fixed averaging time]
[Cut-off fraction of toxic load for exposure time calculation 0.05 fraction]
[Cut-off concentration for exposure time calculations 0 fraction]

Geometry

Shape Point
Dimension 2D
System Absolute
East(1) 0 m
North(1) 0 m

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Path: \Terminal Adonai - Efeitos físicos\Simulações\H045

DISCHARGE DATA for Weather: Global Weathers\Dia

Wind Speed: 3.00 m/s
Wind Speed at Height (Calculated) 1.78 m/s
Pasquill Stability: C

USER-DEFINED QUANTITIES

Material ETHANOL
Scenario Line rupture
Inventory 2,514,864.00 kg
Fixed Duration n/a s

Stagnation data (data at upstream end for long pipe):

- Pressure 1.04 bar
- Temperature 25.00 degC
- Fluid State Non-saturated liquid

CALCULATED QUANTITIES

Mass Flow of Air (Vent from Vapor Space only) n/a
Mass Flowrate 3.00672E+002 kg/s
Release Duration 600.00 s

Orifice or pipe exit data (before atmospheric expansion):

- Pressure n/a bar
- Temperature n/a degC
- Vena Contracta Velocity (exit velocity for pipe releases) n/a m/s
- Discharge Coefficient n/a

Final data (after atmospheric expansion):

- Temperature 25.04 degC
- Liquid Mass Fraction 1.00 fraction
- Droplet Diameter 1,691.82 um
- Expanded Radius n/a m
- Velocity 11.80 m/s

DISCHARGE DATA for Weather: Global Weathers\Noite

Wind Speed: 2.00 m/s
Wind Speed at Height (Calculated) 0.83 m/s
Pasquill Stability: E

USER-DEFINED QUANTITIES

Material ETHANOL
Scenario Line rupture
Inventory 2,514,864.00 kg
Fixed Duration n/a s

Stagnation data (data at upstream end for long pipe):

- Pressure 1.04 bar
- Temperature 25.00 degC
- Fluid State Non-saturated liquid

CALCULATED QUANTITIES

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Mass Flow of Air (Vent from Vapor Space only)	n/a
Mass Flowrate	3.00672E+002 kg/s
Release Duration	600.00 s
Orifice or pipe exit data (before atmospheric expansion):	
- Pressure	n/a bar
- Temperature	n/a degC
- Vena Contracta Velocity (exit velocity for pipe releases)	n/a m/s
- Discharge Coefficient	n/a
Final data (after atmospheric expansion):	
- Temperature	25.04 degC
- Liquid Mass Fraction	1.00 fraction
- Droplet Diameter	1,659.32 um
- Expanded Radius	n/a m
- Velocity	11.80 m/s

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Consequence Results

Pool Vaporization Results

Path: \Terminal Adonai - Efeitos físicos\Simulações\H045

		Dia	Noite
Release Segment 1			
Release Duration	s	600	600
Liquid Rainout	fraction	0.995294	0.996066
Release Segment 1 Cloud Segment 1			
Cloud Segment Duration	s	67.6506	66.4225
Pool Vaporization Rate	kg/s	0.625162	0.476163
Total Vapor Flowrate	kg/s	2.03999	1.65902
Release Segment 1 Cloud Segment 2			
Cloud Segment Duration	s	28.88	29.1281
Pool Vaporization Rate	kg/s	1.47492	1.095
Total Vapor Flowrate	kg/s	2.88975	2.27785
Release Segment 1 Cloud Segment 3			
Cloud Segment Duration	s	22.2794	22.715
Pool Vaporization Rate	kg/s	1.90587	1.40201
Total Vapor Flowrate	kg/s	3.3207	2.58487
Release Segment 1 Cloud Segment 4			
Cloud Segment Duration	s	19.2525	19.21
Pool Vaporization Rate	kg/s	2.25003	1.64142
Total Vapor Flowrate	kg/s	3.66486	2.82427
Release Segment 1 Cloud Segment 5			
Cloud Segment Duration	s	461.938	462.524
Pool Vaporization Rate	kg/s	2.56068	1.8864
Total Vapor Flowrate	kg/s	3.97551	3.06926
Maximum Pool Radius	m	24.85	24.85

Distance to Concentration Results

Path: \Terminal Adonai - Efeitos físicos\Simulações\H045

The height for user defined concentrations is the user defined height 0 m

All toxic results are reported at the toxic effect height 1 m

All flammable results are reported at the flammable effect height 0 m

Concentration(ppm)	Averaging Time		Dia	Noite	Distance (m)
UFL (190000)	18.75	s	6.20007	6.24989	
LFL (43000)	18.75	s	17.7801	20.6611	
LFL Frac (43000)	18.75	s	17.7801	20.6611	
Concentration(ppm)	Averaging Time		Dia	Noite	Heights (m) for above distances
UFL (190000)	18.75	s	0	0	
LFL (43000)	18.75	s	0	0	
LFL Frac (43000)	18.75	s	0	0	

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Jet Fire Hazard

Path: \Terminal Adonai - Efeitos físicos\Simulações\H045

Jet fire method used: Cone model - DNV recommended

	Dia	Noite
Jet Fire Status	Truncated	Truncated
Flame Direction	Horizontal	Horizontal

Radiation Effects: Jet Fire Ellipse

Path: \Terminal Adonai - Efeitos físicos\Simulações\H045

This table gives the distances to the specified radiation levels for each jet fire listed in the above hazard table

			Dia	Noite
Radiation Level	9.83	kW/m2	49.7118	49.5432
Radiation Level	19.46	kW/m2	44.3434	43.8805
Radiation Level	35	kW/m2	39.3227	Not Reached

Radiation Effects: Jet Fire Distance

Path: \Terminal Adonai - Efeitos físicos\Simulações\H045

	Dia	Noite
Radiation Level (kW/m2)		

Early Pool Fire Hazard

Path: \Terminal Adonai - Efeitos físicos\Simulações\H045

	Dia	Noite
Early Pool Fire Status	Hazard	Hazard

Radiation Effects: Early Pool Fire Ellipse

Path: \Terminal Adonai - Efeitos físicos\Simulações\H045

			Dia	Noite
Radiation Level	9.83	kW/m2	67.9797	66.3273
Radiation Level	19.46	kW/m2	52.0074	49.3783
Radiation Level	35	kW/m2	34.6618	32.9576

Radiation Effects: Early Pool Fire Distance

Path: \Terminal Adonai - Efeitos físicos\Simulações\H045

	Dia	Noite
Radiation Level (kW/m2)		

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Late Pool Fire Hazard

Path: \Terminal Adonai - Efeitos físicos\Simulações\H045

	Dia	Noite
Late Pool Fire Status	Hazard	Hazard

Radiation Effects: Late Pool Fire Ellipse

Path: \Terminal Adonai - Efeitos físicos\Simulações\H045

			Dia	Noite
Radiation Level	9.83	kW/m2	67.9797	66.3273
Radiation Level	19.46	kW/m2	52.0074	49.3783
Radiation Level	35	kW/m2	34.6618	32.9576

Radiation Effects: Late Pool Fire Distance

Path: \Terminal Adonai - Efeitos físicos\Simulações\H045

	Dia	Noite
Radiation Level (kW/m2)		

Flash Fire Envelope

Path: \Terminal Adonai - Efeitos físicos\Simulações\H045

All flammable results are reported at the flammable effect height 0 m

			Dia	Noite
Furthest Extent	43000	ppm	17.7801	20.6611
Furthest Extent	43000	ppm	17.7801	20.6611

			Dia	Noite
Furthest Extent	43000	ppm	0	0
Furthest Extent	43000	ppm	0	0

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Explosion Effects: Late Ignition

Path: \Terminal Adonai - Efeitos físicos\Simulações\H045

Explosion Model Used : TNT

Explosion Location Criterion: Cloud Center

All distances are measured from the Source

All flammable results are reported at the flammable effect height 0 m

			Maximum Distance (m) at Overpressure Level	
			Dia	Noite
Overpressure	0.05	bar	16.8098	32.9034
Overpressure	0.1	bar	12.3317	24.2181
Overpressure	0.3	bar	8.66136	17.0996

Supplementary Data at 0.05 bar

			Dia	Noite
Supplied Flammable Mass		kg	0.578554	4.2209
Used Flammable Mass		kg	0.578554	4.2209
Overpressure Radius		m	11.809	22.9034
Distance to:				
- Ignition Source		m	10	20
- Cloud Front/Centre		m	10	20
- Explosion Centre		m	5.0008	10

Supplementary Data at 0.1 bar

			Dia	Noite
Supplied Flammable Mass		kg	0.578554	4.2209
Used Flammable Mass		kg	0.578554	4.2209
Overpressure Radius		m	7.33087	14.2181
Distance to:				
- Ignition Source		m	10	20
- Cloud Front/Centre		m	10	20
- Explosion Centre		m	5.0008	10

Supplementary Data at 0.3 bar

			Dia	Noite
Supplied Flammable Mass		kg	0.578554	4.2209
Used Flammable Mass		kg	0.578554	4.2209
Overpressure Radius		m	3.66056	7.09961
Distance to:				
- Ignition Source		m	10	20
- Cloud Front/Centre		m	10	20
- Explosion Centre		m	5.0008	10

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Weather Conditions

Path: \Terminal Adonai - Efeitos físicos\Simulações\H045

		Dia	Noite
Wind Speed	m/s	3	2
Pasquill Stability		C	E
Surface Roughness Length	mm	1000	1000
Surface Roughness Parameter		0.173718	0.173718
Atmospheric Temperature	degC	25	20
Surface Temperature	degC	30	20
Relative Humidity	fraction	0.8	0.8

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

H046

Base Case

CASE Name: Data

Path: \Terminal Adonai - Efeitos físicos\Simulações\H046

User-Defined Data

Material

Material Identifier	ETHANOL
Type of Vessel	Padded Liquid
Pressure Specification	Pressure specified
Storage Pressure - gauge	0.03 bar
Temperature	25 degC
Volume Inventory	3200 m3

Scenario

Scenario Type	Leak
Phase to be Released	Liquid
Hole Diameter	20.32 mm
Building Wake Effect	None

Vessel/Tank

Duration of Interest	600 s
Method Used for Time Varying Releases	Average Rates
Tank Type	Vertical
Tank Height	22.64 m
Tank Diameter	15 m
Height of Discharge from Vessel Bottom	1 m

Location

Elevation	1 m
Use ERPG averaging time	ERPG not selected
Use IDLH averaging time	IDLH not selected
Use STEL averaging time	STEL not selected
Supply a user defined averaging time	Not supplied

Bund

Status of Bund	Bund present
Bund Area	1940 m2
[Type of Bund Surface	User-Defined (Land)]
Bund Height	3 m
[Bund Failure Modeling	Bund cannot fail]

Indoor/Outdoor

Location of release	Open air release
Outdoor Release Direction	Horizontal

Flammable

Explosion Method	TNT
Jet Fire Method	Cone Model

Dispersion

Late Ignition Location	No ignition location
Mass Inventory of material to Disperse	2.515E6 kg

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Fireball Parameters

[Mass Modification Factor	3]
[Calculation method for fireball	DNV Recommended]
[TNO model flame temperature	1727 degC]

Toxic Parameters

[Indoor Calculations	Unselected]
[Wind Dependent Exchange Rate	Case Specified]
[Building Exchange Rate	4 /hr]
[Tail Time	1800 s]
[Set averaging time equal to exposure time	Use a fixed averaging time]
[Cut-off fraction of toxic load for exposure time calculation	0.05 fraction]
[Cut-off concentration for exposure time calculations	0 fraction]

Geometry

Shape	Point
Dimension	2D
System	Absolute
East(1)	0 m
North(1)	0 m

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Path: \Terminal Adonai - Efeitos físicos\Simulações\H046

DISCHARGE DATA for Weather: Global Weathers\Dia

Wind Speed: 3.00 m/s
Wind Speed at Height (Calculated) 1.78 m/s
Pasquill Stability: C

USER-DEFINED QUANTITIES

Material ETHANOL
Scenario Leak
Inventory 2,514,864.00 kg
Fixed Duration n/a s

Stagnation data (data at upstream end for long pipe):

- Pressure 1.04 bar
- Temperature 25.00 degC
- Fluid State Non-saturated liquid

CALCULATED QUANTITIES

Mass Flow of Air (Vent from Vapor Space only) n/a
Mass Flowrate 3.10078E+000 kg/s
Release Duration 600.00 s

Orifice or pipe exit data (before atmospheric expansion):

- Pressure n/a bar
- Temperature n/a degC
- Vena Contracta Velocity (exit velocity for pipe releases) n/a m/s
- Discharge Coefficient n/a

Final data (after atmospheric expansion):

- Temperature 24.98 degC
- Liquid Mass Fraction 1.00 fraction
- Droplet Diameter 572.88 um
- Expanded Radius n/a m
- Velocity 20.28 m/s

DISCHARGE DATA for Weather: Global Weathers\Noite

Wind Speed: 2.00 m/s
Wind Speed at Height (Calculated) 0.83 m/s
Pasquill Stability: E

USER-DEFINED QUANTITIES

Material ETHANOL
Scenario Leak
Inventory 2,514,864.00 kg
Fixed Duration n/a s

Stagnation data (data at upstream end for long pipe):

- Pressure 1.04 bar
- Temperature 25.00 degC
- Fluid State Non-saturated liquid

CALCULATED QUANTITIES

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Mass Flow of Air (Vent from Vapor Space only)	n/a
Mass Flowrate	3.10078E+000 kg/s
Release Duration	600.00 s
Orifice or pipe exit data (before atmospheric expansion):	
- Pressure	n/a bar
- Temperature	n/a degC
- Vena Contracta Velocity (exit velocity for pipe releases)	n/a m/s
- Discharge Coefficient	n/a
Final data (after atmospheric expansion):	
- Temperature	24.98 degC
- Liquid Mass Fraction	1.00 fraction
- Droplet Diameter	561.88 um
- Expanded Radius	n/a m
- Velocity	20.28 m/s

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Consequence Results

Pool Vaporization Results

Path: \Terminal Adonai - Efeitos físicos\Simulações\H046

		Dia	Noite
	Release Segment 1		
Release Duration	s	600	600
Liquid Rainout	fraction	0.943033	0.947174
	Release Segment 1 Cloud Segment 1		
Cloud Segment Duration	s	203.776	
Pool Vaporization Rate	kg/s	0.0147526	
Total Vapor Flowrate	kg/s	0.191394	0.163802
	Release Segment 1 Cloud Segment 2		
Cloud Segment Duration	s	77.625	
Pool Vaporization Rate	kg/s	0.0385659	
Total Vapor Flowrate	kg/s	0.215207	
	Release Segment 1 Cloud Segment 3		
Cloud Segment Duration	s	59.0019	
Pool Vaporization Rate	kg/s	0.0509834	
Total Vapor Flowrate	kg/s	0.227624	
	Release Segment 1 Cloud Segment 4		
Cloud Segment Duration	s	49.66	
Pool Vaporization Rate	kg/s	0.0609703	
Total Vapor Flowrate	kg/s	0.237611	
	Release Segment 1 Cloud Segment 5		
Cloud Segment Duration	s	43.6181	
Pool Vaporization Rate	kg/s	0.0695745	
Total Vapor Flowrate	kg/s	0.246215	
	Release Segment 1 Cloud Segment 6		
Cloud Segment Duration	s	75.95	
Pool Vaporization Rate	kg/s	0.080607	
Total Vapor Flowrate	kg/s	0.257248	
Maximum Pool Radius	m	4.81648	4.82665

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Distance to Concentration Results

Path: \Terminal Adonai - Efeitos físicos\Simulações\H046

The height for user defined concentrations is the user defined height 0 m

All toxic results are reported at the toxic effect height 1 m

All flammable results are reported at the flammable effect height 0 m

Concentration(ppm)	Averaging Time		Distance (m)	
			Dia	Noite
UFL (190000)	18.75	s	No Hazard	No Hazard
LFL (43000)	18.75	s	5.92054	5.95179
LFL Frac (43000)	18.75	s	5.92054	5.95179

Concentration(ppm)	Averaging Time		Heights (m) for above distances	
			Dia	Noite
UFL (190000)	18.75	s	0	0
LFL (43000)	18.75	s	0	0
LFL Frac (43000)	18.75	s	0	0

Jet Fire Hazard

Path: \Terminal Adonai - Efeitos físicos\Simulações\H046

Jet fire method used: Cone model - DNV recommended

	Dia	Noite
Jet Fire Status	Truncated	Truncated
Flame Direction	Horizontal	Horizontal

Radiation Effects: Jet Fire Ellipse

Path: \Terminal Adonai - Efeitos físicos\Simulações\H046

This table gives the distances to the specified radiation levels for each jet fire listed in the above hazard table

Radiation Level			Distance (m)	
			Dia	Noite
9.83	kW/m2	19.3502	20.1962	
19.46	kW/m2	17.1245	17.7064	
35	kW/m2	Not Reached	Not Reached	

Radiation Effects: Jet Fire Distance

Path: \Terminal Adonai - Efeitos físicos\Simulações\H046

	Dia	Radiation Level (kW/m2)
		Noite

Early Pool Fire Hazard

Path: \Terminal Adonai - Efeitos físicos\Simulações\H046

	Dia	Noite
Early Pool Fire Status	Hazard	Hazard

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Radiation Effects: Early Pool Fire Ellipse

Path: \Terminal Adonai - Efeitos físicos\Simulações\H046

			Dia	Noite
Radiation Level	9.83	kW/m2	21.6753	21.0906
Radiation Level	19.46	kW/m2	16.7996	16.1741
Radiation Level	35	kW/m2	11.9419	12.0191

Radiation Effects: Early Pool Fire Distance

Path: \Terminal Adonai - Efeitos físicos\Simulações\H046

	Dia	Noite
Radiation Level (kW/m2)		

Late Pool Fire Hazard

Path: \Terminal Adonai - Efeitos físicos\Simulações\H046

	Dia	Noite
Late Pool Fire Status	Hazard	Hazard

Radiation Effects: Late Pool Fire Ellipse

Path: \Terminal Adonai - Efeitos físicos\Simulações\H046

			Dia	Noite
Radiation Level	9.83	kW/m2	21.6753	21.0906
Radiation Level	19.46	kW/m2	16.7996	16.1741
Radiation Level	35	kW/m2	11.9419	12.0191

Radiation Effects: Late Pool Fire Distance

Path: \Terminal Adonai - Efeitos físicos\Simulações\H046

	Dia	Noite
Radiation Level (kW/m2)		

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Flash Fire Envelope

Path: \Terminal Adonai - Efeitos físicos\Simulações\H046

All flammable results are reported at the flammable effect height 0 m

				Distance (m)	
				Dia	Noite
Furthest Extent	43000	ppm	5.92054	5.92054	5.95179
Furthest Extent	43000	ppm	5.92054	5.92054	5.95179

				Heights (m) for above distances	
				Dia	Noite
Furthest Extent	43000	ppm	0	0	0
Furthest Extent	43000	ppm	0	0	0

Weather Conditions

Path: \Terminal Adonai - Efeitos físicos\Simulações\H046

			Dia	Noite
Wind Speed	m/s		3	2
Pasquill Stability			C	E
Surface Roughness Length	mm		1000	1000
Surface Roughness Parameter			0.173718	0.173718
Atmospheric Temperature	degC		25	20
Surface Temperature	degC		30	20
Relative Humidity	fraction		0.8	0.8

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

H047

Base Case

CASE Name: Data

Path: \Terminal Adonai - Efeitos físicos\Simulações\H047

User-Defined Data

Material

Material Identifier ETHANOL

Scenario

Building Wake Effect None

Vessel/Tank

Release Type Continuous

Location

Elevation 1 m
Use ERPG averaging time ERPG not selected
Use IDLH averaging time IDLH not selected
Use STEL averaging time STEL not selected
Supply a user defined averaging time Not supplied

Bund

Status of Bund No bund present
[Type of Bund Surface User-Defined (Land)]
[Bund Height 0 m]
[Bund Failure Modeling Bund cannot fail]

Indoor/Outdoor

Location of release Open air release
Outdoor Release Direction Horizontal

Flammable

Explosion Method TNT
Jet Fire Method Cone Model

Dispersion

Number of Release Segments 1
Fluid Phase(1) Liquid
Discharge Velocity(1) 20.97 m/s
Droplet Diameter(1) 525.1 um
Duration of Discharge(1) 600 s
Final Temperature(1) 25.13 degC
Release Rate(1) 98.75 kg/s
Pre-Dilution Air Rates(1) 0 kg/s
Late Ignition Location No ignition location
Mass Inventory of material to Disperse 2.515E6 kg

Fireball Parameters

[Mass Modification Factor 3]
[Calculation method for fireball DNV Recommended]
[TNO model flame temperature 1727 degC]

Toxic Parameters

Date: 07/08/2015

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Time: 10:10:31

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

[Indoor Calculations	Unselected]
[Wind Dependent Exchange Rate	Case Specified]
[Building Exchange Rate	4 /hr]
[Tail Time	1800 s]
[Set averaging time equal to exposure time	Use a fixed averaging time]
[Cut-off fraction of toxic load for exposure time calculation	0.05 fraction]
[Cut-off concentration for exposure time calculations	0 fraction]

Geometry

Shape	Point
Dimension	2D
System	Absolute
East(1)	0 m
North(1)	0 m

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Consequence Results

Pool Vaporization Results

Path: \Terminal Adonai - Efeitos físicos\Simulações\H047

		Dia	Noite
	Release Segment 1		
Release Duration	s	600	600
Liquid Rainout	fraction	0.976324	0.978582
	Release Segment 1 Cloud Segment 1		
Cloud Segment Duration	s	188.376	178.891
Pool Vaporization Rate	kg/s	0.456953	0.31608
Total Vapor Flowrate	kg/s	2.795	2.43111
	Release Segment 1 Cloud Segment 2		
Cloud Segment Duration	s	78.9469	77.91
Pool Vaporization Rate	kg/s	1.09618	0.723436
Total Vapor Flowrate	kg/s	3.43422	2.83847
	Release Segment 1 Cloud Segment 3		
Cloud Segment Duration	s	60.2875	60.93
Pool Vaporization Rate	kg/s	1.42512	0.926599
Total Vapor Flowrate	kg/s	3.76317	3.04163
	Release Segment 1 Cloud Segment 4		
Cloud Segment Duration	s	51.6656	51.87
Pool Vaporization Rate	kg/s	1.68729	1.08592
Total Vapor Flowrate	kg/s	4.02533	3.20095
	Release Segment 1 Cloud Segment 5		
Cloud Segment Duration	s	45.0844	89.43
Pool Vaporization Rate	kg/s	1.91208	1.27915
Total Vapor Flowrate	kg/s	4.25013	3.39418
	Release Segment 1 Cloud Segment 6		
Cloud Segment Duration	s	78.5206	110.985
Pool Vaporization Rate	kg/s	2.1967	1.54375
Total Vapor Flowrate	kg/s	4.53475	3.65878
	Release Segment 1 Cloud Segment 7		
Cloud Segment Duration	s	97.1194	29.9844
Pool Vaporization Rate	kg/s	2.59653	1.72459
Total Vapor Flowrate	kg/s	4.93458	3.83962
Maximum Pool Radius	m	27.6853	27.7154

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Distance to Concentration Results

Path: \Terminal Adonai - Efeitos físicos\Simulações\H047

The height for user defined concentrations is the user defined height 0 m

All toxic results are reported at the toxic effect height 1 m

All flammable results are reported at the flammable effect height 0 m

Concentration(ppm)	Averaging Time		Distance (m)	
			Dia	Noite
UFL (190000)	18.75	s	9.93623	9.95417
LFL (43000)	18.75	s	19.7073	18.6199
LFL Frac (43000)	18.75	s	19.7073	18.6199

Concentration(ppm)	Averaging Time		Heights (m) for above distances	
			Dia	Noite
UFL (190000)	18.75	s	0	0
LFL (43000)	18.75	s	0	0
LFL Frac (43000)	18.75	s	0	0

Jet Fire Hazard

Path: \Terminal Adonai - Efeitos físicos\Simulações\H047

Jet fire method used: Cone model - DNV recommended

	Dia	Noite
Jet Fire Status	Truncated	Truncated
Flame Direction	Horizontal	Horizontal

Radiation Effects: Jet Fire Ellipse

Path: \Terminal Adonai - Efeitos físicos\Simulações\H047

This table gives the distances to the specified radiation levels for each jet fire listed in the above hazard table

Radiation Level			Distance (m)	
			Dia	Noite
9.83	kW/m2		60.313	62.2623
19.46	kW/m2		53.6331	55.3819
35	kW/m2		47.7327	48.3139

Radiation Effects: Jet Fire Distance

Path: \Terminal Adonai - Efeitos físicos\Simulações\H047

	Dia	Radiation Level (kW/m2)
		Noite

Early Pool Fire Hazard

Path: \Terminal Adonai - Efeitos físicos\Simulações\H047

	Dia	Noite
Early Pool Fire Status	Hazard	Hazard

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Radiation Effects: Early Pool Fire Ellipse

Path: \Terminal Adonai - Efeitos físicos\Simulações\H047

			Dia	Noite
Radiation Level	9.83	kW/m2	85.4042	83.631
Radiation Level	19.46	kW/m2	67.9306	65.0928
Radiation Level	35	kW/m2	49.3701	47.4424

Radiation Effects: Early Pool Fire Distance

Path: \Terminal Adonai - Efeitos físicos\Simulações\H047

Dia
Noite
Radiation Level (kW/m2)

Late Pool Fire Hazard

Path: \Terminal Adonai - Efeitos físicos\Simulações\H047

	Dia	Noite
Late Pool Fire Status	Hazard	Hazard

Radiation Effects: Late Pool Fire Ellipse

Path: \Terminal Adonai - Efeitos físicos\Simulações\H047

			Dia	Noite
Radiation Level	9.83	kW/m2	85.4042	83.631
Radiation Level	19.46	kW/m2	67.9306	65.0928
Radiation Level	35	kW/m2	49.3701	47.4424

Radiation Effects: Late Pool Fire Distance

Path: \Terminal Adonai - Efeitos físicos\Simulações\H047

Dia
Noite
Radiation Level (kW/m2)

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Flash Fire Envelope

Path: \Terminal Adonai - Efeitos físicos\Simulações\H047

All flammable results are reported at the flammable effect height 0 m

				Distance (m)	
				Dia	Noite
Furthest Extent	43000	ppm		19.7073	18.6199
Furthest Extent	43000	ppm		19.7073	18.6199
				Heights (m) for above distances	
				Dia	Noite
Furthest Extent	43000	ppm		0	0
Furthest Extent	43000	ppm		0	0

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Explosion Effects: Late Ignition

Path: \Terminal Adonai - Efeitos físicos\Simulações\H047

Explosion Model Used : TNT

Explosion Location Criterion: Cloud Center

All distances are measured from the Source

All flammable results are reported at the flammable effect height 0 m

			Maximum Distance (m) at Overpressure Level	
			Dia	Noite
Overpressure	0.05	bar	11.6968	11.2054
Overpressure	0.1	bar	9.15872	8.85359
Overpressure	0.3	bar	7.07852	6.92604
			Supplementary Data at 0.05 bar	
			Dia	Noite
Supplied Flammable Mass		kg	0.10533	0.0838027
Used Flammable Mass		kg	0.10533	0.0838027
Overpressure Radius		m	6.69293	6.2018
Distance to:				
- Ignition Source		m	10	10
- Cloud Front/Centre		m	10	10
- Explosion Centre		m	5.00384	5.0036
			Supplementary Data at 0.1 bar	
			Dia	Noite
Supplied Flammable Mass		kg	0.10533	0.0838027
Used Flammable Mass		kg	0.10533	0.0838027
Overpressure Radius		m	4.15487	3.84999
Distance to:				
- Ignition Source		m	10	10
- Cloud Front/Centre		m	10	10
- Explosion Centre		m	5.00384	5.0036
			Supplementary Data at 0.3 bar	
			Dia	Noite
Supplied Flammable Mass		kg	0.10533	0.0838027
Used Flammable Mass		kg	0.10533	0.0838027
Overpressure Radius		m	2.07467	1.92244
Distance to:				
- Ignition Source		m	10	10
- Cloud Front/Centre		m	10	10
- Explosion Centre		m	5.00384	5.0036

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Weather Conditions

Path: \Terminal Adonai - Efeitos físicos\Simulações\H047

		Dia	Noite
Wind Speed	m/s	3	2
Pasquill Stability		C	E
Surface Roughness Length	mm	1000	1000
Surface Roughness Parameter		0.173718	0.173718
Atmospheric Temperature	degC	25	20
Surface Temperature	degC	30	20
Relative Humidity	fraction	0.8	0.8

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

H048

Base Case

CASE Name: Data

Path: \Terminal Adonai - Efeitos físicos\Simulações\H048

User-Defined Data

Material

Material Identifier ETHANOL

Scenario

Building Wake Effect None

Vessel/Tank

Release Type Continuous

Location

Elevation 1 m
Use ERPG averaging time ERPG not selected
Use IDLH averaging time IDLH not selected
Use STEL averaging time STEL not selected
Supply a user defined averaging time Not supplied

Bund

Status of Bund No bund present
[Type of Bund Surface User-Defined (Land)]
[Bund Height 0 m]
[Bund Failure Modeling Bund cannot fail]

Indoor/Outdoor

Location of release Open air release
Outdoor Release Direction Horizontal

Flammable

Explosion Method TNT
Jet Fire Method Cone Model

Dispersion

Number of Release Segments 1
Fluid Phase(1) Liquid
Discharge Velocity(1) 34.94 m/s
Droplet Diameter(1) 189.2 um
Duration of Discharge(1) 600 s
Final Temperature(1) 24.94 degC
Release Rate(1) 0.99 kg/s
Pre-Dilution Air Rates(1) 0 kg/s
Late Ignition Location No ignition location
Mass Inventory of material to Disperse 2.515E6 kg

Fireball Parameters

[Mass Modification Factor 3]
[Calculation method for fireball DNV Recommended]
[TNO model flame temperature 1727 degC]

Toxic Parameters

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

[Indoor Calculations	Unselected]
[Wind Dependent Exchange Rate	Case Specified]
[Building Exchange Rate	4 /hr]
[Tail Time	1800 s]
[Set averaging time equal to exposure time	Use a fixed averaging time]
[Cut-off fraction of toxic load for exposure time calculation	0.05 fraction]
[Cut-off concentration for exposure time calculations	0 fraction]

Geometry

Shape	Point
Dimension	2D
System	Absolute
East(1)	0 m
North(1)	0 m

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Consequence Results

Pool Vaporization Results

Path: \Terminal Adonai - Efeitos físicos\Simulações\H048

Release Segment 1			Dia	Noite
Release Duration	s		600	600
Liquid Rainout	fraction		0.747226	0.807112
Maximum Pool Radius	m		2.42107	2.51724

Distance to Concentration Results

Path: \Terminal Adonai - Efeitos físicos\Simulações\H048

The height for user defined concentrations is the user defined height 0 m
 All toxic results are reported at the toxic effect height 1 m
 All flammable results are reported at the flammable effect height 0 m

Concentration(ppm)	Averaging Time		Dia	Noite	Distance (m)
UFL (190000)	18.75	s	No Hazard	No Hazard	No Hazard
LFL (43000)	18.75	s	No Hazard	No Hazard	No Hazard
LFL Frac (43000)	18.75	s	No Hazard	No Hazard	No Hazard

Concentration(ppm)	Averaging Time		Dia	Noite	Heights (m) for above distances
UFL (190000)	18.75	s	0	0	0
LFL (43000)	18.75	s	0	0	0
LFL Frac (43000)	18.75	s	0	0	0

Jet Fire Hazard

Path: \Terminal Adonai - Efeitos físicos\Simulações\H048

Jet fire method used: Cone model - DNV recommended

	Dia	Noite
Jet Fire Status	Truncated	Truncated
Flame Direction	Horizontal	Horizontal

Radiation Effects: Jet Fire Ellipse

Path: \Terminal Adonai - Efeitos físicos\Simulações\H048

This table gives the distances to the specified radiation levels for each jet fire listed in the above hazard table

			Dia	Noite	Distance (m)
Radiation Level	9.83	kW/m2	21.8061	20.862	
Radiation Level	19.46	kW/m2	19.3687	18.5584	
Radiation Level	35	kW/m2	17.6226	Not Reached	

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Radiation Effects: Jet Fire Distance

Path: \Terminal Adonai - Efeitos físicos\Simulações\H048

Dia Radiation Level (kW/m2)
Noite

Early Pool Fire Hazard

Path: \Terminal Adonai - Efeitos físicos\Simulações\H048

Early Pool Fire Status Dia Noite
Hazard Hazard

Radiation Effects: Early Pool Fire Ellipse

Path: \Terminal Adonai - Efeitos físicos\Simulações\H048

			Dia	Noite
Radiation Level	9.83	kW/m2	16.541	15.9353
Radiation Level	19.46	kW/m2	12.9732	12.4616
Radiation Level	35	kW/m2	11.5851	11.2529

Radiation Effects: Early Pool Fire Distance

Path: \Terminal Adonai - Efeitos físicos\Simulações\H048

Dia Radiation Level (kW/m2)
Noite

Late Pool Fire Hazard

Path: \Terminal Adonai - Efeitos físicos\Simulações\H048

Late Pool Fire Status Dia Noite
Hazard Hazard

Radiation Effects: Late Pool Fire Ellipse

Path: \Terminal Adonai - Efeitos físicos\Simulações\H048

			Dia	Noite
Radiation Level	9.83	kW/m2	16.541	15.9353
Radiation Level	19.46	kW/m2	12.9732	12.4616
Radiation Level	35	kW/m2	11.5851	11.2529

Radiation Effects: Late Pool Fire Distance

Path: \Terminal Adonai - Efeitos físicos\Simulações\H048

Dia Radiation Level (kW/m2)
Noite

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Weather Conditions

Path: \Terminal Adonai - Efeitos físicos\Simulações\H048

		Dia	Noite
Wind Speed	m/s	3	2
Pasquill Stability		C	E
Surface Roughness Length	mm	1000	1000
Surface Roughness Parameter		0.173718	0.173718
Atmospheric Temperature	degC	25	20
Surface Temperature	degC	30	20
Relative Humidity	fraction	0.8	0.8

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

H049

Base Case

CASE Name: Data

Path: \Terminal Adonai - Efeitos físicos\Simulações\H049

User-Defined Data

Material

Material Identifier ETHANOL

Scenario

Building Wake Effect None

Vessel/Tank

Release Type Continuous

Location

Elevation 0 m
Use ERPG averaging time ERPG not selected
Use IDLH averaging time IDLH not selected
Use STEL averaging time STEL not selected
Supply a user defined averaging time Not supplied

Bund

Status of Bund Bund present
Bund Area 1.152E4 m2
[Type of Bund Surface User-Defined (Land)]
Bund Height 0.3 m
[Bund Failure Modeling Bund cannot fail]

Indoor/Outdoor

Location of release Open air release
Outdoor Release Direction Horizontal

Flammable

Explosion Method TNT
Jet Fire Method Cone Model

Dispersion

Number of Release Segments 1
Fluid Phase(1) Liquid
Discharge Velocity(1) 20.97 m/s
Droplet Diameter(1) 525.1 um
Duration of Discharge(1) 600 s
Final Temperature(1) 25.13 degC
Release Rate(1) 98.75 kg/s
Pre-Dilution Air Rates(1) 0 kg/s
Late Ignition Location No ignition location
Mass Inventory of material to Disperse 2.515E6 kg

Fireball Parameters

[Mass Modification Factor 3]
[Calculation method for fireball DNV Recommended]
[TNO model flame temperature 1727 degC]

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Toxic Parameters

[Indoor Calculations	Unselected]
[Wind Dependent Exchange Rate	Case Specified]
[Building Exchange Rate	4 /hr]
[Tail Time	1800 s]
[Set averaging time equal to exposure time	Use a fixed averaging time]
[Cut-off fraction of toxic load for exposure time calculation	0.05 fraction]
[Cut-off concentration for exposure time calculations	0 fraction]

Geometry

Shape	Point
Dimension	2D
System	Absolute
East(1)	0 m
North(1)	0 m

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Consequence Results

Pool Vaporization Results

Path: \Terminal Adonai - Efeitos físicos\Simulações\H049

		Dia	Noite
	Release Segment 1		
Release Duration	s	600	600
Liquid Rainout	fraction	1	1
	Release Segment 1 Cloud Segment 1		
Cloud Segment Duration	s	180.231	172.266
Pool Vaporization Rate	kg/s	0.596543	0.417026
Total Vapor Flowrate	kg/s	0.596557	0.41704
	Release Segment 1 Cloud Segment 2		
Cloud Segment Duration	s	78.175	77.3744
Pool Vaporization Rate	kg/s	1.37734	0.924012
Total Vapor Flowrate	kg/s	1.37735	0.924025
	Release Segment 1 Cloud Segment 3		
Cloud Segment Duration	s	61.11	61.8825
Pool Vaporization Rate	kg/s	1.76987	1.17116
Total Vapor Flowrate	kg/s	1.76988	1.17117
	Release Segment 1 Cloud Segment 4		
Cloud Segment Duration	s	52.01	53.2875
Pool Vaporization Rate	kg/s	2.07886	1.36404
Total Vapor Flowrate	kg/s	2.07887	1.36405
	Release Segment 1 Cloud Segment 5		
Cloud Segment Duration	s	88.5769	91.0125
Pool Vaporization Rate	kg/s	2.45203	1.59351
Total Vapor Flowrate	kg/s	2.45205	1.59352
	Release Segment 1 Cloud Segment 6		
Cloud Segment Duration	s	109.913	114.193
Pool Vaporization Rate	kg/s	2.96275	1.90249
Total Vapor Flowrate	kg/s	2.96276	1.90251
	Release Segment 1 Cloud Segment 7		
Cloud Segment Duration	s	29.9844	29.9844
Pool Vaporization Rate	kg/s	3.31361	2.11034
Total Vapor Flowrate	kg/s	3.31362	2.11036
Maximum Pool Radius	m	28.0163	28.0307

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Distance to Concentration Results

Path: \Terminal Adonai - Efeitos físicos\Simulações\H049

The height for user defined concentrations is the user defined height 0 m
All toxic results are reported at the toxic effect height 1 m
All flammable results are reported at the flammable effect height 0 m

Concentration(ppm)	Averaging Time		Distance (m)	
			Dia	Noite
UFL (190000)	18.75	s	0	0
LFL (43000)	18.75	s	0	0
LFL Frac (43000)	18.75	s	0	0

Concentration(ppm)	Averaging Time		Heights (m) for above distances	
			Dia	Noite
UFL (190000)	18.75	s	0	0
LFL (43000)	18.75	s	0	0
LFL Frac (43000)	18.75	s	0	0

Jet Fire Hazard

Path: \Terminal Adonai - Efeitos físicos\Simulações\H049

Jet fire method used: Cone model - DNV recommended

	Dia	Noite
Jet Fire Status	Truncated	Truncated
Flame Direction	Horizontal	Horizontal

Radiation Effects: Jet Fire Ellipse

Path: \Terminal Adonai - Efeitos físicos\Simulações\H049

This table gives the distances to the specified radiation levels
for each jet fire listed in the above hazard table

Radiation Level			Distance (m)	
			Dia	Noite
9.83	kW/m2	Not Reached	Not Reached	
19.46	kW/m2	Not Reached	Not Reached	
35	kW/m2	Not Reached	Not Reached	

Radiation Effects: Jet Fire Distance

Path: \Terminal Adonai - Efeitos físicos\Simulações\H049

	Dia	Radiation Level (kW/m2)
		Noite

Early Pool Fire Hazard

Path: \Terminal Adonai - Efeitos físicos\Simulações\H049

	Dia	Noite
Early Pool Fire Status	Hazard	Hazard

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Radiation Effects: Early Pool Fire Ellipse

Path: \Terminal Adonai - Efeitos físicos\Simulações\H049

			Dia	Noite
Radiation Level	9.83	kW/m2	75.7228	73.9964
Radiation Level	19.46	kW/m2	58.0754	55.285
Radiation Level	35	kW/m2	39.3581	37.4944

Radiation Effects: Early Pool Fire Distance

Path: \Terminal Adonai - Efeitos físicos\Simulações\H049

Dia
Noite

Radiation Level (kW/m2)

Late Pool Fire Hazard

Path: \Terminal Adonai - Efeitos físicos\Simulações\H049

	Dia	Noite
Late Pool Fire Status	Hazard	Hazard

Radiation Effects: Late Pool Fire Ellipse

Path: \Terminal Adonai - Efeitos físicos\Simulações\H049

			Dia	Noite
Radiation Level	9.83	kW/m2	75.7228	73.9964
Radiation Level	19.46	kW/m2	58.0754	55.285
Radiation Level	35	kW/m2	39.3581	37.4944

Radiation Effects: Late Pool Fire Distance

Path: \Terminal Adonai - Efeitos físicos\Simulações\H049

Dia

Radiation Level (kW/m2)

Noite

Weather Conditions

Path: \Terminal Adonai - Efeitos físicos\Simulações\H049

		Dia	Noite
Wind Speed	m/s	3	2
Pasquill Stability		C	E
Surface Roughness Length	mm	1000	1000
Surface Roughness Parameter		0.173718	0.173718
Atmospheric Temperature	degC	25	20
Surface Temperature	degC	30	20
Relative Humidity	fraction	0.8	0.8

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

H050

Base Case

CASE Name: Data

Path: \Terminal Adonai - Efeitos físicos\Simulações\H050

User-Defined Data

Material

Material Identifier ETHANOL

Scenario

Building Wake Effect None

Vessel/Tank

Release Type Continuous

Location

Elevation 0 m
Use ERPG averaging time ERPG not selected
Use IDLH averaging time IDLH not selected
Use STEL averaging time STEL not selected
Supply a user defined averaging time Not supplied

Bund

Status of Bund Bund present
Bund Area 1.152E4 m2
[Type of Bund Surface User-Defined (Land)]
Bund Height 0.3 m
[Bund Failure Modeling Bund cannot fail]

Indoor/Outdoor

Location of release Open air release
Outdoor Release Direction Horizontal

Flammable

Explosion Method TNT
Jet Fire Method Cone Model

Dispersion

Number of Release Segments 1
Fluid Phase(1) Liquid
Discharge Velocity(1) 34.94 m/s
Droplet Diameter(1) 189.2 um
Duration of Discharge(1) 600 s
Final Temperature(1) 24.94 degC
Release Rate(1) 0.99 kg/s
Pre-Dilution Air Rates(1) 0 kg/s
Late Ignition Location No ignition location
Mass Inventory of material to Disperse 2.515E6 kg

Fireball Parameters

[Mass Modification Factor 3]
[Calculation method for fireball DNV Recommended]
[TNO model flame temperature 1727 degC]

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Toxic Parameters

[Indoor Calculations	Unselected]
[Wind Dependent Exchange Rate	Case Specified]
[Building Exchange Rate	4 /hr]
[Tail Time	1800 s]
[Set averaging time equal to exposure time	Use a fixed averaging time]
[Cut-off fraction of toxic load for exposure time calculation	0.05 fraction]
[Cut-off concentration for exposure time calculations	0 fraction]

Geometry

Shape	Point
Dimension	2D
System	Absolute
East(1)	0 m
North(1)	0 m

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Consequence Results

Pool Vaporization Results

Path: \Terminal Adonai - Efeitos físicos\Simulações\H050

			Dia	Noite
		Release Segment 1		
Release Duration	s		600	600
Liquid Rainout	fraction		1	1
Maximum Pool Radius	m		2.79761	2.80213

Distance to Concentration Results

Path: \Terminal Adonai - Efeitos físicos\Simulações\H050

The height for user defined concentrations is the user defined height 0 m
All toxic results are reported at the toxic effect height 1 m
All flammable results are reported at the flammable effect height 0 m

Concentration(ppm)		Averaging Time		Distance (m)	
				Dia	Noite
UFL (190000)	18.75	s		0	0
LFL (43000)	18.75	s		0.00081651	0.00107046
LFL Frac (43000)	18.75	s		0.00081651	0.00107046

Concentration(ppm)		Averaging Time		Heights (m) for above distances	
				Dia	Noite
UFL (190000)	18.75	s		0	0
LFL (43000)	18.75	s		0	0
LFL Frac (43000)	18.75	s		0	0

Jet Fire Hazard

Path: \Terminal Adonai - Efeitos físicos\Simulações\H050

Jet fire method used: Cone model - DNV recommended

		Dia	Noite
Jet Fire Status		No Hazard	No Hazard
Flame Direction		Horizontal	Horizontal

Early Pool Fire Hazard

Path: \Terminal Adonai - Efeitos físicos\Simulações\H050

		Dia	Noite
Early Pool Fire Status		Hazard	Hazard

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Radiation Effects: Early Pool Fire Ellipse

Path: \Terminal Adonai - Efeitos físicos\Simulações\H050

			Dia	Noite
Radiation Level	9.83	kW/m2	9.54233	9.05034
Radiation Level	19.46	kW/m2	5.70467	5.37993
Radiation Level	35	kW/m2	3.79761	3.80213

Radiation Effects: Early Pool Fire Distance

Path: \Terminal Adonai - Efeitos físicos\Simulações\H050

	Dia	Noite
Radiation Level (kW/m2)		

Late Pool Fire Hazard

Path: \Terminal Adonai - Efeitos físicos\Simulações\H050

	Dia	Noite
Late Pool Fire Status	Hazard	Hazard

Radiation Effects: Late Pool Fire Ellipse

Path: \Terminal Adonai - Efeitos físicos\Simulações\H050

			Dia	Noite
Radiation Level	9.83	kW/m2	9.54233	9.05034
Radiation Level	19.46	kW/m2	5.70467	5.37993
Radiation Level	35	kW/m2	3.79761	3.80213

Radiation Effects: Late Pool Fire Distance

Path: \Terminal Adonai - Efeitos físicos\Simulações\H050

	Dia	Noite
Radiation Level (kW/m2)		

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Flash Fire Envelope

Path: \Terminal Adonai - Efeitos físicos\Simulações\H050

All flammable results are reported at the flammable effect height 0 m

			Distance (m)	
			Dia	Noite
Furthest Extent	43000	ppm	0.00081651	0.00107046
Furthest Extent	43000	ppm	0.00081651	0.00107046
			Heights (m) for above distances	
			Dia	Noite
Furthest Extent	43000	ppm	0	0
Furthest Extent	43000	ppm	0	0

Weather Conditions

Path: \Terminal Adonai - Efeitos físicos\Simulações\H050

		Dia	Noite
Wind Speed	m/s	3	2
Pasquill Stability		C	E
Surface Roughness Length	mm	1000	1000
Surface Roughness Parameter		0.173718	0.173718
Atmospheric Temperature	degC	25	20
Surface Temperature	degC	30	20
Relative Humidity	fraction	0.8	0.8

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

H051

Base Case

CASE Name: Data

Path: \Terminal Adonai - Efeitos físicos\Simulações\H051

User-Defined Data

Material

Material Identifier ETHANOL

Scenario

Building Wake Effect None

Vessel/Tank

Release Type Continuous

Location

Elevation 0 m
Use ERPG averaging time ERPG not selected
Use IDLH averaging time IDLH not selected
Use STEL averaging time STEL not selected
Supply a user defined averaging time Not supplied

Bund

Status of Bund No bund present
[Type of Bund Surface User-Defined (Land)]
[Bund Height 0 m]
[Bund Failure Modeling Bund cannot fail]

Indoor/Outdoor

Location of release Open air release
Outdoor Release Direction Horizontal

Flammable

Explosion Method TNT
Jet Fire Method Cone Model

Dispersion

Number of Release Segments 1
Fluid Phase(1) Liquid
Discharge Velocity(1) 18.16 m/s
Droplet Diameter(1) 700.2 um
Duration of Discharge(1) 600 s
Final Temperature(1) 25.1 degC
Release Rate(1) 39.5 kg/s
Pre-Dilution Air Rates(1) 0 kg/s
Late Ignition Location No ignition location
Mass Inventory of material to Disperse 4.715E4 kg

Fireball Parameters

[Mass Modification Factor 3]
[Calculation method for fireball DNV Recommended]
[TNO model flame temperature 1727 degC]

Toxic Parameters

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

[Indoor Calculations	Unselected]
[Wind Dependent Exchange Rate	Case Specified]
[Building Exchange Rate	4 /hr]
[Tail Time	1800 s]
[Set averaging time equal to exposure time	Use a fixed averaging time]
[Cut-off fraction of toxic load for exposure time calculation	0.05 fraction]
[Cut-off concentration for exposure time calculations	0 fraction]

Geometry

Shape	Point
Dimension	2D
System	Absolute
East(1)	0 m
North(1)	0 m

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Consequence Results

Pool Vaporization Results

Path: \Terminal Adonai - Efeitos físicos\Simulações\H051

		Dia	Noite
	Release Segment 1		
Release Duration	s	600	600
Liquid Rainout	fraction	1	1
	Release Segment 1 Cloud Segment 1		
Cloud Segment Duration	s	180.231	171.61
Pool Vaporization Rate	kg/s	0.251319	0.17334
Total Vapor Flowrate	kg/s	0.251324	0.173345
	Release Segment 1 Cloud Segment 2		
Cloud Segment Duration	s	78.175	78.03
Pool Vaporization Rate	kg/s	0.580664	0.383939
Total Vapor Flowrate	kg/s	0.580669	0.383945
	Release Segment 1 Cloud Segment 3		
Cloud Segment Duration	s	61.11	61.8825
Pool Vaporization Rate	kg/s	0.746393	0.487
Total Vapor Flowrate	kg/s	0.746399	0.487005
	Release Segment 1 Cloud Segment 4		
Cloud Segment Duration	s	52.01	53.2875
Pool Vaporization Rate	kg/s	0.876901	0.567105
Total Vapor Flowrate	kg/s	0.876906	0.56711
	Release Segment 1 Cloud Segment 5		
Cloud Segment Duration	s	88.5769	91.0125
Pool Vaporization Rate	kg/s	1.03458	0.662547
Total Vapor Flowrate	kg/s	1.03459	0.662552
	Release Segment 1 Cloud Segment 6		
Cloud Segment Duration	s	109.913	114.193
Pool Vaporization Rate	kg/s	1.25048	0.791334
Total Vapor Flowrate	kg/s	1.25048	0.791339
	Release Segment 1 Cloud Segment 7		
Cloud Segment Duration	s	29.9844	29.9844
Pool Vaporization Rate	kg/s	1.39885	0.878149
Total Vapor Flowrate	kg/s	1.39885	0.878154
Maximum Pool Radius	m	17.7109	17.7222

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Distance to Concentration Results

Path: \Terminal Adonai - Efeitos físicos\Simulações\H051

The height for user defined concentrations is the user defined height 0 m
All toxic results are reported at the toxic effect height 1 m
All flammable results are reported at the flammable effect height 0 m

Concentration(ppm)	Averaging Time		Distance (m)	
			Dia	Noite
UFL (190000)	18.75	s	0	0
LFL (43000)	18.75	s	0	0
LFL Frac (43000)	18.75	s	0	0

Concentration(ppm)	Averaging Time		Heights (m) for above distances	
			Dia	Noite
UFL (190000)	18.75	s	0	0
LFL (43000)	18.75	s	0	0
LFL Frac (43000)	18.75	s	0	0

Jet Fire Hazard

Path: \Terminal Adonai - Efeitos físicos\Simulações\H051

Jet fire method used: Cone model - DNV recommended

	Dia	Noite
Jet Fire Status	Truncated	Truncated
Flame Direction	Horizontal	Horizontal

Radiation Effects: Jet Fire Ellipse

Path: \Terminal Adonai - Efeitos físicos\Simulações\H051

This table gives the distances to the specified radiation levels
for each jet fire listed in the above hazard table

Radiation Level			Distance (m)	
			Dia	Noite
9.83	kW/m2		Not Reached	Not Reached
19.46	kW/m2		Not Reached	Not Reached
35	kW/m2		Not Reached	Not Reached

Radiation Effects: Jet Fire Distance

Path: \Terminal Adonai - Efeitos físicos\Simulações\H051

	Dia	Radiation Level (kW/m2)
		Noite

Early Pool Fire Hazard

Path: \Terminal Adonai - Efeitos físicos\Simulações\H051

	Dia	Noite
Early Pool Fire Status	Hazard	Hazard

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Radiation Effects: Early Pool Fire Ellipse

Path: \Terminal Adonai - Efeitos físicos\Simulações\H051

			Dia	Noite
Radiation Level	9.83	kW/m2	50.1261	48.7783
Radiation Level	19.46	kW/m2	38.0416	35.9089
Radiation Level	35	kW/m2	23.8597	22.8352

Radiation Effects: Early Pool Fire Distance

Path: \Terminal Adonai - Efeitos físicos\Simulações\H051

Dia
Noite

Radiation Level (kW/m2)

Late Pool Fire Hazard

Path: \Terminal Adonai - Efeitos físicos\Simulações\H051

	Dia	Noite
Late Pool Fire Status	Hazard	Hazard

Radiation Effects: Late Pool Fire Ellipse

Path: \Terminal Adonai - Efeitos físicos\Simulações\H051

			Dia	Noite
Radiation Level	9.83	kW/m2	50.1261	48.7783
Radiation Level	19.46	kW/m2	38.0416	35.9089
Radiation Level	35	kW/m2	23.8597	22.8352

Radiation Effects: Late Pool Fire Distance

Path: \Terminal Adonai - Efeitos físicos\Simulações\H051

Dia

Radiation Level (kW/m2)

Noite

Weather Conditions

Path: \Terminal Adonai - Efeitos físicos\Simulações\H051

		Dia	Noite
Wind Speed	m/s	3	2
Pasquill Stability		C	E
Surface Roughness Length	mm	1000	1000
Surface Roughness Parameter		0.173718	0.173718
Atmospheric Temperature	degC	25	20
Surface Temperature	degC	30	20
Relative Humidity	fraction	0.8	0.8

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

H052

Base Case

CASE Name: Data

Path: \Terminal Adonai - Efeitos físicos\Simulações\H052

User-Defined Data

Material

Material Identifier ETHANOL

Scenario

Building Wake Effect None

Vessel/Tank

Release Type Continuous

Location

Elevation 0 m
Use ERPG averaging time ERPG not selected
Use IDLH averaging time IDLH not selected
Use STEL averaging time STEL not selected
Supply a user defined averaging time Not supplied

Bund

Status of Bund No bund present
[Type of Bund Surface User-Defined (Land)]
[Bund Height 0 m]
[Bund Failure Modeling Bund cannot fail]

Indoor/Outdoor

Location of release Open air release
Outdoor Release Direction Horizontal

Flammable

Explosion Method TNT
Jet Fire Method Cone Model

Dispersion

Number of Release Segments 1
Fluid Phase(1) Liquid
Discharge Velocity(1) 30.26 m/s
Droplet Diameter(1) 252.3 um
Duration of Discharge(1) 600 s
Final Temperature(1) 24.95 degC
Release Rate(1) 0.4 kg/s
Pre-Dilution Air Rates(1) 0 kg/s
Late Ignition Location No ignition location
Mass Inventory of material to Disperse 4.715E4 kg

Fireball Parameters

[Mass Modification Factor 3]
[Calculation method for fireball DNV Recommended]
[TNO model flame temperature 1727 degC]

Toxic Parameters

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

[Indoor Calculations	Unselected]
[Wind Dependent Exchange Rate	Case Specified]
[Building Exchange Rate	4 /hr]
[Tail Time	1800 s]
[Set averaging time equal to exposure time	Use a fixed averaging time]
[Cut-off fraction of toxic load for exposure time calculation	0.05 fraction]
[Cut-off concentration for exposure time calculations	0 fraction]

Geometry

Shape	Point
Dimension	2D
System	Absolute
East(1)	0 m
North(1)	0 m

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Consequence Results

Pool Vaporization Results

Path: \Terminal Adonai - Efeitos físicos\Simulações\H052

			Dia	Noite
		Release Segment 1		
Release Duration	s		600	600
Liquid Rainout	fraction		1	1
Maximum Pool Radius	m		1.77684	1.78064

Distance to Concentration Results

Path: \Terminal Adonai - Efeitos físicos\Simulações\H052

The height for user defined concentrations is the user defined height 0 m
All toxic results are reported at the toxic effect height 1 m
All flammable results are reported at the flammable effect height 0 m

Concentration(ppm)		Averaging Time		Distance (m)	
				Dia	Noite
UFL (190000)	18.75	s		0	0
LFL (43000)	18.75	s		0.000394238	0.000540574
LFL Frac (43000)	18.75	s		0.000394238	0.000540574
Concentration(ppm)		Averaging Time		Heights (m) for above distances	
				Dia	Noite
UFL (190000)	18.75	s		0	0
LFL (43000)	18.75	s		0	0
LFL Frac (43000)	18.75	s		0	0

Jet Fire Hazard

Path: \Terminal Adonai - Efeitos físicos\Simulações\H052

Jet fire method used: Cone model - DNV recommended

		Dia	Noite
Jet Fire Status		No Hazard	No Hazard
Flame Direction		Horizontal	Horizontal

Early Pool Fire Hazard

Path: \Terminal Adonai - Efeitos físicos\Simulações\H052

		Dia	Noite
Early Pool Fire Status		Hazard	Hazard

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Radiation Effects: Early Pool Fire Ellipse

Path: \Terminal Adonai - Efeitos físicos\Simulações\H052

			Dia	Noite
Radiation Level	9.83	kW/m2	6.33689	5.95081
Radiation Level	19.46	kW/m2	3.30857	3.1579
Radiation Level	35	kW/m2	2.77684	2.78064

Radiation Effects: Early Pool Fire Distance

Path: \Terminal Adonai - Efeitos físicos\Simulações\H052

	Dia	Noite
Radiation Level (kW/m2)		

Late Pool Fire Hazard

Path: \Terminal Adonai - Efeitos físicos\Simulações\H052

	Dia	Noite
Late Pool Fire Status	Hazard	Hazard

Radiation Effects: Late Pool Fire Ellipse

Path: \Terminal Adonai - Efeitos físicos\Simulações\H052

			Dia	Noite
Radiation Level	9.83	kW/m2	6.33689	5.95081
Radiation Level	19.46	kW/m2	3.30857	3.1579
Radiation Level	35	kW/m2	2.77684	2.78064

Radiation Effects: Late Pool Fire Distance

Path: \Terminal Adonai - Efeitos físicos\Simulações\H052

	Dia	Noite
Radiation Level (kW/m2)		

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Flash Fire Envelope

Path: \Terminal Adonai - Efeitos físicos\Simulações\H052

All flammable results are reported at the flammable effect height 0 m

			Distance (m)	
			Dia	Noite
Furthest Extent	43000	ppm	0.000394238	0.000540574
Furthest Extent	43000	ppm	0.000394238	0.000540574

			Heights (m) for above distances	
			Dia	Noite
Furthest Extent	43000	ppm	0	0
Furthest Extent	43000	ppm	0	0

Weather Conditions

Path: \Terminal Adonai - Efeitos físicos\Simulações\H052

		Dia	Noite
Wind Speed	m/s	3	2
Pasquill Stability		C	E
Surface Roughness Length	mm	1000	1000
Surface Roughness Parameter		0.173718	0.173718
Atmospheric Temperature	degC	25	20
Surface Temperature	degC	30	20
Relative Humidity	fraction	0.8	0.8

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

H053

Base Case

CASE Name: Data

Path: \Terminal Adonai - Efeitos físicos\Simulações\H053

User-Defined Data

Material

Material Identifier ETHANOL

Scenario

Building Wake Effect None

Vessel/Tank

Release Type Continuous

Location

Elevation 1 m
Use ERPG averaging time ERPG not selected
Use IDLH averaging time IDLH not selected
Use STEL averaging time STEL not selected
Supply a user defined averaging time Not supplied

Bund

Status of Bund No bund present
[Type of Bund Surface User-Defined (Land)]
[Bund Height 0 m]
[Bund Failure Modeling Bund cannot fail]

Indoor/Outdoor

Location of release Open air release
Outdoor Release Direction Horizontal

Flammable

Explosion Method TNT
Jet Fire Method Cone Model

Dispersion

Number of Release Segments 1
Fluid Phase(1) Liquid
Discharge Velocity(1) 18.16 m/s
Droplet Diameter(1) 700.2 um
Duration of Discharge(1) 600 s
Final Temperature(1) 25.1 degC
Release Rate(1) 39.5 kg/s
Pre-Dilution Air Rates(1) 0 kg/s
Late Ignition Location No ignition location
Mass Inventory of material to Disperse 4.715E4 kg

Fireball Parameters

[Mass Modification Factor 3]
[Calculation method for fireball DNV Recommended]
[TNO model flame temperature 1727 degC]

Toxic Parameters

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

[Indoor Calculations	Unselected]
[Wind Dependent Exchange Rate	Case Specified]
[Building Exchange Rate	4 /hr]
[Tail Time	1800 s]
[Set averaging time equal to exposure time	Use a fixed averaging time]
[Cut-off fraction of toxic load for exposure time calculation	0.05 fraction]
[Cut-off concentration for exposure time calculations	0 fraction]

Geometry

Shape	Point
Dimension	2D
System	Absolute
East(1)	0 m
North(1)	0 m

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Consequence Results

Pool Vaporization Results

Path: \Terminal Adonai - Efeitos físicos\Simulações\H053

		Dia	Noite
	Release Segment 1		
Release Duration	s	600	600
Liquid Rainout	fraction	0.972474	0.975312
	Release Segment 1 Cloud Segment 1		
Cloud Segment Duration	s	190.44	180.231
Pool Vaporization Rate	kg/s	0.185254	0.126643
Total Vapor Flowrate	kg/s	1.27253	1.1018
	Release Segment 1 Cloud Segment 2		
Cloud Segment Duration	s	78.52	78.175
Pool Vaporization Rate	kg/s	0.448573	0.291931
Total Vapor Flowrate	kg/s	1.53585	1.26709
	Release Segment 1 Cloud Segment 3		
Cloud Segment Duration	s	60.4625	61.11
Pool Vaporization Rate	kg/s	0.584727	0.375044
Total Vapor Flowrate	kg/s	1.672	1.35021
	Release Segment 1 Cloud Segment 4		
Cloud Segment Duration	s	50.8275	52.01
Pool Vaporization Rate	kg/s	0.693213	0.440505
Total Vapor Flowrate	kg/s	1.78048	1.41567
	Release Segment 1 Cloud Segment 5		
Cloud Segment Duration	s	45.1406	88.5769
Pool Vaporization Rate	kg/s	0.786253	0.519612
Total Vapor Flowrate	kg/s	1.87353	1.49477
	Release Segment 1 Cloud Segment 6		
Cloud Segment Duration	s	78.6119	109.913
Pool Vaporization Rate	kg/s	0.90539	0.627944
Total Vapor Flowrate	kg/s	1.99266	1.60311
	Release Segment 1 Cloud Segment 7		
Cloud Segment Duration	s	95.9975	29.9844
Pool Vaporization Rate	kg/s	1.07187	0.702403
Total Vapor Flowrate	kg/s	2.15914	1.67756
Maximum Pool Radius	m	17.4692	17.4938

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Distance to Concentration Results

Path: \Terminal Adonai - Efeitos físicos\Simulações\H053

The height for user defined concentrations is the user defined height 0 m

All toxic results are reported at the toxic effect height 1 m

All flammable results are reported at the flammable effect height 0 m

Concentration(ppm)	Averaging Time		Distance (m)	
			Dia	Noite
UFL (190000)	18.75	s	7.8782	7.89908
LFL (43000)	18.75	s	10.5628	11.2029
LFL Frac (43000)	18.75	s	10.5628	11.2029

Concentration(ppm)	Averaging Time		Heights (m) for above distances	
			Dia	Noite
UFL (190000)	18.75	s	0	0
LFL (43000)	18.75	s	0	0
LFL Frac (43000)	18.75	s	0	0

Jet Fire Hazard

Path: \Terminal Adonai - Efeitos físicos\Simulações\H053

Jet fire method used: Cone model - DNV recommended

	Dia	Noite
Jet Fire Status	Truncated	Truncated
Flame Direction	Horizontal	Horizontal

Radiation Effects: Jet Fire Ellipse

Path: \Terminal Adonai - Efeitos físicos\Simulações\H053

This table gives the distances to the specified radiation levels for each jet fire listed in the above hazard table

Radiation Level			Distance (m)	
			Dia	Noite
9.83	kW/m2		43.4413	44.6672
19.46	kW/m2		38.6205	39.5658
35	kW/m2		33.9967	Not Reached

Radiation Effects: Jet Fire Distance

Path: \Terminal Adonai - Efeitos físicos\Simulações\H053

	Dia	Radiation Level (kW/m2)
		Noite

Early Pool Fire Hazard

Path: \Terminal Adonai - Efeitos físicos\Simulações\H053

	Dia	Noite
Early Pool Fire Status	Hazard	Hazard

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Radiation Effects: Early Pool Fire Ellipse

Path: \Terminal Adonai - Efeitos físicos\Simulações\H053

			Dia	Noite
Radiation Level	9.83	kW/m2	57.4857	56.1919
Radiation Level	19.46	kW/m2	45.536	43.4567
Radiation Level	35	kW/m2	31.4995	30.5081

Radiation Effects: Early Pool Fire Distance

Path: \Terminal Adonai - Efeitos físicos\Simulações\H053

	Dia	Noite
Radiation Level (kW/m2)		

Late Pool Fire Hazard

Path: \Terminal Adonai - Efeitos físicos\Simulações\H053

	Dia	Noite
Late Pool Fire Status	Hazard	Hazard

Radiation Effects: Late Pool Fire Ellipse

Path: \Terminal Adonai - Efeitos físicos\Simulações\H053

			Dia	Noite
Radiation Level	9.83	kW/m2	57.4857	56.1919
Radiation Level	19.46	kW/m2	45.536	43.4567
Radiation Level	35	kW/m2	31.4995	30.5081

Radiation Effects: Late Pool Fire Distance

Path: \Terminal Adonai - Efeitos físicos\Simulações\H053

	Dia	Noite
Radiation Level (kW/m2)		

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Flash Fire Envelope

Path: \Terminal Adonai - Efeitos físicos\Simulações\H053

All flammable results are reported at the flammable effect height 0 m

				Distance (m)	
				Dia	Noite
Furthest Extent	43000	ppm		10.5628	11.2029
Furthest Extent	43000	ppm		10.5628	11.2029
				Heights (m) for above distances	
				Dia	Noite
Furthest Extent	43000	ppm		0	0
Furthest Extent	43000	ppm		0	0

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Explosion Effects: Late Ignition

Path: \Terminal Adonai - Efeitos físicos\Simulações\H053

Explosion Model Used : TNT

Explosion Location Criterion: Cloud Center

All distances are measured from the Source

All flammable results are reported at the flammable effect height 0 m

			Maximum Distance (m) at Overpressure Level	
			Dia	Noite
Overpressure	0.05	bar	14.4889	12.3398
Overpressure	0.1	bar	11.1758	9.63938
Overpressure	0.3	bar	8.46032	7.42608
			Supplementary Data at 0.05 bar	
			Dia	Noite
Supplied Flammable Mass		kg	0.234294	0.126869
Used Flammable Mass		kg	0.234294	0.126869
Overpressure Radius		m	8.7368	7.12116
Distance to:				
- Ignition Source		m	10	10
- Cloud Front/Centre		m	10	10
- Explosion Centre		m	5.75208	5.21866
			Supplementary Data at 0.1 bar	
			Dia	Noite
Supplied Flammable Mass		kg	0.234294	0.126869
Used Flammable Mass		kg	0.234294	0.126869
Overpressure Radius		m	5.42368	4.42072
Distance to:				
- Ignition Source		m	10	10
- Cloud Front/Centre		m	10	10
- Explosion Centre		m	5.75208	5.21866
			Supplementary Data at 0.3 bar	
			Dia	Noite
Supplied Flammable Mass		kg	0.234294	0.126869
Used Flammable Mass		kg	0.234294	0.126869
Overpressure Radius		m	2.70824	2.20742
Distance to:				
- Ignition Source		m	10	10
- Cloud Front/Centre		m	10	10
- Explosion Centre		m	5.75208	5.21866

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Weather Conditions

Path: \Terminal Adonai - Efeitos físicos\Simulações\H053

		Dia	Noite
Wind Speed	m/s	3	2
Pasquill Stability		C	E
Surface Roughness Length	mm	1000	1000
Surface Roughness Parameter		0.173718	0.173718
Atmospheric Temperature	degC	25	20
Surface Temperature	degC	30	20
Relative Humidity	fraction	0.8	0.8

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

H054

Base Case

CASE Name: Data

Path: \Terminal Adonai - Efeitos físicos\Simulações\H054

User-Defined Data

Material

Material Identifier ETHANOL

Scenario

Building Wake Effect None

Vessel/Tank

Release Type Continuous

Location

Elevation 1 m
Use ERPG averaging time ERPG not selected
Use IDLH averaging time IDLH not selected
Use STEL averaging time STEL not selected
Supply a user defined averaging time Not supplied

Bund

Status of Bund No bund present
[Type of Bund Surface User-Defined (Land)]
[Bund Height 0 m]
[Bund Failure Modeling Bund cannot fail]

Indoor/Outdoor

Location of release Open air release
Outdoor Release Direction Horizontal

Flammable

Explosion Method TNT
Jet Fire Method Cone Model

Dispersion

Number of Release Segments 1
Fluid Phase(1) Liquid
Discharge Velocity(1) 30.26 m/s
Droplet Diameter(1) 252.3 um
Duration of Discharge(1) 600 s
Final Temperature(1) 24.95 degC
Release Rate(1) 0.4 kg/s
Pre-Dilution Air Rates(1) 0 kg/s
Late Ignition Location No ignition location
Mass Inventory of material to Disperse 4.715E4 kg

Fireball Parameters

[Mass Modification Factor 3]
[Calculation method for fireball DNV Recommended]
[TNO model flame temperature 1727 degC]

Toxic Parameters

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

[Indoor Calculations	Unselected]
[Wind Dependent Exchange Rate	Case Specified]
[Building Exchange Rate	4 /hr]
[Tail Time	1800 s]
[Set averaging time equal to exposure time	Use a fixed averaging time]
[Cut-off fraction of toxic load for exposure time calculation	0.05 fraction]
[Cut-off concentration for exposure time calculations	0 fraction]

Geometry

Shape	Point
Dimension	2D
System	Absolute
East(1)	0 m
North(1)	0 m

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Consequence Results

Pool Vaporization Results

Path: \Terminal Adonai - Efeitos físicos\Simulações\H054

			Dia	Noite
		Release Segment 1		
Release Duration	s		600	600
Liquid Rainout	fraction		0.813061	0.847057
Maximum Pool Radius	m		1.60411	1.63903

Distance to Concentration Results

Path: \Terminal Adonai - Efeitos físicos\Simulações\H054

The height for user defined concentrations is the user defined height 0 m
 All toxic results are reported at the toxic effect height 1 m
 All flammable results are reported at the flammable effect height 0 m

Concentration(ppm)	Averaging Time		Dia	Noite	Distance (m)
UFL (190000)	18.75	s	No Hazard	No Hazard	No Hazard
LFL (43000)	18.75	s	No Hazard	No Hazard	No Hazard
LFL Frac (43000)	18.75	s	No Hazard	No Hazard	No Hazard
Concentration(ppm)	Averaging Time		Dia	Noite	Heights (m) for above distances
UFL (190000)	18.75	s	0	0	0
LFL (43000)	18.75	s	0	0	0
LFL Frac (43000)	18.75	s	0	0	0

Jet Fire Hazard

Path: \Terminal Adonai - Efeitos físicos\Simulações\H054

Jet fire method used: Cone model - DNV recommended

	Dia	Noite
Jet Fire Status	Truncated	Truncated
Flame Direction	Horizontal	Horizontal

Radiation Effects: Jet Fire Ellipse

Path: \Terminal Adonai - Efeitos físicos\Simulações\H054

This table gives the distances to the specified radiation levels for each jet fire listed in the above hazard table

			Dia	Noite	Distance (m)
Radiation Level	9.83	kW/m2	12.7726	12.6037	
Radiation Level	19.46	kW/m2	11.2955	11.4222	
Radiation Level	35	kW/m2	Not Reached	Not Reached	

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Radiation Effects: Jet Fire Distance

Path: \Terminal Adonai - Efeitos físicos\Simulações\H054

Dia Radiation Level (kW/m2)
Noite

Early Pool Fire Hazard

Path: \Terminal Adonai - Efeitos físicos\Simulações\H054

Early Pool Fire Status Dia Noite
Hazard Hazard

Radiation Effects: Early Pool Fire Ellipse

Path: \Terminal Adonai - Efeitos físicos\Simulações\H054

			Dia	Distance (m) Noite
Radiation Level	9.83	kW/m2	11.7021	11.1382
Radiation Level	19.46	kW/m2	8.84251	8.49116
Radiation Level	35	kW/m2	8.53099	8.26964

Radiation Effects: Early Pool Fire Distance

Path: \Terminal Adonai - Efeitos físicos\Simulações\H054

Dia Radiation Level (kW/m2)
Noite

Late Pool Fire Hazard

Path: \Terminal Adonai - Efeitos físicos\Simulações\H054

Late Pool Fire Status Dia Noite
Hazard Hazard

Radiation Effects: Late Pool Fire Ellipse

Path: \Terminal Adonai - Efeitos físicos\Simulações\H054

			Dia	Distance (m) Noite
Radiation Level	9.83	kW/m2	11.7021	11.1382
Radiation Level	19.46	kW/m2	8.84251	8.49116
Radiation Level	35	kW/m2	8.53099	8.26964

Radiation Effects: Late Pool Fire Distance

Path: \Terminal Adonai - Efeitos físicos\Simulações\H054

Dia Radiation Level (kW/m2)
Noite

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Weather Conditions

Path: \Terminal Adonai - Efeitos físicos\Simulações\H054

		Dia	Noite
Wind Speed	m/s	3	2
Pasquill Stability		C	E
Surface Roughness Length	mm	1000	1000
Surface Roughness Parameter		0.173718	0.173718
Atmospheric Temperature	degC	25	20
Surface Temperature	degC	30	20
Relative Humidity	fraction	0.8	0.8

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

H055

Base Case

CASE Name: Data

Path: \Terminal Adonai - Efeitos físicos\Simulações\H055

User-Defined Data

Material

Material Identifier	ETHANOL
Type of Vessel	Padded Liquid
Pressure Specification	Pressure specified
Storage Pressure - gauge	0.03 bar
Temperature	25 degC
Volume Inventory	3200 m3

Scenario

Scenario Type	Line rupture
Phase to be Released	Liquid
Building Wake Effect	None
Specify Pump Head	No pump head supplied
Number of Excess Flow Valves	0
Number of Non-Return Valves	0
Number of Shut-Off Valves	0

Pipe

Internal Diameter	152.4 mm
Line length	1 m

Vessel/Tank

Duration of Interest	600 s
Method Used for Time Varying Releases	Average Rates
Tank Type	Vertical
Tank Height	22.64 m
Tank Diameter	15 m
Height of Discharge from Vessel Bottom	1 m

Location

Elevation	1 m
Use ERPG averaging time	ERPG not selected
Use IDLH averaging time	IDLH not selected
Use STEL averaging time	STEL not selected
Supply a user defined averaging time	Not supplied

Bund

Status of Bund	Bund present
Bund Area	1940 m2
[Type of Bund Surface	User-Defined (Land)]
Bund Height	3 m
[Bund Failure Modeling	Bund cannot fail]

Indoor/Outdoor

Location of release	Open air release
Outdoor Release Direction	Horizontal

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Flammable

Explosion Method	TNT
Jet Fire Method	Cone Model

Dispersion

Late Ignition Location	No ignition location
Mass Inventory of material to Disperse	2.515E6 kg

Fireball Parameters

[Mass Modification Factor	3]
[Calculation method for fireball	DNV Recommended]
[TNO model flame temperature	1727 degC]

Toxic Parameters

[Indoor Calculations	Unselected]
[Wind Dependent Exchange Rate	Case Specified]
[Building Exchange Rate	4 /hr]
[Tail Time	1800 s]
[Set averaging time equal to exposure time	Use a fixed averaging time]
[Cut-off fraction of toxic load for exposure time calculation	0.05 fraction]
[Cut-off concentration for exposure time calculations	0 fraction]

Geometry

Shape	Point
Dimension	2D
System	Absolute
East(1)	0 m
North(1)	0 m

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Path: \Terminal Adonai - Efeitos físicos\Simulações\H055

DISCHARGE DATA for Weather: Global Weathers\Dia

Wind Speed: 3.00 m/s
Wind Speed at Height (Calculated) 1.78 m/s
Pasquill Stability: C

USER-DEFINED QUANTITIES

Material ETHANOL
Scenario Line rupture
Inventory 2,514,864.00 kg
Fixed Duration n/a s

Stagnation data (data at upstream end for long pipe):

- Pressure 1.04 bar
- Temperature 25.00 degC
- Fluid State Non-saturated liquid

CALCULATED QUANTITIES

Mass Flow of Air (Vent from Vapor Space only) n/a
Mass Flowrate 1.71050E+002 kg/s
Release Duration 600.00 s

Orifice or pipe exit data (before atmospheric expansion):

- Pressure n/a bar
- Temperature n/a degC
- Vena Contracta Velocity (exit velocity for pipe releases) n/a m/s
- Discharge Coefficient n/a

Final data (after atmospheric expansion):

- Temperature 25.04 degC
- Liquid Mass Fraction 1.00 fraction
- Droplet Diameter 1,654.90 um
- Expanded Radius n/a m
- Velocity 11.93 m/s

DISCHARGE DATA for Weather: Global Weathers\Noite

Wind Speed: 2.00 m/s
Wind Speed at Height (Calculated) 0.83 m/s
Pasquill Stability: E

USER-DEFINED QUANTITIES

Material ETHANOL
Scenario Line rupture
Inventory 2,514,864.00 kg
Fixed Duration n/a s

Stagnation data (data at upstream end for long pipe):

- Pressure 1.04 bar
- Temperature 25.00 degC
- Fluid State Non-saturated liquid

CALCULATED QUANTITIES

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Mass Flow of Air (Vent from Vapor Space only)	n/a
Mass Flowrate	1.71050E+002 kg/s
Release Duration	600.00 s
Orifice or pipe exit data (before atmospheric expansion):	
- Pressure	n/a bar
- Temperature	n/a degC
- Vena Contracta Velocity (exit velocity for pipe releases)	n/a m/s
- Discharge Coefficient	n/a
Final data (after atmospheric expansion):	
- Temperature	25.04 degC
- Liquid Mass Fraction	1.00 fraction
- Droplet Diameter	1,623.11 um
- Expanded Radius	n/a m
- Velocity	11.93 m/s

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Consequence Results

Pool Vaporization Results

Path: \Terminal Adonai - Efeitos físicos\Simulações\H055

		Dia	Noite
	Release Segment 1		
Release Duration	s	600	600
Liquid Rainout	fraction	0.993181	0.994328
	Release Segment 1 Cloud Segment 1		
Cloud Segment Duration	s	88.36	85.5625
Pool Vaporization Rate	kg/s	0.46075	0.343334
Total Vapor Flowrate	kg/s	1.62714	1.31346
	Release Segment 1 Cloud Segment 2		
Cloud Segment Duration	s	37.6406	37.6475
Pool Vaporization Rate	kg/s	1.08184	0.782149
Total Vapor Flowrate	kg/s	2.24823	1.75227
	Release Segment 1 Cloud Segment 3		
Cloud Segment Duration	s	29.0019	29.3125
Pool Vaporization Rate	kg/s	1.39771	0.999852
Total Vapor Flowrate	kg/s	2.56409	1.96998
	Release Segment 1 Cloud Segment 4		
Cloud Segment Duration	s	25.2281	25.0331
Pool Vaporization Rate	kg/s	1.65041	1.16971
Total Vapor Flowrate	kg/s	2.8168	2.13983
	Release Segment 1 Cloud Segment 5		
Cloud Segment Duration	s	22.12	42.9669
Pool Vaporization Rate	kg/s	1.86823	1.37469
Total Vapor Flowrate	kg/s	3.03462	2.34481
	Release Segment 1 Cloud Segment 6		
Cloud Segment Duration	s	38.675	379.478
Pool Vaporization Rate	kg/s	2.14416	1.73431
Total Vapor Flowrate	kg/s	3.31055	2.70443
	Release Segment 1 Cloud Segment 7		
Cloud Segment Duration	s	358.974	
Pool Vaporization Rate	kg/s	2.49371	
Total Vapor Flowrate	kg/s	3.66009	
Maximum Pool Radius	m	24.85	24.85

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Distance to Concentration Results

Path: \Terminal Adonai - Efeitos físicos\Simulações\H055

The height for user defined concentrations is the user defined height 0 m

All toxic results are reported at the toxic effect height 1 m

All flammable results are reported at the flammable effect height 0 m

Concentration(ppm)	Averaging Time		Distance (m)	
			Dia	Noite
UFL (190000)	18.75	s	5.99928	6.03328
LFL (43000)	18.75	s	16.2652	18.6855
LFL Frac (43000)	18.75	s	16.2652	18.6855

Concentration(ppm)	Averaging Time		Heights (m) for above distances	
			Dia	Noite
UFL (190000)	18.75	s	0	0
LFL (43000)	18.75	s	0	0
LFL Frac (43000)	18.75	s	0	0

Jet Fire Hazard

Path: \Terminal Adonai - Efeitos físicos\Simulações\H055

Jet fire method used: Cone model - DNV recommended

	Dia	Noite
Jet Fire Status	Truncated	Truncated
Flame Direction	Horizontal	Horizontal

Radiation Effects: Jet Fire Ellipse

Path: \Terminal Adonai - Efeitos físicos\Simulações\H055

This table gives the distances to the specified radiation levels for each jet fire listed in the above hazard table

Radiation Level			Distance (m)	
			Dia	Noite
9.83	kW/m2		45.6769	45.4133
19.46	kW/m2		40.7304	40.182
35	kW/m2		36.0164	Not Reached

Radiation Effects: Jet Fire Distance

Path: \Terminal Adonai - Efeitos físicos\Simulações\H055

	Dia	Radiation Level (kW/m2)
		Noite

Early Pool Fire Hazard

Path: \Terminal Adonai - Efeitos físicos\Simulações\H055

	Dia	Noite
Early Pool Fire Status	Hazard	Hazard

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Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Radiation Effects: Early Pool Fire Ellipse

Path: \Terminal Adonai - Efeitos físicos\Simulações\H055

			Dia	Noite
Radiation Level	9.83	kW/m2	67.9797	66.3273
Radiation Level	19.46	kW/m2	52.0074	49.3783
Radiation Level	35	kW/m2	34.6618	32.9576

Radiation Effects: Early Pool Fire Distance

Path: \Terminal Adonai - Efeitos físicos\Simulações\H055

	Dia	Noite
Radiation Level (kW/m2)		

Late Pool Fire Hazard

Path: \Terminal Adonai - Efeitos físicos\Simulações\H055

	Dia	Noite
Late Pool Fire Status	Hazard	Hazard

Radiation Effects: Late Pool Fire Ellipse

Path: \Terminal Adonai - Efeitos físicos\Simulações\H055

			Dia	Noite
Radiation Level	9.83	kW/m2	67.9797	66.3273
Radiation Level	19.46	kW/m2	52.0074	49.3783
Radiation Level	35	kW/m2	34.6618	32.9576

Radiation Effects: Late Pool Fire Distance

Path: \Terminal Adonai - Efeitos físicos\Simulações\H055

	Dia	Noite
Radiation Level (kW/m2)		

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Flash Fire Envelope

Path: \Terminal Adonai - Efeitos físicos\Simulações\H055

All flammable results are reported at the flammable effect height 0 m

				Distance (m)	
				Dia	Noite
Furthest Extent	43000	ppm		16.2652	18.6855
Furthest Extent	43000	ppm		16.2652	18.6855
				Heights (m) for above distances	
				Dia	Noite
Furthest Extent	43000	ppm		0	0
Furthest Extent	43000	ppm		0	0

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Explosion Effects: Late Ignition

Path: \Terminal Adonai - Efeitos físicos\Simulações\H055

Explosion Model Used : TNT

Explosion Location Criterion: Cloud Center

All distances are measured from the Source

All flammable results are reported at the flammable effect height 0 m

			Maximum Distance (m) at Overpressure Level	
			Dia	Noite
Overpressure	0.05	bar	15.6651	15.636
Overpressure	0.1	bar	11.6211	11.603
Overpressure	0.3	bar	8.30653	8.29755
			Supplementary Data at 0.05 bar	
			Dia	Noite
Supplied Flammable Mass		kg	0.426093	0.422601
Used Flammable Mass		kg	0.426093	0.422601
Overpressure Radius		m	10.6643	10.6351
Distance to:				
- Ignition Source		m	10	10
- Cloud Front/Centre		m	10	10
- Explosion Centre		m	5.0008	5.00087
			Supplementary Data at 0.1 bar	
			Dia	Noite
Supplied Flammable Mass		kg	0.426093	0.422601
Used Flammable Mass		kg	0.426093	0.422601
Overpressure Radius		m	6.62027	6.60213
Distance to:				
- Ignition Source		m	10	10
- Cloud Front/Centre		m	10	10
- Explosion Centre		m	5.0008	5.00087
			Supplementary Data at 0.3 bar	
			Dia	Noite
Supplied Flammable Mass		kg	0.426093	0.422601
Used Flammable Mass		kg	0.426093	0.422601
Overpressure Radius		m	3.30573	3.29668
Distance to:				
- Ignition Source		m	10	10
- Cloud Front/Centre		m	10	10
- Explosion Centre		m	5.0008	5.00087

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Weather Conditions

Path: \Terminal Adonai - Efeitos físicos\Simulações\H055

		Dia	Noite
Wind Speed	m/s	3	2
Pasquill Stability		C	E
Surface Roughness Length	mm	1000	1000
Surface Roughness Parameter		0.173718	0.173718
Atmospheric Temperature	degC	25	20
Surface Temperature	degC	30	20
Relative Humidity	fraction	0.8	0.8

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

H056

Base Case

CASE Name: Data

Path: \Terminal Adonai - Efeitos físicos\Simulações\H056

User-Defined Data

Material

Material Identifier	ETHANOL
Type of Vessel	Padded Liquid
Pressure Specification	Pressure specified
Storage Pressure - gauge	0.03 bar
Temperature	25 degC
Volume Inventory	3200 m3

Scenario

Scenario Type	Leak
Phase to be Released	Liquid
Hole Diameter	15.24 mm
Building Wake Effect	None

Vessel/Tank

Duration of Interest	600 s
Method Used for Time Varying Releases	Average Rates
Tank Type	Vertical
Tank Height	22.64 m
Tank Diameter	15 m
Height of Discharge from Vessel Bottom	1 m

Location

Elevation	1 m
Use ERPG averaging time	ERPG not selected
Use IDLH averaging time	IDLH not selected
Use STEL averaging time	STEL not selected
Supply a user defined averaging time	Not supplied

Bund

Status of Bund	Bund present
Bund Area	1940 m2
[Type of Bund Surface	User-Defined (Land)]
Bund Height	3 m
[Bund Failure Modeling	Bund cannot fail]

Indoor/Outdoor

Location of release	Open air release
Outdoor Release Direction	Horizontal

Flammable

Explosion Method	TNT
Jet Fire Method	Cone Model

Dispersion

Late Ignition Location	No ignition location
Mass Inventory of material to Disperse	2.515E6 kg

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Fireball Parameters

[Mass Modification Factor	3]
[Calculation method for fireball	DNV Recommended]
[TNO model flame temperature	1727 degC]

Toxic Parameters

[Indoor Calculations	Unselected]
[Wind Dependent Exchange Rate	Case Specified]
[Building Exchange Rate	4 /hr]
[Tail Time	1800 s]
[Set averaging time equal to exposure time	Use a fixed averaging time]
[Cut-off fraction of toxic load for exposure time calculation	0.05 fraction]
[Cut-off concentration for exposure time calculations	0 fraction]

Geometry

Shape	Point
Dimension	2D
System	Absolute
East(1)	0 m
North(1)	0 m

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Path: \Terminal Adonai - Efeitos físicos\Simulações\H056

DISCHARGE DATA for Weather: Global Weathers\Dia

Wind Speed: 3.00 m/s
Wind Speed at Height (Calculated) 1.78 m/s
Pasquill Stability: C

USER-DEFINED QUANTITIES

Material ETHANOL
Scenario Leak
Inventory 2,514,864.00 kg
Fixed Duration n/a s

Stagnation data (data at upstream end for long pipe):

- Pressure 1.04 bar
- Temperature 25.00 degC
- Fluid State Non-saturated liquid

CALCULATED QUANTITIES

Mass Flow of Air (Vent from Vapor Space only) n/a
Mass Flowrate 1.74456E+000 kg/s
Release Duration 600.00 s

Orifice or pipe exit data (before atmospheric expansion):

- Pressure n/a bar
- Temperature n/a degC
- Vena Contracta Velocity (exit velocity for pipe releases) n/a m/s
- Discharge Coefficient n/a

Final data (after atmospheric expansion):

- Temperature 24.98 degC
- Liquid Mass Fraction 1.00 fraction
- Droplet Diameter 572.63 um
- Expanded Radius n/a m
- Velocity 20.28 m/s

DISCHARGE DATA for Weather: Global Weathers\Noite

Wind Speed: 2.00 m/s
Wind Speed at Height (Calculated) 0.83 m/s
Pasquill Stability: E

USER-DEFINED QUANTITIES

Material ETHANOL
Scenario Leak
Inventory 2,514,864.00 kg
Fixed Duration n/a s

Stagnation data (data at upstream end for long pipe):

- Pressure 1.04 bar
- Temperature 25.00 degC
- Fluid State Non-saturated liquid

CALCULATED QUANTITIES

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Mass Flow of Air (Vent from Vapor Space only)	n/a
Mass Flowrate	1.74456E+000 kg/s
Release Duration	600.00 s
Orifice or pipe exit data (before atmospheric expansion):	
- Pressure	n/a bar
- Temperature	n/a degC
- Vena Contracta Velocity (exit velocity for pipe releases)	n/a m/s
- Discharge Coefficient	n/a
Final data (after atmospheric expansion):	
- Temperature	24.98 degC
- Liquid Mass Fraction	1.00 fraction
- Droplet Diameter	561.63 um
- Expanded Radius	n/a m
- Velocity	20.28 m/s

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Consequence Results

Pool Vaporization Results

Path: \Terminal Adonai - Efeitos físicos\Simulações\H056

Release Segment 1			Dia	Noite
Release Duration	s		600	600
Liquid Rainout	fraction		0.93878	0.942947
Maximum Pool Radius	m		3.60371	3.61219

Distance to Concentration Results

Path: \Terminal Adonai - Efeitos físicos\Simulações\H056

The height for user defined concentrations is the user defined height 0 m
 All toxic results are reported at the toxic effect height 1 m
 All flammable results are reported at the flammable effect height 0 m

Concentration(ppm)	Averaging Time		Dia	Noite	Distance (m)
UFL (190000)	18.75	s	No Hazard	No Hazard	
LFL (43000)	18.75	s	5.10519	5.34446	
LFL Frac (43000)	18.75	s	5.10519	5.34446	
Concentration(ppm)	Averaging Time		Dia	Noite	Heights (m) for above distances
UFL (190000)	18.75	s	0	0	
LFL (43000)	18.75	s	0	0	
LFL Frac (43000)	18.75	s	0	0	

Jet Fire Hazard

Path: \Terminal Adonai - Efeitos físicos\Simulações\H056

Jet fire method used: Cone model - DNV recommended

	Dia	Noite
Jet Fire Status	Truncated	Truncated
Flame Direction	Horizontal	Horizontal

Radiation Effects: Jet Fire Ellipse

Path: \Terminal Adonai - Efeitos físicos\Simulações\H056

This table gives the distances to the specified radiation levels for each jet fire listed in the above hazard table

			Dia	Noite	Distance (m)
Radiation Level	9.83	kW/m2	15.4432	16.1553	
Radiation Level	19.46	kW/m2	13.6414	14.294	
Radiation Level	35	kW/m2	Not Reached	Not Reached	

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Radiation Effects: Jet Fire Distance

Path: \Terminal Adonai - Efeitos físicos\Simulações\H056

	Dia	Radiation Level (kW/m2)
	Noite	

Early Pool Fire Hazard

Path: \Terminal Adonai - Efeitos físicos\Simulações\H056

	Dia	Noite
Early Pool Fire Status	Hazard	Hazard

Radiation Effects: Early Pool Fire Ellipse

Path: \Terminal Adonai - Efeitos físicos\Simulações\H056

			Dia	Distance (m)
			Noite	
Radiation Level	9.83	kW/m2	17.5362	17.0294
Radiation Level	19.46	kW/m2	13.2127	12.7888
Radiation Level	35	kW/m2	10.1584	10.2142

Radiation Effects: Early Pool Fire Distance

Path: \Terminal Adonai - Efeitos físicos\Simulações\H056

	Dia	Radiation Level (kW/m2)
	Noite	

Late Pool Fire Hazard

Path: \Terminal Adonai - Efeitos físicos\Simulações\H056

	Dia	Noite
Late Pool Fire Status	Hazard	Hazard

Radiation Effects: Late Pool Fire Ellipse

Path: \Terminal Adonai - Efeitos físicos\Simulações\H056

			Dia	Distance (m)
			Noite	
Radiation Level	9.83	kW/m2	17.5362	17.0294
Radiation Level	19.46	kW/m2	13.2127	12.7888
Radiation Level	35	kW/m2	10.1584	10.2142

Radiation Effects: Late Pool Fire Distance

Path: \Terminal Adonai - Efeitos físicos\Simulações\H056

	Dia	Radiation Level (kW/m2)
	Noite	

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Flash Fire Envelope

Path: \Terminal Adonai - Efeitos físicos\Simulações\H056

All flammable results are reported at the flammable effect height 0 m

				Distance (m)	
				Dia	Noite
Furthest Extent	43000	ppm	5.10519	5.34446	
Furthest Extent	43000	ppm	5.10519	5.34446	
				Heights (m) for above distances	
				Dia	Noite
Furthest Extent	43000	ppm	0	0	
Furthest Extent	43000	ppm	0	0	

Weather Conditions

Path: \Terminal Adonai - Efeitos físicos\Simulações\H056

			Dia	Noite
Wind Speed	m/s		3	2
Pasquill Stability			C	E
Surface Roughness Length	mm		1000	1000
Surface Roughness Parameter			0.173718	0.173718
Atmospheric Temperature	degC		25	20
Surface Temperature	degC		30	20
Relative Humidity	fraction		0.8	0.8

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

H057

Base Case

CASE Name: Data

Path: \Terminal Adonai - Efeitos físicos\Simulações\H057

User-Defined Data

Material

Material Identifier ETHANOL

Scenario

Building Wake Effect None

Vessel/Tank

Release Type Continuous

Location

Elevation 1 m
Use ERPG averaging time ERPG not selected
Use IDLH averaging time IDLH not selected
Use STEL averaging time STEL not selected
Supply a user defined averaging time Not supplied

Bund

Status of Bund No bund present
[Type of Bund Surface User-Defined (Land)]
[Bund Height 0 m]
[Bund Failure Modeling Bund cannot fail]

Indoor/Outdoor

Location of release Open air release
Outdoor Release Direction Horizontal

Flammable

Explosion Method TNT
Jet Fire Method Cone Model

Dispersion

Number of Release Segments 1
Fluid Phase(1) Liquid
Discharge Velocity(1) 18.16 m/s
Droplet Diameter(1) 700.2 um
Duration of Discharge(1) 600 s
Final Temperature(1) 25.1 degC
Release Rate(1) 19.75 kg/s
Pre-Dilution Air Rates(1) 0 kg/s
Late Ignition Location No ignition location
Mass Inventory of material to Disperse 2.515E6 kg

Fireball Parameters

[Mass Modification Factor 3]
[Calculation method for fireball DNV Recommended]
[TNO model flame temperature 1727 degC]

Toxic Parameters

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

[Indoor Calculations	Unselected]
[Wind Dependent Exchange Rate	Case Specified]
[Building Exchange Rate	4 /hr]
[Tail Time	1800 s]
[Set averaging time equal to exposure time	Use a fixed averaging time]
[Cut-off fraction of toxic load for exposure time calculation	0.05 fraction]
[Cut-off concentration for exposure time calculations	0 fraction]

Geometry

Shape	Point
Dimension	2D
System	Absolute
East(1)	0 m
North(1)	0 m

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Consequence Results

Pool Vaporization Results

Path: \Terminal Adonai - Efeitos físicos\Simulações\H057

		Dia	Noite
	Release Segment 1		
Release Duration	s	600	600
Liquid Rainout	fraction	0.966077	0.96929
	Release Segment 1 Cloud Segment 1		
Cloud Segment Duration	s	193.21	182.926
Pool Vaporization Rate	kg/s	0.0909068	0.0609027
Total Vapor Flowrate	kg/s	0.760881	0.667419
	Release Segment 1 Cloud Segment 2		
Cloud Segment Duration	s	79.04	78.705
Pool Vaporization Rate	kg/s	0.224285	0.142439
Total Vapor Flowrate	kg/s	0.894259	0.748955
	Release Segment 1 Cloud Segment 3		
Cloud Segment Duration	s	59.9006	60.5719
Pool Vaporization Rate	kg/s	0.29382	0.183786
Total Vapor Flowrate	kg/s	0.963794	0.790303
	Release Segment 1 Cloud Segment 4		
Cloud Segment Duration	s	51.03	52.22
Pool Vaporization Rate	kg/s	0.34942	0.216529
Total Vapor Flowrate	kg/s	1.01939	0.823045
	Release Segment 1 Cloud Segment 5		
Cloud Segment Duration	s	44.275	45.8275
Pool Vaporization Rate	kg/s	0.397119	0.244517
Total Vapor Flowrate	kg/s	1.06709	0.851033
	Release Segment 1 Cloud Segment 6		
Cloud Segment Duration	s	77.67	80.3906
Pool Vaporization Rate	kg/s	0.457939	0.279927
Total Vapor Flowrate	kg/s	1.12791	0.886444
	Release Segment 1 Cloud Segment 7		
Cloud Segment Duration	s	94.8744	99.3594
Pool Vaporization Rate	kg/s	0.543466	0.329357
Total Vapor Flowrate	kg/s	1.21344	0.935874
Maximum Pool Radius	m	12.3093	12.3283

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Distance to Concentration Results

Path: \Terminal Adonai - Efeitos físicos\Simulações\H057

The height for user defined concentrations is the user defined height 0 m
All toxic results are reported at the toxic effect height 1 m
All flammable results are reported at the flammable effect height 0 m

Concentration(ppm)	Averaging Time		Distance (m)	
			Dia	Noite
UFL (190000)	18.75	s	6.92208	6.99367
LFL (43000)	18.75	s	7.29813	7.34786
LFL Frac (43000)	18.75	s	7.29813	7.34786

Concentration(ppm)	Averaging Time		Heights (m) for above distances	
			Dia	Noite
UFL (190000)	18.75	s	0	0
LFL (43000)	18.75	s	0	0
LFL Frac (43000)	18.75	s	0	0

Jet Fire Hazard

Path: \Terminal Adonai - Efeitos físicos\Simulações\H057

Jet fire method used: Cone model - DNV recommended

	Dia	Noite
Jet Fire Status	Truncated	Truncated
Flame Direction	Horizontal	Horizontal

Radiation Effects: Jet Fire Ellipse

Path: \Terminal Adonai - Efeitos físicos\Simulações\H057

This table gives the distances to the specified radiation levels
for each jet fire listed in the above hazard table

Radiation Level			Distance (m)	
			Dia	Noite
9.83	kW/m2		35.1195	36.2609
19.46	kW/m2		31.2031	32.0446
35	kW/m2		27.5644	Not Reached

Radiation Effects: Jet Fire Distance

Path: \Terminal Adonai - Efeitos físicos\Simulações\H057

	Dia	Radiation Level (kW/m2)
		Noite

Early Pool Fire Hazard

Path: \Terminal Adonai - Efeitos físicos\Simulações\H057

	Dia	Noite
Early Pool Fire Status	Hazard	Hazard

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Radiation Effects: Early Pool Fire Ellipse

Path: \Terminal Adonai - Efeitos físicos\Simulações\H057

			Dia	Noite
Radiation Level	9.83	kW/m2	43.5009	42.4575
Radiation Level	19.46	kW/m2	34.4817	32.8293
Radiation Level	35	kW/m2	23.2701	22.7684

Radiation Effects: Early Pool Fire Distance

Path: \Terminal Adonai - Efeitos físicos\Simulações\H057

Dia
Noite

Radiation Level (kW/m2)

Late Pool Fire Hazard

Path: \Terminal Adonai - Efeitos físicos\Simulações\H057

	Dia	Noite
Late Pool Fire Status	Hazard	Hazard

Radiation Effects: Late Pool Fire Ellipse

Path: \Terminal Adonai - Efeitos físicos\Simulações\H057

			Dia	Noite
Radiation Level	9.83	kW/m2	43.5009	42.4575
Radiation Level	19.46	kW/m2	34.4817	32.8293
Radiation Level	35	kW/m2	23.2701	22.7684

Radiation Effects: Late Pool Fire Distance

Path: \Terminal Adonai - Efeitos físicos\Simulações\H057

Dia

Radiation Level (kW/m2)

Noite

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Flash Fire Envelope

Path: \Terminal Adonai - Efeitos físicos\Simulações\H057

All flammable results are reported at the flammable effect height 0 m

				Distance (m)	
				Dia	Noite
Furthest Extent	43000	ppm	7.29813	7.29813	7.34786
Furthest Extent	43000	ppm	7.29813	7.29813	7.34786
				Heights (m) for above distances	
				Dia	Noite
Furthest Extent	43000	ppm	0	0	0
Furthest Extent	43000	ppm	0	0	0

Weather Conditions

Path: \Terminal Adonai - Efeitos físicos\Simulações\H057

			Dia	Noite
Wind Speed	m/s		3	2
Pasquill Stability			C	E
Surface Roughness Length	mm		1000	1000
Surface Roughness Parameter			0.173718	0.173718
Atmospheric Temperature	degC		25	20
Surface Temperature	degC		30	20
Relative Humidity	fraction		0.8	0.8

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

H058

Base Case

CASE Name: Data

Path: \Terminal Adonai - Efeitos físicos\Simulações\H058

User-Defined Data

Material

Material Identifier ETHANOL

Scenario

Building Wake Effect None

Vessel/Tank

Release Type Continuous

Location

Elevation 1 m
Use ERPG averaging time ERPG not selected
Use IDLH averaging time IDLH not selected
Use STEL averaging time STEL not selected
Supply a user defined averaging time Not supplied

Bund

Status of Bund No bund present
[Type of Bund Surface User-Defined (Land)]
[Bund Height 0 m]
[Bund Failure Modeling Bund cannot fail]

Indoor/Outdoor

Location of release Open air release
Outdoor Release Direction Horizontal

Flammable

Explosion Method TNT
Jet Fire Method Cone Model

Dispersion

Number of Release Segments 1
Fluid Phase(1) Liquid
Discharge Velocity(1) 30.26 m/s
Droplet Diameter(1) 252.3 um
Duration of Discharge(1) 600 s
Final Temperature(1) 24.95 degC
Release Rate(1) 0.2 kg/s
Pre-Dilution Air Rates(1) 0 kg/s
Late Ignition Location No ignition location
Mass Inventory of material to Disperse 2.515E6 kg

Fireball Parameters

[Mass Modification Factor 3]
[Calculation method for fireball DNV Recommended]
[TNO model flame temperature 1727 degC]

Toxic Parameters

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

[Indoor Calculations	Unselected]
[Wind Dependent Exchange Rate	Case Specified]
[Building Exchange Rate	4 /hr]
[Tail Time	1800 s]
[Set averaging time equal to exposure time	Use a fixed averaging time]
[Cut-off fraction of toxic load for exposure time calculation	0.05 fraction]
[Cut-off concentration for exposure time calculations	0 fraction]

Geometry

Shape	Point
Dimension	2D
System	Absolute
East(1)	0 m
North(1)	0 m

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Consequence Results

Pool Vaporization Results

Path: \Terminal Adonai - Efeitos físicos\Simulações\H058

			Dia	Noite
		Release Segment 1		
Release Duration	s		600	600
Liquid Rainout	fraction		0.794031	0.831947
Maximum Pool Radius	m		1.11994	1.14839

Distance to Concentration Results

Path: \Terminal Adonai - Efeitos físicos\Simulações\H058

The height for user defined concentrations is the user defined height 0 m
All toxic results are reported at the toxic effect height 1 m
All flammable results are reported at the flammable effect height 0 m

Concentration(ppm)		Averaging Time		Distance (m)	
				Dia	Noite
UFL (190000)	18.75	s		No Hazard	No Hazard
LFL (43000)	18.75	s		No Hazard	No Hazard
LFL Frac (43000)	18.75	s		No Hazard	No Hazard
Concentration(ppm)		Averaging Time		Heights (m) for above distances	
				Dia	Noite
UFL (190000)	18.75	s		0	0
LFL (43000)	18.75	s		0	0
LFL Frac (43000)	18.75	s		0	0

Jet Fire Hazard

Path: \Terminal Adonai - Efeitos físicos\Simulações\H058

Jet fire method used: Cone model - DNV recommended

		Dia	Noite
Jet Fire Status		Truncated	Truncated
Flame Direction		Horizontal	Horizontal

Radiation Effects: Jet Fire Ellipse

Path: \Terminal Adonai - Efeitos físicos\Simulações\H058

This table gives the distances to the specified radiation levels
for each jet fire listed in the above hazard table

				Distance (m)	
				Dia	Noite
Radiation Level	9.83	kW/m2		9.67757	9.53288
Radiation Level	19.46	kW/m2		8.89482	9.09568
Radiation Level	35	kW/m2		Not Reached	Not Reached

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Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Radiation Effects: Jet Fire Distance

Path: \Terminal Adonai - Efeitos físicos\Simulações\H058

Dia Radiation Level (kW/m2)
Noite

Early Pool Fire Hazard

Path: \Terminal Adonai - Efeitos físicos\Simulações\H058

Early Pool Fire Status Dia Noite
Hazard Hazard

Radiation Effects: Early Pool Fire Ellipse

Path: \Terminal Adonai - Efeitos físicos\Simulações\H058

			Dia	Noite
Radiation Level	9.83	kW/m2	9.43593	8.83654
Radiation Level	19.46	kW/m2	7.40336	7.04505
Radiation Level	35	kW/m2	7.40336	7.04505

Radiation Effects: Early Pool Fire Distance

Path: \Terminal Adonai - Efeitos físicos\Simulações\H058

Dia Radiation Level (kW/m2)
Noite

Late Pool Fire Hazard

Path: \Terminal Adonai - Efeitos físicos\Simulações\H058

Late Pool Fire Status Dia Noite
Hazard Hazard

Radiation Effects: Late Pool Fire Ellipse

Path: \Terminal Adonai - Efeitos físicos\Simulações\H058

			Dia	Noite
Radiation Level	9.83	kW/m2	9.43593	8.83654
Radiation Level	19.46	kW/m2	7.40336	7.04505
Radiation Level	35	kW/m2	7.40336	7.04505

Radiation Effects: Late Pool Fire Distance

Path: \Terminal Adonai - Efeitos físicos\Simulações\H058

Dia Radiation Level (kW/m2)
Noite

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Weather Conditions

Path: \Terminal Adonai - Efeitos físicos\Simulações\H058

		Dia	Noite
Wind Speed	m/s	3	2
Pasquill Stability		C	E
Surface Roughness Length	mm	1000	1000
Surface Roughness Parameter		0.173718	0.173718
Atmospheric Temperature	degC	25	20
Surface Temperature	degC	30	20
Relative Humidity	fraction	0.8	0.8

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

H059

Base Case

CASE Name: Data

Path: \Terminal Adonai - Efeitos físicos\Simulações\H059

User-Defined Data

Material

Material Identifier ETHANOL

Scenario

Building Wake Effect None

Vessel/Tank

Release Type Continuous

Location

Elevation 3 m
Use ERPG averaging time ERPG not selected
Use IDLH averaging time IDLH not selected
Use STEL averaging time STEL not selected
Supply a user defined averaging time Not supplied

Bund

Status of Bund No bund present
[Type of Bund Surface User-Defined (Land)]
[Bund Height 0 m]
[Bund Failure Modeling Bund cannot fail]

Indoor/Outdoor

Location of release Open air release
Outdoor Release Direction Horizontal

Flammable

Explosion Method TNT
Jet Fire Method Cone Model

Dispersion

Number of Release Segments 1
Fluid Phase(1) Liquid
Discharge Velocity(1) 18.16 m/s
Droplet Diameter(1) 700.2 um
Duration of Discharge(1) 600 s
Final Temperature(1) 25.1 degC
Release Rate(1) 19.75 kg/s
Pre-Dilution Air Rates(1) 0 kg/s
Late Ignition Location No ignition location
Mass Inventory of material to Disperse 2.515E6 kg

Fireball Parameters

[Mass Modification Factor 3]
[Calculation method for fireball DNV Recommended]
[TNO model flame temperature 1727 degC]

Toxic Parameters

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

[Indoor Calculations	Unselected]
[Wind Dependent Exchange Rate	Case Specified]
[Building Exchange Rate	4 /hr]
[Tail Time	1800 s]
[Set averaging time equal to exposure time	Use a fixed averaging time]
[Cut-off fraction of toxic load for exposure time calculation	0.05 fraction]
[Cut-off concentration for exposure time calculations	0 fraction]

Geometry

Shape	Point
Dimension	2D
System	Absolute
East(1)	0 m
North(1)	0 m

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Consequence Results

Pool Vaporization Results

Path: \Terminal Adonai - Efeitos físicos\Simulações\H059

		Dia	Noite
	Release Segment 1		
Release Duration	s	600	600
Liquid Rainout	fraction	0.942161	0.949459
	Release Segment 1 Cloud Segment 1		
Cloud Segment Duration	s	200.223	189.751
Pool Vaporization Rate	kg/s	0.073867	0.0494933
Total Vapor Flowrate	kg/s	1.2162	1.04769
	Release Segment 1 Cloud Segment 2		
Cloud Segment Duration	s	78.6675	78.39
Pool Vaporization Rate	kg/s	0.188804	0.119347
Total Vapor Flowrate	kg/s	1.33113	1.11754
	Release Segment 1 Cloud Segment 3		
Cloud Segment Duration	s	59.67	60.375
Pool Vaporization Rate	kg/s	0.249801	0.155371
Total Vapor Flowrate	kg/s	1.39213	1.15356
	Release Segment 1 Cloud Segment 4		
Cloud Segment Duration	s	49.53	50.76
Pool Vaporization Rate	kg/s	0.298787	0.184053
Total Vapor Flowrate	kg/s	1.44112	1.18225
	Release Segment 1 Cloud Segment 5		
Cloud Segment Duration	s	43.5106	45.0844
Pool Vaporization Rate	kg/s	0.340897	0.208645
Total Vapor Flowrate	kg/s	1.48323	1.20684
	Release Segment 1 Cloud Segment 6		
Cloud Segment Duration	s	75.775	78.5206
Pool Vaporization Rate	kg/s	0.395209	0.240134
Total Vapor Flowrate	kg/s	1.53754	1.23833
	Release Segment 1 Cloud Segment 7		
Cloud Segment Duration	s	92.6244	97.1194
Pool Vaporization Rate	kg/s	0.472156	0.284453
Total Vapor Flowrate	kg/s	1.61448	1.28265
Maximum Pool Radius	m	12.1556	12.1965

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Distance to Concentration Results

Path: \Terminal Adonai - Efeitos físicos\Simulações\H059

The height for user defined concentrations is the user defined height 0 m
All toxic results are reported at the toxic effect height 1 m
All flammable results are reported at the flammable effect height 0 m

Concentration(ppm)	Averaging Time		Distance (m)	
			Dia	Noite
UFL (190000)	18.75	s	No Hazard	No Hazard
LFL (43000)	18.75	s	10.8374	11.0763
LFL Frac (43000)	18.75	s	10.8374	11.0763

Concentration(ppm)	Averaging Time		Heights (m) for above distances	
			Dia	Noite
UFL (190000)	18.75	s	0	0
LFL (43000)	18.75	s	0	0
LFL Frac (43000)	18.75	s	0	0

Jet Fire Hazard

Path: \Terminal Adonai - Efeitos físicos\Simulações\H059

Jet fire method used: Cone model - DNV recommended

	Dia	Noite
Jet Fire Status	Truncated	Truncated
Flame Direction	Horizontal	Horizontal

Radiation Effects: Jet Fire Ellipse

Path: \Terminal Adonai - Efeitos físicos\Simulações\H059

This table gives the distances to the specified radiation levels
for each jet fire listed in the above hazard table

Radiation Level			Distance (m)	
			Dia	Noite
9.83	kW/m2		43.8919	44.6356
19.46	kW/m2		38.9445	39.5391
35	kW/m2		34.4783	Not Reached

Radiation Effects: Jet Fire Distance

Path: \Terminal Adonai - Efeitos físicos\Simulações\H059

	Dia	Radiation Level (kW/m2)
		Noite

Early Pool Fire Hazard

Path: \Terminal Adonai - Efeitos físicos\Simulações\H059

	Dia	Noite
Early Pool Fire Status	Hazard	Hazard

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Radiation Effects: Early Pool Fire Ellipse

Path: \Terminal Adonai - Efeitos físicos\Simulações\H059

			Dia	Noite
Radiation Level	9.83	kW/m2	47.1861	46.2297
Radiation Level	19.46	kW/m2	38.2559	36.6825
Radiation Level	35	kW/m2	27.1524	26.7072

Radiation Effects: Early Pool Fire Distance

Path: \Terminal Adonai - Efeitos físicos\Simulações\H059

	Dia	Noite
Radiation Level (kW/m2)		

Late Pool Fire Hazard

Path: \Terminal Adonai - Efeitos físicos\Simulações\H059

	Dia	Noite
Late Pool Fire Status	Hazard	Hazard

Radiation Effects: Late Pool Fire Ellipse

Path: \Terminal Adonai - Efeitos físicos\Simulações\H059

			Dia	Noite
Radiation Level	9.83	kW/m2	47.1861	46.2297
Radiation Level	19.46	kW/m2	38.2559	36.6825
Radiation Level	35	kW/m2	27.1524	26.7072

Radiation Effects: Late Pool Fire Distance

Path: \Terminal Adonai - Efeitos físicos\Simulações\H059

	Dia	Noite
Radiation Level (kW/m2)		

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Flash Fire Envelope

Path: \Terminal Adonai - Efeitos físicos\Simulações\H059

All flammable results are reported at the flammable effect height 0 m

				Distance (m)	
				Dia	Noite
Furthest Extent	43000	ppm	10.8374	10.8374	11.0763
Furthest Extent	43000	ppm	10.8374	10.8374	11.0763
				Heights (m) for above distances	
				Dia	Noite
Furthest Extent	43000	ppm	0	0	0
Furthest Extent	43000	ppm	0	0	0

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Explosion Effects: Late Ignition

Path: \Terminal Adonai - Efeitos físicos\Simulações\H059

Explosion Model Used : TNT

Explosion Location Criterion: Cloud Center

All distances are measured from the Source

All flammable results are reported at the flammable effect height 0 m

			Maximum Distance (m) at Overpressure Level	
			Dia	Noite
Overpressure	0.05	bar	15.0494	No Hazard
Overpressure	0.1	bar	11.3244	No Hazard
Overpressure	0.3	bar	8.27141	No Hazard
			Supplementary Data at 0.05 bar	
			Dia	Noite
Supplied Flammable Mass		kg	0.332981	No Hazard
Used Flammable Mass		kg	0.332981	No Hazard
Overpressure Radius		m	9.82287	0
Distance to:				
- Ignition Source		m	10	No Hazard
- Cloud Front/Centre		m	10	No Hazard
- Explosion Centre		m	5.22652	0
			Supplementary Data at 0.1 bar	
			Dia	Noite
Supplied Flammable Mass		kg	0.332981	No Hazard
Used Flammable Mass		kg	0.332981	No Hazard
Overpressure Radius		m	6.0979	0
Distance to:				
- Ignition Source		m	10	No Hazard
- Cloud Front/Centre		m	10	No Hazard
- Explosion Centre		m	5.22652	0
			Supplementary Data at 0.3 bar	
			Dia	Noite
Supplied Flammable Mass		kg	0.332981	No Hazard
Used Flammable Mass		kg	0.332981	No Hazard
Overpressure Radius		m	3.0449	0
Distance to:				
- Ignition Source		m	10	No Hazard
- Cloud Front/Centre		m	10	No Hazard
- Explosion Centre		m	5.22652	0

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Weather Conditions

Path: \Terminal Adonai - Efeitos físicos\Simulações\H059

		Dia	Noite
Wind Speed	m/s	3	2
Pasquill Stability		C	E
Surface Roughness Length	mm	1000	1000
Surface Roughness Parameter		0.173718	0.173718
Atmospheric Temperature	degC	25	20
Surface Temperature	degC	30	20
Relative Humidity	fraction	0.8	0.8

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

H060

Base Case

CASE Name: Data

Path: \Terminal Adonai - Efeitos físicos\Simulações\H060

User-Defined Data

Toxic Parameters

[Wind Dependent Exchange Rate	Case Specified]
[Building Exchange Rate	4 /hr]
[Tail Time	1800 s]
[Set averaging time equal to exposure time	Use a fixed averaging time]
[Cut-off fraction of toxic load for exposure time calculation	0.05 fraction]
[Cut-off concentration for exposure time calculations	0 fraction]

Geometry

Shape	Point
Dimension	2D
System	Absolute
East(1)	0 m
North(1)	0 m

Material

Material Identifier	ETHANOL
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Scenario

Building Wake Effect	None
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Vessel/Tank

Release Type	Continuous
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Location

Elevation	3 m
Use ERPG averaging time	ERPG not selected
Use IDLH averaging time	IDLH not selected
Use STEL averaging time	STEL not selected
Supply a user defined averaging time	Not supplied

Bund

Status of Bund	No bund present
[Type of Bund Surface	User-Defined (Land)]
[Bund Height	0 m]
[Bund Failure Modeling	Bund cannot fail]

Indoor/Outdoor

Location of release	Open air release
Outdoor Release Direction	Horizontal

Flammable

Explosion Method	TNT
Jet Fire Method	Cone Model

Dispersion

Number of Release Segments	1
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SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Fluid Phase(1)	Liquid
Discharge Velocity(1)	30.26 m/s
Droplet Diameter(1)	252.3 um
Duration of Discharge(1)	600 s
Final Temperature(1)	24.95 degC
Release Rate(1)	0.2 kg/s
Pre-Dilution Air Rates(1)	0 kg/s
Late Ignition Location	No ignition location
Mass Inventory of material to Disperse	2.515E6 kg

Fireball Parameters

[Mass Modification Factor	3]
[Calculation method for fireball	DNV Recommended]
[TNO model flame temperature	1727 degC]

Toxic Parameters

[Indoor Calculations	Unselected]
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SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Consequence Results

Pool Vaporization Results

Path: \Terminal Adonai - Efeitos físicos\Simulações\H060

Release Segment 1		Dia	Noite
Release Duration	s	600	600
Liquid Rainout	fraction	0.494357	0.624961
Maximum Pool Radius	m	0.883103	0.995241

Distance to Concentration Results

Path: \Terminal Adonai - Efeitos físicos\Simulações\H060

The height for user defined concentrations is the user defined height 0 m
All toxic results are reported at the toxic effect height 1 m
All flammable results are reported at the flammable effect height 0 m

Concentration(ppm)	Averaging Time		Dia	Noite
UFL (190000)	18.75	s	No Hazard	No Hazard
LFL (43000)	18.75	s	No Hazard	No Hazard
LFL Frac (43000)	18.75	s	No Hazard	No Hazard

Concentration(ppm)	Averaging Time		Dia	Noite	Heights (m) for above distances
UFL (190000)	18.75	s	0	0	0
LFL (43000)	18.75	s	0	0	0
LFL Frac (43000)	18.75	s	0	0	0

Jet Fire Hazard

Path: \Terminal Adonai - Efeitos físicos\Simulações\H060

Jet fire method used: Cone model - DNV recommended

	Dia	Noite
Jet Fire Status	Hazard	Hazard
Flame Direction	Horizontal	Horizontal

Radiation Effects: Jet Fire Ellipse

Path: \Terminal Adonai - Efeitos físicos\Simulações\H060

This table gives the distances to the specified radiation levels
for each jet fire listed in the above hazard table

			Dia	Noite
Radiation Level	9.83	kW/m2	9.51016	10.6341
Radiation Level	19.46	kW/m2	Not Reached	Not Reached
Radiation Level	35	kW/m2	Not Reached	Not Reached

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Radiation Effects: Jet Fire Distance

Path: \Terminal Adonai - Efeitos físicos\Simulações\H060

Dia Radiation Level (kW/m2)
Noite

Early Pool Fire Hazard

Path: \Terminal Adonai - Efeitos físicos\Simulações\H060

Early Pool Fire Status Dia Noite
Hazard Hazard

Radiation Effects: Early Pool Fire Ellipse

Path: \Terminal Adonai - Efeitos físicos\Simulações\H060

			Dia	Noite
Radiation Level	9.83	kW/m2	14.8344	12.2531
Radiation Level	19.46	kW/m2	13.3992	10.8168
Radiation Level	35	kW/m2	Not Reached	10.8168

Radiation Effects: Early Pool Fire Distance

Path: \Terminal Adonai - Efeitos físicos\Simulações\H060

Dia Radiation Level (kW/m2)
Noite

Late Pool Fire Hazard

Path: \Terminal Adonai - Efeitos físicos\Simulações\H060

Late Pool Fire Status Dia Noite
Hazard Hazard

Radiation Effects: Late Pool Fire Ellipse

Path: \Terminal Adonai - Efeitos físicos\Simulações\H060

			Dia	Noite
Radiation Level	9.83	kW/m2	14.8344	12.2531
Radiation Level	19.46	kW/m2	13.3992	10.8168
Radiation Level	35	kW/m2	Not Reached	10.8168

Radiation Effects: Late Pool Fire Distance

Path: \Terminal Adonai - Efeitos físicos\Simulações\H060

Dia Radiation Level (kW/m2)
Noite

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Weather Conditions

Path: \Terminal Adonai - Efeitos físicos\Simulações\H060

		Dia	Noite
Wind Speed	m/s	3	2
Pasquill Stability		C	E
Surface Roughness Length	mm	1000	1000
Surface Roughness Parameter		0.173718	0.173718
Atmospheric Temperature	degC	25	20
Surface Temperature	degC	30	20
Relative Humidity	fraction	0.8	0.8

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

H061

Base Case

CASE Name: Data

Path: \Terminal Adonai - Efeitos físicos\Simulações\H061

User-Defined Data

Material

Material Identifier METHANOL

Scenario

Building Wake Effect None

Vessel/Tank

Release Type Continuous

Location

Elevation 0 m
Use ERPG averaging time ERPG not selected
Use IDLH averaging time IDLH not selected
Use STEL averaging time STEL not selected
Supply a user defined averaging time Not supplied

Bund

Status of Bund Bund present
Bund Area 1.152E4 m2
[Type of Bund Surface User-Defined (Land)]
Bund Height 0.3 m
[Bund Failure Modeling Bund cannot fail]

Indoor/Outdoor

Location of release Open air release
Outdoor Release Direction Horizontal

Flammable

Explosion Method TNT
Jet Fire Method Cone Model

Dispersion

Number of Release Segments 1
Fluid Phase(1) Liquid
Discharge Velocity(1) 21.96 m/s
Droplet Diameter(1) 481.3 um
Duration of Discharge(1) 600 s
Final Temperature(1) 25.12 degC
Release Rate(1) 99 kg/s
Pre-Dilution Air Rates(1) 0 kg/s
Late Ignition Location No ignition location
Mass Inventory of material to Disperse 2.369E6 kg

Fireball Parameters

[Mass Modification Factor 3]
[Calculation method for fireball DNV Recommended]
[TNO model flame temperature 1727 degC]

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Toxic Parameters

[Indoor Calculations	Unselected]
[Wind Dependent Exchange Rate	Case Specified]
[Building Exchange Rate	4 /hr]
[Tail Time	1800 s]
[Set averaging time equal to exposure time	Use a fixed averaging time]
[Cut-off fraction of toxic load for exposure time calculation	0.05 fraction]
[Cut-off concentration for exposure time calculations	0 fraction]

Geometry

Shape	Point
Dimension	2D
System	Absolute
East(1)	0 m
North(1)	0 m

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Consequence Results

Pool Vaporization Results

Path: \Terminal Adonai - Efeitos físicos\Simulações\H061

		Dia	Noite
	Release Segment 1		
Release Duration	s	600	600
Liquid Rainout	fraction	1	1
	Release Segment 1 Cloud Segment 1		
Cloud Segment Duration	s	171.61	165.766
Pool Vaporization Rate	kg/s	0.943911	0.687045
Total Vapor Flowrate	kg/s	0.943933	0.687068
	Release Segment 1 Cloud Segment 2		
Cloud Segment Duration	s	77.2406	76.815
Pool Vaporization Rate	kg/s	2.09134	1.48205
Total Vapor Flowrate	kg/s	2.09136	1.48207
	Release Segment 1 Cloud Segment 3		
Cloud Segment Duration	s	61.79	61.9219
Pool Vaporization Rate	kg/s	2.64474	1.85787
Total Vapor Flowrate	kg/s	2.64476	1.8579
	Release Segment 1 Cloud Segment 4		
Cloud Segment Duration	s	53.215	53.6531
Pool Vaporization Rate	kg/s	3.07388	2.14606
Total Vapor Flowrate	kg/s	3.0739	2.14608
	Release Segment 1 Cloud Segment 5		
Cloud Segment Duration	s	90.9	92.345
Pool Vaporization Rate	kg/s	3.5818	2.48443
Total Vapor Flowrate	kg/s	3.58182	2.48445
	Release Segment 1 Cloud Segment 6		
Cloud Segment Duration	s	115.26	118.322
Pool Vaporization Rate	kg/s	4.26632	2.93674
Total Vapor Flowrate	kg/s	4.26634	2.93676
	Release Segment 1 Cloud Segment 7		
Cloud Segment Duration	s	29.9844	31.1775
Pool Vaporization Rate	kg/s	4.7265	3.23898
Total Vapor Flowrate	kg/s	4.72652	3.239
Maximum Pool Radius	m	27.7887	27.8447

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Distance to Concentration Results

Path: \Terminal Adonai - Efeitos físicos\Simulações\H061

The height for user defined concentrations is the user defined height 0 m
All toxic results are reported at the toxic effect height 1 m
All flammable results are reported at the flammable effect height 0 m

Concentration(ppm)	Averaging Time		Distance (m)	
			Dia	Noite
UFL (360000)	18.75	s	0	0
LFL (73000)	18.75	s	0	0
LFL Frac (73000)	18.75	s	0	0

Concentration(ppm)	Averaging Time		Heights (m) for above distances	
			Dia	Noite
UFL (360000)	18.75	s	0	0
LFL (73000)	18.75	s	0	0
LFL Frac (73000)	18.75	s	0	0

Jet Fire Hazard

Path: \Terminal Adonai - Efeitos físicos\Simulações\H061

Jet fire method used: Cone model - DNV recommended

	Dia	Noite
Jet Fire Status	Truncated	Truncated
Flame Direction	Horizontal	Horizontal

Radiation Effects: Jet Fire Ellipse

Path: \Terminal Adonai - Efeitos físicos\Simulações\H061

This table gives the distances to the specified radiation levels
for each jet fire listed in the above hazard table

			Distance (m)	
Radiation Level			Dia	Noite
9.83	kW/m2		Not Reached	Not Reached
19.46	kW/m2		Not Reached	Not Reached
35	kW/m2		Not Reached	Not Reached

Radiation Effects: Jet Fire Distance

Path: \Terminal Adonai - Efeitos físicos\Simulações\H061

	Dia	Radiation Level (kW/m2)
		Noite

Early Pool Fire Hazard

Path: \Terminal Adonai - Efeitos físicos\Simulações\H061

	Dia	Noite
Early Pool Fire Status	Hazard	Hazard

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Radiation Effects: Early Pool Fire Ellipse

Path: \Terminal Adonai - Efeitos físicos\Simulações\H061

			Dia	Noite
Radiation Level	9.83	kW/m2	54.6965	53.0164
Radiation Level	19.46	kW/m2	39.1424	37.2883
Radiation Level	35	kW/m2	28.7887	28.8447

Radiation Effects: Early Pool Fire Distance

Path: \Terminal Adonai - Efeitos físicos\Simulações\H061

	Dia	Noite
Radiation Level (kW/m2)		

Late Pool Fire Hazard

Path: \Terminal Adonai - Efeitos físicos\Simulações\H061

	Dia	Noite
Late Pool Fire Status	Hazard	Hazard

Radiation Effects: Late Pool Fire Ellipse

Path: \Terminal Adonai - Efeitos físicos\Simulações\H061

			Dia	Noite
Radiation Level	9.83	kW/m2	54.6965	53.0164
Radiation Level	19.46	kW/m2	39.1424	37.2883
Radiation Level	35	kW/m2	28.7887	28.8447

Radiation Effects: Late Pool Fire Distance

Path: \Terminal Adonai - Efeitos físicos\Simulações\H061

	Dia	Noite
Radiation Level (kW/m2)		

Weather Conditions

Path: \Terminal Adonai - Efeitos físicos\Simulações\H061

		Dia	Noite
Wind Speed	m/s	3	2
Pasquill Stability		C	E
Surface Roughness Length	mm	1000	1000
Surface Roughness Parameter		0.173718	0.173718
Atmospheric Temperature	degC	25	20
Surface Temperature	degC	30	20
Relative Humidity	fraction	0.8	0.8

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

H062

Base Case

CASE Name: Data

Path: \Terminal Adonai - Efeitos físicos\Simulações\H062

User-Defined Data

Material

Material Identifier METHANOL

Scenario

Building Wake Effect None

Vessel/Tank

Release Type Continuous

Location

Elevation 0 m
Use ERPG averaging time ERPG not selected
Use IDLH averaging time IDLH not selected
Use STEL averaging time STEL not selected
Supply a user defined averaging time Not supplied

Bund

Status of Bund Bund present
Bund Area 1.152E4 m2
[Type of Bund Surface User-Defined (Land)]
Bund Height 0.3 m
[Bund Failure Modeling Bund cannot fail]

Indoor/Outdoor

Location of release Open air release
Outdoor Release Direction Horizontal

Flammable

Explosion Method TNT
Jet Fire Method Cone Model

Dispersion

Number of Release Segments 1
Fluid Phase(1) Liquid
Discharge Velocity(1) 36.6 m/s
Droplet Diameter(1) 173.5 um
Duration of Discharge(1) 600 s
Final Temperature(1) 24.94 degC
Release Rate(1) 0.99 kg/s
Pre-Dilution Air Rates(1) 0 kg/s
Late Ignition Location No ignition location
Mass Inventory of material to Disperse 2.369E6 kg

Fireball Parameters

[Mass Modification Factor 3]
[Calculation method for fireball DNV Recommended]
[TNO model flame temperature 1727 degC]

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Toxic Parameters

[Indoor Calculations	Unselected]
[Wind Dependent Exchange Rate	Case Specified]
[Building Exchange Rate	4 /hr]
[Tail Time	1800 s]
[Set averaging time equal to exposure time	Use a fixed averaging time]
[Cut-off fraction of toxic load for exposure time calculation	0.05 fraction]
[Cut-off concentration for exposure time calculations	0 fraction]

Geometry

Shape	Point
Dimension	2D
System	Absolute
East(1)	0 m
North(1)	0 m

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Consequence Results

Pool Vaporization Results

Path: \Terminal Adonai - Efeitos físicos\Simulações\H062

			Dia	Noite
		Release Segment 1		
Release Duration	s		600	600
Liquid Rainout	fraction		1	1
Maximum Pool Radius	m		2.76626	2.77816

Distance to Concentration Results

Path: \Terminal Adonai - Efeitos físicos\Simulações\H062

The height for user defined concentrations is the user defined height 0 m
All toxic results are reported at the toxic effect height 1 m
All flammable results are reported at the flammable effect height 0 m

Concentration(ppm)		Averaging Time		Distance (m)	
				Dia	Noite
UFL (360000)	18.75	s		0	0
LFL (73000)	18.75	s		0.0020514	0.00317565
LFL Frac (73000)	18.75	s		0.0020514	0.00317565

Concentration(ppm)		Averaging Time		Heights (m) for above distances	
				Dia	Noite
UFL (360000)	18.75	s		0	0
LFL (73000)	18.75	s		0	0
LFL Frac (73000)	18.75	s		0	0

Jet Fire Hazard

Path: \Terminal Adonai - Efeitos físicos\Simulações\H062

Jet fire method used: Cone model - DNV recommended

		Dia	Noite
Jet Fire Status		No Hazard	No Hazard
Flame Direction		Horizontal	Horizontal

Early Pool Fire Hazard

Path: \Terminal Adonai - Efeitos físicos\Simulações\H062

		Dia	Noite
Early Pool Fire Status		Hazard	Hazard

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Radiation Effects: Early Pool Fire Ellipse

Path: \Terminal Adonai - Efeitos físicos\Simulações\H062

			Dia	Noite
Radiation Level	9.83	kW/m2	6.49683	6.07577
Radiation Level	19.46	kW/m2	3.76626	3.77816
Radiation Level	35	kW/m2	Not Reached	Not Reached

Radiation Effects: Early Pool Fire Distance

Path: \Terminal Adonai - Efeitos físicos\Simulações\H062

	Dia	Noite
Radiation Level (kW/m2)		

Late Pool Fire Hazard

Path: \Terminal Adonai - Efeitos físicos\Simulações\H062

	Dia	Noite
Late Pool Fire Status	Hazard	Hazard

Radiation Effects: Late Pool Fire Ellipse

Path: \Terminal Adonai - Efeitos físicos\Simulações\H062

			Dia	Noite
Radiation Level	9.83	kW/m2	6.49683	6.07577
Radiation Level	19.46	kW/m2	3.76626	3.77816
Radiation Level	35	kW/m2	Not Reached	Not Reached

Radiation Effects: Late Pool Fire Distance

Path: \Terminal Adonai - Efeitos físicos\Simulações\H062

	Dia	Noite
Radiation Level (kW/m2)		

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Flash Fire Envelope

Path: \Terminal Adonai - Efeitos físicos\Simulações\H062

All flammable results are reported at the flammable effect height 0 m

				Distance (m)	
				Dia	Noite
Furthest Extent	73000	ppm	0.0020514	0.00317565	
Furthest Extent	73000	ppm	0.0020514	0.00317565	
				Heights (m) for above distances	
				Dia	Noite
Furthest Extent	73000	ppm	0	0	
Furthest Extent	73000	ppm	0	0	

Weather Conditions

Path: \Terminal Adonai - Efeitos físicos\Simulações\H062

			Dia	Noite
Wind Speed	m/s		3	2
Pasquill Stability			C	E
Surface Roughness Length	mm		1000	1000
Surface Roughness Parameter			0.173718	0.173718
Atmospheric Temperature	degC		25	20
Surface Temperature	degC		30	20
Relative Humidity	fraction		0.8	0.8

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

H063

Base Case

CASE Name: Data

Path: \Terminal Adonai - Efeitos físicos\Simulações\H063

User-Defined Data

Material

Material Identifier METHANOL

Scenario

Building Wake Effect None

Vessel/Tank

Release Type Continuous

Location

Elevation 1 m
Use ERPG averaging time ERPG not selected
Use IDLH averaging time IDLH not selected
Use STEL averaging time STEL not selected
Supply a user defined averaging time Not supplied

Bund

Status of Bund No bund present
[Type of Bund Surface User-Defined (Land)]
[Bund Height 0 m]
[Bund Failure Modeling Bund cannot fail]

Indoor/Outdoor

Location of release Open air release
Outdoor Release Direction Horizontal

Flammable

Explosion Method TNT
Jet Fire Method Cone Model

Dispersion

Number of Release Segments 1
Fluid Phase(1) Liquid
Discharge Velocity(1) 21.96 m/s
Droplet Diameter(1) 481.3 um
Duration of Discharge(1) 600 s
Final Temperature(1) 25.12 degC
Release Rate(1) 99 kg/s
Pre-Dilution Air Rates(1) 0 kg/s
Late Ignition Location No ignition location
Mass Inventory of material to Disperse 2.369E6 kg

Fireball Parameters

[Mass Modification Factor 3]
[Calculation method for fireball DNV Recommended]
[TNO model flame temperature 1727 degC]

Toxic Parameters

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

[Indoor Calculations	Unselected]
[Wind Dependent Exchange Rate	Case Specified]
[Building Exchange Rate	4 /hr]
[Tail Time	1800 s]
[Set averaging time equal to exposure time	Use a fixed averaging time]
[Cut-off fraction of toxic load for exposure time calculation	0.05 fraction]
[Cut-off concentration for exposure time calculations	0 fraction]

Geometry

Shape	Point
Dimension	2D
System	Absolute
East(1)	0 m
North(1)	0 m

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Consequence Results

Pool Vaporization Results

Path: \Terminal Adonai - Efeitos físicos\Simulações\H063

		Dia	Noite
	Release Segment 1		
Release Duration	s	600	600
Liquid Rainout	fraction	0.965367	0.968367
	Release Segment 1 Cloud Segment 1		
Cloud Segment Duration	s	184.96	177.556
Pool Vaporization Rate	kg/s	0.629149	0.450392
Total Vapor Flowrate	kg/s	4.05782	3.58205
	Release Segment 1 Cloud Segment 2		
Cloud Segment Duration	s	78.2906	78.4444
Pool Vaporization Rate	kg/s	1.49153	1.03134
Total Vapor Flowrate	kg/s	4.9202	4.163
	Release Segment 1 Cloud Segment 3		
Cloud Segment Duration	s	60.7494	60.84
Pool Vaporization Rate	kg/s	1.92768	1.31934
Total Vapor Flowrate	kg/s	5.35635	4.451
	Release Segment 1 Cloud Segment 4		
Cloud Segment Duration	s	51.3906	52.7606
Pool Vaporization Rate	kg/s	2.27058	1.54422
Total Vapor Flowrate	kg/s	5.69925	4.67587
	Release Segment 1 Cloud Segment 5		
Cloud Segment Duration	s	45.885	89.43
Pool Vaporization Rate	kg/s	2.56197	1.81456
Total Vapor Flowrate	kg/s	5.99064	4.94622
	Release Segment 1 Cloud Segment 6		
Cloud Segment Duration	s	80.4844	112.179
Pool Vaporization Rate	kg/s	2.93222	2.18126
Total Vapor Flowrate	kg/s	6.36089	5.31292
	Release Segment 1 Cloud Segment 7		
Cloud Segment Duration	s	98.24	28.79
Pool Vaporization Rate	kg/s	3.44221	2.42852
Total Vapor Flowrate	kg/s	6.87088	5.56018
Maximum Pool Radius	m	27.3328	27.4006

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Distance to Concentration Results

Path: \Terminal Adonai - Efeitos físicos\Simulações\H063

The height for user defined concentrations is the user defined height 0 m
All toxic results are reported at the toxic effect height 1 m
All flammable results are reported at the flammable effect height 0 m

Concentration(ppm)	Averaging Time		Distance (m)	
			Dia	Noite
UFL (360000)	18.75	s	10.7413	10.7287
LFL (73000)	18.75	s	20.5518	20.3185
LFL Frac (73000)	18.75	s	20.5518	20.3185

Concentration(ppm)	Averaging Time		Heights (m) for above distances	
			Dia	Noite
UFL (360000)	18.75	s	0	0
LFL (73000)	18.75	s	0	0
LFL Frac (73000)	18.75	s	0	0

Jet Fire Hazard

Path: \Terminal Adonai - Efeitos físicos\Simulações\H063

Jet fire method used: Cone model - DNV recommended

	Dia	Noite
Jet Fire Status	Truncated	Truncated
Flame Direction	Horizontal	Horizontal

Radiation Effects: Jet Fire Ellipse

Path: \Terminal Adonai - Efeitos físicos\Simulações\H063

This table gives the distances to the specified radiation levels
for each jet fire listed in the above hazard table

Radiation Level			Distance (m)	
			Dia	Noite
9.83	kW/m2		71.9524	74.6506
19.46	kW/m2		61.9794	Not Reached
35	kW/m2		Not Reached	Not Reached

Radiation Effects: Jet Fire Distance

Path: \Terminal Adonai - Efeitos físicos\Simulações\H063

	Dia	Radiation Level (kW/m2)
		Noite

Early Pool Fire Hazard

Path: \Terminal Adonai - Efeitos físicos\Simulações\H063

	Dia	Noite
Early Pool Fire Status	Hazard	Hazard

SUMMARY REPORT

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Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Radiation Effects: Early Pool Fire Ellipse

Path: \Terminal Adonai - Efeitos físicos\Simulações\H063

			Dia	Noite
Radiation Level	9.83	kW/m2	64.9124	63.1397
Radiation Level	19.46	kW/m2	49.5173	47.5805
Radiation Level	35	kW/m2	39.3671	39.3048

Radiation Effects: Early Pool Fire Distance

Path: \Terminal Adonai - Efeitos físicos\Simulações\H063

	Dia	Noite
Radiation Level (kW/m2)		

Late Pool Fire Hazard

Path: \Terminal Adonai - Efeitos físicos\Simulações\H063

	Dia	Noite
Late Pool Fire Status	Hazard	Hazard

Radiation Effects: Late Pool Fire Ellipse

Path: \Terminal Adonai - Efeitos físicos\Simulações\H063

			Dia	Noite
Radiation Level	9.83	kW/m2	64.9124	63.1397
Radiation Level	19.46	kW/m2	49.5173	47.5805
Radiation Level	35	kW/m2	39.3671	39.3048

Radiation Effects: Late Pool Fire Distance

Path: \Terminal Adonai - Efeitos físicos\Simulações\H063

	Dia	Noite
Radiation Level (kW/m2)		

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Flash Fire Envelope

Path: \Terminal Adonai - Efeitos físicos\Simulações\H063

All flammable results are reported at the flammable effect height 0 m

				Distance (m)	
				Dia	Noite
Furthest Extent	73000	ppm	20.5518	20.3185	
Furthest Extent	73000	ppm	20.5518	20.3185	
				Heights (m) for above distances	
				Dia	Noite
Furthest Extent	73000	ppm	0	0	
Furthest Extent	73000	ppm	0	0	

SUMMARY REPORT

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Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Explosion Effects: Late Ignition

Path: \Terminal Adonai - Efeitos físicos\Simulações\H063

Explosion Model Used : TNT

Explosion Location Criterion: Cloud Center

All distances are measured from the Source

All flammable results are reported at the flammable effect height 0 m

			Maximum Distance (m) at Overpressure Level	
			Dia	Noite
Overpressure	0.05	bar	27.306	26.5108
Overpressure	0.1	bar	20.7483	20.2505
Overpressure	0.3	bar	15.3736	15.1196

			Supplementary Data at 0.05 bar	
			Dia	Noite
Supplied Flammable Mass		kg	2.44523	2.12741
Used Flammable Mass		kg	2.44523	2.12741
Overpressure Radius		m	17.2927	16.5085
Distance to:				
- Ignition Source		m	20	20
- Cloud Front/Centre		m	20	20
- Explosion Centre		m	10.0132	10.0023

			Supplementary Data at 0.1 bar	
			Dia	Noite
Supplied Flammable Mass		kg	2.44523	2.12741
Used Flammable Mass		kg	2.44523	2.12741
Overpressure Radius		m	10.7351	10.2482
Distance to:				
- Ignition Source		m	20	20
- Cloud Front/Centre		m	20	20
- Explosion Centre		m	10.0132	10.0023

			Supplementary Data at 0.3 bar	
			Dia	Noite
Supplied Flammable Mass		kg	2.44523	2.12741
Used Flammable Mass		kg	2.44523	2.12741
Overpressure Radius		m	5.36041	5.11731
Distance to:				
- Ignition Source		m	20	20
- Cloud Front/Centre		m	20	20
- Explosion Centre		m	10.0132	10.0023

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Weather Conditions

Path: \Terminal Adonai - Efeitos físicos\Simulações\H063

		Dia	Noite
Wind Speed	m/s	3	2
Pasquill Stability		C	E
Surface Roughness Length	mm	1000	1000
Surface Roughness Parameter		0.173718	0.173718
Atmospheric Temperature	degC	25	20
Surface Temperature	degC	30	20
Relative Humidity	fraction	0.8	0.8

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

H064

Base Case

CASE Name: Data

Path: \Terminal Adonai - Efeitos físicos\Simulações\H064

User-Defined Data

Material

Material Identifier METHANOL

Scenario

Building Wake Effect None

Vessel/Tank

Release Type Continuous

Location

Elevation 1 m
Use ERPG averaging time ERPG not selected
Use IDLH averaging time IDLH not selected
Use STEL averaging time STEL not selected
Supply a user defined averaging time Not supplied

Bund

Status of Bund No bund present
[Type of Bund Surface User-Defined (Land)]
[Bund Height 0 m]
[Bund Failure Modeling Bund cannot fail]

Indoor/Outdoor

Location of release Open air release
Outdoor Release Direction Horizontal

Flammable

Explosion Method TNT
Jet Fire Method Cone Model

Dispersion

Number of Release Segments 1
Fluid Phase(1) Liquid
Discharge Velocity(1) 36.6 m/s
Droplet Diameter(1) 173.5 um
Duration of Discharge(1) 600 s
Final Temperature(1) 24.94 degC
Release Rate(1) 0.99 kg/s
Pre-Dilution Air Rates(1) 0 kg/s
Late Ignition Location No ignition location
Mass Inventory of material to Disperse 2.369E6 kg

Fireball Parameters

[Mass Modification Factor 3]
[Calculation method for fireball DNV Recommended]
[TNO model flame temperature 1727 degC]

Toxic Parameters

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

[Indoor Calculations	Unselected]
[Wind Dependent Exchange Rate	Case Specified]
[Building Exchange Rate	4 /hr]
[Tail Time	1800 s]
[Set averaging time equal to exposure time	Use a fixed averaging time]
[Cut-off fraction of toxic load for exposure time calculation	0.05 fraction]
[Cut-off concentration for exposure time calculations	0 fraction]

Geometry

Shape	Point
Dimension	2D
System	Absolute
East(1)	0 m
North(1)	0 m

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Consequence Results

Pool Vaporization Results

Path: \Terminal Adonai - Efeitos físicos\Simulações\H064

Release Segment 1		Dia	Noite
Release Duration	s	600	600
Liquid Rainout	fraction	0.677655	0.752769
Maximum Pool Radius	m	2.28382	2.41318

Distance to Concentration Results

Path: \Terminal Adonai - Efeitos físicos\Simulações\H064

The height for user defined concentrations is the user defined height 0 m
All toxic results are reported at the toxic effect height 1 m
All flammable results are reported at the flammable effect height 0 m

Concentration(ppm)	Averaging Time		Dia	Noite
UFL (360000)	18.75	s	No Hazard	No Hazard
LFL (73000)	18.75	s	No Hazard	No Hazard
LFL Frac (73000)	18.75	s	No Hazard	No Hazard

Concentration(ppm)	Averaging Time		Dia	Noite	Heights (m) for above distances
UFL (360000)	18.75	s	0	0	0
LFL (73000)	18.75	s	0	0	0
LFL Frac (73000)	18.75	s	0	0	0

Jet Fire Hazard

Path: \Terminal Adonai - Efeitos físicos\Simulações\H064

Jet fire method used: Cone model - DNV recommended

	Dia	Noite
Jet Fire Status	Truncated	Truncated
Flame Direction	Horizontal	Horizontal

Radiation Effects: Jet Fire Ellipse

Path: \Terminal Adonai - Efeitos físicos\Simulações\H064

This table gives the distances to the specified radiation levels
for each jet fire listed in the above hazard table

			Dia	Noite
Radiation Level	9.83	kW/m2	24.5533	23.6228
Radiation Level	19.46	kW/m2	Not Reached	Not Reached
Radiation Level	35	kW/m2	Not Reached	Not Reached

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Radiation Effects: Jet Fire Distance

Path: \Terminal Adonai - Efeitos físicos\Simulações\H064

Dia Radiation Level (kW/m2)
Noite

Early Pool Fire Hazard

Path: \Terminal Adonai - Efeitos físicos\Simulações\H064

Early Pool Fire Status Dia Noite
Hazard Hazard

Radiation Effects: Early Pool Fire Ellipse

Path: \Terminal Adonai - Efeitos físicos\Simulações\H064

			Dia	Distance (m) Noite
Radiation Level	9.83	kW/m2	13.9133	13.3051
Radiation Level	19.46	kW/m2	11.8597	11.449
Radiation Level	35	kW/m2	Not Reached	Not Reached

Radiation Effects: Early Pool Fire Distance

Path: \Terminal Adonai - Efeitos físicos\Simulações\H064

Dia Radiation Level (kW/m2)
Noite

Late Pool Fire Hazard

Path: \Terminal Adonai - Efeitos físicos\Simulações\H064

Late Pool Fire Status Dia Noite
Hazard Hazard

Radiation Effects: Late Pool Fire Ellipse

Path: \Terminal Adonai - Efeitos físicos\Simulações\H064

			Dia	Distance (m) Noite
Radiation Level	9.83	kW/m2	13.9133	13.3051
Radiation Level	19.46	kW/m2	11.8597	11.449
Radiation Level	35	kW/m2	Not Reached	Not Reached

Radiation Effects: Late Pool Fire Distance

Path: \Terminal Adonai - Efeitos físicos\Simulações\H064

Dia Radiation Level (kW/m2)
Noite

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Weather Conditions

Path: \Terminal Adonai - Efeitos físicos\Simulações\H064

		Dia	Noite
Wind Speed	m/s	3	2
Pasquill Stability		C	E
Surface Roughness Length	mm	1000	1000
Surface Roughness Parameter		0.173718	0.173718
Atmospheric Temperature	degC	25	20
Surface Temperature	degC	30	20
Relative Humidity	fraction	0.8	0.8

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

H065

Base Case

CASE Name: Data

Path: \Terminal Adonai - Efeitos físicos\Simulações\H065

User-Defined Data

Material

Material Identifier	METHANOL
Type of Vessel	Padded Liquid
Pressure Specification	Pressure specified
Storage Pressure - gauge	0.03 bar
Temperature	25 degC
Volume Inventory	3200 m3

Scenario

Scenario Type	Line rupture
Phase to be Released	Liquid
Building Wake Effect	None
Specify Pump Head	No pump head supplied
Number of Excess Flow Valves	0
Number of Non-Return Valves	0
Number of Shut-Off Valves	0

Pipe

Internal Diameter	203.2 mm
Line length	1 m

Vessel/Tank

Duration of Interest	600 s
Method Used for Time Varying Releases	Average Rates
Tank Type	Vertical
Tank Height	22.64 m
Tank Diameter	15 m
Height of Discharge from Vessel Bottom	1 m

Location

Elevation	1 m
Use ERPG averaging time	ERPG not selected
Use IDLH averaging time	IDLH not selected
Use STEL averaging time	STEL not selected
Supply a user defined averaging time	Not supplied

Bund

Status of Bund	Bund present
Bund Area	1940 m2
[Type of Bund Surface	User-Defined (Land)]
Bund Height	3 m
[Bund Failure Modeling	Bund cannot fail]

Indoor/Outdoor

Location of release	Open air release
Outdoor Release Direction	Horizontal

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Flammable

Explosion Method	TNT
Jet Fire Method	Cone Model

Dispersion

Late Ignition Location	No ignition location
Mass Inventory of material to Disperse	2.527E6 kg

Fireball Parameters

[Mass Modification Factor	3]
[Calculation method for fireball	DNV Recommended]
[TNO model flame temperature	1727 degC]

Toxic Parameters

[Indoor Calculations	Unselected]
[Wind Dependent Exchange Rate	Case Specified]
[Building Exchange Rate	4 /hr]
[Tail Time	1800 s]
[Set averaging time equal to exposure time	Use a fixed averaging time]
[Cut-off fraction of toxic load for exposure time calculation	0.05 fraction]
[Cut-off concentration for exposure time calculations	0 fraction]

Geometry

Shape	Point
Dimension	2D
System	Absolute
East(1)	0 m
North(1)	0 m

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Path: \Terminal Adonai - Efeitos físicos\Simulações\H065

DISCHARGE DATA for Weather: Global Weathers\Dia

Wind Speed: 3.00 m/s
Wind Speed at Height (Calculated) 1.78 m/s
Pasquill Stability: C

USER-DEFINED QUANTITIES

Material METHANOL
Scenario Line rupture
Inventory 2,526,775.50 kg
Fixed Duration n/a s

Stagnation data (data at upstream end for long pipe):

- Pressure 1.04 bar
- Temperature 25.00 degC
- Fluid State Non-saturated liquid

CALCULATED QUANTITIES

Mass Flow of Air (Vent from Vapor Space only) n/a
Mass Flowrate 3.16807E+002 kg/s
Release Duration 600.00 s

Orifice or pipe exit data (before atmospheric expansion):

- Pressure n/a bar
- Temperature n/a degC
- Vena Contracta Velocity (exit velocity for pipe releases) n/a m/s
- Discharge Coefficient n/a

Final data (after atmospheric expansion):

- Temperature 25.03 degC
- Liquid Mass Fraction 1.00 fraction
- Droplet Diameter 1,547.13 um
- Expanded Radius n/a m
- Velocity 12.37 m/s

DISCHARGE DATA for Weather: Global Weathers\Noite

Wind Speed: 2.00 m/s
Wind Speed at Height (Calculated) 0.83 m/s
Pasquill Stability: E

USER-DEFINED QUANTITIES

Material METHANOL
Scenario Line rupture
Inventory 2,526,775.50 kg
Fixed Duration n/a s

Stagnation data (data at upstream end for long pipe):

- Pressure 1.04 bar
- Temperature 25.00 degC
- Fluid State Non-saturated liquid

CALCULATED QUANTITIES

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Mass Flow of Air (Vent from Vapor Space only)	n/a
Mass Flowrate	3.16807E+002 kg/s
Release Duration	600.00 s
Orifice or pipe exit data (before atmospheric expansion):	
- Pressure	n/a bar
- Temperature	n/a degC
- Vena Contracta Velocity (exit velocity for pipe releases)	n/a m/s
- Discharge Coefficient	n/a
Final data (after atmospheric expansion):	
- Temperature	25.03 degC
- Liquid Mass Fraction	1.00 fraction
- Droplet Diameter	1,517.41 um
- Expanded Radius	n/a m
- Velocity	12.37 m/s

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Consequence Results

Pool Vaporization Results

Path: \Terminal Adonai - Efeitos físicos\Simulações\H065

		Dia	Noite
Release Segment 1			
Release Duration	s	600	600
Liquid Rainout	fraction	0.99215	0.993301
Release Segment 1 Cloud Segment 1			
Cloud Segment Duration	s	72.25	71.4025
Pool Vaporization Rate	kg/s	1.13598	0.886069
Total Vapor Flowrate	kg/s	3.6228	3.00822
Release Segment 1 Cloud Segment 2			
Cloud Segment Duration	s	31.2806	31.62
Pool Vaporization Rate	kg/s	2.6324	2.01071
Total Vapor Flowrate	kg/s	5.11922	4.13286
Release Segment 1 Cloud Segment 3			
Cloud Segment Duration	s	24.725	24.6675
Pool Vaporization Rate	kg/s	3.37739	2.55653
Total Vapor Flowrate	kg/s	5.86421	4.67868
Release Segment 1 Cloud Segment 4			
Cloud Segment Duration	s	471.744	472.31
Pool Vaporization Rate	kg/s	3.9054	2.99761
Total Vapor Flowrate	kg/s	6.39222	5.11975
Maximum Pool Radius	m	24.85	24.85

Distance to Concentration Results

Path: \Terminal Adonai - Efeitos físicos\Simulações\H065

The height for user defined concentrations is the user defined height 0 m
 All toxic results are reported at the toxic effect height 1 m
 All flammable results are reported at the flammable effect height 0 m

Concentration(ppm)	Averaging Time		Distance (m)	
			Dia	Noite
UFL (360000)	18.75	s	6.23237	6.30574
LFL (73000)	18.75	s	22.4688	26.172
LFL Frac (73000)	18.75	s	22.4688	26.172
Concentration(ppm)	Averaging Time		Heights (m) for above distances	
UFL (360000)	18.75	s	Dia	Noite
LFL (73000)	18.75	s	0	0
LFL Frac (73000)	18.75	s	0	0

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Jet Fire Hazard

Path: \Terminal Adonai - Efeitos físicos\Simulações\H065

Jet fire method used: Cone model - DNV recommended

	Dia	Noite
Jet Fire Status	Truncated	Truncated
Flame Direction	Horizontal	Horizontal

Radiation Effects: Jet Fire Ellipse

Path: \Terminal Adonai - Efeitos físicos\Simulações\H065

This table gives the distances to the specified radiation levels for each jet fire listed in the above hazard table

			Distance (m)	
			Dia	Noite
Radiation Level	9.83	kW/m2	64.3207	64.2362
Radiation Level	19.46	kW/m2	55.2259	Not Reached
Radiation Level	35	kW/m2	Not Reached	Not Reached

Radiation Effects: Jet Fire Distance

Path: \Terminal Adonai - Efeitos físicos\Simulações\H065

	Radiation Level (kW/m2)	
	Dia	Noite

Early Pool Fire Hazard

Path: \Terminal Adonai - Efeitos físicos\Simulações\H065

	Dia	Noite
Early Pool Fire Status	Hazard	Hazard

Radiation Effects: Early Pool Fire Ellipse

Path: \Terminal Adonai - Efeitos físicos\Simulações\H065

			Distance (m)	
			Dia	Noite
Radiation Level	9.83	kW/m2	49.3934	47.73
Radiation Level	19.46	kW/m2	34.8261	33.0732
Radiation Level	35	kW/m2	25.85	25.85

Radiation Effects: Early Pool Fire Distance

Path: \Terminal Adonai - Efeitos físicos\Simulações\H065

	Radiation Level (kW/m2)	
	Dia	Noite

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Late Pool Fire Hazard

Path: \Terminal Adonai - Efeitos físicos\Simulações\H065

	Dia	Noite
Late Pool Fire Status	Hazard	Hazard

Radiation Effects: Late Pool Fire Ellipse

Path: \Terminal Adonai - Efeitos físicos\Simulações\H065

			Dia	Noite
				Distance (m)
Radiation Level	9.83	kW/m2	49.3934	47.73
Radiation Level	19.46	kW/m2	34.8261	33.0732
Radiation Level	35	kW/m2	25.85	25.85

Radiation Effects: Late Pool Fire Distance

Path: \Terminal Adonai - Efeitos físicos\Simulações\H065

	Dia	Noite
		Radiation Level (kW/m2)
		Noite

Flash Fire Envelope

Path: \Terminal Adonai - Efeitos físicos\Simulações\H065

All flammable results are reported at the flammable effect height 0 m

			Dia	Noite
				Distance (m)
Furthest Extent	73000	ppm	22.4688	26.172
Furthest Extent	73000	ppm	22.4688	26.172
				Heights (m) for above distances
			Dia	Noite
Furthest Extent	73000	ppm	0	0
Furthest Extent	73000	ppm	0	0

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Explosion Effects: Late Ignition

Path: \Terminal Adonai - Efeitos físicos\Simulações\H065

Explosion Model Used : TNT

Explosion Location Criterion: Cloud Center

All distances are measured from the Source

All flammable results are reported at the flammable effect height 0 m

			Maximum Distance (m) at Overpressure Level	
			Dia	Noite
Overpressure	0.05	bar	30.5819	32.631
Overpressure	0.1	bar	22.7771	24.049
Overpressure	0.3	bar	16.3802	17.0152

			Supplementary Data at 0.05 bar	
			Dia	Noite
Supplied Flammable Mass		kg	4.12258	5.48076
Used Flammable Mass		kg	4.12258	5.48076
Overpressure Radius		m	20.5817	22.631
Distance to:				
- Ignition Source		m	20	20
- Cloud Front/Centre		m	20	20
- Explosion Centre		m	10.0003	10

			Supplementary Data at 0.1 bar	
			Dia	Noite
Supplied Flammable Mass		kg	4.12258	5.48076
Used Flammable Mass		kg	4.12258	5.48076
Overpressure Radius		m	12.7768	14.049
Distance to:				
- Ignition Source		m	20	20
- Cloud Front/Centre		m	20	20
- Explosion Centre		m	10.0003	10

			Supplementary Data at 0.3 bar	
			Dia	Noite
Supplied Flammable Mass		kg	4.12258	5.48076
Used Flammable Mass		kg	4.12258	5.48076
Overpressure Radius		m	6.37991	7.01517
Distance to:				
- Ignition Source		m	20	20
- Cloud Front/Centre		m	20	20
- Explosion Centre		m	10.0003	10

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Weather Conditions

Path: \Terminal Adonai - Efeitos físicos\Simulações\H065

		Dia	Noite
Wind Speed	m/s	3	2
Pasquill Stability		C	E
Surface Roughness Length	mm	1000	1000
Surface Roughness Parameter		0.173718	0.173718
Atmospheric Temperature	degC	25	20
Surface Temperature	degC	30	20
Relative Humidity	fraction	0.8	0.8

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

H066

Base Case

CASE Name: Data

Path: \Terminal Adonai - Efeitos físicos\Simulações\H066

User-Defined Data

Material

Material Identifier	METHANOL
Type of Vessel	Padded Liquid
Pressure Specification	Pressure specified
Storage Pressure - gauge	0.03 bar
Temperature	25 degC
Volume Inventory	3200 m3

Scenario

Scenario Type	Leak
Phase to be Released	Liquid
Hole Diameter	20.32 mm
Building Wake Effect	None

Vessel/Tank

Duration of Interest	600 s
Method Used for Time Varying Releases	Average Rates
Tank Type	Vertical
Tank Height	22.64 m
Tank Diameter	15 m
Height of Discharge from Vessel Bottom	1 m

Location

Elevation	1 m
Use ERPG averaging time	ERPG not selected
Use IDLH averaging time	IDLH not selected
Use STEL averaging time	STEL not selected
Supply a user defined averaging time	Not supplied

Bund

Status of Bund	Bund present
Bund Area	1940 m2
[Type of Bund Surface	User-Defined (Land)]
Bund Height	3 m
[Bund Failure Modeling	Bund cannot fail]

Indoor/Outdoor

Location of release	Open air release
Outdoor Release Direction	Horizontal

Flammable

Explosion Method	TNT
Jet Fire Method	Cone Model

Dispersion

Late Ignition Location	No ignition location
Mass Inventory of material to Disperse	2.527E6 kg

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Fireball Parameters

[Mass Modification Factor	3]
[Calculation method for fireball	DNV Recommended]
[TNO model flame temperature	1727 degC]

Toxic Parameters

[Indoor Calculations	Unselected]
[Wind Dependent Exchange Rate	Case Specified]
[Building Exchange Rate	4 /hr]
[Tail Time	1800 s]
[Set averaging time equal to exposure time	Use a fixed averaging time]
[Cut-off fraction of toxic load for exposure time calculation	0.05 fraction]
[Cut-off concentration for exposure time calculations	0 fraction]

Geometry

Shape	Point
Dimension	2D
System	Absolute
East(1)	0 m
North(1)	0 m

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Path: \Terminal Adonai - Efeitos físicos\Simulações\H066

DISCHARGE DATA for Weather: Global Weathers\Dia

Wind Speed: 3.00 m/s
Wind Speed at Height (Calculated) 1.78 m/s
Pasquill Stability: C

USER-DEFINED QUANTITIES

Material METHANOL
Scenario Leak
Inventory 2,526,775.50 kg
Fixed Duration n/a s

Stagnation data (data at upstream end for long pipe):

- Pressure 1.04 bar
- Temperature 25.00 degC
- Fluid State Non-saturated liquid

CALCULATED QUANTITIES

Mass Flow of Air (Vent from Vapor Space only) n/a
Mass Flowrate 3.27062E+000 kg/s
Release Duration 600.00 s

Orifice or pipe exit data (before atmospheric expansion):

- Pressure n/a bar
- Temperature n/a degC
- Vena Contracta Velocity (exit velocity for pipe releases) n/a m/s
- Discharge Coefficient n/a

Final data (after atmospheric expansion):

- Temperature 24.98 degC
- Liquid Mass Fraction 1.00 fraction
- Droplet Diameter 522.74 um
- Expanded Radius n/a m
- Velocity 21.29 m/s

DISCHARGE DATA for Weather: Global Weathers\Noite

Wind Speed: 2.00 m/s
Wind Speed at Height (Calculated) 0.83 m/s
Pasquill Stability: E

USER-DEFINED QUANTITIES

Material METHANOL
Scenario Leak
Inventory 2,526,775.50 kg
Fixed Duration n/a s

Stagnation data (data at upstream end for long pipe):

- Pressure 1.04 bar
- Temperature 25.00 degC
- Fluid State Non-saturated liquid

CALCULATED QUANTITIES

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Mass Flow of Air (Vent from Vapor Space only)	n/a
Mass Flowrate	3.27062E+000 kg/s
Release Duration	600.00 s
Orifice or pipe exit data (before atmospheric expansion):	
- Pressure	n/a bar
- Temperature	n/a degC
- Vena Contracta Velocity (exit velocity for pipe releases)	n/a m/s
- Discharge Coefficient	n/a
Final data (after atmospheric expansion):	
- Temperature	24.98 degC
- Liquid Mass Fraction	1.00 fraction
- Droplet Diameter	512.70 um
- Expanded Radius	n/a m
- Velocity	21.29 m/s

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Consequence Results

Pool Vaporization Results

Path: \Terminal Adonai - Efeitos físicos\Simulações\H066

		Dia	Noite
	Release Segment 1		
Release Duration	s	600	600
Liquid Rainout	fraction	0.925005	0.930023
	Release Segment 1 Cloud Segment 1		
Cloud Segment Duration	s	206.641	
Pool Vaporization Rate	kg/s	0.0202326	
Total Vapor Flowrate	kg/s	0.265513	0.228868
	Release Segment 1 Cloud Segment 2		
Cloud Segment Duration	s	77.2819	
Pool Vaporization Rate	kg/s	0.0541275	
Total Vapor Flowrate	kg/s	0.299408	
	Release Segment 1 Cloud Segment 3		
Cloud Segment Duration	s	58.3275	
Pool Vaporization Rate	kg/s	0.0716421	
Total Vapor Flowrate	kg/s	0.316923	
	Release Segment 1 Cloud Segment 4		
Cloud Segment Duration	s	48.8006	
Pool Vaporization Rate	kg/s	0.085572	
Total Vapor Flowrate	kg/s	0.330853	
	Release Segment 1 Cloud Segment 5		
Cloud Segment Duration	s	43.6719	
Pool Vaporization Rate	kg/s	0.097585	
Total Vapor Flowrate	kg/s	0.342866	
	Release Segment 1 Cloud Segment 6		
Cloud Segment Duration	s	74.9081	
Pool Vaporization Rate	kg/s	0.112911	
Total Vapor Flowrate	kg/s	0.358192	
	Release Segment 1 Cloud Segment 7		
Cloud Segment Duration	s	90.3694	
Pool Vaporization Rate	kg/s	0.134066	
Total Vapor Flowrate	kg/s	0.379347	
Maximum Pool Radius	m	4.85763	4.87634

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Distance to Concentration Results

Path: \Terminal Adonai - Efeitos físicos\Simulações\H066

The height for user defined concentrations is the user defined height 0 m

All toxic results are reported at the toxic effect height 1 m

All flammable results are reported at the flammable effect height 0 m

Concentration(ppm)	Averaging Time		Distance (m)	
			Dia	Noite
UFL (360000)	18.75	s	No Hazard	No Hazard
LFL (73000)	18.75	s	5.93632	5.95132
LFL Frac (73000)	18.75	s	5.93632	5.95132

Concentration(ppm)	Averaging Time		Heights (m) for above distances	
			Dia	Noite
UFL (360000)	18.75	s	0	0
LFL (73000)	18.75	s	0	0
LFL Frac (73000)	18.75	s	0	0

Jet Fire Hazard

Path: \Terminal Adonai - Efeitos físicos\Simulações\H066

Jet fire method used: Cone model - DNV recommended

	Dia	Noite
Jet Fire Status	Truncated	Truncated
Flame Direction	Horizontal	Horizontal

Radiation Effects: Jet Fire Ellipse

Path: \Terminal Adonai - Efeitos físicos\Simulações\H066

This table gives the distances to the specified radiation levels for each jet fire listed in the above hazard table

Radiation Level			Distance (m)	
			Dia	Noite
9.83	kW/m2	22.532	23.2739	
19.46	kW/m2	Not Reached	Not Reached	
35	kW/m2	Not Reached	Not Reached	

Radiation Effects: Jet Fire Distance

Path: \Terminal Adonai - Efeitos físicos\Simulações\H066

	Dia	Radiation Level (kW/m2)
		Noite

Early Pool Fire Hazard

Path: \Terminal Adonai - Efeitos físicos\Simulações\H066

	Dia	Noite
Early Pool Fire Status	Hazard	Hazard

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Radiation Effects: Early Pool Fire Ellipse

Path: \Terminal Adonai - Efeitos físicos\Simulações\H066

			Dia	Noite
Radiation Level	9.83	kW/m2	17.3939	16.857
Radiation Level	19.46	kW/m2	12.1899	12.2731
Radiation Level	35	kW/m2	Not Reached	Not Reached

Radiation Effects: Early Pool Fire Distance

Path: \Terminal Adonai - Efeitos físicos\Simulações\H066

	Dia	Noite
Radiation Level (kW/m2)		

Late Pool Fire Hazard

Path: \Terminal Adonai - Efeitos físicos\Simulações\H066

	Dia	Noite
Late Pool Fire Status	Hazard	Hazard

Radiation Effects: Late Pool Fire Ellipse

Path: \Terminal Adonai - Efeitos físicos\Simulações\H066

			Dia	Noite
Radiation Level	9.83	kW/m2	17.3939	16.857
Radiation Level	19.46	kW/m2	12.1899	12.2731
Radiation Level	35	kW/m2	Not Reached	Not Reached

Radiation Effects: Late Pool Fire Distance

Path: \Terminal Adonai - Efeitos físicos\Simulações\H066

	Dia	Noite
Radiation Level (kW/m2)		

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Flash Fire Envelope

Path: \Terminal Adonai - Efeitos físicos\Simulações\H066

All flammable results are reported at the flammable effect height 0 m

				Distance (m)	
				Dia	Noite
Furthest Extent	73000	ppm	5.93632	5.95132	
Furthest Extent	73000	ppm	5.93632	5.95132	
				Heights (m) for above distances	
				Dia	Noite
Furthest Extent	73000	ppm	0	0	
Furthest Extent	73000	ppm	0	0	

Weather Conditions

Path: \Terminal Adonai - Efeitos físicos\Simulações\H066

			Dia	Noite
Wind Speed	m/s		3	2
Pasquill Stability			C	E
Surface Roughness Length	mm		1000	1000
Surface Roughness Parameter			0.173718	0.173718
Atmospheric Temperature	degC		25	20
Surface Temperature	degC		30	20
Relative Humidity	fraction		0.8	0.8

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

H067

Base Case

CASE Name: Data

Path: \Terminal Adonai - Efeitos físicos\Simulações\H067

User-Defined Data

Material

Material Identifier METHANOL

Scenario

Building Wake Effect None

Vessel/Tank

Release Type Continuous

Location

Elevation 1 m
Use ERPG averaging time ERPG not selected
Use IDLH averaging time IDLH not selected
Use STEL averaging time STEL not selected
Supply a user defined averaging time Not supplied

Bund

Status of Bund No bund present
[Type of Bund Surface User-Defined (Land)]
[Bund Height 0 m]
[Bund Failure Modeling Bund cannot fail]

Indoor/Outdoor

Location of release Open air release
Outdoor Release Direction Horizontal

Flammable

Explosion Method TNT
Jet Fire Method Cone Model

Dispersion

Number of Release Segments 1
Fluid Phase(1) Liquid
Discharge Velocity(1) 21.96 m/s
Droplet Diameter(1) 481.3 um
Duration of Discharge(1) 600 s
Final Temperature(1) 25.12 degC
Release Rate(1) 99 kg/s
Pre-Dilution Air Rates(1) 0 kg/s
Late Ignition Location No ignition location
Mass Inventory of material to Disperse 2.527E6 kg

Fireball Parameters

[Mass Modification Factor 3]
[Calculation method for fireball DNV Recommended]
[TNO model flame temperature 1727 degC]

Toxic Parameters

Date: 07/08/2015

434 of 2,112

Time: 10:10:31

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

[Indoor Calculations	Unselected]
[Wind Dependent Exchange Rate	Case Specified]
[Building Exchange Rate	4 /hr]
[Tail Time	1800 s]
[Set averaging time equal to exposure time	Use a fixed averaging time]
[Cut-off fraction of toxic load for exposure time calculation	0.05 fraction]
[Cut-off concentration for exposure time calculations	0 fraction]

Geometry

Shape	Point
Dimension	2D
System	Absolute
East(1)	0 m
North(1)	0 m

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Consequence Results

Pool Vaporization Results

Path: \Terminal Adonai - Efeitos físicos\Simulações\H067

		Dia	Noite
	Release Segment 1		
Release Duration	s	600	600
Liquid Rainout	fraction	0.965367	0.968367
	Release Segment 1 Cloud Segment 1		
Cloud Segment Duration	s	184.96	177.556
Pool Vaporization Rate	kg/s	0.629149	0.450392
Total Vapor Flowrate	kg/s	4.05782	3.58205
	Release Segment 1 Cloud Segment 2		
Cloud Segment Duration	s	78.2906	78.4444
Pool Vaporization Rate	kg/s	1.49153	1.03134
Total Vapor Flowrate	kg/s	4.9202	4.163
	Release Segment 1 Cloud Segment 3		
Cloud Segment Duration	s	60.7494	60.84
Pool Vaporization Rate	kg/s	1.92768	1.31934
Total Vapor Flowrate	kg/s	5.35635	4.451
	Release Segment 1 Cloud Segment 4		
Cloud Segment Duration	s	51.3906	52.7606
Pool Vaporization Rate	kg/s	2.27058	1.54422
Total Vapor Flowrate	kg/s	5.69925	4.67587
	Release Segment 1 Cloud Segment 5		
Cloud Segment Duration	s	45.885	89.43
Pool Vaporization Rate	kg/s	2.56197	1.81456
Total Vapor Flowrate	kg/s	5.99064	4.94622
	Release Segment 1 Cloud Segment 6		
Cloud Segment Duration	s	80.4844	112.179
Pool Vaporization Rate	kg/s	2.93222	2.18126
Total Vapor Flowrate	kg/s	6.36089	5.31292
	Release Segment 1 Cloud Segment 7		
Cloud Segment Duration	s	98.24	28.79
Pool Vaporization Rate	kg/s	3.44221	2.42852
Total Vapor Flowrate	kg/s	6.87088	5.56018
Maximum Pool Radius	m	27.3328	27.4006

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Distance to Concentration Results

Path: \Terminal Adonai - Efeitos físicos\Simulações\H067

The height for user defined concentrations is the user defined height 0 m

All toxic results are reported at the toxic effect height 1 m

All flammable results are reported at the flammable effect height 0 m

Concentration(ppm)	Averaging Time		Distance (m)	
			Dia	Noite
UFL (360000)	18.75	s	10.7413	10.7287
LFL (73000)	18.75	s	20.5518	20.3185
LFL Frac (73000)	18.75	s	20.5518	20.3185

Concentration(ppm)	Averaging Time		Heights (m) for above distances	
			Dia	Noite
UFL (360000)	18.75	s	0	0
LFL (73000)	18.75	s	0	0
LFL Frac (73000)	18.75	s	0	0

Jet Fire Hazard

Path: \Terminal Adonai - Efeitos físicos\Simulações\H067

Jet fire method used: Cone model - DNV recommended

	Dia	Noite
Jet Fire Status	Truncated	Truncated
Flame Direction	Horizontal	Horizontal

Radiation Effects: Jet Fire Ellipse

Path: \Terminal Adonai - Efeitos físicos\Simulações\H067

This table gives the distances to the specified radiation levels for each jet fire listed in the above hazard table

Radiation Level			Distance (m)	
			Dia	Noite
9.83	kW/m2		71.9524	74.6506
19.46	kW/m2		61.9794	Not Reached
35	kW/m2		Not Reached	Not Reached

Radiation Effects: Jet Fire Distance

Path: \Terminal Adonai - Efeitos físicos\Simulações\H067

	Dia	Radiation Level (kW/m2)
		Noite

Early Pool Fire Hazard

Path: \Terminal Adonai - Efeitos físicos\Simulações\H067

	Dia	Noite
Early Pool Fire Status	Hazard	Hazard

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Radiation Effects: Early Pool Fire Ellipse

Path: \Terminal Adonai - Efeitos físicos\Simulações\H067

			Dia	Noite
Radiation Level	9.83	kW/m2	64.9124	63.1397
Radiation Level	19.46	kW/m2	49.5173	47.5805
Radiation Level	35	kW/m2	39.3671	39.3048

Radiation Effects: Early Pool Fire Distance

Path: \Terminal Adonai - Efeitos físicos\Simulações\H067

	Dia	Noite
Radiation Level (kW/m2)		

Late Pool Fire Hazard

Path: \Terminal Adonai - Efeitos físicos\Simulações\H067

	Dia	Noite
Late Pool Fire Status	Hazard	Hazard

Radiation Effects: Late Pool Fire Ellipse

Path: \Terminal Adonai - Efeitos físicos\Simulações\H067

			Dia	Noite
Radiation Level	9.83	kW/m2	64.9124	63.1397
Radiation Level	19.46	kW/m2	49.5173	47.5805
Radiation Level	35	kW/m2	39.3671	39.3048

Radiation Effects: Late Pool Fire Distance

Path: \Terminal Adonai - Efeitos físicos\Simulações\H067

	Dia	Noite
Radiation Level (kW/m2)		

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Flash Fire Envelope

Path: \Terminal Adonai - Efeitos físicos\Simulações\H067

All flammable results are reported at the flammable effect height 0 m

				Distance (m)	
				Dia	Noite
Furthest Extent	73000	ppm	20.5518	20.3185	
Furthest Extent	73000	ppm	20.5518	20.3185	
				Heights (m) for above distances	
				Dia	Noite
Furthest Extent	73000	ppm	0	0	
Furthest Extent	73000	ppm	0	0	

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Explosion Effects: Late Ignition

Path: \Terminal Adonai - Efeitos físicos\Simulações\H067

Explosion Model Used : TNT

Explosion Location Criterion: Cloud Center

All distances are measured from the Source

All flammable results are reported at the flammable effect height 0 m

			Maximum Distance (m) at Overpressure Level	
			Dia	Noite
Overpressure	0.05	bar	27.306	26.5108
Overpressure	0.1	bar	20.7483	20.2505
Overpressure	0.3	bar	15.3736	15.1196

			Supplementary Data at 0.05 bar	
			Dia	Noite
Supplied Flammable Mass		kg	2.44523	2.12741
Used Flammable Mass		kg	2.44523	2.12741
Overpressure Radius		m	17.2927	16.5085
Distance to:				
- Ignition Source		m	20	20
- Cloud Front/Centre		m	20	20
- Explosion Centre		m	10.0132	10.0023

			Supplementary Data at 0.1 bar	
			Dia	Noite
Supplied Flammable Mass		kg	2.44523	2.12741
Used Flammable Mass		kg	2.44523	2.12741
Overpressure Radius		m	10.7351	10.2482
Distance to:				
- Ignition Source		m	20	20
- Cloud Front/Centre		m	20	20
- Explosion Centre		m	10.0132	10.0023

			Supplementary Data at 0.3 bar	
			Dia	Noite
Supplied Flammable Mass		kg	2.44523	2.12741
Used Flammable Mass		kg	2.44523	2.12741
Overpressure Radius		m	5.36041	5.11731
Distance to:				
- Ignition Source		m	20	20
- Cloud Front/Centre		m	20	20
- Explosion Centre		m	10.0132	10.0023

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Weather Conditions

Path: \Terminal Adonai - Efeitos físicos\Simulações\H067

		Dia	Noite
Wind Speed	m/s	3	2
Pasquill Stability		C	E
Surface Roughness Length	mm	1000	1000
Surface Roughness Parameter		0.173718	0.173718
Atmospheric Temperature	degC	25	20
Surface Temperature	degC	30	20
Relative Humidity	fraction	0.8	0.8

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

H068

Base Case

CASE Name: Data

Path: \Terminal Adonai - Efeitos físicos\Simulações\H068

User-Defined Data

Material

Material Identifier METHANOL

Scenario

Building Wake Effect None

Vessel/Tank

Release Type Continuous

Location

Elevation 1 m
Use ERPG averaging time ERPG not selected
Use IDLH averaging time IDLH not selected
Use STEL averaging time STEL not selected
Supply a user defined averaging time Not supplied

Bund

Status of Bund No bund present
[Type of Bund Surface User-Defined (Land)]
[Bund Height 0 m]
[Bund Failure Modeling Bund cannot fail]

Indoor/Outdoor

Location of release Open air release
Outdoor Release Direction Horizontal

Flammable

Explosion Method TNT
Jet Fire Method Cone Model

Dispersion

Number of Release Segments 1
Fluid Phase(1) Liquid
Discharge Velocity(1) 36.6 m/s
Droplet Diameter(1) 173.5 um
Duration of Discharge(1) 600 s
Final Temperature(1) 24.94 degC
Release Rate(1) 0.99 kg/s
Pre-Dilution Air Rates(1) 0 kg/s
Late Ignition Location No ignition location
Mass Inventory of material to Disperse 2.527E6 kg

Fireball Parameters

[Mass Modification Factor 3]
[Calculation method for fireball DNV Recommended]
[TNO model flame temperature 1727 degC]

Toxic Parameters

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

[Indoor Calculations	Unselected]
[Wind Dependent Exchange Rate	Case Specified]
[Building Exchange Rate	4 /hr]
[Tail Time	1800 s]
[Set averaging time equal to exposure time	Use a fixed averaging time]
[Cut-off fraction of toxic load for exposure time calculation	0.05 fraction]
[Cut-off concentration for exposure time calculations	0 fraction]

Geometry

Shape	Point
Dimension	2D
System	Absolute
East(1)	0 m
North(1)	0 m

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Consequence Results

Pool Vaporization Results

Path: \Terminal Adonai - Efeitos físicos\Simulações\H068

			Dia	Noite
		Release Segment 1		
Release Duration	s		600	600
Liquid Rainout	fraction		0.677655	0.752769
Maximum Pool Radius	m		2.28382	2.41318

Distance to Concentration Results

Path: \Terminal Adonai - Efeitos físicos\Simulações\H068

The height for user defined concentrations is the user defined height 0 m
All toxic results are reported at the toxic effect height 1 m
All flammable results are reported at the flammable effect height 0 m

Concentration(ppm)		Averaging Time		Distance (m)	
				Dia	Noite
UFL (360000)	18.75	s		No Hazard	No Hazard
LFL (73000)	18.75	s		No Hazard	No Hazard
LFL Frac (73000)	18.75	s		No Hazard	No Hazard

Concentration(ppm)		Averaging Time		Heights (m) for above distances	
				Dia	Noite
UFL (360000)	18.75	s		0	0
LFL (73000)	18.75	s		0	0
LFL Frac (73000)	18.75	s		0	0

Jet Fire Hazard

Path: \Terminal Adonai - Efeitos físicos\Simulações\H068

Jet fire method used: Cone model - DNV recommended

		Dia	Noite
Jet Fire Status		Truncated	Truncated
Flame Direction		Horizontal	Horizontal

Radiation Effects: Jet Fire Ellipse

Path: \Terminal Adonai - Efeitos físicos\Simulações\H068

This table gives the distances to the specified radiation levels
for each jet fire listed in the above hazard table

				Distance (m)	
				Dia	Noite
Radiation Level	9.83	kW/m ²		24.5533	23.6228
Radiation Level	19.46	kW/m ²		Not Reached	Not Reached
Radiation Level	35	kW/m ²		Not Reached	Not Reached

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Radiation Effects: Jet Fire Distance

Path: \Terminal Adonai - Efeitos físicos\Simulações\H068

Dia Radiation Level (kW/m2)
Noite

Early Pool Fire Hazard

Path: \Terminal Adonai - Efeitos físicos\Simulações\H068

Early Pool Fire Status Dia Noite
Hazard Hazard

Radiation Effects: Early Pool Fire Ellipse

Path: \Terminal Adonai - Efeitos físicos\Simulações\H068

			Dia	Distance (m) Noite
Radiation Level	9.83	kW/m2	13.9133	13.3051
Radiation Level	19.46	kW/m2	11.8597	11.449
Radiation Level	35	kW/m2	Not Reached	Not Reached

Radiation Effects: Early Pool Fire Distance

Path: \Terminal Adonai - Efeitos físicos\Simulações\H068

Dia Radiation Level (kW/m2)
Noite

Late Pool Fire Hazard

Path: \Terminal Adonai - Efeitos físicos\Simulações\H068

Late Pool Fire Status Dia Noite
Hazard Hazard

Radiation Effects: Late Pool Fire Ellipse

Path: \Terminal Adonai - Efeitos físicos\Simulações\H068

			Dia	Distance (m) Noite
Radiation Level	9.83	kW/m2	13.9133	13.3051
Radiation Level	19.46	kW/m2	11.8597	11.449
Radiation Level	35	kW/m2	Not Reached	Not Reached

Radiation Effects: Late Pool Fire Distance

Path: \Terminal Adonai - Efeitos físicos\Simulações\H068

Dia Radiation Level (kW/m2)
Noite

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Weather Conditions

Path: \Terminal Adonai - Efeitos físicos\Simulações\H068

		Dia	Noite
Wind Speed	m/s	3	2
Pasquill Stability		C	E
Surface Roughness Length	mm	1000	1000
Surface Roughness Parameter		0.173718	0.173718
Atmospheric Temperature	degC	25	20
Surface Temperature	degC	30	20
Relative Humidity	fraction	0.8	0.8

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

H069

Base Case

CASE Name: Data

Path: \Terminal Adonai - Efeitos físicos\Simulações\H069

User-Defined Data

Material

Material Identifier METHANOL

Scenario

Building Wake Effect None

Vessel/Tank

Release Type Continuous

Location

Elevation 0 m
Use ERPG averaging time ERPG not selected
Use IDLH averaging time IDLH not selected
Use STEL averaging time STEL not selected
Supply a user defined averaging time Not supplied

Bund

Status of Bund Bund present
Bund Area 1.152E4 m2
[Type of Bund Surface User-Defined (Land)]
Bund Height 0.3 m
[Bund Failure Modeling Bund cannot fail]

Indoor/Outdoor

Location of release Open air release
Outdoor Release Direction Horizontal

Flammable

Explosion Method TNT
Jet Fire Method Cone Model

Dispersion

Number of Release Segments 1
Fluid Phase(1) Liquid
Discharge Velocity(1) 21.96 m/s
Droplet Diameter(1) 481.3 um
Duration of Discharge(1) 600 s
Final Temperature(1) 25.12 degC
Release Rate(1) 99 kg/s
Pre-Dilution Air Rates(1) 0 kg/s
Late Ignition Location No ignition location
Mass Inventory of material to Disperse 2.527E6 kg

Fireball Parameters

[Mass Modification Factor 3]
[Calculation method for fireball DNV Recommended]
[TNO model flame temperature 1727 degC]

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Toxic Parameters

[Indoor Calculations	Unselected]
[Wind Dependent Exchange Rate	Case Specified]
[Building Exchange Rate	4 /hr]
[Tail Time	1800 s]
[Set averaging time equal to exposure time	Use a fixed averaging time]
[Cut-off fraction of toxic load for exposure time calculation	0.05 fraction]
[Cut-off concentration for exposure time calculations	0 fraction]

Geometry

Shape	Point
Dimension	2D
System	Absolute
East(1)	0 m
North(1)	0 m

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Consequence Results

Pool Vaporization Results

Path: \Terminal Adonai - Efeitos físicos\Simulações\H069

		Dia	Noite
	Release Segment 1		
Release Duration	s	600	600
Liquid Rainout	fraction	1	1
	Release Segment 1 Cloud Segment 1		
Cloud Segment Duration	s	171.61	165.766
Pool Vaporization Rate	kg/s	0.943911	0.687045
Total Vapor Flowrate	kg/s	0.943933	0.687068
	Release Segment 1 Cloud Segment 2		
Cloud Segment Duration	s	77.2406	76.815
Pool Vaporization Rate	kg/s	2.09134	1.48205
Total Vapor Flowrate	kg/s	2.09136	1.48207
	Release Segment 1 Cloud Segment 3		
Cloud Segment Duration	s	61.79	61.9219
Pool Vaporization Rate	kg/s	2.64474	1.85787
Total Vapor Flowrate	kg/s	2.64476	1.8579
	Release Segment 1 Cloud Segment 4		
Cloud Segment Duration	s	53.215	53.6531
Pool Vaporization Rate	kg/s	3.07388	2.14606
Total Vapor Flowrate	kg/s	3.0739	2.14608
	Release Segment 1 Cloud Segment 5		
Cloud Segment Duration	s	90.9	92.345
Pool Vaporization Rate	kg/s	3.5818	2.48443
Total Vapor Flowrate	kg/s	3.58182	2.48445
	Release Segment 1 Cloud Segment 6		
Cloud Segment Duration	s	115.26	118.322
Pool Vaporization Rate	kg/s	4.26632	2.93674
Total Vapor Flowrate	kg/s	4.26634	2.93676
	Release Segment 1 Cloud Segment 7		
Cloud Segment Duration	s	29.9844	31.1775
Pool Vaporization Rate	kg/s	4.7265	3.23898
Total Vapor Flowrate	kg/s	4.72652	3.239
Maximum Pool Radius	m	27.7887	27.8447

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Distance to Concentration Results

Path: \Terminal Adonai - Efeitos físicos\Simulações\H069

The height for user defined concentrations is the user defined height 0 m

All toxic results are reported at the toxic effect height 1 m

All flammable results are reported at the flammable effect height 0 m

Concentration(ppm)	Averaging Time		Distance (m)	
			Dia	Noite
UFL (360000)	18.75	s	0	0
LFL (73000)	18.75	s	0	0
LFL Frac (73000)	18.75	s	0	0

Concentration(ppm)	Averaging Time		Heights (m) for above distances	
			Dia	Noite
UFL (360000)	18.75	s	0	0
LFL (73000)	18.75	s	0	0
LFL Frac (73000)	18.75	s	0	0

Jet Fire Hazard

Path: \Terminal Adonai - Efeitos físicos\Simulações\H069

Jet fire method used: Cone model - DNV recommended

	Dia	Noite
Jet Fire Status	Truncated	Truncated
Flame Direction	Horizontal	Horizontal

Radiation Effects: Jet Fire Ellipse

Path: \Terminal Adonai - Efeitos físicos\Simulações\H069

This table gives the distances to the specified radiation levels for each jet fire listed in the above hazard table

Radiation Level			Distance (m)	
			Dia	Noite
9.83	kW/m2	Not Reached	Not Reached	
19.46	kW/m2	Not Reached	Not Reached	
35	kW/m2	Not Reached	Not Reached	

Radiation Effects: Jet Fire Distance

Path: \Terminal Adonai - Efeitos físicos\Simulações\H069

	Dia	Radiation Level (kW/m2)
		Noite

Early Pool Fire Hazard

Path: \Terminal Adonai - Efeitos físicos\Simulações\H069

	Dia	Noite
Early Pool Fire Status	Hazard	Hazard

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Radiation Effects: Early Pool Fire Ellipse

Path: \Terminal Adonai - Efeitos físicos\Simulações\H069

			Dia	Noite
Radiation Level	9.83	kW/m2	54.6965	53.0164
Radiation Level	19.46	kW/m2	39.1424	37.2883
Radiation Level	35	kW/m2	28.7887	28.8447

Radiation Effects: Early Pool Fire Distance

Path: \Terminal Adonai - Efeitos físicos\Simulações\H069

Dia	Noite
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Late Pool Fire Hazard

Path: \Terminal Adonai - Efeitos físicos\Simulações\H069

	Dia	Noite
Late Pool Fire Status	Hazard	Hazard

Radiation Effects: Late Pool Fire Ellipse

Path: \Terminal Adonai - Efeitos físicos\Simulações\H069

			Dia	Noite
Radiation Level	9.83	kW/m2	54.6965	53.0164
Radiation Level	19.46	kW/m2	39.1424	37.2883
Radiation Level	35	kW/m2	28.7887	28.8447

Radiation Effects: Late Pool Fire Distance

Path: \Terminal Adonai - Efeitos físicos\Simulações\H069

Dia	Noite
-----	-------

Weather Conditions

Path: \Terminal Adonai - Efeitos físicos\Simulações\H069

		Dia	Noite
Wind Speed	m/s	3	2
Pasquill Stability		C	E
Surface Roughness Length	mm	1000	1000
Surface Roughness Parameter		0.173718	0.173718
Atmospheric Temperature	degC	25	20
Surface Temperature	degC	30	20
Relative Humidity	fraction	0.8	0.8

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

H070

Base Case

CASE Name: Data

Path: \Terminal Adonai - Efeitos físicos\Simulações\H070

User-Defined Data

Material

Material Identifier METHANOL

Scenario

Building Wake Effect None

Vessel/Tank

Release Type Continuous

Location

Elevation 0 m
Use ERPG averaging time ERPG not selected
Use IDLH averaging time IDLH not selected
Use STEL averaging time STEL not selected
Supply a user defined averaging time Not supplied

Bund

Status of Bund Bund present
Bund Area 1.152E4 m2
[Type of Bund Surface User-Defined (Land)]
Bund Height 0.3 m
[Bund Failure Modeling Bund cannot fail]

Indoor/Outdoor

Location of release Open air release
Outdoor Release Direction Horizontal

Flammable

Explosion Method TNT
Jet Fire Method Cone Model

Dispersion

Number of Release Segments 1
Fluid Phase(1) Liquid
Discharge Velocity(1) 36.6 m/s
Droplet Diameter(1) 173.5 um
Duration of Discharge(1) 600 s
Final Temperature(1) 24.94 degC
Release Rate(1) 0.99 kg/s
Pre-Dilution Air Rates(1) 0 kg/s
Late Ignition Location No ignition location
Mass Inventory of material to Disperse 2.527E6 kg

Fireball Parameters

[Mass Modification Factor 3]
[Calculation method for fireball DNV Recommended]
[TNO model flame temperature 1727 degC]

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Toxic Parameters

[Indoor Calculations	Unselected]
[Wind Dependent Exchange Rate	Case Specified]
[Building Exchange Rate	4 /hr]
[Tail Time	1800 s]
[Set averaging time equal to exposure time	Use a fixed averaging time]
[Cut-off fraction of toxic load for exposure time calculation	0.05 fraction]
[Cut-off concentration for exposure time calculations	0 fraction]

Geometry

Shape	Point
Dimension	2D
System	Absolute
East(1)	0 m
North(1)	0 m

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Consequence Results

Pool Vaporization Results

Path: \Terminal Adonai - Efeitos físicos\Simulações\H070

			Dia	Noite
		Release Segment 1		
Release Duration	s		600	600
Liquid Rainout	fraction		1	1
Maximum Pool Radius	m		2.76626	2.77816

Distance to Concentration Results

Path: \Terminal Adonai - Efeitos físicos\Simulações\H070

The height for user defined concentrations is the user defined height 0 m
All toxic results are reported at the toxic effect height 1 m
All flammable results are reported at the flammable effect height 0 m

Concentration(ppm)		Averaging Time		Distance (m)	
				Dia	Noite
UFL (360000)	18.75	s		0	0
LFL (73000)	18.75	s		0.0020514	0.00317565
LFL Frac (73000)	18.75	s		0.0020514	0.00317565

Concentration(ppm)		Averaging Time		Heights (m) for above distances	
				Dia	Noite
UFL (360000)	18.75	s		0	0
LFL (73000)	18.75	s		0	0
LFL Frac (73000)	18.75	s		0	0

Jet Fire Hazard

Path: \Terminal Adonai - Efeitos físicos\Simulações\H070

Jet fire method used: Cone model - DNV recommended

		Dia	Noite
Jet Fire Status		No Hazard	No Hazard
Flame Direction		Horizontal	Horizontal

Early Pool Fire Hazard

Path: \Terminal Adonai - Efeitos físicos\Simulações\H070

		Dia	Noite
Early Pool Fire Status		Hazard	Hazard

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Radiation Effects: Early Pool Fire Ellipse

Path: \Terminal Adonai - Efeitos físicos\Simulações\H070

			Dia	Noite
Radiation Level	9.83	kW/m2	6.49683	6.07577
Radiation Level	19.46	kW/m2	3.76626	3.77816
Radiation Level	35	kW/m2	Not Reached	Not Reached

Radiation Effects: Early Pool Fire Distance

Path: \Terminal Adonai - Efeitos físicos\Simulações\H070

	Dia	Noite
Radiation Level (kW/m2)		

Late Pool Fire Hazard

Path: \Terminal Adonai - Efeitos físicos\Simulações\H070

	Dia	Noite
Late Pool Fire Status	Hazard	Hazard

Radiation Effects: Late Pool Fire Ellipse

Path: \Terminal Adonai - Efeitos físicos\Simulações\H070

			Dia	Noite
Radiation Level	9.83	kW/m2	6.49683	6.07577
Radiation Level	19.46	kW/m2	3.76626	3.77816
Radiation Level	35	kW/m2	Not Reached	Not Reached

Radiation Effects: Late Pool Fire Distance

Path: \Terminal Adonai - Efeitos físicos\Simulações\H070

	Dia	Noite
Radiation Level (kW/m2)		

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Flash Fire Envelope

Path: \Terminal Adonai - Efeitos físicos\Simulações\H070

All flammable results are reported at the flammable effect height 0 m

			Distance (m)	
			Dia	Noite
Furthest Extent	73000	ppm	0.0020514	0.00317565
Furthest Extent	73000	ppm	0.0020514	0.00317565
			Heights (m) for above distances	
			Dia	Noite
Furthest Extent	73000	ppm	0	0
Furthest Extent	73000	ppm	0	0

Weather Conditions

Path: \Terminal Adonai - Efeitos físicos\Simulações\H070

		Dia	Noite
Wind Speed	m/s	3	2
Pasquill Stability		C	E
Surface Roughness Length	mm	1000	1000
Surface Roughness Parameter		0.173718	0.173718
Atmospheric Temperature	degC	25	20
Surface Temperature	degC	30	20
Relative Humidity	fraction	0.8	0.8

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

H071

Base Case

CASE Name: Data

Path: \Terminal Adonai - Efeitos físicos\Simulações\H071

User-Defined Data

Material

Material Identifier METHANOL

Scenario

Building Wake Effect None

Vessel/Tank

Release Type Continuous

Location

Elevation 0 m
Use ERPG averaging time ERPG not selected
Use IDLH averaging time IDLH not selected
Use STEL averaging time STEL not selected
Supply a user defined averaging time Not supplied

Bund

Status of Bund No bund present
[Type of Bund Surface User-Defined (Land)]
[Bund Height 0 m]
[Bund Failure Modeling Bund cannot fail]

Indoor/Outdoor

Location of release Open air release
Outdoor Release Direction Horizontal

Flammable

Explosion Method TNT
Jet Fire Method Cone Model

Dispersion

Number of Release Segments 1
Fluid Phase(1) Liquid
Discharge Velocity(1) 19.02 m/s
Droplet Diameter(1) 641.8 um
Duration of Discharge(1) 600 s
Final Temperature(1) 25.09 degC
Release Rate(1) 39.6 kg/s
Pre-Dilution Air Rates(1) 0 kg/s
Late Ignition Location No ignition location
Mass Inventory of material to Disperse 4.738E4 kg

Fireball Parameters

[Mass Modification Factor 3]
[Calculation method for fireball DNV Recommended]
[TNO model flame temperature 1727 degC]

Toxic Parameters

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

[Indoor Calculations	Unselected]
[Wind Dependent Exchange Rate	Case Specified]
[Building Exchange Rate	4 /hr]
[Tail Time	1800 s]
[Set averaging time equal to exposure time	Use a fixed averaging time]
[Cut-off fraction of toxic load for exposure time calculation	0.05 fraction]
[Cut-off concentration for exposure time calculations	0 fraction]

Geometry

Shape	Point
Dimension	2D
System	Absolute
East(1)	0 m
North(1)	0 m

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Consequence Results

Pool Vaporization Results

Path: \Terminal Adonai - Efeitos físicos\Simulações\H071

		Dia	Noite
	Release Segment 1		
Release Duration	s	600	600
Liquid Rainout	fraction	1	1
	Release Segment 1 Cloud Segment 1		
Cloud Segment Duration	s	171.61	165.766
Pool Vaporization Rate	kg/s	0.396685	0.28633
Total Vapor Flowrate	kg/s	0.396694	0.286339
	Release Segment 1 Cloud Segment 2		
Cloud Segment Duration	s	77.2406	76.815
Pool Vaporization Rate	kg/s	0.879133	0.61629
Total Vapor Flowrate	kg/s	0.879142	0.616298
	Release Segment 1 Cloud Segment 3		
Cloud Segment Duration	s	61.79	61.9219
Pool Vaporization Rate	kg/s	1.11234	0.772409
Total Vapor Flowrate	kg/s	1.11234	0.772418
	Release Segment 1 Cloud Segment 4		
Cloud Segment Duration	s	53.215	53.6531
Pool Vaporization Rate	kg/s	1.29348	0.892392
Total Vapor Flowrate	kg/s	1.29349	0.8924
	Release Segment 1 Cloud Segment 5		
Cloud Segment Duration	s	90.9	92.345
Pool Vaporization Rate	kg/s	1.50826	1.03367
Total Vapor Flowrate	kg/s	1.50826	1.03368
	Release Segment 1 Cloud Segment 6		
Cloud Segment Duration	s	115.26	118.322
Pool Vaporization Rate	kg/s	1.79827	1.22324
Total Vapor Flowrate	kg/s	1.79828	1.22325
	Release Segment 1 Cloud Segment 7		
Cloud Segment Duration	s	29.9844	31.1775
Pool Vaporization Rate	kg/s	1.99352	1.35034
Total Vapor Flowrate	kg/s	1.99353	1.35035
Maximum Pool Radius	m	17.563	17.6021

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Distance to Concentration Results

Path: \Terminal Adonai - Efeitos físicos\Simulações\H071

The height for user defined concentrations is the user defined height 0 m

All toxic results are reported at the toxic effect height 1 m

All flammable results are reported at the flammable effect height 0 m

Concentration(ppm)	Averaging Time	Distance (m)	
		Dia	Noite
UFL (360000)	18.75 s	0	0
LFL (73000)	18.75 s	0	0
LFL Frac (73000)	18.75 s	0	0

Concentration(ppm)	Averaging Time	Heights (m) for above distances	
		Dia	Noite
UFL (360000)	18.75 s	0	0
LFL (73000)	18.75 s	0	0
LFL Frac (73000)	18.75 s	0	0

Jet Fire Hazard

Path: \Terminal Adonai - Efeitos físicos\Simulações\H071

Jet fire method used: Cone model - DNV recommended

	Dia	Noite
Jet Fire Status	Truncated	Truncated
Flame Direction	Horizontal	Horizontal

Radiation Effects: Jet Fire Ellipse

Path: \Terminal Adonai - Efeitos físicos\Simulações\H071

This table gives the distances to the specified radiation levels for each jet fire listed in the above hazard table

			Distance (m)	
Radiation Level			Dia	Noite
9.83	kW/m2		Not Reached	Not Reached
19.46	kW/m2		Not Reached	Not Reached
35	kW/m2		Not Reached	Not Reached

Radiation Effects: Jet Fire Distance

Path: \Terminal Adonai - Efeitos físicos\Simulações\H071

	Dia	Radiation Level (kW/m2)
		Noite

Early Pool Fire Hazard

Path: \Terminal Adonai - Efeitos físicos\Simulações\H071

	Dia	Noite
Early Pool Fire Status	Hazard	Hazard

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Radiation Effects: Early Pool Fire Ellipse

Path: \Terminal Adonai - Efeitos físicos\Simulações\H071

			Dia	Noite
Radiation Level	9.83	kW/m2	35.9885	34.6996
Radiation Level	19.46	kW/m2	23.9687	22.9101
Radiation Level	35	kW/m2	18.563	18.6021

Radiation Effects: Early Pool Fire Distance

Path: \Terminal Adonai - Efeitos físicos\Simulações\H071

	Dia	Noite
Radiation Level (kW/m2)		

Late Pool Fire Hazard

Path: \Terminal Adonai - Efeitos físicos\Simulações\H071

	Dia	Noite
Late Pool Fire Status	Hazard	Hazard

Radiation Effects: Late Pool Fire Ellipse

Path: \Terminal Adonai - Efeitos físicos\Simulações\H071

			Dia	Noite
Radiation Level	9.83	kW/m2	35.9885	34.6996
Radiation Level	19.46	kW/m2	23.9687	22.9101
Radiation Level	35	kW/m2	18.563	18.6021

Radiation Effects: Late Pool Fire Distance

Path: \Terminal Adonai - Efeitos físicos\Simulações\H071

	Dia	Noite
Radiation Level (kW/m2)		

Weather Conditions

Path: \Terminal Adonai - Efeitos físicos\Simulações\H071

		Dia	Noite
Wind Speed	m/s	3	2
Pasquill Stability		C	E
Surface Roughness Length	mm	1000	1000
Surface Roughness Parameter		0.173718	0.173718
Atmospheric Temperature	degC	25	20
Surface Temperature	degC	30	20
Relative Humidity	fraction	0.8	0.8

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

H072

Base Case

CASE Name: Data

Path: \Terminal Adonai - Efeitos físicos\Simulações\H072

User-Defined Data

Material

Material Identifier METHANOL

Scenario

Building Wake Effect None

Vessel/Tank

Release Type Continuous

Location

Elevation 0 m
Use ERPG averaging time ERPG not selected
Use IDLH averaging time IDLH not selected
Use STEL averaging time STEL not selected
Supply a user defined averaging time Not supplied

Bund

Status of Bund No bund present
[Type of Bund Surface User-Defined (Land)]
[Bund Height 0 m]
[Bund Failure Modeling Bund cannot fail]

Indoor/Outdoor

Location of release Open air release
Outdoor Release Direction Horizontal

Flammable

Explosion Method TNT
Jet Fire Method Cone Model

Dispersion

Number of Release Segments 1
Fluid Phase(1) Liquid
Discharge Velocity(1) 31.7 m/s
Droplet Diameter(1) 231.3 um
Duration of Discharge(1) 600 s
Final Temperature(1) 24.95 degC
Release Rate(1) 0.4 kg/s
Pre-Dilution Air Rates(1) 0 kg/s
Late Ignition Location No ignition location
Mass Inventory of material to Disperse 4.738E4 kg

Fireball Parameters

[Mass Modification Factor 3]
[Calculation method for fireball DNV Recommended]
[TNO model flame temperature 1727 degC]

Toxic Parameters

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

[Indoor Calculations	Unselected]
[Wind Dependent Exchange Rate	Case Specified]
[Building Exchange Rate	4 /hr]
[Tail Time	1800 s]
[Set averaging time equal to exposure time	Use a fixed averaging time]
[Cut-off fraction of toxic load for exposure time calculation	0.05 fraction]
[Cut-off concentration for exposure time calculations	0 fraction]

Geometry

Shape	Point
Dimension	2D
System	Absolute
East(1)	0 m
North(1)	0 m

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Consequence Results

Pool Vaporization Results

Path: \Terminal Adonai - Efeitos físicos\Simulações\H072

			Dia	Noite
		Release Segment 1		
Release Duration	s		600	600
Liquid Rainout	fraction		1	1
Maximum Pool Radius	m		1.75556	1.76505

Distance to Concentration Results

Path: \Terminal Adonai - Efeitos físicos\Simulações\H072

The height for user defined concentrations is the user defined height 0 m
All toxic results are reported at the toxic effect height 1 m
All flammable results are reported at the flammable effect height 0 m

Concentration(ppm)		Averaging Time		Distance (m)	
				Dia	Noite
UFL (360000)	18.75	s		0	0
LFL (73000)	18.75	s		0.000901386	0.00141708
LFL Frac (73000)	18.75	s		0.000901386	0.00141708

Concentration(ppm)		Averaging Time		Heights (m) for above distances	
				Dia	Noite
UFL (360000)	18.75	s		0	0
LFL (73000)	18.75	s		0	0
LFL Frac (73000)	18.75	s		0	0

Jet Fire Hazard

Path: \Terminal Adonai - Efeitos físicos\Simulações\H072

Jet fire method used: Cone model - DNV recommended

		Dia	Noite
Jet Fire Status		No Hazard	No Hazard
Flame Direction		Horizontal	Horizontal

Early Pool Fire Hazard

Path: \Terminal Adonai - Efeitos físicos\Simulações\H072

		Dia	Noite
Early Pool Fire Status		Hazard	Hazard

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos fisicos

Phast 6.7

Radiation Effects: Early Pool Fire Ellipse

Path: \Terminal Adonai - Efeitos fisicos\Simulações\H072

			Dia	Noite
Radiation Level	9.83	kW/m2	3.94054	3.7134
Radiation Level	19.46	kW/m2	2.75556	2.76505
Radiation Level	35	kW/m2	Not Reached	Not Reached

Radiation Effects: Early Pool Fire Distance

Path: \Terminal Adonai - Efeitos fisicos\Simulações\H072

	Dia	Noite
Radiation Level (kW/m2)		

Late Pool Fire Hazard

Path: \Terminal Adonai - Efeitos fisicos\Simulações\H072

	Dia	Noite
Late Pool Fire Status	Hazard	Hazard

Radiation Effects: Late Pool Fire Ellipse

Path: \Terminal Adonai - Efeitos fisicos\Simulações\H072

			Dia	Noite
Radiation Level	9.83	kW/m2	3.94054	3.7134
Radiation Level	19.46	kW/m2	2.75556	2.76505
Radiation Level	35	kW/m2	Not Reached	Not Reached

Radiation Effects: Late Pool Fire Distance

Path: \Terminal Adonai - Efeitos fisicos\Simulações\H072

	Dia	Noite
Radiation Level (kW/m2)		

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Flash Fire Envelope

Path: \Terminal Adonai - Efeitos físicos\Simulações\H072

All flammable results are reported at the flammable effect height 0 m

			Distance (m)	
			Dia	Noite
Furthest Extent	73000	ppm	0.000901386	0.00141708
Furthest Extent	73000	ppm	0.000901386	0.00141708
			Heights (m) for above distances	
			Dia	Noite
Furthest Extent	73000	ppm	0	0
Furthest Extent	73000	ppm	0	0

Weather Conditions

Path: \Terminal Adonai - Efeitos físicos\Simulações\H072

		Dia	Noite
Wind Speed	m/s	3	2
Pasquill Stability		C	E
Surface Roughness Length	mm	1000	1000
Surface Roughness Parameter		0.173718	0.173718
Atmospheric Temperature	degC	25	20
Surface Temperature	degC	30	20
Relative Humidity	fraction	0.8	0.8

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

H073

Base Case

CASE Name: Data

Path: \Terminal Adonai - Efeitos físicos\Simulações\H073

User-Defined Data

Material

Material Identifier METHANOL

Scenario

Building Wake Effect None

Vessel/Tank

Release Type Continuous

Location

Elevation 1 m
Use ERPG averaging time ERPG not selected
Use IDLH averaging time IDLH not selected
Use STEL averaging time STEL not selected
Supply a user defined averaging time Not supplied

Bund

Status of Bund No bund present
[Type of Bund Surface User-Defined (Land)]
[Bund Height 0 m]
[Bund Failure Modeling Bund cannot fail]

Indoor/Outdoor

Location of release Open air release
Outdoor Release Direction Horizontal

Flammable

Explosion Method TNT
Jet Fire Method Cone Model

Dispersion

Number of Release Segments 1
Fluid Phase(1) Liquid
Discharge Velocity(1) 19.02 m/s
Droplet Diameter(1) 641.8 um
Duration of Discharge(1) 600 s
Final Temperature(1) 25.09 degC
Release Rate(1) 39.6 kg/s
Pre-Dilution Air Rates(1) 0 kg/s
Late Ignition Location No ignition location
Mass Inventory of material to Disperse 4.738E4 kg

Fireball Parameters

[Mass Modification Factor 3]
[Calculation method for fireball DNV Recommended]
[TNO model flame temperature 1727 degC]

Toxic Parameters

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

[Indoor Calculations	Unselected]
[Wind Dependent Exchange Rate	Case Specified]
[Building Exchange Rate	4 /hr]
[Tail Time	1800 s]
[Set averaging time equal to exposure time	Use a fixed averaging time]
[Cut-off fraction of toxic load for exposure time calculation	0.05 fraction]
[Cut-off concentration for exposure time calculations	0 fraction]

Geometry

Shape	Point
Dimension	2D
System	Absolute
East(1)	0 m
North(1)	0 m

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Consequence Results

Pool Vaporization Results

Path: \Terminal Adonai - Efeitos físicos\Simulações\H073

		Dia	Noite
	Release Segment 1		
Release Duration	s	600	600
Liquid Rainout	fraction	0.960684	0.964126
	Release Segment 1 Cloud Segment 1		
Cloud Segment Duration	s	187.69	180.231
Pool Vaporization Rate	kg/s	0.249354	0.178762
Total Vapor Flowrate	kg/s	1.80627	1.59938
	Release Segment 1 Cloud Segment 2		
Cloud Segment Duration	s	78	78.175
Pool Vaporization Rate	kg/s	0.600533	0.413428
Total Vapor Flowrate	kg/s	2.15745	1.83405
	Release Segment 1 Cloud Segment 3		
Cloud Segment Duration	s	60.1125	61.11
Pool Vaporization Rate	kg/s	0.779058	0.530741
Total Vapor Flowrate	kg/s	2.33597	1.95136
	Release Segment 1 Cloud Segment 4		
Cloud Segment Duration	s	51.5281	52.01
Pool Vaporization Rate	kg/s	0.920713	0.622627
Total Vapor Flowrate	kg/s	2.47763	2.04325
	Release Segment 1 Cloud Segment 5		
Cloud Segment Duration	s	44.9719	88.5769
Pool Vaporization Rate	kg/s	1.04121	0.733011
Total Vapor Flowrate	kg/s	2.59813	2.15363
	Release Segment 1 Cloud Segment 6		
Cloud Segment Duration	s	79.4575	111.108
Pool Vaporization Rate	kg/s	1.1938	0.88399
Total Vapor Flowrate	kg/s	2.75072	2.30461
	Release Segment 1 Cloud Segment 7		
Cloud Segment Duration	s	98.24	28.79
Pool Vaporization Rate	kg/s	1.40687	0.986509
Total Vapor Flowrate	kg/s	2.96379	2.40713
Maximum Pool Radius	m	17.2384	17.2855

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Distance to Concentration Results

Path: \Terminal Adonai - Efeitos físicos\Simulações\H073

The height for user defined concentrations is the user defined height 0 m

All toxic results are reported at the toxic effect height 1 m

All flammable results are reported at the flammable effect height 0 m

Concentration(ppm)	Averaging Time		Distance (m)	
			Dia	Noite
UFL (360000)	18.75	s	7.84395	7.90688
LFL (73000)	18.75	s	8.22745	11.9497
LFL Frac (73000)	18.75	s	8.22745	11.9497

Concentration(ppm)	Averaging Time		Heights (m) for above distances	
			Dia	Noite
UFL (360000)	18.75	s	0	0
LFL (73000)	18.75	s	0	0
LFL Frac (73000)	18.75	s	0	0

Jet Fire Hazard

Path: \Terminal Adonai - Efeitos físicos\Simulações\H073

Jet fire method used: Cone model - DNV recommended

	Dia	Noite
Jet Fire Status	Truncated	Truncated
Flame Direction	Horizontal	Horizontal

Radiation Effects: Jet Fire Ellipse

Path: \Terminal Adonai - Efeitos físicos\Simulações\H073

This table gives the distances to the specified radiation levels for each jet fire listed in the above hazard table

Radiation Level			Distance (m)	
			Dia	Noite
9.83	kW/m2		51.2946	52.9414
19.46	kW/m2		44.4768	Not Reached
35	kW/m2		Not Reached	Not Reached

Radiation Effects: Jet Fire Distance

Path: \Terminal Adonai - Efeitos físicos\Simulações\H073

	Dia	Radiation Level (kW/m2)
		Noite

Early Pool Fire Hazard

Path: \Terminal Adonai - Efeitos físicos\Simulações\H073

	Dia	Noite
Early Pool Fire Status	Hazard	Hazard

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos fisicos

Phast 6.7

Radiation Effects: Early Pool Fire Ellipse

Path: \Terminal Adonai - Efeitos fisicos\Simulações\H073

			Dia	Noite
Radiation Level	9.83	kW/m2	43.6505	42.3926
Radiation Level	19.46	kW/m2	31.7803	30.6934
Radiation Level	35	kW/m2	26.508	26.5567

Radiation Effects: Early Pool Fire Distance

Path: \Terminal Adonai - Efeitos fisicos\Simulações\H073

	Dia	Noite
Radiation Level (kW/m2)		

Late Pool Fire Hazard

Path: \Terminal Adonai - Efeitos fisicos\Simulações\H073

	Dia	Noite
Late Pool Fire Status	Hazard	Hazard

Radiation Effects: Late Pool Fire Ellipse

Path: \Terminal Adonai - Efeitos fisicos\Simulações\H073

			Dia	Noite
Radiation Level	9.83	kW/m2	43.6505	42.3926
Radiation Level	19.46	kW/m2	31.7803	30.6934
Radiation Level	35	kW/m2	26.508	26.5567

Radiation Effects: Late Pool Fire Distance

Path: \Terminal Adonai - Efeitos fisicos\Simulações\H073

	Dia	Noite
Radiation Level (kW/m2)		

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Flash Fire Envelope

Path: \Terminal Adonai - Efeitos físicos\Simulações\H073

All flammable results are reported at the flammable effect height 0 m

				Distance (m)	
				Dia	Noite
Furthest Extent	73000	ppm	8.22745	11.9497	
Furthest Extent	73000	ppm	8.22745	11.9497	
				Heights (m) for above distances	
				Dia	Noite
Furthest Extent	73000	ppm	0	0	
Furthest Extent	73000	ppm	0	0	

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Explosion Effects: Late Ignition

Path: \Terminal Adonai - Efeitos físicos\Simulações\H073

Explosion Model Used : TNT

Explosion Location Criterion: Cloud Center

All distances are measured from the Source

All flammable results are reported at the flammable effect height 0 m

			Maximum Distance (m) at Overpressure Level
			Noite
Overpressure	0.05	bar	12.9454
Overpressure	0.1	bar	9.98638
Overpressure	0.3	bar	7.56115
			Supplementary Data at 0.05 bar
			Noite
Supplied Flammable Mass		kg	0.224659
Used Flammable Mass		kg	0.224659
Overpressure Radius		m	7.80307
Distance to:			
- Ignition Source		m	10
- Cloud Front/Centre		m	10
- Explosion Centre		m	5.14235
			Supplementary Data at 0.1 bar
			Noite
Supplied Flammable Mass		kg	0.224659
Used Flammable Mass		kg	0.224659
Overpressure Radius		m	4.84403
Distance to:			
- Ignition Source		m	10
- Cloud Front/Centre		m	10
- Explosion Centre		m	5.14235
			Supplementary Data at 0.3 bar
			Noite
Supplied Flammable Mass		kg	0.224659
Used Flammable Mass		kg	0.224659
Overpressure Radius		m	2.4188
Distance to:			
- Ignition Source		m	10
- Cloud Front/Centre		m	10
- Explosion Centre		m	5.14235

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Weather Conditions

Path: \Terminal Adonai - Efeitos físicos\Simulações\H073

		Dia	Noite
Wind Speed	m/s	3	2
Pasquill Stability		C	E
Surface Roughness Length	mm	1000	1000
Surface Roughness Parameter		0.173718	0.173718
Atmospheric Temperature	degC	25	20
Surface Temperature	degC	30	20
Relative Humidity	fraction	0.8	0.8

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

H074

Base Case

CASE Name: Data

Path: \Terminal Adonai - Efeitos físicos\Simulações\H074

User-Defined Data

Toxic Parameters

[Building Exchange Rate	4 /hr]
[Tail Time	1800 s]
[Set averaging time equal to exposure time	Use a fixed averaging time]
[Cut-off fraction of toxic load for exposure time calculation	0.05 fraction]
[Cut-off concentration for exposure time calculations	0 fraction]

Geometry

Shape	Point
Dimension	2D
System	Absolute
East(1)	0 m
North(1)	0 m

Material

Material Identifier	METHANOL
---------------------	----------

Scenario

Building Wake Effect	None
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Vessel/Tank

Release Type	Continuous
--------------	------------

Location

Elevation	1 m
Use ERPG averaging time	ERPG not selected
Use IDLH averaging time	IDLH not selected
Use STEL averaging time	STEL not selected
Supply a user defined averaging time	Not supplied

Bund

Status of Bund	No bund present
[Type of Bund Surface	User-Defined (Land)]
[Bund Height	0 m]
[Bund Failure Modeling	Bund cannot fail]

Indoor/Outdoor

Location of release	Open air release
Outdoor Release Direction	Horizontal

Flammable

Explosion Method	TNT
Jet Fire Method	Cone Model

Dispersion

Number of Release Segments	1
Fluid Phase(1)	Liquid

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Discharge Velocity(1)	31.7 m/s
Droplet Diameter(1)	231.3 um
Duration of Discharge(1)	600 s
Final Temperature(1)	24.95 degC
Release Rate(1)	0.4 kg/s
Pre-Dilution Air Rates(1)	0 kg/s
Late Ignition Location	No ignition location
Mass Inventory of material to Disperse	4.738E4 kg

Fireball Parameters

[Mass Modification Factor	3]
[Calculation method for fireball	DNV Recommended]
[TNO model flame temperature	1727 degC]

Toxic Parameters

[Indoor Calculations	Unselected]
[Wind Dependent Exchange Rate	Case Specified]

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Consequence Results

Pool Vaporization Results

Path: \Terminal Adonai - Efeitos físicos\Simulações\H074

			Dia	Noite
		Release Segment 1		
Release Duration	s		600	600
Liquid Rainout	fraction		0.762049	0.804517
Maximum Pool Radius	m		1.53707	1.58514

Distance to Concentration Results

Path: \Terminal Adonai - Efeitos físicos\Simulações\H074

The height for user defined concentrations is the user defined height 0 m
All toxic results are reported at the toxic effect height 1 m
All flammable results are reported at the flammable effect height 0 m

Concentration(ppm)		Averaging Time		Distance (m)	
				Dia	Noite
UFL (360000)	18.75	s		No Hazard	No Hazard
LFL (73000)	18.75	s		No Hazard	No Hazard
LFL Frac (73000)	18.75	s		No Hazard	No Hazard
Concentration(ppm)		Averaging Time		Heights (m) for above distances	
				Dia	Noite
UFL (360000)	18.75	s		0	0
LFL (73000)	18.75	s		0	0
LFL Frac (73000)	18.75	s		0	0

Jet Fire Hazard

Path: \Terminal Adonai - Efeitos físicos\Simulações\H074

Jet fire method used: Cone model - DNV recommended

		Dia	Noite
Jet Fire Status		Truncated	Truncated
Flame Direction		Horizontal	Horizontal

Radiation Effects: Jet Fire Ellipse

Path: \Terminal Adonai - Efeitos físicos\Simulações\H074

This table gives the distances to the specified radiation levels
for each jet fire listed in the above hazard table

				Distance (m)	
				Dia	Noite
Radiation Level	9.83	kW/m2		14.3565	14.3536
Radiation Level	19.46	kW/m2		Not Reached	Not Reached
Radiation Level	35	kW/m2		Not Reached	Not Reached

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Radiation Effects: Jet Fire Distance

Path: \Terminal Adonai - Efeitos físicos\Simulações\H074

Dia Radiation Level (kW/m2)
Noite

Early Pool Fire Hazard

Path: \Terminal Adonai - Efeitos físicos\Simulações\H074

Early Pool Fire Status Dia Noite
Hazard Hazard

Radiation Effects: Early Pool Fire Ellipse

Path: \Terminal Adonai - Efeitos físicos\Simulações\H074

			Dia	Distance (m) Noite
Radiation Level	9.83	kW/m2	9.52665	9.09032
Radiation Level	19.46	kW/m2	8.71854	8.40587
Radiation Level	35	kW/m2	Not Reached	Not Reached

Radiation Effects: Early Pool Fire Distance

Path: \Terminal Adonai - Efeitos físicos\Simulações\H074

Dia Radiation Level (kW/m2)
Noite

Late Pool Fire Hazard

Path: \Terminal Adonai - Efeitos físicos\Simulações\H074

Late Pool Fire Status Dia Noite
Hazard Hazard

Radiation Effects: Late Pool Fire Ellipse

Path: \Terminal Adonai - Efeitos físicos\Simulações\H074

			Dia	Distance (m) Noite
Radiation Level	9.83	kW/m2	9.52665	9.09032
Radiation Level	19.46	kW/m2	8.71854	8.40587
Radiation Level	35	kW/m2	Not Reached	Not Reached

Radiation Effects: Late Pool Fire Distance

Path: \Terminal Adonai - Efeitos físicos\Simulações\H074

Dia Radiation Level (kW/m2)
Noite

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Weather Conditions

Path: \Terminal Adonai - Efeitos físicos\Simulações\H074

		Dia	Noite
Wind Speed	m/s	3	2
Pasquill Stability		C	E
Surface Roughness Length	mm	1000	1000
Surface Roughness Parameter		0.173718	0.173718
Atmospheric Temperature	degC	25	20
Surface Temperature	degC	30	20
Relative Humidity	fraction	0.8	0.8

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

H075

Base Case

CASE Name: Data

Path: \Terminal Adonai - Efeitos físicos\Simulações\H075

User-Defined Data

Material

Material Identifier	METHANOL
Type of Vessel	Padded Liquid
Pressure Specification	Pressure specified
Storage Pressure - gauge	0.03 bar
Temperature	25 degC
Volume Inventory	3200 m3

Scenario

Scenario Type	Line rupture
Phase to be Released	Liquid
Building Wake Effect	None
Specify Pump Head	No pump head supplied
Number of Excess Flow Valves	0
Number of Non-Return Valves	0
Number of Shut-Off Valves	0

Pipe

Internal Diameter	152.4 mm
Line length	1 m

Vessel/Tank

Duration of Interest	600 s
Method Used for Time Varying Releases	Average Rates
Tank Type	Vertical
Tank Height	22.64 m
Tank Diameter	15 m
Height of Discharge from Vessel Bottom	1 m

Location

Elevation	1 m
Use ERPG averaging time	ERPG not selected
Use IDLH averaging time	IDLH not selected
Use STEL averaging time	STEL not selected
Supply a user defined averaging time	Not supplied

Bund

Status of Bund	Bund present
Bund Area	1940 m2
[Type of Bund Surface	User-Defined (Land)]
Bund Height	3 m
[Bund Failure Modeling	Bund cannot fail]

Indoor/Outdoor

Location of release	Open air release
Outdoor Release Direction	Horizontal

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Flammable

Explosion Method	TNT
Jet Fire Method	Cone Model

Dispersion

Late Ignition Location	No ignition location
Mass Inventory of material to Disperse	2.527E6 kg

Fireball Parameters

[Mass Modification Factor	3]
[Calculation method for fireball	DNV Recommended]
[TNO model flame temperature	1727 degC]

Toxic Parameters

[Indoor Calculations	Unselected]
[Wind Dependent Exchange Rate	Case Specified]
[Building Exchange Rate	4 /hr]
[Tail Time	1800 s]
[Set averaging time equal to exposure time	Use a fixed averaging time]
[Cut-off fraction of toxic load for exposure time calculation	0.05 fraction]
[Cut-off concentration for exposure time calculations	0 fraction]

Geometry

Shape	Point
Dimension	2D
System	Absolute
East(1)	0 m
North(1)	0 m

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Path: \Terminal Adonai - Efeitos físicos\Simulações\H075

DISCHARGE DATA for Weather: Global Weathers\Dia

Wind Speed: 3.00 m/s
Wind Speed at Height (Calculated) 1.78 m/s
Pasquill Stability: C

USER-DEFINED QUANTITIES

Material METHANOL
Scenario Line rupture
Inventory 2,526,775.50 kg
Fixed Duration n/a s

Stagnation data (data at upstream end for long pipe):

- Pressure 1.04 bar
- Temperature 25.00 degC
- Fluid State Non-saturated liquid

CALCULATED QUANTITIES

Mass Flow of Air (Vent from Vapor Space only) n/a
Mass Flowrate 1.80290E+002 kg/s
Release Duration 600.00 s

Orifice or pipe exit data (before atmospheric expansion):

- Pressure n/a bar
- Temperature n/a degC
- Vena Contracta Velocity (exit velocity for pipe releases) n/a m/s
- Discharge Coefficient n/a

Final data (after atmospheric expansion):

- Temperature 25.04 degC
- Liquid Mass Fraction 1.00 fraction
- Droplet Diameter 1,512.22 um
- Expanded Radius n/a m
- Velocity 12.52 m/s

DISCHARGE DATA for Weather: Global Weathers\Noite

Wind Speed: 2.00 m/s
Wind Speed at Height (Calculated) 0.83 m/s
Pasquill Stability: E

USER-DEFINED QUANTITIES

Material METHANOL
Scenario Line rupture
Inventory 2,526,775.50 kg
Fixed Duration n/a s

Stagnation data (data at upstream end for long pipe):

- Pressure 1.04 bar
- Temperature 25.00 degC
- Fluid State Non-saturated liquid

CALCULATED QUANTITIES

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Mass Flow of Air (Vent from Vapor Space only)	n/a
Mass Flowrate	1.80291E+002 kg/s
Release Duration	600.00 s
Orifice or pipe exit data (before atmospheric expansion):	
- Pressure	n/a bar
- Temperature	n/a degC
- Vena Contracta Velocity (exit velocity for pipe releases)	n/a m/s
- Discharge Coefficient	n/a
Final data (after atmospheric expansion):	
- Temperature	25.03 degC
- Liquid Mass Fraction	1.00 fraction
- Droplet Diameter	1,483.17 um
- Expanded Radius	n/a m
- Velocity	12.52 m/s

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Consequence Results

Pool Vaporization Results

Path: \Terminal Adonai - Efeitos físicos\Simulações\H075

		Dia	Noite
	Release Segment 1		
Release Duration	s	600	600
Liquid Rainout	fraction	0.9889	0.990534
	Release Segment 1 Cloud Segment 1		
Cloud Segment Duration	s	88.36	86.49
Pool Vaporization Rate	kg/s	0.764873	0.589952
Total Vapor Flowrate	kg/s	2.76611	2.29661
	Release Segment 1 Cloud Segment 2		
Cloud Segment Duration	s	38.7656	38.3906
Pool Vaporization Rate	kg/s	1.76813	1.32808
Total Vapor Flowrate	kg/s	3.76937	3.03474
	Release Segment 1 Cloud Segment 3		
Cloud Segment Duration	s	30.3769	30.1219
Pool Vaporization Rate	kg/s	2.27204	1.68755
Total Vapor Flowrate	kg/s	4.27328	3.39421
	Release Segment 1 Cloud Segment 4		
Cloud Segment Duration	s	25.4231	25.9
Pool Vaporization Rate	kg/s	2.66366	1.966
Total Vapor Flowrate	kg/s	4.6649	3.67266
	Release Segment 1 Cloud Segment 5		
Cloud Segment Duration	s	43.5769	44.8481
Pool Vaporization Rate	kg/s	3.13101	2.30035
Total Vapor Flowrate	kg/s	5.13225	4.007
	Release Segment 1 Cloud Segment 6		
Cloud Segment Duration	s	373.498	374.249
Pool Vaporization Rate	kg/s	3.62256	2.67835
Total Vapor Flowrate	kg/s	5.6238	4.385
Maximum Pool Radius	m	24.85	24.85

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Distance to Concentration Results

Path: \Terminal Adonai - Efeitos físicos\Simulações\H075

The height for user defined concentrations is the user defined height 0 m

All toxic results are reported at the toxic effect height 1 m

All flammable results are reported at the flammable effect height 0 m

Concentration(ppm)	Averaging Time		Distance (m)	
			Dia	Noite
UFL (360000)	18.75	s	6.07839	6.12991
LFL (73000)	18.75	s	19.7057	22.9145
LFL Frac (73000)	18.75	s	19.7057	22.9145

Concentration(ppm)	Averaging Time		Heights (m) for above distances	
			Dia	Noite
UFL (360000)	18.75	s	0	0
LFL (73000)	18.75	s	0	0
LFL Frac (73000)	18.75	s	0	0

Jet Fire Hazard

Path: \Terminal Adonai - Efeitos físicos\Simulações\H075

Jet fire method used: Cone model - DNV recommended

	Dia	Noite
Jet Fire Status	Truncated	Truncated
Flame Direction	Horizontal	Horizontal

Radiation Effects: Jet Fire Ellipse

Path: \Terminal Adonai - Efeitos físicos\Simulações\H075

This table gives the distances to the specified radiation levels for each jet fire listed in the above hazard table

Radiation Level			Distance (m)	
			Dia	Noite
9.83	kW/m2		58.4781	58.3287
19.46	kW/m2		50.5512	Not Reached
35	kW/m2		Not Reached	Not Reached

Radiation Effects: Jet Fire Distance

Path: \Terminal Adonai - Efeitos físicos\Simulações\H075

	Dia	Radiation Level (kW/m2)
		Noite

Early Pool Fire Hazard

Path: \Terminal Adonai - Efeitos físicos\Simulações\H075

	Dia	Noite
Early Pool Fire Status	Hazard	Hazard

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Radiation Effects: Early Pool Fire Ellipse

Path: \Terminal Adonai - Efeitos físicos\Simulações\H075

			Dia	Noite
Radiation Level	9.83	kW/m2	49.3934	47.73
Radiation Level	19.46	kW/m2	34.8261	33.0732
Radiation Level	35	kW/m2	25.85	25.85

Radiation Effects: Early Pool Fire Distance

Path: \Terminal Adonai - Efeitos físicos\Simulações\H075

	Dia	Noite
Radiation Level (kW/m2)		

Late Pool Fire Hazard

Path: \Terminal Adonai - Efeitos físicos\Simulações\H075

	Dia	Noite
Late Pool Fire Status	Hazard	Hazard

Radiation Effects: Late Pool Fire Ellipse

Path: \Terminal Adonai - Efeitos físicos\Simulações\H075

			Dia	Noite
Radiation Level	9.83	kW/m2	49.3934	47.73
Radiation Level	19.46	kW/m2	34.8261	33.0732
Radiation Level	35	kW/m2	25.85	25.85

Radiation Effects: Late Pool Fire Distance

Path: \Terminal Adonai - Efeitos físicos\Simulações\H075

	Dia	Noite
Radiation Level (kW/m2)		

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Flash Fire Envelope

Path: \Terminal Adonai - Efeitos físicos\Simulações\H075

All flammable results are reported at the flammable effect height 0 m

				Distance (m)	
				Dia	Noite
Furthest Extent	73000	ppm	19.7057	19.7057	22.9145
Furthest Extent	73000	ppm	19.7057	19.7057	22.9145
				Heights (m) for above distances	
				Dia	Noite
Furthest Extent	73000	ppm	0	0	0
Furthest Extent	73000	ppm	0	0	0

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Explosion Effects: Late Ignition

Path: \Terminal Adonai - Efeitos físicos\Simulações\H075

Explosion Model Used : TNT

Explosion Location Criterion: Cloud Center

All distances are measured from the Source

All flammable results are reported at the flammable effect height 0 m

			Maximum Distance (m) at Overpressure Level	
			Dia	Noite
Overpressure	0.05	bar	17.2488	29.0073
Overpressure	0.1	bar	12.6041	21.7996
Overpressure	0.3	bar	8.79722	15.892
			Supplementary Data at 0.05 bar	
			Dia	Noite
Supplied Flammable Mass		kg	0.868886	3.24698
Used Flammable Mass		kg	0.868886	3.24698
Overpressure Radius		m	12.2484	19.0072
Distance to:				
- Ignition Source		m	10	20
- Cloud Front/Centre		m	10	20
- Explosion Centre		m	5.00046	10.0002
			Supplementary Data at 0.1 bar	
			Dia	Noite
Supplied Flammable Mass		kg	0.868886	3.24698
Used Flammable Mass		kg	0.868886	3.24698
Overpressure Radius		m	7.60362	11.7994
Distance to:				
- Ignition Source		m	10	20
- Cloud Front/Centre		m	10	20
- Explosion Centre		m	5.00046	10.0002
			Supplementary Data at 0.3 bar	
			Dia	Noite
Supplied Flammable Mass		kg	0.868886	3.24698
Used Flammable Mass		kg	0.868886	3.24698
Overpressure Radius		m	3.79675	5.89185
Distance to:				
- Ignition Source		m	10	20
- Cloud Front/Centre		m	10	20
- Explosion Centre		m	5.00046	10.0002

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Weather Conditions

Path: \Terminal Adonai - Efeitos físicos\Simulações\H075

		Dia	Noite
Wind Speed	m/s	3	2
Pasquill Stability		C	E
Surface Roughness Length	mm	1000	1000
Surface Roughness Parameter		0.173718	0.173718
Atmospheric Temperature	degC	25	20
Surface Temperature	degC	30	20
Relative Humidity	fraction	0.8	0.8

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

H076

Base Case

CASE Name: Data

Path: \Terminal Adonai - Efeitos físicos\Simulações\H076

User-Defined Data

Material

Material Identifier	METHANOL
Type of Vessel	Padded Liquid
Pressure Specification	Pressure specified
Storage Pressure - gauge	0.03 bar
Temperature	25 degC
Volume Inventory	3200 m3

Scenario

Scenario Type	Leak
Phase to be Released	Liquid
Hole Diameter	15.24 mm
Building Wake Effect	None

Vessel/Tank

Duration of Interest	600 s
Method Used for Time Varying Releases	Average Rates
Tank Type	Vertical
Tank Height	22.64 m
Tank Diameter	15 m
Height of Discharge from Vessel Bottom	1 m

Location

Elevation	1 m
Use ERPG averaging time	ERPG not selected
Use IDLH averaging time	IDLH not selected
Use STEL averaging time	STEL not selected
Supply a user defined averaging time	Not supplied

Bund

Status of Bund	Bund present
Bund Area	1940 m2
[Type of Bund Surface	User-Defined (Land)]
Bund Height	3 m
[Bund Failure Modeling	Bund cannot fail]

Indoor/Outdoor

Location of release	Open air release
Outdoor Release Direction	Horizontal

Flammable

Explosion Method	TNT
Jet Fire Method	Cone Model

Dispersion

Late Ignition Location	No ignition location
Mass Inventory of material to Disperse	2.527E6 kg

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Fireball Parameters

[Mass Modification Factor	3]
[Calculation method for fireball	DNV Recommended]
[TNO model flame temperature	1727 degC]

Toxic Parameters

[Indoor Calculations	Unselected]
[Wind Dependent Exchange Rate	Case Specified]
[Building Exchange Rate	4 /hr]
[Tail Time	1800 s]
[Set averaging time equal to exposure time	Use a fixed averaging time]
[Cut-off fraction of toxic load for exposure time calculation	0.05 fraction]
[Cut-off concentration for exposure time calculations	0 fraction]

Geometry

Shape	Point
Dimension	2D
System	Absolute
East(1)	0 m
North(1)	0 m

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Path: \Terminal Adonai - Efeitos físicos\Simulações\H076

DISCHARGE DATA for Weather: Global Weathers\Dia

Wind Speed: 3.00 m/s
Wind Speed at Height (Calculated) 1.78 m/s
Pasquill Stability: C

USER-DEFINED QUANTITIES

Material METHANOL
Scenario Leak
Inventory 2,526,775.50 kg
Fixed Duration n/a s

Stagnation data (data at upstream end for long pipe):

- Pressure 1.04 bar
- Temperature 25.00 degC
- Fluid State Non-saturated liquid

CALCULATED QUANTITIES

Mass Flow of Air (Vent from Vapor Space only) n/a
Mass Flowrate 1.84013E+000 kg/s
Release Duration 600.00 s

Orifice or pipe exit data (before atmospheric expansion):

- Pressure n/a bar
- Temperature n/a degC
- Vena Contracta Velocity (exit velocity for pipe releases) n/a m/s
- Discharge Coefficient n/a

Final data (after atmospheric expansion):

- Temperature 24.98 degC
- Liquid Mass Fraction 1.00 fraction
- Droplet Diameter 522.50 um
- Expanded Radius n/a m
- Velocity 21.29 m/s

DISCHARGE DATA for Weather: Global Weathers\Noite

Wind Speed: 2.00 m/s
Wind Speed at Height (Calculated) 0.83 m/s
Pasquill Stability: E

USER-DEFINED QUANTITIES

Material METHANOL
Scenario Leak
Inventory 2,526,775.50 kg
Fixed Duration n/a s

Stagnation data (data at upstream end for long pipe):

- Pressure 1.04 bar
- Temperature 25.00 degC
- Fluid State Non-saturated liquid

CALCULATED QUANTITIES

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Mass Flow of Air (Vent from Vapor Space only)	n/a
Mass Flowrate	1.84013E+000 kg/s
Release Duration	600.00 s
Orifice or pipe exit data (before atmospheric expansion):	
- Pressure	n/a bar
- Temperature	n/a degC
- Vena Contracta Velocity (exit velocity for pipe releases)	n/a m/s
- Discharge Coefficient	n/a
Final data (after atmospheric expansion):	
- Temperature	24.98 degC
- Liquid Mass Fraction	1.00 fraction
- Droplet Diameter	512.46 um
- Expanded Radius	n/a m
- Velocity	21.29 m/s

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Consequence Results

Pool Vaporization Results

Path: \Terminal Adonai - Efeitos físicos\Simulações\H076

			Dia	Noite
		Release Segment 1		
Release Duration		s	600	600
Liquid Rainout		fraction	0.919869	0.924932
Maximum Pool Radius		m	3.63177	3.64744

Distance to Concentration Results

Path: \Terminal Adonai - Efeitos físicos\Simulações\H076

The height for user defined concentrations is the user defined height 0 m
 All toxic results are reported at the toxic effect height 1 m
 All flammable results are reported at the flammable effect height 0 m

Concentration(ppm)	Averaging Time		Dia	Noite	Distance (m)
UFL (360000)	18.75	s	No Hazard	No Hazard	
LFL (73000)	18.75	s	No Hazard	5.40983	
LFL Frac (73000)	18.75	s	No Hazard	5.40983	
Concentration(ppm)	Averaging Time		Dia	Noite	Heights (m) for above distances
UFL (360000)	18.75	s	0	0	
LFL (73000)	18.75	s	0	0	
LFL Frac (73000)	18.75	s	0	0	

Jet Fire Hazard

Path: \Terminal Adonai - Efeitos físicos\Simulações\H076

Jet fire method used: Cone model - DNV recommended

	Dia	Noite
Jet Fire Status	Truncated	Truncated
Flame Direction	Horizontal	Horizontal

Radiation Effects: Jet Fire Ellipse

Path: \Terminal Adonai - Efeitos físicos\Simulações\H076

This table gives the distances to the specified radiation levels for each jet fire listed in the above hazard table

			Dia	Noite	Distance (m)
Radiation Level	9.83	kW/m2	17.9046	18.5975	
Radiation Level	19.46	kW/m2	Not Reached	Not Reached	
Radiation Level	35	kW/m2	Not Reached	Not Reached	

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Radiation Effects: Jet Fire Distance

Path: \Terminal Adonai - Efeitos físicos\Simulações\H076

Dia Radiation Level (kW/m2)
Noite

Early Pool Fire Hazard

Path: \Terminal Adonai - Efeitos físicos\Simulações\H076

Early Pool Fire Status Dia Noite
Hazard Hazard

Radiation Effects: Early Pool Fire Ellipse

Path: \Terminal Adonai - Efeitos físicos\Simulações\H076

			Dia	Noite
Radiation Level	9.83	kW/m2	14.1654	13.708
Radiation Level	19.46	kW/m2	10.3695	10.4309
Radiation Level	35	kW/m2	Not Reached	Not Reached

Radiation Effects: Early Pool Fire Distance

Path: \Terminal Adonai - Efeitos físicos\Simulações\H076

Dia Radiation Level (kW/m2)
Noite

Late Pool Fire Hazard

Path: \Terminal Adonai - Efeitos físicos\Simulações\H076

Late Pool Fire Status Dia Noite
Hazard Hazard

Radiation Effects: Late Pool Fire Ellipse

Path: \Terminal Adonai - Efeitos físicos\Simulações\H076

			Dia	Noite
Radiation Level	9.83	kW/m2	14.1654	13.708
Radiation Level	19.46	kW/m2	10.3695	10.4309
Radiation Level	35	kW/m2	Not Reached	Not Reached

Radiation Effects: Late Pool Fire Distance

Path: \Terminal Adonai - Efeitos físicos\Simulações\H076

Dia Radiation Level (kW/m2)
Noite

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Flash Fire Envelope

Path: \Terminal Adonai - Efeitos físicos\Simulações\H076

All flammable results are reported at the flammable effect height 0 m

				Distance (m)
				Noite
Furthest Extent	73000	ppm		5.40983
Furthest Extent	73000	ppm		5.40983
				Heights (m) for above distances
				Noite
Furthest Extent	73000	ppm		0
Furthest Extent	73000	ppm		0

Weather Conditions

Path: \Terminal Adonai - Efeitos físicos\Simulações\H076

		Dia	Noite
Wind Speed	m/s	3	2
Pasquill Stability		C	E
Surface Roughness Length	mm	1000	1000
Surface Roughness Parameter		0.173718	0.173718
Atmospheric Temperature	degC	25	20
Surface Temperature	degC	30	20
Relative Humidity	fraction	0.8	0.8

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

H077

Base Case

CASE Name: Data

Path: \Terminal Adonai - Efeitos físicos\Simulações\H077

User-Defined Data

Material

Material Identifier METHANOL

Scenario

Building Wake Effect None

Vessel/Tank

Release Type Continuous

Location

Elevation 1 m
Use ERPG averaging time ERPG not selected
Use IDLH averaging time IDLH not selected
Use STEL averaging time STEL not selected
Supply a user defined averaging time Not supplied

Bund

Status of Bund No bund present
[Type of Bund Surface User-Defined (Land)]
[Bund Height 0 m]
[Bund Failure Modeling Bund cannot fail]

Indoor/Outdoor

Location of release Open air release
Outdoor Release Direction Horizontal

Flammable

Explosion Method TNT
Jet Fire Method Cone Model

Dispersion

Number of Release Segments 1
Fluid Phase(1) Liquid
Discharge Velocity(1) 19.02 m/s
Droplet Diameter(1) 641.8 um
Duration of Discharge(1) 600 s
Final Temperature(1) 25.09 degC
Release Rate(1) 19.8 kg/s
Pre-Dilution Air Rates(1) 0 kg/s
Late Ignition Location No ignition location
Mass Inventory of material to Disperse 2.527E6 kg

Fireball Parameters

[Mass Modification Factor 3]
[Calculation method for fireball DNV Recommended]
[TNO model flame temperature 1727 degC]

Toxic Parameters

Date: 07/08/2015

497 of 2,112

Time: 10:10:31

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

[Indoor Calculations	Unselected]
[Wind Dependent Exchange Rate	Case Specified]
[Building Exchange Rate	4 /hr]
[Tail Time	1800 s]
[Set averaging time equal to exposure time	Use a fixed averaging time]
[Cut-off fraction of toxic load for exposure time calculation	0.05 fraction]
[Cut-off concentration for exposure time calculations	0 fraction]

Geometry

Shape	Point
Dimension	2D
System	Absolute
East(1)	0 m
North(1)	0 m

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Consequence Results

Pool Vaporization Results

Path: \Terminal Adonai - Efeitos físicos\Simulações\H077

		Dia	Noite
	Release Segment 1		
Release Duration	s	600	600
Liquid Rainout	fraction	0.952393	0.956299
	Release Segment 1 Cloud Segment 1		
Cloud Segment Duration	s	193.21	184.96
Pool Vaporization Rate	kg/s	0.120194	0.084303
Total Vapor Flowrate	kg/s	1.06282	0.949576
	Release Segment 1 Cloud Segment 2		
Cloud Segment Duration	s	78.2156	78.2906
Pool Vaporization Rate	kg/s	0.297025	0.199188
Total Vapor Flowrate	kg/s	1.23965	1.06446
	Release Segment 1 Cloud Segment 3		
Cloud Segment Duration	s	59.8144	60.7494
Pool Vaporization Rate	kg/s	0.38784	0.257315
Total Vapor Flowrate	kg/s	1.33047	1.12259
	Release Segment 1 Cloud Segment 4		
Cloud Segment Duration	s	50.9625	51.3906
Pool Vaporization Rate	kg/s	0.460133	0.303094
Total Vapor Flowrate	kg/s	1.40276	1.16837
	Release Segment 1 Cloud Segment 5		
Cloud Segment Duration	s	45.2531	45.885
Pool Vaporization Rate	kg/s	0.522334	0.342063
Total Vapor Flowrate	kg/s	1.46496	1.20734
	Release Segment 1 Cloud Segment 6		
Cloud Segment Duration	s	77.67	80.4844
Pool Vaporization Rate	kg/s	0.60084	0.391678
Total Vapor Flowrate	kg/s	1.54347	1.25695
	Release Segment 1 Cloud Segment 7		
Cloud Segment Duration	s	94.8744	98.24
Pool Vaporization Rate	kg/s	0.709245	0.460192
Total Vapor Flowrate	kg/s	1.65187	1.32547
Maximum Pool Radius	m	12.1347	12.1701

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Distance to Concentration Results

Path: \Terminal Adonai - Efeitos físicos\Simulações\H077

The height for user defined concentrations is the user defined height 0 m
All toxic results are reported at the toxic effect height 1 m
All flammable results are reported at the flammable effect height 0 m

Concentration(ppm)	Averaging Time		Distance (m)	
			Dia	Noite
UFL (360000)	18.75	s	No Hazard	No Hazard
LFL (73000)	18.75	s	7.45601	7.51618
LFL Frac (73000)	18.75	s	7.45601	7.51618

Concentration(ppm)	Averaging Time		Heights (m) for above distances	
			Dia	Noite
UFL (360000)	18.75	s	0	0
LFL (73000)	18.75	s	0	0
LFL Frac (73000)	18.75	s	0	0

Jet Fire Hazard

Path: \Terminal Adonai - Efeitos físicos\Simulações\H077

Jet fire method used: Cone model - DNV recommended

	Dia	Noite
Jet Fire Status	Truncated	Truncated
Flame Direction	Horizontal	Horizontal

Radiation Effects: Jet Fire Ellipse

Path: \Terminal Adonai - Efeitos físicos\Simulações\H077

This table gives the distances to the specified radiation levels for each jet fire listed in the above hazard table

Radiation Level			Distance (m)	
			Dia	Noite
9.83	kW/m2		41.1712	42.4893
19.46	kW/m2		Not Reached	Not Reached
35	kW/m2		Not Reached	Not Reached

Radiation Effects: Jet Fire Distance

Path: \Terminal Adonai - Efeitos físicos\Simulações\H077

	Dia	Radiation Level (kW/m2)
		Noite

Early Pool Fire Hazard

Path: \Terminal Adonai - Efeitos físicos\Simulações\H077

	Dia	Noite
Early Pool Fire Status	Hazard	Hazard

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Radiation Effects: Early Pool Fire Ellipse

Path: \Terminal Adonai - Efeitos físicos\Simulações\H077

			Distance (m)	
			Dia	Noite
Radiation Level	9.83	kW/m2	33.2621	32.269
Radiation Level	19.46	kW/m2	23.5934	22.9665
Radiation Level	35	kW/m2	20.7243	20.7983

Radiation Effects: Early Pool Fire Distance

Path: \Terminal Adonai - Efeitos físicos\Simulações\H077

	Radiation Level (kW/m2)	
	Dia	Noite

Late Pool Fire Hazard

Path: \Terminal Adonai - Efeitos físicos\Simulações\H077

	Dia	Noite
Late Pool Fire Status	Hazard	Hazard

Radiation Effects: Late Pool Fire Ellipse

Path: \Terminal Adonai - Efeitos físicos\Simulações\H077

			Distance (m)	
			Dia	Noite
Radiation Level	9.83	kW/m2	33.2621	32.269
Radiation Level	19.46	kW/m2	23.5934	22.9665
Radiation Level	35	kW/m2	20.7243	20.7983

Radiation Effects: Late Pool Fire Distance

Path: \Terminal Adonai - Efeitos físicos\Simulações\H077

	Radiation Level (kW/m2)	
	Dia	Noite

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Flash Fire Envelope

Path: \Terminal Adonai - Efeitos físicos\Simulações\H077

All flammable results are reported at the flammable effect height 0 m

				Distance (m)	
				Dia	Noite
Furthest Extent	73000	ppm	7.45601	7.45601	7.51618
Furthest Extent	73000	ppm	7.45601	7.45601	7.51618
				Heights (m) for above distances	
				Dia	Noite
Furthest Extent	73000	ppm	0	0	0
Furthest Extent	73000	ppm	0	0	0

Weather Conditions

Path: \Terminal Adonai - Efeitos físicos\Simulações\H077

			Dia	Noite
Wind Speed	m/s		3	2
Pasquill Stability			C	E
Surface Roughness Length	mm		1000	1000
Surface Roughness Parameter			0.173718	0.173718
Atmospheric Temperature	degC		25	20
Surface Temperature	degC		30	20
Relative Humidity	fraction		0.8	0.8

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

H078

Base Case

CASE Name: Data

Path: \Terminal Adonai - Efeitos físicos\Simulações\H078

User-Defined Data

Material

Material Identifier METHANOL

Scenario

Building Wake Effect None

Vessel/Tank

Release Type Continuous

Location

Elevation 1 m
Use ERPG averaging time ERPG not selected
Use IDLH averaging time IDLH not selected
Use STEL averaging time STEL not selected
Supply a user defined averaging time Not supplied

Bund

Status of Bund No bund present
[Type of Bund Surface User-Defined (Land)]
[Bund Height 0 m]
[Bund Failure Modeling Bund cannot fail]

Indoor/Outdoor

Location of release Open air release
Outdoor Release Direction Horizontal

Flammable

Explosion Method TNT
Jet Fire Method Cone Model

Dispersion

Number of Release Segments 1
Fluid Phase(1) Liquid
Discharge Velocity(1) 31.7 m/s
Droplet Diameter(1) 231.3 um
Duration of Discharge(1) 600 s
Final Temperature(1) 24.95 degC
Release Rate(1) 0.2 kg/s
Pre-Dilution Air Rates(1) 0 kg/s
Late Ignition Location No ignition location
Mass Inventory of material to Disperse 2.527E6 kg

Fireball Parameters

[Mass Modification Factor 3]
[Calculation method for fireball DNV Recommended]
[TNO model flame temperature 1727 degC]

Toxic Parameters

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

[Indoor Calculations	Unselected]
[Wind Dependent Exchange Rate	Case Specified]
[Building Exchange Rate	4 /hr]
[Tail Time	1800 s]
[Set averaging time equal to exposure time	Use a fixed averaging time]
[Cut-off fraction of toxic load for exposure time calculation	0.05 fraction]
[Cut-off concentration for exposure time calculations	0 fraction]

Geometry

Shape	Point
Dimension	2D
System	Absolute
East(1)	0 m
North(1)	0 m

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Consequence Results

Pool Vaporization Results

Path: \Terminal Adonai - Efeitos físicos\Simulações\H078

Release Segment 1		Dia	Noite
Release Duration	s	600	600
Liquid Rainout	fraction	0.739243	0.785109
Maximum Pool Radius	m	1.06844	1.10665

Distance to Concentration Results

Path: \Terminal Adonai - Efeitos físicos\Simulações\H078

The height for user defined concentrations is the user defined height 0 m
All toxic results are reported at the toxic effect height 1 m
All flammable results are reported at the flammable effect height 0 m

Concentration(ppm)	Averaging Time		Dia	Noite
UFL (360000)	18.75	s	No Hazard	No Hazard
LFL (73000)	18.75	s	No Hazard	No Hazard
LFL Frac (73000)	18.75	s	No Hazard	No Hazard

Concentration(ppm)	Averaging Time		Dia	Noite	Heights (m) for above distances
UFL (360000)	18.75	s	0	0	0
LFL (73000)	18.75	s	0	0	0
LFL Frac (73000)	18.75	s	0	0	0

Jet Fire Hazard

Path: \Terminal Adonai - Efeitos físicos\Simulações\H078

Jet fire method used: Cone model - DNV recommended

	Dia	Noite
Jet Fire Status	Truncated	Truncated
Flame Direction	Horizontal	Horizontal

Radiation Effects: Jet Fire Ellipse

Path: \Terminal Adonai - Efeitos físicos\Simulações\H078

This table gives the distances to the specified radiation levels
for each jet fire listed in the above hazard table

			Dia	Noite
Radiation Level	9.83	kW/m2	11.0776	11.379
Radiation Level	19.46	kW/m2	Not Reached	Not Reached
Radiation Level	35	kW/m2	Not Reached	Not Reached



Radiation Effects: Jet Fire Distance

Path: \Terminal Adonai - Efeitos físicos\Simulações\H078

		Radiation Level (kW/m2)
	Dia	Noite

Early Pool Fire Hazard

Path: \Terminal Adonai - Efeitos físicos\Simulações\H078

		Dia	Noite
Early Pool Fire Status		Hazard	Hazard

Radiation Effects: Early Pool Fire Ellipse

Path: \Terminal Adonai - Efeitos físicos\Simulações\H078

				Distance (m)
			Dia	Noite
Radiation Level	9.83	kW/m2	7.67797	7.19568
Radiation Level	19.46	kW/m2	7.59046	7.17234
Radiation Level	35	kW/m2	Not Reached	Not Reached

Radiation Effects: Early Pool Fire Distance

Path: \Terminal Adonai - Efeitos físicos\Simulações\H078

		Radiation Level (kW/m2)
	Dia	Noite

Late Pool Fire Hazard

Path: \Terminal Adonai - Efeitos físicos\Simulações\H078

		Dia	Noite
Late Pool Fire Status		Hazard	Hazard

Radiation Effects: Late Pool Fire Ellipse

Path: \Terminal Adonai - Efeitos físicos\Simulações\H078

				Distance (m)
			Dia	Noite
Radiation Level	9.83	kW/m2	7.67797	7.19568
Radiation Level	19.46	kW/m2	7.59046	7.17234
Radiation Level	35	kW/m2	Not Reached	Not Reached

Radiation Effects: Late Pool Fire Distance

Path: \Terminal Adonai - Efeitos físicos\Simulações\H078

		Radiation Level (kW/m2)
	Dia	Noite

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Weather Conditions

Path: \Terminal Adonai - Efeitos físicos\Simulações\H078

		Dia	Noite
Wind Speed	m/s	3	2
Pasquill Stability		C	E
Surface Roughness Length	mm	1000	1000
Surface Roughness Parameter		0.173718	0.173718
Atmospheric Temperature	degC	25	20
Surface Temperature	degC	30	20
Relative Humidity	fraction	0.8	0.8

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

H079

Base Case

CASE Name: Data

Path: \Terminal Adonai - Efeitos físicos\Simulações\H079

User-Defined Data

Material

Material Identifier METHANOL

Scenario

Building Wake Effect None

Vessel/Tank

Release Type Continuous

Location

Elevation 3 m
Use ERPG averaging time ERPG not selected
Use IDLH averaging time IDLH not selected
Use STEL averaging time STEL not selected
Supply a user defined averaging time Not supplied

Bund

Status of Bund No bund present
[Type of Bund Surface User-Defined (Land)]
[Bund Height 0 m]
[Bund Failure Modeling Bund cannot fail]

Indoor/Outdoor

Location of release Open air release
Outdoor Release Direction Horizontal

Flammable

Explosion Method TNT
Jet Fire Method Cone Model

Dispersion

Number of Release Segments 1
Fluid Phase(1) Liquid
Discharge Velocity(1) 19.02 m/s
Droplet Diameter(1) 641.8 um
Duration of Discharge(1) 600 s
Final Temperature(1) 25.09 degC
Release Rate(1) 19.8 kg/s
Pre-Dilution Air Rates(1) 0 kg/s
Late Ignition Location No ignition location
Mass Inventory of material to Disperse 2.527E6 kg

Fireball Parameters

[Mass Modification Factor 3]
[Calculation method for fireball DNV Recommended]
[TNO model flame temperature 1727 degC]

Toxic Parameters

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

[Indoor Calculations	Unselected]
[Wind Dependent Exchange Rate	Case Specified]
[Building Exchange Rate	4 /hr]
[Tail Time	1800 s]
[Set averaging time equal to exposure time	Use a fixed averaging time]
[Cut-off fraction of toxic load for exposure time calculation	0.05 fraction]
[Cut-off concentration for exposure time calculations	0 fraction]

Geometry

Shape	Point
Dimension	2D
System	Absolute
East(1)	0 m
North(1)	0 m

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Consequence Results

Pool Vaporization Results

Path: \Terminal Adonai - Efeitos físicos\Simulações\H079

		Dia	Noite
	Release Segment 1		
Release Duration	s	600	600
Liquid Rainout	fraction	0.924551	0.93324
	Release Segment 1 Cloud Segment 1		
Cloud Segment Duration	s	202.351	192.516
Pool Vaporization Rate	kg/s	0.0944616	0.0658751
Total Vapor Flowrate	kg/s	1.58836	1.38772
	Release Segment 1 Cloud Segment 2		
Cloud Segment Duration	s	78.2119	78.91
Pool Vaporization Rate	kg/s	0.244561	0.162432
Total Vapor Flowrate	kg/s	1.73846	1.48427
	Release Segment 1 Cloud Segment 3		
Cloud Segment Duration	s	58.9181	59.8144
Pool Vaporization Rate	kg/s	0.323192	0.212471
Total Vapor Flowrate	kg/s	1.81709	1.53431
	Release Segment 1 Cloud Segment 4		
Cloud Segment Duration	s	49.595	50.9625
Pool Vaporization Rate	kg/s	0.386156	0.252289
Total Vapor Flowrate	kg/s	1.88006	1.57413
	Release Segment 1 Cloud Segment 5		
Cloud Segment Duration	s	43.5644	45.2531
Pool Vaporization Rate	kg/s	0.440408	0.286685
Total Vapor Flowrate	kg/s	1.93431	1.60853
	Release Segment 1 Cloud Segment 6		
Cloud Segment Duration	s	75.8625	77.67
Pool Vaporization Rate	kg/s	0.509932	0.330285
Total Vapor Flowrate	kg/s	2.00383	1.65213
	Release Segment 1 Cloud Segment 7		
Cloud Segment Duration	s	91.4975	94.8744
Pool Vaporization Rate	kg/s	0.606917	0.390796
Total Vapor Flowrate	kg/s	2.10082	1.71264
Maximum Pool Radius	m	11.9595	12.0195

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Distance to Concentration Results

Path: \Terminal Adonai - Efeitos físicos\Simulações\H079

The height for user defined concentrations is the user defined height 0 m
All toxic results are reported at the toxic effect height 1 m
All flammable results are reported at the flammable effect height 0 m

Concentration(ppm)	Averaging Time		Distance (m)	
			Dia	Noite
UFL (360000)	18.75	s	No Hazard	No Hazard
LFL (73000)	18.75	s	10.9724	11.2969
LFL Frac (73000)	18.75	s	10.9724	11.2969

Concentration(ppm)	Averaging Time		Heights (m) for above distances	
			Dia	Noite
UFL (360000)	18.75	s	0	0
LFL (73000)	18.75	s	0	0
LFL Frac (73000)	18.75	s	0	0

Jet Fire Hazard

Path: \Terminal Adonai - Efeitos físicos\Simulações\H079

Jet fire method used: Cone model - DNV recommended

	Dia	Noite
Jet Fire Status	Truncated	Truncated
Flame Direction	Horizontal	Horizontal

Radiation Effects: Jet Fire Ellipse

Path: \Terminal Adonai - Efeitos físicos\Simulações\H079

This table gives the distances to the specified radiation levels for each jet fire listed in the above hazard table

			Distance (m)	
Radiation Level			Dia	Noite
9.83	kW/m2		49.9849	50.965
19.46	kW/m2		Not Reached	Not Reached
35	kW/m2		Not Reached	Not Reached

Radiation Effects: Jet Fire Distance

Path: \Terminal Adonai - Efeitos físicos\Simulações\H079

	Dia	Radiation Level (kW/m2)
		Noite

Early Pool Fire Hazard

Path: \Terminal Adonai - Efeitos físicos\Simulações\H079

	Dia	Noite
Early Pool Fire Status	Hazard	Hazard

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Radiation Effects: Early Pool Fire Ellipse

Path: \Terminal Adonai - Efeitos físicos\Simulações\H079

			Dia	Noite
Radiation Level	9.83	kW/m2	37.1568	36.2302
Radiation Level	19.46	kW/m2	27.5829	27.0145
Radiation Level	35	kW/m2	24.7831	24.8925

Radiation Effects: Early Pool Fire Distance

Path: \Terminal Adonai - Efeitos físicos\Simulações\H079

	Dia	Noite
Radiation Level (kW/m2)		

Late Pool Fire Hazard

Path: \Terminal Adonai - Efeitos físicos\Simulações\H079

	Dia	Noite
Late Pool Fire Status	Hazard	Hazard

Radiation Effects: Late Pool Fire Ellipse

Path: \Terminal Adonai - Efeitos físicos\Simulações\H079

			Dia	Noite
Radiation Level	9.83	kW/m2	37.1568	36.2302
Radiation Level	19.46	kW/m2	27.5829	27.0145
Radiation Level	35	kW/m2	24.7831	24.8925

Radiation Effects: Late Pool Fire Distance

Path: \Terminal Adonai - Efeitos físicos\Simulações\H079

	Dia	Noite
Radiation Level (kW/m2)		

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Flash Fire Envelope

Path: \Terminal Adonai - Efeitos físicos\Simulações\H079

All flammable results are reported at the flammable effect height 0 m

				Distance (m)	
				Dia	Noite
Furthest Extent	73000	ppm	10.9724	10.9724	11.2969
Furthest Extent	73000	ppm	10.9724	10.9724	11.2969
				Heights (m) for above distances	
				Dia	Noite
Furthest Extent	73000	ppm	0	0	0
Furthest Extent	73000	ppm	0	0	0

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Explosion Effects: Late Ignition

Path: \Terminal Adonai - Efeitos físicos\Simulações\H079

Explosion Model Used : TNT

Explosion Location Criterion: Cloud Center

All distances are measured from the Source

All flammable results are reported at the flammable effect height 0 m

			Maximum Distance (m) at Overpressure Level	
			Dia	Noite
Overpressure	0.05	bar	No Hazard	No Hazard
Overpressure	0.1	bar	No Hazard	No Hazard
Overpressure	0.3	bar	No Hazard	No Hazard
			Supplementary Data at 0.05 bar	
			Dia	Noite
Supplied Flammable Mass		kg	No Hazard	No Hazard
Used Flammable Mass		kg	No Hazard	No Hazard
Overpressure Radius		m	0	0
Distance to:				
- Ignition Source		m	No Hazard	No Hazard
- Cloud Front/Centre		m	No Hazard	No Hazard
- Explosion Centre		m	0	0
			Supplementary Data at 0.1 bar	
			Dia	Noite
Supplied Flammable Mass		kg	No Hazard	No Hazard
Used Flammable Mass		kg	No Hazard	No Hazard
Overpressure Radius		m	0	0
Distance to:				
- Ignition Source		m	No Hazard	No Hazard
- Cloud Front/Centre		m	No Hazard	No Hazard
- Explosion Centre		m	0	0
			Supplementary Data at 0.3 bar	
			Dia	Noite
Supplied Flammable Mass		kg	No Hazard	No Hazard
Used Flammable Mass		kg	No Hazard	No Hazard
Overpressure Radius		m	0	0
Distance to:				
- Ignition Source		m	No Hazard	No Hazard
- Cloud Front/Centre		m	No Hazard	No Hazard
- Explosion Centre		m	0	0

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Weather Conditions

Path: \Terminal Adonai - Efeitos físicos\Simulações\H079

		Dia	Noite
Wind Speed	m/s	3	2
Pasquill Stability		C	E
Surface Roughness Length	mm	1000	1000
Surface Roughness Parameter		0.173718	0.173718
Atmospheric Temperature	degC	25	20
Surface Temperature	degC	30	20
Relative Humidity	fraction	0.8	0.8

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

H080

Base Case

CASE Name: Data

Path: \Terminal Adonai - Efeitos físicos\Simulações\H080

User-Defined Data

Material

Material Identifier METHANOL

Scenario

Building Wake Effect None

Vessel/Tank

Release Type Continuous

Location

Elevation 3 m
Use ERPG averaging time ERPG not selected
Use IDLH averaging time IDLH not selected
Use STEL averaging time STEL not selected
Supply a user defined averaging time Not supplied

Bund

Status of Bund No bund present
[Type of Bund Surface User-Defined (Land)]
[Bund Height 0 m]
[Bund Failure Modeling Bund cannot fail]

Indoor/Outdoor

Location of release Open air release
Outdoor Release Direction Horizontal

Flammable

Explosion Method TNT
Jet Fire Method Cone Model

Dispersion

Number of Release Segments 1
Fluid Phase(1) Liquid
Discharge Velocity(1) 31.7 m/s
Droplet Diameter(1) 231.3 um
Duration of Discharge(1) 600 s
Final Temperature(1) 24.95 degC
Release Rate(1) 0.2 kg/s
Pre-Dilution Air Rates(1) 0 kg/s
Late Ignition Location No ignition location
Mass Inventory of material to Disperse 2.527E6 kg

Fireball Parameters

[Mass Modification Factor 3]
[Calculation method for fireball DNV Recommended]
[TNO model flame temperature 1727 degC]

Toxic Parameters

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

[Indoor Calculations	Unselected]
[Wind Dependent Exchange Rate	Case Specified]
[Building Exchange Rate	4 /hr]
[Tail Time	1800 s]
[Set averaging time equal to exposure time	Use a fixed averaging time]
[Cut-off fraction of toxic load for exposure time calculation	0.05 fraction]
[Cut-off concentration for exposure time calculations	0 fraction]

Geometry

Shape	Point
Dimension	2D
System	Absolute
East(1)	0 m
North(1)	0 m

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Consequence Results

Pool Vaporization Results

Path: \Terminal Adonai - Efeitos físicos\Simulações\H080

			Dia	Noite
		Release Segment 1		
Release Duration	s		600	600
Liquid Rainout	fraction		0.369132	0.520908
Maximum Pool Radius	m		0.753405	0.901099

Distance to Concentration Results

Path: \Terminal Adonai - Efeitos físicos\Simulações\H080

The height for user defined concentrations is the user defined height 0 m
All toxic results are reported at the toxic effect height 1 m
All flammable results are reported at the flammable effect height 0 m

Concentration(ppm)		Averaging Time		Distance (m)	
				Dia	Noite
UFL (360000)	18.75	s		No Hazard	No Hazard
LFL (73000)	18.75	s		No Hazard	No Hazard
LFL Frac (73000)	18.75	s		No Hazard	No Hazard
Concentration(ppm)		Averaging Time		Heights (m) for above distances	
				Dia	Noite
UFL (360000)	18.75	s		0	0
LFL (73000)	18.75	s		0	0
LFL Frac (73000)	18.75	s		0	0

Jet Fire Hazard

Path: \Terminal Adonai - Efeitos físicos\Simulações\H080

Jet fire method used: Cone model - DNV recommended

		Dia	Noite
Jet Fire Status		Hazard	Hazard
Flame Direction		Horizontal	Horizontal

Radiation Effects: Jet Fire Ellipse

Path: \Terminal Adonai - Efeitos físicos\Simulações\H080

This table gives the distances to the specified radiation levels
for each jet fire listed in the above hazard table

				Distance (m)	
				Dia	Noite
Radiation Level	9.83	kW/m2		Not Reached	Not Reached
Radiation Level	19.46	kW/m2		Not Reached	Not Reached
Radiation Level	35	kW/m2		Not Reached	Not Reached

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Radiation Effects: Jet Fire Distance

Path: \Terminal Adonai - Efeitos físicos\Simulações\H080

Dia Radiation Level (kW/m2)
Noite

Early Pool Fire Hazard

Path: \Terminal Adonai - Efeitos físicos\Simulações\H080

Early Pool Fire Status Dia Noite
Hazard Hazard

Radiation Effects: Early Pool Fire Ellipse

Path: \Terminal Adonai - Efeitos físicos\Simulações\H080

			Dia	Distance (m) Noite
Radiation Level	9.83	kW/m2	14.1041	11.0774
Radiation Level	19.46	kW/m2	Not Reached	11.0774
Radiation Level	35	kW/m2	Not Reached	Not Reached

Radiation Effects: Early Pool Fire Distance

Path: \Terminal Adonai - Efeitos físicos\Simulações\H080

Dia Radiation Level (kW/m2)
Noite

Late Pool Fire Hazard

Path: \Terminal Adonai - Efeitos físicos\Simulações\H080

Late Pool Fire Status Dia Noite
Hazard Hazard

Radiation Effects: Late Pool Fire Ellipse

Path: \Terminal Adonai - Efeitos físicos\Simulações\H080

			Dia	Distance (m) Noite
Radiation Level	9.83	kW/m2	14.1041	11.0774
Radiation Level	19.46	kW/m2	Not Reached	11.0774
Radiation Level	35	kW/m2	Not Reached	Not Reached

Radiation Effects: Late Pool Fire Distance

Path: \Terminal Adonai - Efeitos físicos\Simulações\H080

Dia Radiation Level (kW/m2)
Noite

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Weather Conditions

Path: \Terminal Adonai - Efeitos físicos\Simulações\H080

		Dia	Noite
Wind Speed	m/s	3	2
Pasquill Stability		C	E
Surface Roughness Length	mm	1000	1000
Surface Roughness Parameter		0.173718	0.173718
Atmospheric Temperature	degC	25	20
Surface Temperature	degC	30	20
Relative Humidity	fraction	0.8	0.8

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

H081

Base Case

CASE Name: Data

Path: \Terminal Adonai - Efeitos físicos\Simulações\H081

User-Defined Data

Material

Material Identifier N-HEXANE

Scenario

Building Wake Effect None

Vessel/Tank

Release Type Continuous

Location

Elevation 0 m
Use ERPG averaging time ERPG not selected
Use IDLH averaging time IDLH not selected
Use STEL averaging time STEL not selected
Supply a user defined averaging time Not supplied

Bund

Status of Bund Bund present
Bund Area 1.152E4 m2
[Type of Bund Surface User-Defined (Land)]
Bund Height 0.3 m
[Bund Failure Modeling Bund cannot fail]

Indoor/Outdoor

Location of release Open air release
Outdoor Release Direction Horizontal

Flammable

Explosion Method TNT
Jet Fire Method Cone Model

Dispersion

Number of Release Segments 1
Fluid Phase(1) Liquid
Discharge Velocity(1) 22.16 m/s
Droplet Diameter(1) 380.8 um
Duration of Discharge(1) 600 s
Final Temperature(1) 25.19 degC
Release Rate(1) 88.75 kg/s
Pre-Dilution Air Rates(1) 0 kg/s
Late Ignition Location No ignition location
Mass Inventory of material to Disperse 1.968E6 kg

Fireball Parameters

[Mass Modification Factor 3]
[Calculation method for fireball DNV Recommended]
[TNO model flame temperature 1727 degC]

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Toxic Parameters

[Indoor Calculations	Unselected]
[Wind Dependent Exchange Rate	Case Specified]
[Building Exchange Rate	4 /hr]
[Tail Time	1800 s]
[Set averaging time equal to exposure time	Use a fixed averaging time]
[Cut-off fraction of toxic load for exposure time calculation	0.05 fraction]
[Cut-off concentration for exposure time calculations	0 fraction]

Geometry

Shape	Point
Dimension	2D
System	Absolute
East(1)	0 m
North(1)	0 m

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Consequence Results

Pool Vaporization Results

Path: \Terminal Adonai - Efeitos físicos\Simulações\H081

		Dia	Noite
	Release Segment 1		
Release Duration	s	600	600
Liquid Rainout	fraction	0.999999	0.999999
	Release Segment 1 Cloud Segment 1		
Cloud Segment Duration	s	174.24	168.351
Pool Vaporization Rate	kg/s	2.3031	1.6518
Total Vapor Flowrate	kg/s	2.30316	1.65187
	Release Segment 1 Cloud Segment 2		
Cloud Segment Duration	s	77.7756	77.355
Pool Vaporization Rate	kg/s	5.1749	3.60421
Total Vapor Flowrate	kg/s	5.17496	3.60427
	Release Segment 1 Cloud Segment 3		
Cloud Segment Duration	s	61.2744	61.42
Pool Vaporization Rate	kg/s	6.57316	4.53866
Total Vapor Flowrate	kg/s	6.57323	4.53873
	Release Segment 1 Cloud Segment 4		
Cloud Segment Duration	s	52.4756	52.925
Pool Vaporization Rate	kg/s	7.65349	5.25557
Total Vapor Flowrate	kg/s	7.65356	5.25564
	Release Segment 1 Cloud Segment 5		
Cloud Segment Duration	s	90.0569	91.5119
Pool Vaporization Rate	kg/s	8.93836	6.10552
Total Vapor Flowrate	kg/s	8.93843	6.10559
	Release Segment 1 Cloud Segment 6		
Cloud Segment Duration	s	114.193	116.068
Pool Vaporization Rate	kg/s	10.6777	7.24762
Total Vapor Flowrate	kg/s	10.6778	7.24769
	Release Segment 1 Cloud Segment 7		
Cloud Segment Duration	s	29.9844	32.3694
Pool Vaporization Rate	kg/s	11.8498	8.02129
Total Vapor Flowrate	kg/s	11.8498	8.02136
Maximum Pool Radius	m	28.1705	28.4255

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Distance to Concentration Results

Path: \Terminal Adonai - Efeitos físicos\Simulações\H081

The height for user defined concentrations is the user defined height 0 m
All toxic results are reported at the toxic effect height 1 m
All flammable results are reported at the flammable effect height 0 m

Concentration(ppm)	Averaging Time		Distance (m)	
			Dia	Noite
UFL (76800)	18.75	s	0	0
LFL (10500)	18.75	s	0	0
LFL Frac (10500)	18.75	s	0	0

Concentration(ppm)	Averaging Time		Heights (m) for above distances	
			Dia	Noite
UFL (76800)	18.75	s	0	0
LFL (10500)	18.75	s	0	0
LFL Frac (10500)	18.75	s	0	0

Jet Fire Hazard

Path: \Terminal Adonai - Efeitos físicos\Simulações\H081

Jet fire method used: Cone model - DNV recommended

	Dia	Noite
Jet Fire Status	Truncated	Truncated
Flame Direction	Horizontal	Horizontal

Radiation Effects: Jet Fire Ellipse

Path: \Terminal Adonai - Efeitos físicos\Simulações\H081

This table gives the distances to the specified radiation levels
for each jet fire listed in the above hazard table

Radiation Level			Distance (m)	
			Dia	Noite
9.83	kW/m2	1.39397	1.43974	
19.46	kW/m2	1.39397	1.43974	
35	kW/m2	Not Reached	Not Reached	

Radiation Effects: Jet Fire Distance

Path: \Terminal Adonai - Efeitos físicos\Simulações\H081

	Dia	Radiation Level (kW/m2)
		Noite

Early Pool Fire Hazard

Path: \Terminal Adonai - Efeitos físicos\Simulações\H081

	Dia	Noite
Early Pool Fire Status	Hazard	Hazard

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Radiation Effects: Early Pool Fire Ellipse

Path: \Terminal Adonai - Efeitos físicos\Simulações\H081

			Dia	Noite
Radiation Level	9.83	kW/m2	25.0252	23.9556
Radiation Level	19.46	kW/m2	17.738	17.9695
Radiation Level	35	kW/m2	Not Reached	Not Reached

Radiation Effects: Early Pool Fire Distance

Path: \Terminal Adonai - Efeitos físicos\Simulações\H081

	Dia	Noite
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Late Pool Fire Hazard

Path: \Terminal Adonai - Efeitos físicos\Simulações\H081

	Dia	Noite
Late Pool Fire Status	Hazard	Hazard

Radiation Effects: Late Pool Fire Ellipse

Path: \Terminal Adonai - Efeitos físicos\Simulações\H081

			Dia	Noite
Radiation Level	9.83	kW/m2	35.913	34.6807
Radiation Level	19.46	kW/m2	29.1705	29.4255
Radiation Level	35	kW/m2	Not Reached	Not Reached

Radiation Effects: Late Pool Fire Distance

Path: \Terminal Adonai - Efeitos físicos\Simulações\H081

	Dia	Noite
--	-----	-------

Weather Conditions

Path: \Terminal Adonai - Efeitos físicos\Simulações\H081

		Dia	Noite
Wind Speed	m/s	3	2
Pasquill Stability		C	E
Surface Roughness Length	mm	1000	1000
Surface Roughness Parameter		0.173718	0.173718
Atmospheric Temperature	degC	25	20
Surface Temperature	degC	30	20
Relative Humidity	fraction	0.8	0.8

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

H082

Base Case

CASE Name: Data

Path: \Terminal Adonai - Efeitos físicos\Simulações\H082

User-Defined Data

Material

Material Identifier N-HEXANE

Scenario

Building Wake Effect None

Vessel/Tank

Release Type Continuous

Location

Elevation 0 m
Use ERPG averaging time ERPG not selected
Use IDLH averaging time IDLH not selected
Use STEL averaging time STEL not selected
Supply a user defined averaging time Not supplied

Bund

Status of Bund Bund present
Bund Area 1.152E4 m2
[Type of Bund Surface User-Defined (Land)]
Bund Height 0.3 m
[Bund Failure Modeling Bund cannot fail]

Indoor/Outdoor

Location of release Open air release
Outdoor Release Direction Horizontal

Flammable

Explosion Method TNT
Jet Fire Method Cone Model

Dispersion

Number of Release Segments 1
Fluid Phase(1) Liquid
Discharge Velocity(1) 36.92 m/s
Droplet Diameter(1) 137.5 um
Duration of Discharge(1) 600 s
Final Temperature(1) 24.88 degC
Release Rate(1) 0.89 kg/s
Pre-Dilution Air Rates(1) 0 kg/s
Late Ignition Location No ignition location
Mass Inventory of material to Disperse 1.968E6 kg

Fireball Parameters

[Mass Modification Factor 3]
[Calculation method for fireball DNV Recommended]
[TNO model flame temperature 1727 degC]

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Toxic Parameters

[Indoor Calculations	Unselected]
[Wind Dependent Exchange Rate	Case Specified]
[Building Exchange Rate	4 /hr]
[Tail Time	1800 s]
[Set averaging time equal to exposure time	Use a fixed averaging time]
[Cut-off fraction of toxic load for exposure time calculation	0.05 fraction]
[Cut-off concentration for exposure time calculations	0 fraction]

Geometry

Shape	Point
Dimension	2D
System	Absolute
East(1)	0 m
North(1)	0 m

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Consequence Results

Pool Vaporization Results

Path: \Terminal Adonai - Efeitos físicos\Simulações\H082

		Dia	Noite
	Release Segment 1		
Release Duration	s	600	600
Liquid Rainout	fraction	0.999999	0.999999
	Release Segment 1 Cloud Segment 1		
Cloud Segment Duration	s	177.556	172.266
Pool Vaporization Rate	kg/s	0.0318449	0.0204015
Total Vapor Flowrate	kg/s	0.0318455	0.0204021
	Release Segment 1 Cloud Segment 2		
Cloud Segment Duration	s	77.645	78.165
Pool Vaporization Rate	kg/s	0.0728112	0.0448458
Total Vapor Flowrate	kg/s	0.0728119	0.0448465
	Release Segment 1 Cloud Segment 3		
Cloud Segment Duration	s	60.75	61.975
Pool Vaporization Rate	kg/s	0.0930092	0.0570539
Total Vapor Flowrate	kg/s	0.0930099	0.0570545
	Release Segment 1 Cloud Segment 4		
Cloud Segment Duration	s	52.6894	53.36
Pool Vaporization Rate	kg/s	0.108845	0.0666917
Total Vapor Flowrate	kg/s	0.108846	0.0666924
	Release Segment 1 Cloud Segment 5		
Cloud Segment Duration	s	89.32	91.125
Pool Vaporization Rate	kg/s	0.127856	0.0783363
Total Vapor Flowrate	kg/s	0.127857	0.078337
	Release Segment 1 Cloud Segment 6		
Cloud Segment Duration	s	112.056	113.125
Pool Vaporization Rate	kg/s	0.153566	0.0941758
Total Vapor Flowrate	kg/s	0.153566	0.0941765
	Release Segment 1 Cloud Segment 7		
Cloud Segment Duration	s	29.9844	29.9844
Pool Vaporization Rate	kg/s	0.170982	0.10493
Total Vapor Flowrate	kg/s	0.170982	0.104931
Maximum Pool Radius	m	2.77939	2.82716

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Distance to Concentration Results

Path: \Terminal Adonai - Efeitos físicos\Simulações\H082

The height for user defined concentrations is the user defined height 0 m
All toxic results are reported at the toxic effect height 1 m
All flammable results are reported at the flammable effect height 0 m

Concentration(ppm)	Averaging Time	Distance (m)	
		Dia	Noite
UFL (76800)	18.75 s	0	0
LFL (10500)	18.75 s	0	0
LFL Frac (10500)	18.75 s	0	0

Concentration(ppm)	Averaging Time	Heights (m) for above distances	
		Dia	Noite
UFL (76800)	18.75 s	0	0
LFL (10500)	18.75 s	0	0
LFL Frac (10500)	18.75 s	0	0

Jet Fire Hazard

Path: \Terminal Adonai - Efeitos físicos\Simulações\H082

Jet fire method used: Cone model - DNV recommended

	Dia	Noite
Jet Fire Status	Truncated	Truncated
Flame Direction	Horizontal	Horizontal

Radiation Effects: Jet Fire Ellipse

Path: \Terminal Adonai - Efeitos físicos\Simulações\H082

This table gives the distances to the specified radiation levels for each jet fire listed in the above hazard table

Radiation Level	kW/m2	Distance (m)	
		Dia	Noite
9.83	kW/m2	1.04567	1.05097
19.46	kW/m2	1.04567	1.05097
35	kW/m2	Not Reached	Not Reached

Radiation Effects: Jet Fire Distance

Path: \Terminal Adonai - Efeitos físicos\Simulações\H082

	Dia	Radiation Level (kW/m2)
		Noite

Early Pool Fire Hazard

Path: \Terminal Adonai - Efeitos físicos\Simulações\H082

	Dia	Noite
Early Pool Fire Status	Hazard	Hazard

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Radiation Effects: Early Pool Fire Ellipse

Path: \Terminal Adonai - Efeitos físicos\Simulações\H082

			Dia	Noite
Radiation Level	9.83	kW/m2	13.3234	12.5486
Radiation Level	19.46	kW/m2	8.92228	8.05931
Radiation Level	35	kW/m2	4.62036	4.27835

Radiation Effects: Early Pool Fire Distance

Path: \Terminal Adonai - Efeitos físicos\Simulações\H082

	Dia	Noite
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Late Pool Fire Hazard

Path: \Terminal Adonai - Efeitos físicos\Simulações\H082

	Dia	Noite
Late Pool Fire Status	Hazard	Hazard

Radiation Effects: Late Pool Fire Ellipse

Path: \Terminal Adonai - Efeitos físicos\Simulações\H082

			Dia	Noite
Radiation Level	9.83	kW/m2	17.9819	16.738
Radiation Level	19.46	kW/m2	10.8853	9.9232
Radiation Level	35	kW/m2	5.51569	5.22377

Radiation Effects: Late Pool Fire Distance

Path: \Terminal Adonai - Efeitos físicos\Simulações\H082

	Dia	Noite
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Weather Conditions

Path: \Terminal Adonai - Efeitos físicos\Simulações\H082

		Dia	Noite
Wind Speed	m/s	3	2
Pasquill Stability		C	E
Surface Roughness Length	mm	1000	1000
Surface Roughness Parameter		0.173718	0.173718
Atmospheric Temperature	degC	25	20
Surface Temperature	degC	30	20
Relative Humidity	fraction	0.8	0.8

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

H083

Base Case

CASE Name: Data

Path: \Terminal Adonai - Efeitos físicos\Simulações\H083

User-Defined Data

Material

Material Identifier N-HEXANE

Scenario

Building Wake Effect None

Vessel/Tank

Release Type Continuous

Location

Elevation 1 m
Use ERPG averaging time ERPG not selected
Use IDLH averaging time IDLH not selected
Use STEL averaging time STEL not selected
Supply a user defined averaging time Not supplied

Bund

Status of Bund No bund present
[Type of Bund Surface User-Defined (Land)]
[Bund Height 0 m]
[Bund Failure Modeling Bund cannot fail]

Indoor/Outdoor

Location of release Open air release
Outdoor Release Direction Horizontal

Flammable

Explosion Method TNT
Jet Fire Method Cone Model

Dispersion

Number of Release Segments 1
Fluid Phase(1) Liquid
Discharge Velocity(1) 22.16 m/s
Droplet Diameter(1) 380.8 um
Duration of Discharge(1) 600 s
Final Temperature(1) 25.19 degC
Release Rate(1) 88.75 kg/s
Pre-Dilution Air Rates(1) 0 kg/s
Late Ignition Location No ignition location
Mass Inventory of material to Disperse 1.968E6 kg

Fireball Parameters

[Mass Modification Factor 3]
[Calculation method for fireball DNV Recommended]
[TNO model flame temperature 1727 degC]

Toxic Parameters

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

[Indoor Calculations	Unselected]
[Wind Dependent Exchange Rate	Case Specified]
[Building Exchange Rate	4 /hr]
[Tail Time	1800 s]
[Set averaging time equal to exposure time	Use a fixed averaging time]
[Cut-off fraction of toxic load for exposure time calculation	0.05 fraction]
[Cut-off concentration for exposure time calculations	0 fraction]

Geometry

Shape	Point
Dimension	2D
System	Absolute
East(1)	0 m
North(1)	0 m

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Consequence Results

Pool Vaporization Results

Path: \Terminal Adonai - Efeitos físicos\Simulações\H083

		Dia	Noite
	Release Segment 1		
Release Duration	s	600	600
Liquid Rainout	fraction	0.880087	0.893455
	Release Segment 1 Cloud Segment 1		
Cloud Segment Duration	s	190.44	183.602
Pool Vaporization Rate	kg/s	1.35853	0.949142
Total Vapor Flowrate	kg/s	12.0008	10.405
	Release Segment 1 Cloud Segment 2		
Cloud Segment Duration	s	78.52	78.0281
Pool Vaporization Rate	kg/s	3.316	2.23457
Total Vapor Flowrate	kg/s	13.9583	11.6905
	Release Segment 1 Cloud Segment 3		
Cloud Segment Duration	s	60.4625	60.5719
Pool Vaporization Rate	kg/s	4.32001	2.88298
Total Vapor Flowrate	kg/s	14.9623	12.3389
	Release Segment 1 Cloud Segment 4		
Cloud Segment Duration	s	50.8275	52.22
Pool Vaporization Rate	kg/s	5.11221	3.39664
Total Vapor Flowrate	kg/s	15.7545	12.8525
	Release Segment 1 Cloud Segment 5		
Cloud Segment Duration	s	45.1406	45.8275
Pool Vaporization Rate	kg/s	5.78561	3.83368
Total Vapor Flowrate	kg/s	16.4279	13.2896
	Release Segment 1 Cloud Segment 6		
Cloud Segment Duration	s	78.6119	80.3906
Pool Vaporization Rate	kg/s	6.63903	4.38345
Total Vapor Flowrate	kg/s	17.2813	13.8393
	Release Segment 1 Cloud Segment 7		
Cloud Segment Duration	s	95.9975	99.3594
Pool Vaporization Rate	kg/s	7.81591	5.14496
Total Vapor Flowrate	kg/s	18.4582	14.6008
Maximum Pool Radius	m	26.6142	26.9787

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Distance to Concentration Results

Path: \Terminal Adonai - Efeitos físicos\Simulações\H083

The height for user defined concentrations is the user defined height 0 m

All toxic results are reported at the toxic effect height 1 m

All flammable results are reported at the flammable effect height 0 m

Concentration(ppm)	Averaging Time		Distance (m)	
			Dia	Noite
UFL (76800)	18.75	s	11.8119	15.1058
LFL (10500)	18.75	s	70.9273	77.2775
LFL Frac (10500)	18.75	s	70.9273	77.2775

Concentration(ppm)	Averaging Time		Heights (m) for above distances	
			Dia	Noite
UFL (76800)	18.75	s	0	0
LFL (10500)	18.75	s	0	0
LFL Frac (10500)	18.75	s	0	0

Jet Fire Hazard

Path: \Terminal Adonai - Efeitos físicos\Simulações\H083

Jet fire method used: Cone model - DNV recommended

	Dia	Noite
Jet Fire Status	Truncated	Truncated
Flame Direction	Horizontal	Horizontal

Radiation Effects: Jet Fire Ellipse

Path: \Terminal Adonai - Efeitos físicos\Simulações\H083

This table gives the distances to the specified radiation levels for each jet fire listed in the above hazard table

Radiation Level			Distance (m)	
			Dia	Noite
9.83	kW/m2		111.748	113.213
19.46	kW/m2		96.607	98.5052
35	kW/m2		86.5102	88.5978

Radiation Effects: Jet Fire Distance

Path: \Terminal Adonai - Efeitos físicos\Simulações\H083

	Dia	Radiation Level (kW/m2)
		Noite

Early Pool Fire Hazard

Path: \Terminal Adonai - Efeitos físicos\Simulações\H083

	Dia	Noite
Early Pool Fire Status	Hazard	Hazard

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Radiation Effects: Early Pool Fire Ellipse

Path: \Terminal Adonai - Efeitos físicos\Simulações\H083

			Dia	Noite
Radiation Level	9.83	kW/m2	36.2622	35.09
Radiation Level	19.46	kW/m2	28.5691	28.6777
Radiation Level	35	kW/m2	Not Reached	Not Reached

Radiation Effects: Early Pool Fire Distance

Path: \Terminal Adonai - Efeitos físicos\Simulações\H083

	Dia	Radiation Level (kW/m2)
		Noite

Late Pool Fire Hazard

Path: \Terminal Adonai - Efeitos físicos\Simulações\H083

	Dia	Noite
Late Pool Fire Status	Hazard	Hazard

Radiation Effects: Late Pool Fire Ellipse

Path: \Terminal Adonai - Efeitos físicos\Simulações\H083

			Dia	Noite
Radiation Level	9.83	kW/m2	46.0964	44.784
Radiation Level	19.46	kW/m2	39.4809	39.6164
Radiation Level	35	kW/m2	Not Reached	Not Reached

Radiation Effects: Late Pool Fire Distance

Path: \Terminal Adonai - Efeitos físicos\Simulações\H083

	Dia	Radiation Level (kW/m2)
		Noite

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Flash Fire Envelope

Path: \Terminal Adonai - Efeitos físicos\Simulações\H083

All flammable results are reported at the flammable effect height 0 m

				Distance (m)	
				Dia	Noite
Furthest Extent	10500	ppm	70.9273	70.9273	77.2775
Furthest Extent	10500	ppm	70.9273	70.9273	77.2775
				Heights (m) for above distances	
				Dia	Noite
Furthest Extent	10500	ppm	0	0	0
Furthest Extent	10500	ppm	0	0	0

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Explosion Effects: Late Ignition

Path: \Terminal Adonai - Efeitos físicos\Simulações\H083

Explosion Model Used : TNT

Explosion Location Criterion: Cloud Center

All distances are measured from the Source

All flammable results are reported at the flammable effect height 0 m

			Maximum Distance (m) at Overpressure Level	
			Dia	Noite
Overpressure	0.05	bar	136.455	144.464
Overpressure	0.1	bar	97.982	102.954
Overpressure	0.3	bar	66.4491	68.9317
			Supplementary Data at 0.05 bar	
			Dia	Noite
Supplied Flammable Mass		kg	219.858	276.143
Used Flammable Mass		kg	219.858	276.143
Overpressure Radius		m	101.455	109.464
Distance to:				
- Ignition Source		m	70	70
- Cloud Front/Centre		m	70	70
- Explosion Centre		m	35	35
			Supplementary Data at 0.1 bar	
			Dia	Noite
Supplied Flammable Mass		kg	219.858	276.143
Used Flammable Mass		kg	219.858	276.143
Overpressure Radius		m	62.982	67.9538
Distance to:				
- Ignition Source		m	70	70
- Cloud Front/Centre		m	70	70
- Explosion Centre		m	35	35
			Supplementary Data at 0.3 bar	
			Dia	Noite
Supplied Flammable Mass		kg	219.858	276.143
Used Flammable Mass		kg	219.858	276.143
Overpressure Radius		m	31.4491	33.9317
Distance to:				
- Ignition Source		m	70	70
- Cloud Front/Centre		m	70	70
- Explosion Centre		m	35	35

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Weather Conditions

Path: \Terminal Adonai - Efeitos físicos\Simulações\H083

		Dia	Noite
Wind Speed	m/s	3	2
Pasquill Stability		C	E
Surface Roughness Length	mm	1000	1000
Surface Roughness Parameter		0.173718	0.173718
Atmospheric Temperature	degC	25	20
Surface Temperature	degC	30	20
Relative Humidity	fraction	0.8	0.8

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

H084

Base Case

CASE Name: Data

Path: \Terminal Adonai - Efeitos físicos\Simulações\H084

User-Defined Data

Material

Material Identifier N-HEXANE

Scenario

Building Wake Effect None

Vessel/Tank

Release Type Continuous

Location

Elevation 1 m
Use ERPG averaging time ERPG not selected
Use IDLH averaging time IDLH not selected
Use STEL averaging time STEL not selected
Supply a user defined averaging time Not supplied

Bund

Status of Bund No bund present
[Type of Bund Surface User-Defined (Land)]
[Bund Height 0 m]
[Bund Failure Modeling Bund cannot fail]

Indoor/Outdoor

Location of release Open air release
Outdoor Release Direction Horizontal

Flammable

Explosion Method TNT
Jet Fire Method Cone Model

Dispersion

Number of Release Segments 1
Fluid Phase(1) Liquid
Discharge Velocity(1) 36.92 m/s
Droplet Diameter(1) 137.5 um
Duration of Discharge(1) 600 s
Final Temperature(1) 24.88 degC
Release Rate(1) 0.89 kg/s
Pre-Dilution Air Rates(1) 0 kg/s
Late Ignition Location No ignition location
Mass Inventory of material to Disperse 1.968E6 kg

Fireball Parameters

[Mass Modification Factor 3]
[Calculation method for fireball DNV Recommended]
[TNO model flame temperature 1727 degC]

Toxic Parameters

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

[Indoor Calculations	Unselected]
[Wind Dependent Exchange Rate	Case Specified]
[Building Exchange Rate	4 /hr]
[Tail Time	1800 s]
[Set averaging time equal to exposure time	Use a fixed averaging time]
[Cut-off fraction of toxic load for exposure time calculation	0.05 fraction]
[Cut-off concentration for exposure time calculations	0 fraction]

Geometry

Shape	Point
Dimension	2D
System	Absolute
East(1)	0 m
North(1)	0 m

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Consequence Results

Pool Vaporization Results

Path: \Terminal Adonai - Efeitos físicos\Simulações\H084

		Noite	
		Release Segment 1	
Release Duration	s		600
Liquid Rainout	fraction		0.0452841
Maximum Pool Radius	m		0.599052

Distance to Concentration Results

Path: \Terminal Adonai - Efeitos físicos\Simulações\H084

The height for user defined concentrations is the user defined height 0 m
All toxic results are reported at the toxic effect height 1 m
All flammable results are reported at the flammable effect height 0 m

Concentration(ppm)		Averaging Time		Distance (m)	
				Dia	Noite
UFL (76800)	18.75	s		No Hazard	No Hazard
LFL (10500)	18.75	s		14.9994	20.7531
LFL Frac (10500)	18.75	s		14.9994	20.7531

Concentration(ppm)		Averaging Time		Heights (m) for above distances	
				Dia	Noite
UFL (76800)	18.75	s		0	0
LFL (10500)	18.75	s		0	0
LFL Frac (10500)	18.75	s		0	0

Jet Fire Hazard

Path: \Terminal Adonai - Efeitos físicos\Simulações\H084

Jet fire method used: Cone model - DNV recommended

		Dia	Noite
Jet Fire Status		Truncated	Truncated
Flame Direction		Horizontal	Horizontal

Radiation Effects: Jet Fire Ellipse

Path: \Terminal Adonai - Efeitos físicos\Simulações\H084

This table gives the distances to the specified radiation levels
for each jet fire listed in the above hazard table

		Distance (m)		
		Dia	Noite	
Radiation Level	9.83	kW/m2	22.1678	23.5925
Radiation Level	19.46	kW/m2	19.2766	20.6899
Radiation Level	35	kW/m2	17.3197	18.7009

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Radiation Effects: Jet Fire Distance

Path: \Terminal Adonai - Efeitos físicos\Simulações\H084

Radiation Level (kW/m2)
Dia
Noite

Early Pool Fire Hazard

Path: \Terminal Adonai - Efeitos físicos\Simulações\H084

Early Pool Fire Status
Noite
Hazard

Radiation Effects: Early Pool Fire Ellipse

Path: \Terminal Adonai - Efeitos físicos\Simulações\H084

Radiation Level (kW/m2)
Distance (m)
Noite

Radiation Level	9.83	kW/m2	13.2648
Radiation Level	19.46	kW/m2	12.2155
Radiation Level	35	kW/m2	10.8883

Radiation Effects: Early Pool Fire Distance

Path: \Terminal Adonai - Efeitos físicos\Simulações\H084

Radiation Level (kW/m2)
Noite

Late Pool Fire Hazard

Path: \Terminal Adonai - Efeitos físicos\Simulações\H084

Late Pool Fire Status
Noite
Hazard

Radiation Effects: Late Pool Fire Ellipse

Path: \Terminal Adonai - Efeitos físicos\Simulações\H084

Radiation Level (kW/m2)
Distance (m)
Noite

Radiation Level	9.83	kW/m2	15.3579
Radiation Level	19.46	kW/m2	13.5721
Radiation Level	35	kW/m2	11.6136

Radiation Effects: Late Pool Fire Distance

Path: \Terminal Adonai - Efeitos físicos\Simulações\H084

Radiation Level (kW/m2)
Noite

SUMMARY REPORT

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Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Flash Fire Envelope

Path: \Terminal Adonai - Efeitos físicos\Simulações\H084

All flammable results are reported at the flammable effect height 0 m

				Distance (m)	
				Dia	Noite
Furthest Extent	10500	ppm	14.9994	20.7531	
Furthest Extent	10500	ppm	14.9994	20.7531	
				Heights (m) for above distances	
				Dia	Noite
Furthest Extent	10500	ppm	0	0	
Furthest Extent	10500	ppm	0	0	

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Explosion Effects: Late Ignition

Path: \Terminal Adonai - Efeitos físicos\Simulações\H084

Explosion Model Used : TNT

Explosion Location Criterion: Cloud Center

All distances are measured from the Source

All flammable results are reported at the flammable effect height 0 m

			Maximum Distance (m) at Overpressure Level	
			Dia	Noite
Overpressure	0.05	bar	20.9127	34.5713
Overpressure	0.1	bar	14.8846	25.2535
Overpressure	0.3	bar	9.94404	17.6166

Supplementary Data at 0.05 bar

			Dia	Noite
Supplied Flammable Mass		kg	0.845646	3.12324
Used Flammable Mass		kg	0.845646	3.12324
Overpressure Radius		m	15.8961	24.5713
Distance to:				
- Ignition Source		m	10	20
- Cloud Front/Centre		m	10	20
- Explosion Centre		m	5.01657	10

Supplementary Data at 0.1 bar

			Dia	Noite
Supplied Flammable Mass		kg	0.845646	3.12324
Used Flammable Mass		kg	0.845646	3.12324
Overpressure Radius		m	9.86806	15.2535
Distance to:				
- Ignition Source		m	10	20
- Cloud Front/Centre		m	10	20
- Explosion Centre		m	5.01657	10

Supplementary Data at 0.3 bar

			Dia	Noite
Supplied Flammable Mass		kg	0.845646	3.12324
Used Flammable Mass		kg	0.845646	3.12324
Overpressure Radius		m	4.92747	7.61663
Distance to:				
- Ignition Source		m	10	20
- Cloud Front/Centre		m	10	20
- Explosion Centre		m	5.01657	10

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Weather Conditions

Path: \Terminal Adonai - Efeitos físicos\Simulações\H084

		Dia	Noite
Wind Speed	m/s	3	2
Pasquill Stability		C	E
Surface Roughness Length	mm	1000	1000
Surface Roughness Parameter		0.173718	0.173718
Atmospheric Temperature	degC	25	20
Surface Temperature	degC	30	20
Relative Humidity	fraction	0.8	0.8

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

H085

Base Case

CASE Name: Data

Path: \Terminal Adonai - Efeitos físicos\Simulações\H085

User-Defined Data

Material

Material Identifier	N-HEXANE
Type of Vessel	Padded Liquid
Pressure Specification	Pressure specified
Storage Pressure - gauge	0.03 bar
Temperature	25 degC
Volume Inventory	3200 m3

Scenario

Scenario Type	Line rupture
Phase to be Released	Liquid
Building Wake Effect	None
Specify Pump Head	No pump head supplied
Number of Excess Flow Valves	0
Number of Non-Return Valves	0
Number of Shut-Off Valves	0

Pipe

Internal Diameter	203.2 mm
Line length	1 m

Vessel/Tank

Duration of Interest	600 s
Method Used for Time Varying Releases	Average Rates
Tank Type	Vertical
Tank Height	22.64 m
Tank Diameter	15 m
Height of Discharge from Vessel Bottom	1 m

Location

Elevation	1 m
Use ERPG averaging time	ERPG not selected
Use IDLH averaging time	IDLH not selected
Use STEL averaging time	STEL not selected
Supply a user defined averaging time	Not supplied

Bund

Status of Bund	Bund present
Bund Area	1940 m2
[Type of Bund Surface	User-Defined (Land)]
Bund Height	3 m
[Bund Failure Modeling	Bund cannot fail]

Indoor/Outdoor

Location of release	Open air release
Outdoor Release Direction	Horizontal

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Flammable

Explosion Method	TNT
Jet Fire Method	Cone Model

Dispersion

Late Ignition Location	No ignition location
Mass Inventory of material to Disperse	2.099E6 kg

Fireball Parameters

[Mass Modification Factor	3]
[Calculation method for fireball	DNV Recommended]
[TNO model flame temperature	1727 degC]

Toxic Parameters

[Indoor Calculations	Unselected]
[Wind Dependent Exchange Rate	Case Specified]
[Building Exchange Rate	4 /hr]
[Tail Time	1800 s]
[Set averaging time equal to exposure time	Use a fixed averaging time]
[Cut-off fraction of toxic load for exposure time calculation	0.05 fraction]
[Cut-off concentration for exposure time calculations	0 fraction]

Geometry

Shape	Point
Dimension	2D
System	Absolute
East(1)	0 m
North(1)	0 m

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Path: \Terminal Adonai - Efeitos físicos\Simulações\H085

DISCHARGE DATA for Weather: Global Weathers\Dia

Wind Speed: 3.00 m/s
Wind Speed at Height (Calculated) 1.78 m/s
Pasquill Stability: C

USER-DEFINED QUANTITIES

Material N-HEXANE
Scenario Line rupture
Inventory 2,099,283.75 kg
Fixed Duration n/a s

Stagnation data (data at upstream end for long pipe):

- Pressure 1.04 bar
- Temperature 25.00 degC
- Fluid State Non-saturated liquid

CALCULATED QUANTITIES

Mass Flow of Air (Vent from Vapor Space only) n/a
Mass Flowrate 2.42642E+002 kg/s
Release Duration 600.00 s

Orifice or pipe exit data (before atmospheric expansion):

- Pressure n/a bar
- Temperature n/a degC
- Vena Contracta Velocity (exit velocity for pipe releases) n/a m/s
- Discharge Coefficient n/a

Final data (after atmospheric expansion):

- Temperature 25.05 degC
- Liquid Mass Fraction 1.00 fraction
- Droplet Diameter 1,467.22 um
- Expanded Radius n/a m
- Velocity 11.41 m/s

DISCHARGE DATA for Weather: Global Weathers\Noite

Wind Speed: 2.00 m/s
Wind Speed at Height (Calculated) 0.83 m/s
Pasquill Stability: E

USER-DEFINED QUANTITIES

Material N-HEXANE
Scenario Line rupture
Inventory 2,099,283.75 kg
Fixed Duration n/a s

Stagnation data (data at upstream end for long pipe):

- Pressure 1.04 bar
- Temperature 25.00 degC
- Fluid State Non-saturated liquid

CALCULATED QUANTITIES

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Mass Flow of Air (Vent from Vapor Space only)	n/a
Mass Flowrate	2.42642E+002 kg/s
Release Duration	600.00 s
Orifice or pipe exit data (before atmospheric expansion):	
- Pressure	n/a bar
- Temperature	n/a degC
- Vena Contracta Velocity (exit velocity for pipe releases)	n/a m/s
- Discharge Coefficient	n/a
Final data (after atmospheric expansion):	
- Temperature	25.04 degC
- Liquid Mass Fraction	1.00 fraction
- Droplet Diameter	1,439.04 um
- Expanded Radius	n/a m
- Velocity	11.41 m/s

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Consequence Results

Pool Vaporization Results

Path: \Terminal Adonai - Efeitos físicos\Simulações\H085

		Dia	Noite
Release Segment 1			
Release Duration	s	600	600
Liquid Rainout	fraction	0.972747	0.976908
Release Segment 1 Cloud Segment 1			
Cloud Segment Duration	s	73.1025	70.9806
Pool Vaporization Rate	kg/s	2.21218	1.69286
Total Vapor Flowrate	kg/s	8.82482	7.29599
Release Segment 1 Cloud Segment 2			
Cloud Segment Duration	s	30.9375	31.0294
Pool Vaporization Rate	kg/s	5.17908	3.87181
Total Vapor Flowrate	kg/s	11.7917	9.47494
Release Segment 1 Cloud Segment 3			
Cloud Segment Duration	s	24.2156	24.5525
Pool Vaporization Rate	kg/s	6.66455	4.94912
Total Vapor Flowrate	kg/s	13.2772	10.5522
Release Segment 1 Cloud Segment 4			
Cloud Segment Duration	s	20.5844	21.06
Pool Vaporization Rate	kg/s	7.8409	5.79701
Total Vapor Flowrate	kg/s	14.4535	11.4001
Release Segment 1 Cloud Segment 5			
Cloud Segment Duration	s	451.16	452.378
Pool Vaporization Rate	kg/s	8.71395	6.52807
Total Vapor Flowrate	kg/s	15.3266	12.1312
Maximum Pool Radius	m	24.85	24.85

Distance to Concentration Results

Path: \Terminal Adonai - Efeitos físicos\Simulações\H085

The height for user defined concentrations is the user defined height 0 m

All toxic results are reported at the toxic effect height 1 m

All flammable results are reported at the flammable effect height 0 m

Concentration(ppm)	Averaging Time		Dia	Noite	Distance (m)
UFL (76800)	18.75	s	17.9284	21.407	
LFL (10500)	18.75	s	51.9633	58.3544	
LFL Frac (10500)	18.75	s	51.9633	58.3544	
Concentration(ppm)	Averaging Time		Dia	Noite	Heights (m) for above distances
UFL (76800)	18.75	s	0	0	
LFL (10500)	18.75	s	0	0	
LFL Frac (10500)	18.75	s	0	0	

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Jet Fire Hazard

Path: \Terminal Adonai - Efeitos físicos\Simulações\H085

Jet fire method used: Cone model - DNV recommended

	Dia	Noite
Jet Fire Status	Truncated	Truncated
Flame Direction	Horizontal	Horizontal

Radiation Effects: Jet Fire Ellipse

Path: \Terminal Adonai - Efeitos físicos\Simulações\H085

This table gives the distances to the specified radiation levels for each jet fire listed in the above hazard table

			Distance (m)	
			Dia	Noite
Radiation Level	9.83	kW/m2	92.0071	91.6571
Radiation Level	19.46	kW/m2	80.0367	80.1097
Radiation Level	35	kW/m2	72.0157	72.2252

Radiation Effects: Jet Fire Distance

Path: \Terminal Adonai - Efeitos físicos\Simulações\H085

	Radiation Level (kW/m2)	
	Dia	Noite

Early Pool Fire Hazard

Path: \Terminal Adonai - Efeitos físicos\Simulações\H085

	Dia	Noite
Early Pool Fire Status	Hazard	Hazard

Radiation Effects: Early Pool Fire Ellipse

Path: \Terminal Adonai - Efeitos físicos\Simulações\H085

			Distance (m)	
			Dia	Noite
Radiation Level	9.83	kW/m2	32.3312	30.9631
Radiation Level	19.46	kW/m2	25.85	25.85
Radiation Level	35	kW/m2	Not Reached	Not Reached

Radiation Effects: Early Pool Fire Distance

Path: \Terminal Adonai - Efeitos físicos\Simulações\H085

	Radiation Level (kW/m2)	
	Dia	Noite

SUMMARY REPORT

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Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Late Pool Fire Hazard

Path: \Terminal Adonai - Efeitos físicos\Simulações\H085

	Dia	Noite
Late Pool Fire Status	Hazard	Hazard

Radiation Effects: Late Pool Fire Ellipse

Path: \Terminal Adonai - Efeitos físicos\Simulações\H085

			Dia	Noite
				Distance (m)
Radiation Level	9.83	kW/m2	32.3312	30.9631
Radiation Level	19.46	kW/m2	25.85	25.85
Radiation Level	35	kW/m2	Not Reached	Not Reached

Radiation Effects: Late Pool Fire Distance

Path: \Terminal Adonai - Efeitos físicos\Simulações\H085

	Dia	Noite
		Radiation Level (kW/m2)
		Noite

Flash Fire Envelope

Path: \Terminal Adonai - Efeitos físicos\Simulações\H085

All flammable results are reported at the flammable effect height 0 m

			Dia	Noite
				Distance (m)
Furthest Extent	10500	ppm	51.9633	58.3544
Furthest Extent	10500	ppm	51.9633	58.3544
				Heights (m) for above distances
			Dia	Noite
Furthest Extent	10500	ppm	0	0
Furthest Extent	10500	ppm	0	0

SUMMARY REPORT

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Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Explosion Effects: Late Ignition

Path: \Terminal Adonai - Efeitos físicos\Simulações\H085

Explosion Model Used : TNT

Explosion Location Criterion: Cloud Center

All distances are measured from the Source

All flammable results are reported at the flammable effect height 0 m

			Maximum Distance (m) at Overpressure Level	
			Dia	Noite
Overpressure	0.05	bar	110.593	120.606
Overpressure	0.1	bar	78.135	84.351
Overpressure	0.3	bar	51.5322	54.636

			Supplementary Data at 0.05 bar	
			Dia	Noite
Supplied Flammable Mass		kg	132.018	183.983
Used Flammable Mass		kg	132.018	183.983
Overpressure Radius		m	85.5931	95.6062
Distance to:				
- Ignition Source		m	50	50
- Cloud Front/Centre		m	50	50
- Explosion Centre		m	25	25

			Supplementary Data at 0.1 bar	
			Dia	Noite
Supplied Flammable Mass		kg	132.018	183.983
Used Flammable Mass		kg	132.018	183.983
Overpressure Radius		m	53.135	59.351
Distance to:				
- Ignition Source		m	50	50
- Cloud Front/Centre		m	50	50
- Explosion Centre		m	25	25

			Supplementary Data at 0.3 bar	
			Dia	Noite
Supplied Flammable Mass		kg	132.018	183.983
Used Flammable Mass		kg	132.018	183.983
Overpressure Radius		m	26.5322	29.636
Distance to:				
- Ignition Source		m	50	50
- Cloud Front/Centre		m	50	50
- Explosion Centre		m	25	25

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Weather Conditions

Path: \Terminal Adonai - Efeitos físicos\Simulações\H085

		Dia	Noite
Wind Speed	m/s	3	2
Pasquill Stability		C	E
Surface Roughness Length	mm	1000	1000
Surface Roughness Parameter		0.173718	0.173718
Atmospheric Temperature	degC	25	20
Surface Temperature	degC	30	20
Relative Humidity	fraction	0.8	0.8

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

H086

Base Case

CASE Name: Data

Path: \Terminal Adonai - Efeitos físicos\Simulações\H086

User-Defined Data

Material

Material Identifier	N-HEXANE
Type of Vessel	Padded Liquid
Pressure Specification	Pressure specified
Storage Pressure - gauge	0.03 bar
Temperature	25 degC
Volume Inventory	3200 m3

Scenario

Scenario Type	Leak
Phase to be Released	Liquid
Hole Diameter	20.32 mm
Building Wake Effect	None

Vessel/Tank

Duration of Interest	600 s
Method Used for Time Varying Releases	Average Rates
Tank Type	Vertical
Tank Height	22.64 m
Tank Diameter	15 m
Height of Discharge from Vessel Bottom	1 m

Location

Elevation	1 m
Use ERPG averaging time	ERPG not selected
Use IDLH averaging time	IDLH not selected
Use STEL averaging time	STEL not selected
Supply a user defined averaging time	Not supplied

Bund

Status of Bund	Bund present
Bund Area	1940 m2
[Type of Bund Surface	User-Defined (Land)]
Bund Height	3 m
[Bund Failure Modeling	Bund cannot fail]

Indoor/Outdoor

Location of release	Open air release
Outdoor Release Direction	Horizontal

Flammable

Explosion Method	TNT
Jet Fire Method	Cone Model

Dispersion

Late Ignition Location	No ignition location
Mass Inventory of material to Disperse	2.099E6 kg

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Fireball Parameters

[Mass Modification Factor	3]
[Calculation method for fireball	DNV Recommended]
[TNO model flame temperature	1727 degC]

Toxic Parameters

[Indoor Calculations	Unselected]
[Wind Dependent Exchange Rate	Case Specified]
[Building Exchange Rate	4 /hr]
[Tail Time	1800 s]
[Set averaging time equal to exposure time	Use a fixed averaging time]
[Cut-off fraction of toxic load for exposure time calculation	0.05 fraction]
[Cut-off concentration for exposure time calculations	0 fraction]

Geometry

Shape	Point
Dimension	2D
System	Absolute
East(1)	0 m
North(1)	0 m

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Path: \Terminal Adonai - Efeitos físicos\Simulações\H086

DISCHARGE DATA for Weather: Global Weathers\Dia

Wind Speed: 3.00 m/s
Wind Speed at Height (Calculated) 1.78 m/s
Pasquill Stability: C

USER-DEFINED QUANTITIES

Material N-HEXANE
Scenario Leak
Inventory 2,099,283.75 kg
Fixed Duration n/a s

Stagnation data (data at upstream end for long pipe):

- Pressure 1.04 bar
- Temperature 25.00 degC
- Fluid State Non-saturated liquid

CALCULATED QUANTITIES

Mass Flow of Air (Vent from Vapor Space only) n/a
Mass Flowrate 2.50466E+000 kg/s
Release Duration 600.00 s

Orifice or pipe exit data (before atmospheric expansion):

- Pressure n/a bar
- Temperature n/a degC
- Vena Contracta Velocity (exit velocity for pipe releases) n/a m/s
- Discharge Coefficient n/a

Final data (after atmospheric expansion):

- Temperature 24.97 degC
- Liquid Mass Fraction 1.00 fraction
- Droplet Diameter 496.02 um
- Expanded Radius n/a m
- Velocity 19.62 m/s

DISCHARGE DATA for Weather: Global Weathers\Noite

Wind Speed: 2.00 m/s
Wind Speed at Height (Calculated) 0.83 m/s
Pasquill Stability: E

USER-DEFINED QUANTITIES

Material N-HEXANE
Scenario Leak
Inventory 2,099,283.75 kg
Fixed Duration n/a s

Stagnation data (data at upstream end for long pipe):

- Pressure 1.04 bar
- Temperature 25.00 degC
- Fluid State Non-saturated liquid

CALCULATED QUANTITIES

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Mass Flow of Air (Vent from Vapor Space only)	n/a
Mass Flowrate	2.50467E+000 kg/s
Release Duration	600.00 s
Orifice or pipe exit data (before atmospheric expansion):	
- Pressure	n/a bar
- Temperature	n/a degC
- Vena Contracta Velocity (exit velocity for pipe releases)	n/a m/s
- Discharge Coefficient	n/a
Final data (after atmospheric expansion):	
- Temperature	24.96 degC
- Liquid Mass Fraction	1.00 fraction
- Droplet Diameter	486.50 um
- Expanded Radius	n/a m
- Velocity	19.62 m/s

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Consequence Results

Pool Vaporization Results

Path: \Terminal Adonai - Efeitos físicos\Simulações\H086

		Dia	Noite
	Release Segment 1		
Release Duration	s	600	600
Liquid Rainout	fraction	0.779822	0.796443
	Release Segment 1 Cloud Segment 1		
Cloud Segment Duration	s	203.776	199.516
Pool Vaporization Rate	kg/s	0.0410754	0.0262954
Total Vapor Flowrate	kg/s	0.592546	0.536137
	Release Segment 1 Cloud Segment 2		
Cloud Segment Duration	s	76.7869	77.7069
Pool Vaporization Rate	kg/s	0.109542	0.0677657
Total Vapor Flowrate	kg/s	0.661012	0.577607
	Release Segment 1 Cloud Segment 3		
Cloud Segment Duration	s	58.9181	59.5
Pool Vaporization Rate	kg/s	0.144332	0.0889736
Total Vapor Flowrate	kg/s	0.695802	0.598815
	Release Segment 1 Cloud Segment 4		
Cloud Segment Duration	s	49.595	49.4
Pool Vaporization Rate	kg/s	0.171917	0.105702
Total Vapor Flowrate	kg/s	0.723387	0.615543
	Release Segment 1 Cloud Segment 5		
Cloud Segment Duration	s	43.5644	44.44
Pool Vaporization Rate	kg/s	0.195312	0.119991
Total Vapor Flowrate	kg/s	0.746783	0.629832
	Release Segment 1 Cloud Segment 6		
Cloud Segment Duration	s	75.8625	76.8131
Pool Vaporization Rate	kg/s	0.224812	0.138237
Total Vapor Flowrate	kg/s	0.776283	0.648078
	Release Segment 1 Cloud Segment 7		
Cloud Segment Duration	s	91.4975	92.6244
Pool Vaporization Rate	kg/s	0.26522	0.163322
Total Vapor Flowrate	kg/s	0.81669	0.673163
Maximum Pool Radius	m	4.17877	4.26584

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Distance to Concentration Results

Path: \Terminal Adonai - Efeitos físicos\Simulações\H086

The height for user defined concentrations is the user defined height 0 m

All toxic results are reported at the toxic effect height 1 m

All flammable results are reported at the flammable effect height 0 m

Concentration(ppm)	Averaging Time		Distance (m)	
			Dia	Noite
UFL (76800)	18.75	s	No Hazard	No Hazard
LFL (10500)	18.75	s	17.2198	20.0692
LFL Frac (10500)	18.75	s	17.2198	20.0692

Concentration(ppm)	Averaging Time		Heights (m) for above distances	
			Dia	Noite
UFL (76800)	18.75	s	0	0
LFL (10500)	18.75	s	0	0
LFL Frac (10500)	18.75	s	0	0

Jet Fire Hazard

Path: \Terminal Adonai - Efeitos físicos\Simulações\H086

Jet fire method used: Cone model - DNV recommended

	Dia	Noite
Jet Fire Status	Truncated	Truncated
Flame Direction	Horizontal	Horizontal

Radiation Effects: Jet Fire Ellipse

Path: \Terminal Adonai - Efeitos físicos\Simulações\H086

This table gives the distances to the specified radiation levels for each jet fire listed in the above hazard table

			Distance (m)	
Radiation Level			Dia	Noite
9.83	kW/m2		30.2221	31.2372
19.46	kW/m2		26.3496	27.3861
35	kW/m2		23.7022	24.6984

Radiation Effects: Jet Fire Distance

Path: \Terminal Adonai - Efeitos físicos\Simulações\H086

	Dia	Radiation Level (kW/m2)
		Noite

Early Pool Fire Hazard

Path: \Terminal Adonai - Efeitos físicos\Simulações\H086

	Dia	Noite
Early Pool Fire Status	Hazard	Hazard

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Radiation Effects: Early Pool Fire Ellipse

Path: \Terminal Adonai - Efeitos físicos\Simulações\H086

			Dia	Noite
Radiation Level	9.83	kW/m2	22.8174	21.8071
Radiation Level	19.46	kW/m2	16.4159	15.5106
Radiation Level	35	kW/m2	11.2741	10.9555

Radiation Effects: Early Pool Fire Distance

Path: \Terminal Adonai - Efeitos físicos\Simulações\H086

	Dia	Noite
Radiation Level (kW/m2)		

Late Pool Fire Hazard

Path: \Terminal Adonai - Efeitos físicos\Simulações\H086

	Dia	Noite
Late Pool Fire Status	Hazard	Hazard

Radiation Effects: Late Pool Fire Ellipse

Path: \Terminal Adonai - Efeitos físicos\Simulações\H086

			Dia	Noite
Radiation Level	9.83	kW/m2	27.702	25.9125
Radiation Level	19.46	kW/m2	17.6138	16.6859
Radiation Level	35	kW/m2	11.7745	11.5989

Radiation Effects: Late Pool Fire Distance

Path: \Terminal Adonai - Efeitos físicos\Simulações\H086

	Dia	Noite
Radiation Level (kW/m2)		

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Flash Fire Envelope

Path: \Terminal Adonai - Efeitos físicos\Simulações\H086

All flammable results are reported at the flammable effect height 0 m

				Distance (m)	
				Dia	Noite
Furthest Extent	10500	ppm	17.2198	20.0692	
Furthest Extent	10500	ppm	17.2198	20.0692	
				Heights (m) for above distances	
				Dia	Noite
Furthest Extent	10500	ppm	0	0	
Furthest Extent	10500	ppm	0	0	

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Explosion Effects: Late Ignition

Path: \Terminal Adonai - Efeitos físicos\Simulações\H086

Explosion Model Used : TNT

Explosion Location Criterion: Cloud Center

All distances are measured from the Source

All flammable results are reported at the flammable effect height 0 m

			Maximum Distance (m) at Overpressure Level	
			Dia	Noite
Overpressure	0.05	bar	18.1808	31.6928
Overpressure	0.1	bar	13.1842	23.4666
Overpressure	0.3	bar	9.08883	16.7243

			Supplementary Data at 0.05 bar	
			Dia	Noite
Supplied Flammable Mass		kg	0.48163	2.14914
Used Flammable Mass		kg	0.48163	2.14914
Overpressure Radius		m	13.1764	21.6928
Distance to:				
- Ignition Source		m	10	20
- Cloud Front/Centre		m	10	20
- Explosion Centre		m	5.0044	10

			Supplementary Data at 0.1 bar	
			Dia	Noite
Supplied Flammable Mass		kg	0.48163	2.14914
Used Flammable Mass		kg	0.48163	2.14914
Overpressure Radius		m	8.17976	13.4666
Distance to:				
- Ignition Source		m	10	20
- Cloud Front/Centre		m	10	20
- Explosion Centre		m	5.0044	10

			Supplementary Data at 0.3 bar	
			Dia	Noite
Supplied Flammable Mass		kg	0.48163	2.14914
Used Flammable Mass		kg	0.48163	2.14914
Overpressure Radius		m	4.08444	6.72433
Distance to:				
- Ignition Source		m	10	20
- Cloud Front/Centre		m	10	20
- Explosion Centre		m	5.0044	10

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Weather Conditions

Path: \Terminal Adonai - Efeitos físicos\Simulações\H086

		Dia	Noite
Wind Speed	m/s	3	2
Pasquill Stability		C	E
Surface Roughness Length	mm	1000	1000
Surface Roughness Parameter		0.173718	0.173718
Atmospheric Temperature	degC	25	20
Surface Temperature	degC	30	20
Relative Humidity	fraction	0.8	0.8

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

H087

Base Case

CASE Name: Data

Path: \Terminal Adonai - Efeitos físicos\Simulações\H087

User-Defined Data

Material

Material Identifier N-HEXANE

Scenario

Building Wake Effect None

Vessel/Tank

Release Type Continuous

Location

Elevation 1 m
Use ERPG averaging time ERPG not selected
Use IDLH averaging time IDLH not selected
Use STEL averaging time STEL not selected
Supply a user defined averaging time Not supplied

Bund

Status of Bund No bund present
[Type of Bund Surface User-Defined (Land)]
[Bund Height 0 m]
[Bund Failure Modeling Bund cannot fail]

Indoor/Outdoor

Location of release Open air release
Outdoor Release Direction Horizontal

Flammable

Explosion Method TNT
Jet Fire Method Cone Model

Dispersion

Number of Release Segments 1
Fluid Phase(1) Liquid
Discharge Velocity(1) 22.16 m/s
Droplet Diameter(1) 380.8 um
Duration of Discharge(1) 600 s
Final Temperature(1) 25.19 degC
Release Rate(1) 88.75 kg/s
Pre-Dilution Air Rates(1) 0 kg/s
Late Ignition Location No ignition location
Mass Inventory of material to Disperse 2.099E6 kg

Fireball Parameters

[Mass Modification Factor 3]
[Calculation method for fireball DNV Recommended]
[TNO model flame temperature 1727 degC]

Toxic Parameters

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

[Indoor Calculations	Unselected]
[Wind Dependent Exchange Rate	Case Specified]
[Building Exchange Rate	4 /hr]
[Tail Time	1800 s]
[Set averaging time equal to exposure time	Use a fixed averaging time]
[Cut-off fraction of toxic load for exposure time calculation	0.05 fraction]
[Cut-off concentration for exposure time calculations	0 fraction]

Geometry

Shape	Point
Dimension	2D
System	Absolute
East(1)	0 m
North(1)	0 m

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Consequence Results

Pool Vaporization Results

Path: \Terminal Adonai - Efeitos físicos\Simulações\H087

		Dia	Noite
	Release Segment 1		
Release Duration	s	600	600
Liquid Rainout	fraction	0.880087	0.893455
	Release Segment 1 Cloud Segment 1		
Cloud Segment Duration	s	190.44	183.602
Pool Vaporization Rate	kg/s	1.35853	0.949142
Total Vapor Flowrate	kg/s	12.0008	10.405
	Release Segment 1 Cloud Segment 2		
Cloud Segment Duration	s	78.52	78.0281
Pool Vaporization Rate	kg/s	3.316	2.23457
Total Vapor Flowrate	kg/s	13.9583	11.6905
	Release Segment 1 Cloud Segment 3		
Cloud Segment Duration	s	60.4625	60.5719
Pool Vaporization Rate	kg/s	4.32001	2.88298
Total Vapor Flowrate	kg/s	14.9623	12.3389
	Release Segment 1 Cloud Segment 4		
Cloud Segment Duration	s	50.8275	52.22
Pool Vaporization Rate	kg/s	5.11221	3.39664
Total Vapor Flowrate	kg/s	15.7545	12.8525
	Release Segment 1 Cloud Segment 5		
Cloud Segment Duration	s	45.1406	45.8275
Pool Vaporization Rate	kg/s	5.78561	3.83368
Total Vapor Flowrate	kg/s	16.4279	13.2896
	Release Segment 1 Cloud Segment 6		
Cloud Segment Duration	s	78.6119	80.3906
Pool Vaporization Rate	kg/s	6.63903	4.38345
Total Vapor Flowrate	kg/s	17.2813	13.8393
	Release Segment 1 Cloud Segment 7		
Cloud Segment Duration	s	95.9975	99.3594
Pool Vaporization Rate	kg/s	7.81591	5.14496
Total Vapor Flowrate	kg/s	18.4582	14.6008
Maximum Pool Radius	m	26.6142	26.9787

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Distance to Concentration Results

Path: \Terminal Adonai - Efeitos físicos\Simulações\H087

The height for user defined concentrations is the user defined height 0 m
All toxic results are reported at the toxic effect height 1 m
All flammable results are reported at the flammable effect height 0 m

Concentration(ppm)	Averaging Time		Distance (m)	
			Dia	Noite
UFL (76800)	18.75	s	11.8119	15.1058
LFL (10500)	18.75	s	70.9273	77.2775
LFL Frac (10500)	18.75	s	70.9273	77.2775

Concentration(ppm)	Averaging Time		Heights (m) for above distances	
			Dia	Noite
UFL (76800)	18.75	s	0	0
LFL (10500)	18.75	s	0	0
LFL Frac (10500)	18.75	s	0	0

Jet Fire Hazard

Path: \Terminal Adonai - Efeitos físicos\Simulações\H087

Jet fire method used: Cone model - DNV recommended

	Dia	Noite
Jet Fire Status	Truncated	Truncated
Flame Direction	Horizontal	Horizontal

Radiation Effects: Jet Fire Ellipse

Path: \Terminal Adonai - Efeitos físicos\Simulações\H087

This table gives the distances to the specified radiation levels
for each jet fire listed in the above hazard table

Radiation Level			Distance (m)	
			Dia	Noite
9.83	kW/m2		111.748	113.213
19.46	kW/m2		96.607	98.5052
35	kW/m2		86.5102	88.5978

Radiation Effects: Jet Fire Distance

Path: \Terminal Adonai - Efeitos físicos\Simulações\H087

	Dia	Radiation Level (kW/m2)
		Noite

Early Pool Fire Hazard

Path: \Terminal Adonai - Efeitos físicos\Simulações\H087

	Dia	Noite
Early Pool Fire Status	Hazard	Hazard

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Radiation Effects: Early Pool Fire Ellipse

Path: \Terminal Adonai - Efeitos físicos\Simulações\H087

			Dia	Noite
Radiation Level	9.83	kW/m2	36.2622	35.09
Radiation Level	19.46	kW/m2	28.5691	28.6777
Radiation Level	35	kW/m2	Not Reached	Not Reached

Radiation Effects: Early Pool Fire Distance

Path: \Terminal Adonai - Efeitos físicos\Simulações\H087

	Dia	Noite
Radiation Level (kW/m2)		

Late Pool Fire Hazard

Path: \Terminal Adonai - Efeitos físicos\Simulações\H087

	Dia	Noite
Late Pool Fire Status	Hazard	Hazard

Radiation Effects: Late Pool Fire Ellipse

Path: \Terminal Adonai - Efeitos físicos\Simulações\H087

			Dia	Noite
Radiation Level	9.83	kW/m2	46.0964	44.784
Radiation Level	19.46	kW/m2	39.4809	39.6164
Radiation Level	35	kW/m2	Not Reached	Not Reached

Radiation Effects: Late Pool Fire Distance

Path: \Terminal Adonai - Efeitos físicos\Simulações\H087

	Dia	Noite
Radiation Level (kW/m2)		

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Flash Fire Envelope

Path: \Terminal Adonai - Efeitos físicos\Simulações\H087

All flammable results are reported at the flammable effect height 0 m

				Distance (m)	
				Dia	Noite
Furthest Extent	10500	ppm	70.9273	70.9273	77.2775
Furthest Extent	10500	ppm	70.9273	70.9273	77.2775
				Heights (m) for above distances	
				Dia	Noite
Furthest Extent	10500	ppm	0	0	0
Furthest Extent	10500	ppm	0	0	0

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Explosion Effects: Late Ignition

Path: \Terminal Adonai - Efeitos físicos\Simulações\H087

Explosion Model Used : TNT

Explosion Location Criterion: Cloud Center

All distances are measured from the Source

All flammable results are reported at the flammable effect height 0 m

			Maximum Distance (m) at Overpressure Level	
			Dia	Noite
Overpressure	0.05	bar	136.455	144.464
Overpressure	0.1	bar	97.982	102.954
Overpressure	0.3	bar	66.4491	68.9317
			Supplementary Data at 0.05 bar	
			Dia	Noite
Supplied Flammable Mass		kg	219.858	276.143
Used Flammable Mass		kg	219.858	276.143
Overpressure Radius		m	101.455	109.464
Distance to:				
- Ignition Source		m	70	70
- Cloud Front/Centre		m	70	70
- Explosion Centre		m	35	35
			Supplementary Data at 0.1 bar	
			Dia	Noite
Supplied Flammable Mass		kg	219.858	276.143
Used Flammable Mass		kg	219.858	276.143
Overpressure Radius		m	62.982	67.9538
Distance to:				
- Ignition Source		m	70	70
- Cloud Front/Centre		m	70	70
- Explosion Centre		m	35	35
			Supplementary Data at 0.3 bar	
			Dia	Noite
Supplied Flammable Mass		kg	219.858	276.143
Used Flammable Mass		kg	219.858	276.143
Overpressure Radius		m	31.4491	33.9317
Distance to:				
- Ignition Source		m	70	70
- Cloud Front/Centre		m	70	70
- Explosion Centre		m	35	35

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Weather Conditions

Path: \Terminal Adonai - Efeitos físicos\Simulações\H087

		Dia	Noite
Wind Speed	m/s	3	2
Pasquill Stability		C	E
Surface Roughness Length	mm	1000	1000
Surface Roughness Parameter		0.173718	0.173718
Atmospheric Temperature	degC	25	20
Surface Temperature	degC	30	20
Relative Humidity	fraction	0.8	0.8

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

H088

Base Case

CASE Name: Data

Path: \Terminal Adonai - Efeitos físicos\Simulações\H088

User-Defined Data

Material

Material Identifier N-HEXANE

Scenario

Building Wake Effect None

Vessel/Tank

Release Type Continuous

Location

Elevation 1 m
Use ERPG averaging time ERPG not selected
Use IDLH averaging time IDLH not selected
Use STEL averaging time STEL not selected
Supply a user defined averaging time Not supplied

Bund

Status of Bund No bund present
[Type of Bund Surface User-Defined (Land)]
[Bund Height 0 m]
[Bund Failure Modeling Bund cannot fail]

Indoor/Outdoor

Location of release Open air release
Outdoor Release Direction Horizontal

Flammable

Explosion Method TNT
Jet Fire Method Cone Model

Dispersion

Number of Release Segments 1
Fluid Phase(1) Liquid
Discharge Velocity(1) 36.92 m/s
Droplet Diameter(1) 137.5 um
Duration of Discharge(1) 600 s
Final Temperature(1) 24.88 degC
Release Rate(1) 0.89 kg/s
Pre-Dilution Air Rates(1) 0 kg/s
Late Ignition Location No ignition location
Mass Inventory of material to Disperse 2.099E6 kg

Fireball Parameters

[Mass Modification Factor 3]
[Calculation method for fireball DNV Recommended]
[TNO model flame temperature 1727 degC]

Toxic Parameters

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

[Indoor Calculations	Unselected]
[Wind Dependent Exchange Rate	Case Specified]
[Building Exchange Rate	4 /hr]
[Tail Time	1800 s]
[Set averaging time equal to exposure time	Use a fixed averaging time]
[Cut-off fraction of toxic load for exposure time calculation	0.05 fraction]
[Cut-off concentration for exposure time calculations	0 fraction]

Geometry

Shape	Point
Dimension	2D
System	Absolute
East(1)	0 m
North(1)	0 m

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Consequence Results

Pool Vaporization Results

Path: \Terminal Adonai - Efeitos físicos\Simulações\H088

			Noite
	Release Segment 1		
Release Duration	s	600	
Liquid Rainout	fraction	0.0452841	
Maximum Pool Radius	m	0.599052	

Distance to Concentration Results

Path: \Terminal Adonai - Efeitos físicos\Simulações\H088

The height for user defined concentrations is the user defined height 0 m
 All toxic results are reported at the toxic effect height 1 m
 All flammable results are reported at the flammable effect height 0 m

Concentration(ppm)	Averaging Time		Dia	Noite
UFL (76800)	18.75	s	No Hazard	No Hazard
LFL (10500)	18.75	s	14.9994	20.7531
LFL Frac (10500)	18.75	s	14.9994	20.7531

Concentration(ppm)	Averaging Time		Dia	Noite
UFL (76800)	18.75	s	0	0
LFL (10500)	18.75	s	0	0
LFL Frac (10500)	18.75	s	0	0

Jet Fire Hazard

Path: \Terminal Adonai - Efeitos físicos\Simulações\H088

Jet fire method used: Cone model - DNV recommended

		Dia	Noite
Jet Fire Status		Truncated	Truncated
Flame Direction		Horizontal	Horizontal

Radiation Effects: Jet Fire Ellipse

Path: \Terminal Adonai - Efeitos físicos\Simulações\H088

This table gives the distances to the specified radiation levels for each jet fire listed in the above hazard table

			Dia	Noite
Radiation Level	9.83	kW/m2	22.1678	23.5925
Radiation Level	19.46	kW/m2	19.2766	20.6899
Radiation Level	35	kW/m2	17.3197	18.7009

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Radiation Effects: Jet Fire Distance

Path: \Terminal Adonai - Efeitos físicos\Simulações\H088

Dia Radiation Level (kW/m2)
Noite

Early Pool Fire Hazard

Path: \Terminal Adonai - Efeitos físicos\Simulações\H088

Early Pool Fire Status Noite
Hazard

Radiation Effects: Early Pool Fire Ellipse

Path: \Terminal Adonai - Efeitos físicos\Simulações\H088

Distance (m)
Noite

Radiation Level	9.83	kW/m2	13.2648
Radiation Level	19.46	kW/m2	12.2155
Radiation Level	35	kW/m2	10.8883

Radiation Effects: Early Pool Fire Distance

Path: \Terminal Adonai - Efeitos físicos\Simulações\H088

Noite Radiation Level (kW/m2)

Late Pool Fire Hazard

Path: \Terminal Adonai - Efeitos físicos\Simulações\H088

Late Pool Fire Status Noite
Hazard

Radiation Effects: Late Pool Fire Ellipse

Path: \Terminal Adonai - Efeitos físicos\Simulações\H088

Distance (m)
Noite

Radiation Level	9.83	kW/m2	15.3579
Radiation Level	19.46	kW/m2	13.5721
Radiation Level	35	kW/m2	11.6136

Radiation Effects: Late Pool Fire Distance

Path: \Terminal Adonai - Efeitos físicos\Simulações\H088

Noite Radiation Level (kW/m2)

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Flash Fire Envelope

Path: \Terminal Adonai - Efeitos físicos\Simulações\H088

All flammable results are reported at the flammable effect height 0 m

				Distance (m)	
				Dia	Noite
Furthest Extent	10500	ppm	14.9994	20.7531	
Furthest Extent	10500	ppm	14.9994	20.7531	
				Heights (m) for above distances	
				Dia	Noite
Furthest Extent	10500	ppm	0	0	
Furthest Extent	10500	ppm	0	0	

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Explosion Effects: Late Ignition

Path: \Terminal Adonai - Efeitos físicos\Simulações\H088

Explosion Model Used : TNT

Explosion Location Criterion: Cloud Center

All distances are measured from the Source

All flammable results are reported at the flammable effect height 0 m

			Maximum Distance (m) at Overpressure Level	
			Dia	Noite
Overpressure	0.05	bar	20.9127	34.5713
Overpressure	0.1	bar	14.8846	25.2535
Overpressure	0.3	bar	9.94404	17.6166

			Supplementary Data at 0.05 bar	
			Dia	Noite
Supplied Flammable Mass		kg	0.845646	3.12324
Used Flammable Mass		kg	0.845646	3.12324
Overpressure Radius		m	15.8961	24.5713
Distance to:				
- Ignition Source		m	10	20
- Cloud Front/Centre		m	10	20
- Explosion Centre		m	5.01657	10

			Supplementary Data at 0.1 bar	
			Dia	Noite
Supplied Flammable Mass		kg	0.845646	3.12324
Used Flammable Mass		kg	0.845646	3.12324
Overpressure Radius		m	9.86806	15.2535
Distance to:				
- Ignition Source		m	10	20
- Cloud Front/Centre		m	10	20
- Explosion Centre		m	5.01657	10

			Supplementary Data at 0.3 bar	
			Dia	Noite
Supplied Flammable Mass		kg	0.845646	3.12324
Used Flammable Mass		kg	0.845646	3.12324
Overpressure Radius		m	4.92747	7.61663
Distance to:				
- Ignition Source		m	10	20
- Cloud Front/Centre		m	10	20
- Explosion Centre		m	5.01657	10

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Weather Conditions

Path: \Terminal Adonai - Efeitos físicos\Simulações\H088

		Dia	Noite
Wind Speed	m/s	3	2
Pasquill Stability		C	E
Surface Roughness Length	mm	1000	1000
Surface Roughness Parameter		0.173718	0.173718
Atmospheric Temperature	degC	25	20
Surface Temperature	degC	30	20
Relative Humidity	fraction	0.8	0.8

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

H089

Base Case

CASE Name: Data

Path: \Terminal Adonai - Efeitos físicos\Simulações\H089

User-Defined Data

Material

Material Identifier N-HEXANE

Scenario

Building Wake Effect None

Vessel/Tank

Release Type Continuous

Location

Elevation 0 m
Use ERPG averaging time ERPG not selected
Use IDLH averaging time IDLH not selected
Use STEL averaging time STEL not selected
Supply a user defined averaging time Not supplied

Bund

Status of Bund Bund present
Bund Area 1.152E4 m2
[Type of Bund Surface User-Defined (Land)]
Bund Height 0.3 m
[Bund Failure Modeling Bund cannot fail]

Indoor/Outdoor

Location of release Open air release
Outdoor Release Direction Horizontal

Flammable

Explosion Method TNT
Jet Fire Method Cone Model

Dispersion

Number of Release Segments 1
Fluid Phase(1) Liquid
Discharge Velocity(1) 22.16 m/s
Droplet Diameter(1) 380.8 um
Duration of Discharge(1) 600 s
Final Temperature(1) 25.19 degC
Release Rate(1) 88.75 kg/s
Pre-Dilution Air Rates(1) 0 kg/s
Late Ignition Location No ignition location
Mass Inventory of material to Disperse 2.099E6 kg

Fireball Parameters

[Mass Modification Factor 3]
[Calculation method for fireball DNV Recommended]
[TNO model flame temperature 1727 degC]

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Toxic Parameters

[Indoor Calculations	Unselected]
[Wind Dependent Exchange Rate	Case Specified]
[Building Exchange Rate	4 /hr]
[Tail Time	1800 s]
[Set averaging time equal to exposure time	Use a fixed averaging time]
[Cut-off fraction of toxic load for exposure time calculation	0.05 fraction]
[Cut-off concentration for exposure time calculations	0 fraction]

Geometry

Shape	Point
Dimension	2D
System	Absolute
East(1)	0 m
North(1)	0 m

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Consequence Results

Pool Vaporization Results

Path: \Terminal Adonai - Efeitos físicos\Simulações\H089

		Dia	Noite
	Release Segment 1		
Release Duration	s	600	600
Liquid Rainout	fraction	0.999999	0.999999
	Release Segment 1 Cloud Segment 1		
Cloud Segment Duration	s	174.24	168.351
Pool Vaporization Rate	kg/s	2.3031	1.6518
Total Vapor Flowrate	kg/s	2.30316	1.65187
	Release Segment 1 Cloud Segment 2		
Cloud Segment Duration	s	77.7756	77.355
Pool Vaporization Rate	kg/s	5.1749	3.60421
Total Vapor Flowrate	kg/s	5.17496	3.60427
	Release Segment 1 Cloud Segment 3		
Cloud Segment Duration	s	61.2744	61.42
Pool Vaporization Rate	kg/s	6.57316	4.53866
Total Vapor Flowrate	kg/s	6.57323	4.53873
	Release Segment 1 Cloud Segment 4		
Cloud Segment Duration	s	52.4756	52.925
Pool Vaporization Rate	kg/s	7.65349	5.25557
Total Vapor Flowrate	kg/s	7.65356	5.25564
	Release Segment 1 Cloud Segment 5		
Cloud Segment Duration	s	90.0569	91.5119
Pool Vaporization Rate	kg/s	8.93836	6.10552
Total Vapor Flowrate	kg/s	8.93843	6.10559
	Release Segment 1 Cloud Segment 6		
Cloud Segment Duration	s	114.193	116.068
Pool Vaporization Rate	kg/s	10.6777	7.24762
Total Vapor Flowrate	kg/s	10.6778	7.24769
	Release Segment 1 Cloud Segment 7		
Cloud Segment Duration	s	29.9844	32.3694
Pool Vaporization Rate	kg/s	11.8498	8.02129
Total Vapor Flowrate	kg/s	11.8498	8.02136
Maximum Pool Radius	m	28.1705	28.4255

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Distance to Concentration Results

Path: \Terminal Adonai - Efeitos físicos\Simulações\H089

The height for user defined concentrations is the user defined height 0 m

All toxic results are reported at the toxic effect height 1 m

All flammable results are reported at the flammable effect height 0 m

Concentration(ppm)	Averaging Time		Distance (m)	
			Dia	Noite
UFL (76800)	18.75	s	0	0
LFL (10500)	18.75	s	0	0
LFL Frac (10500)	18.75	s	0	0

Concentration(ppm)	Averaging Time		Heights (m) for above distances	
			Dia	Noite
UFL (76800)	18.75	s	0	0
LFL (10500)	18.75	s	0	0
LFL Frac (10500)	18.75	s	0	0

Jet Fire Hazard

Path: \Terminal Adonai - Efeitos físicos\Simulações\H089

Jet fire method used: Cone model - DNV recommended

	Dia	Noite
Jet Fire Status	Truncated	Truncated
Flame Direction	Horizontal	Horizontal

Radiation Effects: Jet Fire Ellipse

Path: \Terminal Adonai - Efeitos físicos\Simulações\H089

This table gives the distances to the specified radiation levels for each jet fire listed in the above hazard table

Radiation Level			Distance (m)	
			Dia	Noite
9.83	kW/m2	1.39397	1.43974	
19.46	kW/m2	1.39397	1.43974	
35	kW/m2	Not Reached	Not Reached	

Radiation Effects: Jet Fire Distance

Path: \Terminal Adonai - Efeitos físicos\Simulações\H089

	Dia	Radiation Level (kW/m2)
		Noite

Early Pool Fire Hazard

Path: \Terminal Adonai - Efeitos físicos\Simulações\H089

	Dia	Noite
Early Pool Fire Status	Hazard	Hazard

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Radiation Effects: Early Pool Fire Ellipse

Path: \Terminal Adonai - Efeitos físicos\Simulações\H089

			Dia	Noite
Radiation Level	9.83	kW/m2	25.0252	23.9556
Radiation Level	19.46	kW/m2	17.738	17.9695
Radiation Level	35	kW/m2	Not Reached	Not Reached

Radiation Effects: Early Pool Fire Distance

Path: \Terminal Adonai - Efeitos físicos\Simulações\H089

	Dia	Noite
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Late Pool Fire Hazard

Path: \Terminal Adonai - Efeitos físicos\Simulações\H089

	Dia	Noite
Late Pool Fire Status	Hazard	Hazard

Radiation Effects: Late Pool Fire Ellipse

Path: \Terminal Adonai - Efeitos físicos\Simulações\H089

			Dia	Noite
Radiation Level	9.83	kW/m2	35.913	34.6807
Radiation Level	19.46	kW/m2	29.1705	29.4255
Radiation Level	35	kW/m2	Not Reached	Not Reached

Radiation Effects: Late Pool Fire Distance

Path: \Terminal Adonai - Efeitos físicos\Simulações\H089

	Dia	Noite
--	-----	-------

Weather Conditions

Path: \Terminal Adonai - Efeitos físicos\Simulações\H089

		Dia	Noite
Wind Speed	m/s	3	2
Pasquill Stability		C	E
Surface Roughness Length	mm	1000	1000
Surface Roughness Parameter		0.173718	0.173718
Atmospheric Temperature	degC	25	20
Surface Temperature	degC	30	20
Relative Humidity	fraction	0.8	0.8

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

H090

Base Case

CASE Name: Data

Path: \Terminal Adonai - Efeitos físicos\Simulações\H090

User-Defined Data

Material

Material Identifier N-HEXANE

Scenario

Building Wake Effect None

Vessel/Tank

Release Type Continuous

Location

Elevation 0 m
Use ERPG averaging time ERPG not selected
Use IDLH averaging time IDLH not selected
Use STEL averaging time STEL not selected
Supply a user defined averaging time Not supplied

Bund

Status of Bund Bund present
Bund Area 1.152E4 m2
[Type of Bund Surface User-Defined (Land)]
Bund Height 0.3 m
[Bund Failure Modeling Bund cannot fail]

Indoor/Outdoor

Location of release Open air release
Outdoor Release Direction Horizontal

Flammable

Explosion Method TNT
Jet Fire Method Cone Model

Dispersion

Number of Release Segments 1
Fluid Phase(1) Liquid
Discharge Velocity(1) 36.92 m/s
Droplet Diameter(1) 137.5 um
Duration of Discharge(1) 600 s
Final Temperature(1) 24.88 degC
Release Rate(1) 0.89 kg/s
Pre-Dilution Air Rates(1) 0 kg/s
Late Ignition Location No ignition location
Mass Inventory of material to Disperse 2.099E6 kg

Fireball Parameters

[Mass Modification Factor 3]
[Calculation method for fireball DNV Recommended]
[TNO model flame temperature 1727 degC]

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Toxic Parameters

[Indoor Calculations	Unselected]
[Wind Dependent Exchange Rate	Case Specified]
[Building Exchange Rate	4 /hr]
[Tail Time	1800 s]
[Set averaging time equal to exposure time	Use a fixed averaging time]
[Cut-off fraction of toxic load for exposure time calculation	0.05 fraction]
[Cut-off concentration for exposure time calculations	0 fraction]

Geometry

Shape	Point
Dimension	2D
System	Absolute
East(1)	0 m
North(1)	0 m

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Consequence Results

Pool Vaporization Results

Path: \Terminal Adonai - Efeitos físicos\Simulações\H090

		Dia	Noite
	Release Segment 1		
Release Duration	s	600	600
Liquid Rainout	fraction	0.999999	0.999999
	Release Segment 1 Cloud Segment 1		
Cloud Segment Duration	s	177.556	172.266
Pool Vaporization Rate	kg/s	0.0318449	0.0204015
Total Vapor Flowrate	kg/s	0.0318455	0.0204021
	Release Segment 1 Cloud Segment 2		
Cloud Segment Duration	s	77.645	78.165
Pool Vaporization Rate	kg/s	0.0728112	0.0448458
Total Vapor Flowrate	kg/s	0.0728119	0.0448465
	Release Segment 1 Cloud Segment 3		
Cloud Segment Duration	s	60.75	61.975
Pool Vaporization Rate	kg/s	0.0930092	0.0570539
Total Vapor Flowrate	kg/s	0.0930099	0.0570545
	Release Segment 1 Cloud Segment 4		
Cloud Segment Duration	s	52.6894	53.36
Pool Vaporization Rate	kg/s	0.108845	0.0666917
Total Vapor Flowrate	kg/s	0.108846	0.0666924
	Release Segment 1 Cloud Segment 5		
Cloud Segment Duration	s	89.32	91.125
Pool Vaporization Rate	kg/s	0.127856	0.0783363
Total Vapor Flowrate	kg/s	0.127857	0.078337
	Release Segment 1 Cloud Segment 6		
Cloud Segment Duration	s	112.056	113.125
Pool Vaporization Rate	kg/s	0.153566	0.0941758
Total Vapor Flowrate	kg/s	0.153566	0.0941765
	Release Segment 1 Cloud Segment 7		
Cloud Segment Duration	s	29.9844	29.9844
Pool Vaporization Rate	kg/s	0.170982	0.10493
Total Vapor Flowrate	kg/s	0.170982	0.104931
Maximum Pool Radius	m	2.77939	2.82716

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Distance to Concentration Results

Path: \Terminal Adonai - Efeitos físicos\Simulações\H090

The height for user defined concentrations is the user defined height 0 m
All toxic results are reported at the toxic effect height 1 m
All flammable results are reported at the flammable effect height 0 m

Concentration(ppm)	Averaging Time	Distance (m)	
		Dia	Noite
UFL (76800)	18.75 s	0	0
LFL (10500)	18.75 s	0	0
LFL Frac (10500)	18.75 s	0	0

Concentration(ppm)	Averaging Time	Heights (m) for above distances	
		Dia	Noite
UFL (76800)	18.75 s	0	0
LFL (10500)	18.75 s	0	0
LFL Frac (10500)	18.75 s	0	0

Jet Fire Hazard

Path: \Terminal Adonai - Efeitos físicos\Simulações\H090

Jet fire method used: Cone model - DNV recommended

Jet Fire Status	Flame Direction	
	Dia	Noite
Truncated	Horizontal	Horizontal

Radiation Effects: Jet Fire Ellipse

Path: \Terminal Adonai - Efeitos físicos\Simulações\H090

This table gives the distances to the specified radiation levels for each jet fire listed in the above hazard table

Radiation Level	kW/m2	Distance (m)	
		Dia	Noite
9.83	kW/m2	1.04567	1.05097
19.46	kW/m2	1.04567	1.05097
35	kW/m2	Not Reached	Not Reached

Radiation Effects: Jet Fire Distance

Path: \Terminal Adonai - Efeitos físicos\Simulações\H090

Radiation Level (kW/m2)	Distance (m)	
	Dia	Noite

Early Pool Fire Hazard

Path: \Terminal Adonai - Efeitos físicos\Simulações\H090

Early Pool Fire Status	Hazard	
	Dia	Noite
Hazard	Hazard	Hazard

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Radiation Effects: Early Pool Fire Ellipse

Path: \Terminal Adonai - Efeitos físicos\Simulações\H090

			Dia	Noite
Radiation Level	9.83	kW/m2	13.3234	12.5486
Radiation Level	19.46	kW/m2	8.92228	8.05931
Radiation Level	35	kW/m2	4.62036	4.27835

Radiation Effects: Early Pool Fire Distance

Path: \Terminal Adonai - Efeitos físicos\Simulações\H090

	Dia	Noite
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Late Pool Fire Hazard

Path: \Terminal Adonai - Efeitos físicos\Simulações\H090

	Dia	Noite
Late Pool Fire Status	Hazard	Hazard

Radiation Effects: Late Pool Fire Ellipse

Path: \Terminal Adonai - Efeitos físicos\Simulações\H090

			Dia	Noite
Radiation Level	9.83	kW/m2	17.9819	16.738
Radiation Level	19.46	kW/m2	10.8853	9.9232
Radiation Level	35	kW/m2	5.51569	5.22377

Radiation Effects: Late Pool Fire Distance

Path: \Terminal Adonai - Efeitos físicos\Simulações\H090

	Dia	Noite
--	-----	-------

Weather Conditions

Path: \Terminal Adonai - Efeitos físicos\Simulações\H090

		Dia	Noite
Wind Speed	m/s	3	2
Pasquill Stability		C	E
Surface Roughness Length	mm	1000	1000
Surface Roughness Parameter		0.173718	0.173718
Atmospheric Temperature	degC	25	20
Surface Temperature	degC	30	20
Relative Humidity	fraction	0.8	0.8

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

H091

Base Case

CASE Name: Data

Path: \Terminal Adonai - Efeitos físicos\Simulações\H091

User-Defined Data

Material

Material Identifier N-HEXANE

Scenario

Building Wake Effect None

Vessel/Tank

Release Type Continuous

Location

Elevation 0 m
Use ERPG averaging time ERPG not selected
Use IDLH averaging time IDLH not selected
Use STEL averaging time STEL not selected
Supply a user defined averaging time Not supplied

Bund

Status of Bund No bund present
[Type of Bund Surface User-Defined (Land)]
[Bund Height 0 m]
[Bund Failure Modeling Bund cannot fail]

Indoor/Outdoor

Location of release Open air release
Outdoor Release Direction Horizontal

Flammable

Explosion Method TNT
Jet Fire Method Cone Model

Dispersion

Number of Release Segments 1
Fluid Phase(1) Liquid
Discharge Velocity(1) 19.19 m/s
Droplet Diameter(1) 507.9 um
Duration of Discharge(1) 600 s
Final Temperature(1) 25.14 degC
Release Rate(1) 35.5 kg/s
Pre-Dilution Air Rates(1) 0 kg/s
Late Ignition Location No ignition location
Mass Inventory of material to Disperse 3.936E4 kg

Fireball Parameters

[Mass Modification Factor 3]
[Calculation method for fireball DNV Recommended]
[TNO model flame temperature 1727 degC]

Toxic Parameters

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

[Indoor Calculations	Unselected]
[Wind Dependent Exchange Rate	Case Specified]
[Building Exchange Rate	4 /hr]
[Tail Time	1800 s]
[Set averaging time equal to exposure time	Use a fixed averaging time]
[Cut-off fraction of toxic load for exposure time calculation	0.05 fraction]
[Cut-off concentration for exposure time calculations	0 fraction]

Geometry

Shape	Point
Dimension	2D
System	Absolute
East(1)	0 m
North(1)	0 m

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Consequence Results

Pool Vaporization Results

Path: \Terminal Adonai - Efeitos físicos\Simulações\H091

		Dia	Noite
	Release Segment 1		
Release Duration	s	600	600
Liquid Rainout	fraction	0.999999	0.999999
	Release Segment 1 Cloud Segment 1		
Cloud Segment Duration	s	174.24	168.351
Pool Vaporization Rate	kg/s	0.968544	0.68859
Total Vapor Flowrate	kg/s	0.968571	0.688617
	Release Segment 1 Cloud Segment 2		
Cloud Segment Duration	s	77.7756	77.355
Pool Vaporization Rate	kg/s	2.17716	1.49996
Total Vapor Flowrate	kg/s	2.17718	1.49999
	Release Segment 1 Cloud Segment 3		
Cloud Segment Duration	s	61.2744	61.42
Pool Vaporization Rate	kg/s	2.76652	1.8889
Total Vapor Flowrate	kg/s	2.76654	1.88893
	Release Segment 1 Cloud Segment 4		
Cloud Segment Duration	s	52.4756	52.925
Pool Vaporization Rate	kg/s	3.22227	2.18798
Total Vapor Flowrate	kg/s	3.2223	2.188
	Release Segment 1 Cloud Segment 5		
Cloud Segment Duration	s	90.0569	91.5119
Pool Vaporization Rate	kg/s	3.76471	2.5435
Total Vapor Flowrate	kg/s	3.76474	2.54353
	Release Segment 1 Cloud Segment 6		
Cloud Segment Duration	s	114.193	116.068
Pool Vaporization Rate	kg/s	4.49943	3.02281
Total Vapor Flowrate	kg/s	4.49946	3.02284
	Release Segment 1 Cloud Segment 7		
Cloud Segment Duration	s	29.9844	32.3694
Pool Vaporization Rate	kg/s	4.99454	3.34845
Total Vapor Flowrate	kg/s	4.99456	3.34848
Maximum Pool Radius	m	17.78	17.9559

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Distance to Concentration Results

Path: \Terminal Adonai - Efeitos físicos\Simulações\H091

The height for user defined concentrations is the user defined height 0 m
All toxic results are reported at the toxic effect height 1 m
All flammable results are reported at the flammable effect height 0 m

Concentration(ppm)	Averaging Time		Distance (m)	
			Dia	Noite
UFL (76800)	18.75	s	0	0
LFL (10500)	18.75	s	0	0
LFL Frac (10500)	18.75	s	0	0

Concentration(ppm)	Averaging Time		Heights (m) for above distances	
			Dia	Noite
UFL (76800)	18.75	s	0	0
LFL (10500)	18.75	s	0	0
LFL Frac (10500)	18.75	s	0	0

Jet Fire Hazard

Path: \Terminal Adonai - Efeitos físicos\Simulações\H091

Jet fire method used: Cone model - DNV recommended

	Dia	Noite
Jet Fire Status	Truncated	Truncated
Flame Direction	Horizontal	Horizontal

Radiation Effects: Jet Fire Ellipse

Path: \Terminal Adonai - Efeitos físicos\Simulações\H091

This table gives the distances to the specified radiation levels for each jet fire listed in the above hazard table

Radiation Level			Distance (m)	
			Dia	Noite
9.83	kW/m2	1.27106	1.30255	
19.46	kW/m2	1.27106	1.30255	
35	kW/m2	Not Reached	Not Reached	

Radiation Effects: Jet Fire Distance

Path: \Terminal Adonai - Efeitos físicos\Simulações\H091

	Dia	Radiation Level (kW/m2)
		Noite

Early Pool Fire Hazard

Path: \Terminal Adonai - Efeitos físicos\Simulações\H091

	Dia	Noite
Early Pool Fire Status	Hazard	Hazard

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Radiation Effects: Early Pool Fire Ellipse

Path: \Terminal Adonai - Efeitos físicos\Simulações\H091

			Dia	Noite
Radiation Level	9.83	kW/m2	23.0906	21.3929
Radiation Level	19.46	kW/m2	11.586	11.7325
Radiation Level	35	kW/m2	Not Reached	Not Reached

Radiation Effects: Early Pool Fire Distance

Path: \Terminal Adonai - Efeitos físicos\Simulações\H091

Dia
Radiation Level (kW/m2)
Noite

Late Pool Fire Hazard

Path: \Terminal Adonai - Efeitos físicos\Simulações\H091

	Dia	Noite
Late Pool Fire Status	Hazard	Hazard

Radiation Effects: Late Pool Fire Ellipse

Path: \Terminal Adonai - Efeitos físicos\Simulações\H091

			Dia	Noite
Radiation Level	9.83	kW/m2	25.9103	19.7331
Radiation Level	19.46	kW/m2	18.78	18.9559
Radiation Level	35	kW/m2	Not Reached	Not Reached

Radiation Effects: Late Pool Fire Distance

Path: \Terminal Adonai - Efeitos físicos\Simulações\H091

Dia
Radiation Level (kW/m2)
Noite

Weather Conditions

Path: \Terminal Adonai - Efeitos físicos\Simulações\H091

		Dia	Noite
Wind Speed	m/s	3	2
Pasquill Stability		C	E
Surface Roughness Length	mm	1000	1000
Surface Roughness Parameter		0.173718	0.173718
Atmospheric Temperature	degC	25	20
Surface Temperature	degC	30	20
Relative Humidity	fraction	0.8	0.8

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

H092

Base Case

CASE Name: Data

Path: \Terminal Adonai - Efeitos físicos\Simulações\H092

User-Defined Data

Material

Material Identifier N-HEXANE

Scenario

Building Wake Effect None

Vessel/Tank

Release Type Continuous

Location

Elevation 0 m
Use ERPG averaging time ERPG not selected
Use IDLH averaging time IDLH not selected
Use STEL averaging time STEL not selected
Supply a user defined averaging time Not supplied

Bund

Status of Bund No bund present
[Type of Bund Surface User-Defined (Land)]
[Bund Height 0 m]
[Bund Failure Modeling Bund cannot fail]

Indoor/Outdoor

Location of release Open air release
Outdoor Release Direction Horizontal

Flammable

Explosion Method TNT
Jet Fire Method Cone Model

Dispersion

Number of Release Segments 1
Fluid Phase(1) Liquid
Discharge Velocity(1) 31.98 m/s
Droplet Diameter(1) 183.2 um
Duration of Discharge(1) 600 s
Final Temperature(1) 24.91 degC
Release Rate(1) 0.36 kg/s
Pre-Dilution Air Rates(1) 0 kg/s
Late Ignition Location No ignition location
Mass Inventory of material to Disperse 3.936E4 kg

Fireball Parameters

[Mass Modification Factor 3]
[Calculation method for fireball DNV Recommended]
[TNO model flame temperature 1727 degC]

Toxic Parameters

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

[Indoor Calculations	Unselected]
[Wind Dependent Exchange Rate	Case Specified]
[Building Exchange Rate	4 /hr]
[Tail Time	1800 s]
[Set averaging time equal to exposure time	Use a fixed averaging time]
[Cut-off fraction of toxic load for exposure time calculation	0.05 fraction]
[Cut-off concentration for exposure time calculations	0 fraction]

Geometry

Shape	Point
Dimension	2D
System	Absolute
East(1)	0 m
North(1)	0 m

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Consequence Results

Pool Vaporization Results

Path: \Terminal Adonai - Efeitos físicos\Simulações\H092

			Dia	Noite
		Release Segment 1		
Release Duration	s		600	600
Liquid Rainout	fraction		0.999999	0.999999
Maximum Pool Radius	m		1.75931	1.79488

Distance to Concentration Results

Path: \Terminal Adonai - Efeitos físicos\Simulações\H092

The height for user defined concentrations is the user defined height 0 m
All toxic results are reported at the toxic effect height 1 m
All flammable results are reported at the flammable effect height 0 m

Concentration(ppm)		Averaging Time		Distance (m)	
				Dia	Noite
UFL (76800)	18.75	s		0.00934427	0.0124056
LFL (10500)	18.75	s		0.0144043	0.0191233
LFL Frac (10500)	18.75	s		0.0144043	0.0191233

Concentration(ppm)		Averaging Time		Heights (m) for above distances	
				Dia	Noite
UFL (76800)	18.75	s		0	0
LFL (10500)	18.75	s		0	0
LFL Frac (10500)	18.75	s		0	0

Jet Fire Hazard

Path: \Terminal Adonai - Efeitos físicos\Simulações\H092

Jet fire method used: Cone model - DNV recommended

		Dia	Noite
Jet Fire Status		No Hazard	No Hazard
Flame Direction		Horizontal	Horizontal

Early Pool Fire Hazard

Path: \Terminal Adonai - Efeitos físicos\Simulações\H092

		Dia	Noite
Early Pool Fire Status		Hazard	Hazard

SUMMARY REPORT

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Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Radiation Effects: Early Pool Fire Ellipse

Path: \Terminal Adonai - Efeitos físicos\Simulações\H092

			Dia	Noite
Radiation Level	9.83	kW/m2	9.82087	9.32145
Radiation Level	19.46	kW/m2	6.97202	6.27672
Radiation Level	35	kW/m2	3.60231	3.32855

Radiation Effects: Early Pool Fire Distance

Path: \Terminal Adonai - Efeitos físicos\Simulações\H092

	Dia	Noite
Radiation Level (kW/m2)		

Late Pool Fire Hazard

Path: \Terminal Adonai - Efeitos físicos\Simulações\H092

	Dia	Noite
Late Pool Fire Status	Hazard	Hazard

Radiation Effects: Late Pool Fire Ellipse

Path: \Terminal Adonai - Efeitos físicos\Simulações\H092

			Dia	Noite
Radiation Level	9.83	kW/m2	13.7414	12.9798
Radiation Level	19.46	kW/m2	9.09893	8.28612
Radiation Level	35	kW/m2	4.72285	4.40052

Radiation Effects: Late Pool Fire Distance

Path: \Terminal Adonai - Efeitos físicos\Simulações\H092

	Dia	Noite
Radiation Level (kW/m2)		

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Flash Fire Envelope

Path: \Terminal Adonai - Efeitos físicos\Simulações\H092

All flammable results are reported at the flammable effect height 0 m

				Distance (m)	
				Dia	Noite
Furthest Extent	10500	ppm	0.0144043	0.0191233	
Furthest Extent	10500	ppm	0.0144043	0.0191233	
				Heights (m) for above distances	
				Dia	Noite
Furthest Extent	10500	ppm	0	0	
Furthest Extent	10500	ppm	0	0	

Weather Conditions

Path: \Terminal Adonai - Efeitos físicos\Simulações\H092

			Dia	Noite
Wind Speed	m/s		3	2
Pasquill Stability			C	E
Surface Roughness Length	mm		1000	1000
Surface Roughness Parameter			0.173718	0.173718
Atmospheric Temperature	degC		25	20
Surface Temperature	degC		30	20
Relative Humidity	fraction		0.8	0.8

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

H093

Base Case

CASE Name: Data

Path: \Terminal Adonai - Efeitos físicos\Simulações\H093

User-Defined Data

Material

Material Identifier N-HEXANE

Scenario

Building Wake Effect None

Vessel/Tank

Release Type Continuous

Location

Elevation 1 m
Use ERPG averaging time ERPG not selected
Use IDLH averaging time IDLH not selected
Use STEL averaging time STEL not selected
Supply a user defined averaging time Not supplied

Bund

Status of Bund No bund present
[Type of Bund Surface User-Defined (Land)]
[Bund Height 0 m]
[Bund Failure Modeling Bund cannot fail]

Indoor/Outdoor

Location of release Open air release
Outdoor Release Direction Horizontal

Flammable

Explosion Method TNT
Jet Fire Method Cone Model

Dispersion

Number of Release Segments 1
Fluid Phase(1) Liquid
Discharge Velocity(1) 19.19 m/s
Droplet Diameter(1) 507.9 um
Duration of Discharge(1) 600 s
Final Temperature(1) 25.14 degC
Release Rate(1) 35.5 kg/s
Pre-Dilution Air Rates(1) 0 kg/s
Late Ignition Location No ignition location
Mass Inventory of material to Disperse 3.936E4 kg

Fireball Parameters

[Mass Modification Factor 3]
[Calculation method for fireball DNV Recommended]
[TNO model flame temperature 1727 degC]

Toxic Parameters

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

[Indoor Calculations	Unselected]
[Wind Dependent Exchange Rate	Case Specified]
[Building Exchange Rate	4 /hr]
[Tail Time	1800 s]
[Set averaging time equal to exposure time	Use a fixed averaging time]
[Cut-off fraction of toxic load for exposure time calculation	0.05 fraction]
[Cut-off concentration for exposure time calculations	0 fraction]

Geometry

Shape	Point
Dimension	2D
System	Absolute
East(1)	0 m
North(1)	0 m

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Consequence Results

Pool Vaporization Results

Path: \Terminal Adonai - Efeitos físicos\Simulações\H093

		Dia	Noite
	Release Segment 1		
Release Duration	s	600	600
Liquid Rainout	fraction	0.870777	0.884842
	Release Segment 1 Cloud Segment 1		
Cloud Segment Duration	s	192.516	185.641
Pool Vaporization Rate	kg/s	0.549022	0.383387
Total Vapor Flowrate	kg/s	5.13643	4.47151
	Release Segment 1 Cloud Segment 2		
Cloud Segment Duration	s	78.0869	78.4219
Pool Vaporization Rate	kg/s	1.35825	0.913013
Total Vapor Flowrate	kg/s	5.94566	5.00113
	Release Segment 1 Cloud Segment 3		
Cloud Segment Duration	s	59.7281	60.8381
Pool Vaporization Rate	kg/s	1.77299	1.18254
Total Vapor Flowrate	kg/s	6.3604	5.27066
	Release Segment 1 Cloud Segment 4		
Cloud Segment Duration	s	50.895	51.4594
Pool Vaporization Rate	kg/s	2.10212	1.39506
Total Vapor Flowrate	kg/s	6.68953	5.48318
	Release Segment 1 Cloud Segment 5		
Cloud Segment Duration	s	45.1969	45.9425
Pool Vaporization Rate	kg/s	2.38444	1.576
Total Vapor Flowrate	kg/s	6.97185	5.66412
	Release Segment 1 Cloud Segment 6		
Cloud Segment Duration	s	77.58	79.4575
Pool Vaporization Rate	kg/s	2.73943	1.80427
Total Vapor Flowrate	kg/s	7.32684	5.89239
	Release Segment 1 Cloud Segment 7		
Cloud Segment Duration	s	95.9975	98.24
Pool Vaporization Rate	kg/s	3.23047	2.11976
Total Vapor Flowrate	kg/s	7.81787	6.20788
Maximum Pool Radius	m	16.7246	16.9682

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Distance to Concentration Results

Path: \Terminal Adonai - Efeitos físicos\Simulações\H093

The height for user defined concentrations is the user defined height 0 m
All toxic results are reported at the toxic effect height 1 m
All flammable results are reported at the flammable effect height 0 m

Concentration(ppm)	Averaging Time		Distance (m)	
			Dia	Noite
UFL (76800)	18.75	s	8.40175	8.40374
LFL (10500)	18.75	s	48.0747	52.07
LFL Frac (10500)	18.75	s	48.0747	52.07

Concentration(ppm)	Averaging Time		Heights (m) for above distances	
			Dia	Noite
UFL (76800)	18.75	s	0	0
LFL (10500)	18.75	s	0	0
LFL Frac (10500)	18.75	s	0	0

Jet Fire Hazard

Path: \Terminal Adonai - Efeitos físicos\Simulações\H093

Jet fire method used: Cone model - DNV recommended

	Dia	Noite
Jet Fire Status	Truncated	Truncated
Flame Direction	Horizontal	Horizontal

Radiation Effects: Jet Fire Ellipse

Path: \Terminal Adonai - Efeitos físicos\Simulações\H093

This table gives the distances to the specified radiation levels
for each jet fire listed in the above hazard table

Radiation Level			Distance (m)	
			Dia	Noite
9.83	kW/m2		77.3802	78.6237
19.46	kW/m2		67.1164	68.595
35	kW/m2		60.2321	61.7723

Radiation Effects: Jet Fire Distance

Path: \Terminal Adonai - Efeitos físicos\Simulações\H093

	Dia	Radiation Level (kW/m2)
		Noite

Early Pool Fire Hazard

Path: \Terminal Adonai - Efeitos físicos\Simulações\H093

	Dia	Noite
Early Pool Fire Status	Hazard	Hazard

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Radiation Effects: Early Pool Fire Ellipse

Path: \Terminal Adonai - Efeitos físicos\Simulações\H093

			Dia	Noite
Radiation Level	9.83	kW/m2	31.6666	29.8444
Radiation Level	19.46	kW/m2	19.5951	19.5604
Radiation Level	35	kW/m2	Not Reached	Not Reached

Radiation Effects: Early Pool Fire Distance

Path: \Terminal Adonai - Efeitos físicos\Simulações\H093

	Dia	Noite
Radiation Level (kW/m2)		

Late Pool Fire Hazard

Path: \Terminal Adonai - Efeitos físicos\Simulações\H093

	Dia	Noite
Late Pool Fire Status	Hazard	Hazard

Radiation Effects: Late Pool Fire Ellipse

Path: \Terminal Adonai - Efeitos físicos\Simulações\H093

			Dia	Noite
Radiation Level	9.83	kW/m2	33.5173	32.4195
Radiation Level	19.46	kW/m2	26.2283	26.433
Radiation Level	35	kW/m2	Not Reached	Not Reached

Radiation Effects: Late Pool Fire Distance

Path: \Terminal Adonai - Efeitos físicos\Simulações\H093

	Dia	Noite
Radiation Level (kW/m2)		

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Flash Fire Envelope

Path: \Terminal Adonai - Efeitos físicos\Simulações\H093

All flammable results are reported at the flammable effect height 0 m

				Distance (m)	
				Dia	Noite
Furthest Extent	10500	ppm		48.0747	52.07
Furthest Extent	10500	ppm		48.0747	52.07
				Heights (m) for above distances	
				Dia	Noite
Furthest Extent	10500	ppm		0	0
Furthest Extent	10500	ppm		0	0

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Explosion Effects: Late Ignition

Path: \Terminal Adonai - Efeitos físicos\Simulações\H093

Explosion Model Used : TNT

Explosion Location Criterion: Cloud Center

All distances are measured from the Source

All flammable results are reported at the flammable effect height 0 m

			Maximum Distance (m) at Overpressure Level	
			Dia	Noite
Overpressure	0.05	bar	74.198	102.914
Overpressure	0.1	bar	53.6453	73.368
Overpressure	0.3	bar	36.8003	49.1519

			Supplementary Data at 0.05 bar	
			Dia	Noite
Supplied Flammable Mass		kg	33.5172	99.579
Used Flammable Mass		kg	33.5172	99.579
Overpressure Radius		m	54.198	77.9141
Distance to:				
- Ignition Source		m	40	50
- Cloud Front/Centre		m	40	50
- Explosion Centre		m	20	25

			Supplementary Data at 0.1 bar	
			Dia	Noite
Supplied Flammable Mass		kg	33.5172	99.579
Used Flammable Mass		kg	33.5172	99.579
Overpressure Radius		m	33.6453	48.368
Distance to:				
- Ignition Source		m	40	50
- Cloud Front/Centre		m	40	50
- Explosion Centre		m	20	25

			Supplementary Data at 0.3 bar	
			Dia	Noite
Supplied Flammable Mass		kg	33.5172	99.579
Used Flammable Mass		kg	33.5172	99.579
Overpressure Radius		m	16.8003	24.1518
Distance to:				
- Ignition Source		m	40	50
- Cloud Front/Centre		m	40	50
- Explosion Centre		m	20	25

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Weather Conditions

Path: \Terminal Adonai - Efeitos físicos\Simulações\H093

		Dia	Noite
Wind Speed	m/s	3	2
Pasquill Stability		C	E
Surface Roughness Length	mm	1000	1000
Surface Roughness Parameter		0.173718	0.173718
Atmospheric Temperature	degC	25	20
Surface Temperature	degC	30	20
Relative Humidity	fraction	0.8	0.8

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

H094

Base Case

CASE Name: Data

Path: \Terminal Adonai - Efeitos físicos\Simulações\H094

User-Defined Data

Material

Material Identifier N-HEXANE

Scenario

Building Wake Effect None

Vessel/Tank

Release Type Continuous

Location

Elevation 1 m
Use ERPG averaging time ERPG not selected
Use IDLH averaging time IDLH not selected
Use STEL averaging time STEL not selected
Supply a user defined averaging time Not supplied

Bund

Status of Bund No bund present
[Type of Bund Surface User-Defined (Land)]
[Bund Height 0 m]
[Bund Failure Modeling Bund cannot fail]

Indoor/Outdoor

Location of release Open air release
Outdoor Release Direction Horizontal

Flammable

Explosion Method TNT
Jet Fire Method Cone Model

Dispersion

Number of Release Segments 1
Fluid Phase(1) Liquid
Discharge Velocity(1) 31.98 m/s
Droplet Diameter(1) 183.2 um
Duration of Discharge(1) 600 s
Final Temperature(1) 24.91 degC
Release Rate(1) 0.36 kg/s
Pre-Dilution Air Rates(1) 0 kg/s
Late Ignition Location No ignition location
Mass Inventory of material to Disperse 3.936E4 kg

Fireball Parameters

[Mass Modification Factor 3]
[Calculation method for fireball DNV Recommended]
[TNO model flame temperature 1727 degC]

Toxic Parameters

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

[Indoor Calculations	Unselected]
[Wind Dependent Exchange Rate	Case Specified]
[Building Exchange Rate	4 /hr]
[Tail Time	1800 s]
[Set averaging time equal to exposure time	Use a fixed averaging time]
[Cut-off fraction of toxic load for exposure time calculation	0.05 fraction]
[Cut-off concentration for exposure time calculations	0 fraction]

Geometry

Shape	Point
Dimension	2D
System	Absolute
East(1)	0 m
North(1)	0 m

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Consequence Results

Pool Vaporization Results

Path: \Terminal Adonai - Efeitos físicos\Simulações\H094

			Dia	Noite
		Release Segment 1		
Release Duration	s		600	600
Liquid Rainout	fraction		0.0267774	0.225732
Maximum Pool Radius	m		0.282313	0.852934

Distance to Concentration Results

Path: \Terminal Adonai - Efeitos físicos\Simulações\H094

The height for user defined concentrations is the user defined height 0 m
All toxic results are reported at the toxic effect height 1 m
All flammable results are reported at the flammable effect height 0 m

Concentration(ppm)		Averaging Time		Distance (m)	
				Dia	Noite
UFL (76800)	18.75	s		No Hazard	No Hazard
LFL (10500)	18.75	s		No Hazard	6.25985
LFL Frac (10500)	18.75	s		No Hazard	6.25985
Concentration(ppm)		Averaging Time		Heights (m) for above distances	
				Dia	Noite
UFL (76800)	18.75	s		0	0
LFL (10500)	18.75	s		0	0
LFL Frac (10500)	18.75	s		0	0

Jet Fire Hazard

Path: \Terminal Adonai - Efeitos físicos\Simulações\H094

Jet fire method used: Cone model - DNV recommended

		Dia	Noite
Jet Fire Status		Truncated	Truncated
Flame Direction		Horizontal	Horizontal

Radiation Effects: Jet Fire Ellipse

Path: \Terminal Adonai - Efeitos físicos\Simulações\H094

This table gives the distances to the specified radiation levels
for each jet fire listed in the above hazard table

			Distance (m)	
			Dia	Noite
Radiation Level	9.83	kW/m2	14.834	15.8306
Radiation Level	19.46	kW/m2	12.901	13.879
Radiation Level	35	kW/m2	11.57	12.5185

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Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Radiation Effects: Jet Fire Distance

Path: \Terminal Adonai - Efeitos físicos\Simulações\H094

Dia Radiation Level (kW/m2)
Noite

Early Pool Fire Hazard

Path: \Terminal Adonai - Efeitos físicos\Simulações\H094

Early Pool Fire Status Dia Noite
Hazard Hazard

Radiation Effects: Early Pool Fire Ellipse

Path: \Terminal Adonai - Efeitos físicos\Simulações\H094

			Dia	Noite
Radiation Level	9.83	kW/m2	10.1146	11.8309
Radiation Level	19.46	kW/m2	9.68479	10.3046
Radiation Level	35	kW/m2	9.23953	8.55104

Radiation Effects: Early Pool Fire Distance

Path: \Terminal Adonai - Efeitos físicos\Simulações\H094

Dia Radiation Level (kW/m2)
Noite

Late Pool Fire Hazard

Path: \Terminal Adonai - Efeitos físicos\Simulações\H094

Late Pool Fire Status Dia Noite
Hazard Hazard

Radiation Effects: Late Pool Fire Ellipse

Path: \Terminal Adonai - Efeitos físicos\Simulações\H094

			Dia	Noite
Radiation Level	9.83	kW/m2	11.3271	14.4078
Radiation Level	19.46	kW/m2	10.6188	11.9299
Radiation Level	35	kW/m2	9.45808	9.39365

Radiation Effects: Late Pool Fire Distance

Path: \Terminal Adonai - Efeitos físicos\Simulações\H094

Dia Radiation Level (kW/m2)
Noite

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Flash Fire Envelope

Path: \Terminal Adonai - Efeitos físicos\Simulações\H094

All flammable results are reported at the flammable effect height 0 m

				Distance (m)
				Noite
Furthest Extent	10500	ppm		6.25985
Furthest Extent	10500	ppm		6.25985
				Heights (m) for above distances
				Noite
Furthest Extent	10500	ppm		0
Furthest Extent	10500	ppm		0

Weather Conditions

Path: \Terminal Adonai - Efeitos físicos\Simulações\H094

		Dia	Noite
Wind Speed	m/s	3	2
Pasquill Stability		C	E
Surface Roughness Length	mm	1000	1000
Surface Roughness Parameter		0.173718	0.173718
Atmospheric Temperature	degC	25	20
Surface Temperature	degC	30	20
Relative Humidity	fraction	0.8	0.8

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

H095

Base Case

CASE Name: Data

Path: \Terminal Adonai - Efeitos físicos\Simulações\H095

User-Defined Data

Material

Material Identifier	N-HEXANE
Type of Vessel	Padded Liquid
Pressure Specification	Pressure specified
Storage Pressure - gauge	0.03 bar
Temperature	25 degC
Volume Inventory	3200 m3

Scenario

Scenario Type	Line rupture
Phase to be Released	Liquid
Building Wake Effect	None
Specify Pump Head	No pump head supplied
Number of Excess Flow Valves	0
Number of Non-Return Valves	0
Number of Shut-Off Valves	0

Pipe

Internal Diameter	152.4 mm
Line length	1 m

Vessel/Tank

Duration of Interest	600 s
Method Used for Time Varying Releases	Average Rates
Tank Type	Vertical
Tank Height	22.64 m
Tank Diameter	15 m
Height of Discharge from Vessel Bottom	1 m

Location

Elevation	1 m
Use ERPG averaging time	ERPG not selected
Use IDLH averaging time	IDLH not selected
Use STEL averaging time	STEL not selected
Supply a user defined averaging time	Not supplied

Bund

Status of Bund	Bund present
Bund Area	1940 m2
[Type of Bund Surface	User-Defined (Land)]
Bund Height	3 m
[Bund Failure Modeling	Bund cannot fail]

Indoor/Outdoor

Location of release	Open air release
Outdoor Release Direction	Horizontal

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Flammable

Explosion Method	TNT
Jet Fire Method	Cone Model

Dispersion

Late Ignition Location	No ignition location
Mass Inventory of material to Disperse	2.099E6 kg

Fireball Parameters

[Mass Modification Factor	3]
[Calculation method for fireball	DNV Recommended]
[TNO model flame temperature	1727 degC]

Toxic Parameters

[Indoor Calculations	Unselected]
[Wind Dependent Exchange Rate	Case Specified]
[Building Exchange Rate	4 /hr]
[Tail Time	1800 s]
[Set averaging time equal to exposure time	Use a fixed averaging time]
[Cut-off fraction of toxic load for exposure time calculation	0.05 fraction]
[Cut-off concentration for exposure time calculations	0 fraction]

Geometry

Shape	Point
Dimension	2D
System	Absolute
East(1)	0 m
North(1)	0 m

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Path: \Terminal Adonai - Efeitos físicos\Simulações\H095

DISCHARGE DATA for Weather: Global Weathers\Dia

Wind Speed: 3.00 m/s
Wind Speed at Height (Calculated) 1.78 m/s
Pasquill Stability: C

USER-DEFINED QUANTITIES

Material N-HEXANE
Scenario Line rupture
Inventory 2,099,283.75 kg
Fixed Duration n/a s

Stagnation data (data at upstream end for long pipe):

- Pressure 1.04 bar
- Temperature 25.00 degC
- Fluid State Non-saturated liquid

CALCULATED QUANTITIES

Mass Flow of Air (Vent from Vapor Space only) n/a
Mass Flowrate 1.38059E+002 kg/s
Release Duration 600.00 s

Orifice or pipe exit data (before atmospheric expansion):

- Pressure n/a bar
- Temperature n/a degC
- Vena Contracta Velocity (exit velocity for pipe releases) n/a m/s
- Discharge Coefficient n/a

Final data (after atmospheric expansion):

- Temperature 25.05 degC
- Liquid Mass Fraction 1.00 fraction
- Droplet Diameter 1,434.75 um
- Expanded Radius n/a m
- Velocity 11.54 m/s

DISCHARGE DATA for Weather: Global Weathers\Noite

Wind Speed: 2.00 m/s
Wind Speed at Height (Calculated) 0.83 m/s
Pasquill Stability: E

USER-DEFINED QUANTITIES

Material N-HEXANE
Scenario Line rupture
Inventory 2,099,283.75 kg
Fixed Duration n/a s

Stagnation data (data at upstream end for long pipe):

- Pressure 1.04 bar
- Temperature 25.00 degC
- Fluid State Non-saturated liquid

CALCULATED QUANTITIES

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Mass Flow of Air (Vent from Vapor Space only)	n/a
Mass Flowrate	1.38059E+002 kg/s
Release Duration	600.00 s
Orifice or pipe exit data (before atmospheric expansion):	
- Pressure	n/a bar
- Temperature	n/a degC
- Vena Contracta Velocity (exit velocity for pipe releases)	n/a m/s
- Discharge Coefficient	n/a
Final data (after atmospheric expansion):	
- Temperature	25.05 degC
- Liquid Mass Fraction	1.00 fraction
- Droplet Diameter	1,407.20 um
- Expanded Radius	n/a m
- Velocity	11.54 m/s

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Consequence Results

Pool Vaporization Results

Path: \Terminal Adonai - Efeitos físicos\Simulações\H095

		Dia	Noite
	Release Segment 1		
Release Duration	s	600	600
Liquid Rainout	fraction	0.962568	0.968258
	Release Segment 1 Cloud Segment 1		
Cloud Segment Duration	s	97.0225	92.6406
Pool Vaporization Rate	kg/s	1.5924	1.19263
Total Vapor Flowrate	kg/s	6.7602	5.57486
	Release Segment 1 Cloud Segment 2		
Cloud Segment Duration	s	41.6281	40.7619
Pool Vaporization Rate	kg/s	3.73318	2.71391
Total Vapor Flowrate	kg/s	8.90098	7.09614
	Release Segment 1 Cloud Segment 3		
Cloud Segment Duration	s	32.305	32.3631
Pool Vaporization Rate	kg/s	4.81597	3.47075
Total Vapor Flowrate	kg/s	9.98377	7.85298
	Release Segment 1 Cloud Segment 4		
Cloud Segment Duration	s	27.15	27.4444
Pool Vaporization Rate	kg/s	5.66388	4.06323
Total Vapor Flowrate	kg/s	10.8317	8.44546
	Release Segment 1 Cloud Segment 5		
Cloud Segment Duration	s	24.65	47.04
Pool Vaporization Rate	kg/s	6.38728	4.77167
Total Vapor Flowrate	kg/s	11.5551	9.1539
	Release Segment 1 Cloud Segment 6		
Cloud Segment Duration	s	42.9344	359.75
Pool Vaporization Rate	kg/s	7.31012	5.91548
Total Vapor Flowrate	kg/s	12.4779	10.2977
	Release Segment 1 Cloud Segment 7		
Cloud Segment Duration	s	334.31	
Pool Vaporization Rate	kg/s	8.31575	
Total Vapor Flowrate	kg/s	13.4836	
Maximum Pool Radius	m	24.85	24.85

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Distance to Concentration Results

Path: \Terminal Adonai - Efeitos físicos\Simulações\H095

The height for user defined concentrations is the user defined height 0 m
All toxic results are reported at the toxic effect height 1 m
All flammable results are reported at the flammable effect height 0 m

Concentration(ppm)	Averaging Time		Distance (m)	
			Dia	Noite
UFL (76800)	18.75	s	15.5618	18.461
LFL (10500)	18.75	s	47.4461	53.1912
LFL Frac (10500)	18.75	s	47.4461	53.1912

Concentration(ppm)	Averaging Time		Heights (m) for above distances	
			Dia	Noite
UFL (76800)	18.75	s	0	0
LFL (10500)	18.75	s	0	0
LFL Frac (10500)	18.75	s	0	0

Jet Fire Hazard

Path: \Terminal Adonai - Efeitos físicos\Simulações\H095

Jet fire method used: Cone model - DNV recommended

	Dia	Noite
Jet Fire Status	Truncated	Truncated
Flame Direction	Horizontal	Horizontal

Radiation Effects: Jet Fire Ellipse

Path: \Terminal Adonai - Efeitos físicos\Simulações\H095

This table gives the distances to the specified radiation levels for each jet fire listed in the above hazard table

Radiation Level			Distance (m)	
			Dia	Noite
9.83	kW/m2		82.5427	82.2614
19.46	kW/m2		71.8492	71.9448
35	kW/m2		64.6734	64.8738

Radiation Effects: Jet Fire Distance

Path: \Terminal Adonai - Efeitos físicos\Simulações\H095

	Dia	Radiation Level (kW/m2)
		Noite

Early Pool Fire Hazard

Path: \Terminal Adonai - Efeitos físicos\Simulações\H095

	Dia	Noite
Early Pool Fire Status	Hazard	Hazard

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Radiation Effects: Early Pool Fire Ellipse

Path: \Terminal Adonai - Efeitos físicos\Simulações\H095

			Dia	Noite
Radiation Level	9.83	kW/m2	32.4953	31.1244
Radiation Level	19.46	kW/m2	25.85	25.85
Radiation Level	35	kW/m2	Not Reached	Not Reached

Radiation Effects: Early Pool Fire Distance

Path: \Terminal Adonai - Efeitos físicos\Simulações\H095

	Dia	Noite
Radiation Level (kW/m2)		

Late Pool Fire Hazard

Path: \Terminal Adonai - Efeitos físicos\Simulações\H095

	Dia	Noite
Late Pool Fire Status	Hazard	Hazard

Radiation Effects: Late Pool Fire Ellipse

Path: \Terminal Adonai - Efeitos físicos\Simulações\H095

			Dia	Noite
Radiation Level	9.83	kW/m2	32.3312	30.9631
Radiation Level	19.46	kW/m2	25.85	25.85
Radiation Level	35	kW/m2	Not Reached	Not Reached

Radiation Effects: Late Pool Fire Distance

Path: \Terminal Adonai - Efeitos físicos\Simulações\H095

	Dia	Noite
Radiation Level (kW/m2)		

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Flash Fire Envelope

Path: \Terminal Adonai - Efeitos físicos\Simulações\H095

All flammable results are reported at the flammable effect height 0 m

				Distance (m)	
				Dia	Noite
Furthest Extent	10500	ppm	47.4461	53.1912	
Furthest Extent	10500	ppm	47.4461	53.1912	
				Heights (m) for above distances	
				Dia	Noite
Furthest Extent	10500	ppm	0	0	
Furthest Extent	10500	ppm	0	0	

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Explosion Effects: Late Ignition

Path: \Terminal Adonai - Efeitos físicos\Simulações\H095

Explosion Model Used : TNT

Explosion Location Criterion: Cloud Center

All distances are measured from the Source

All flammable results are reported at the flammable effect height 0 m

			Maximum Distance (m) at Overpressure Level	
			Dia	Noite
Overpressure	0.05	bar	86.2135	126.487
Overpressure	0.1	bar	61.1044	88.8164
Overpressure	0.3	bar	40.5249	57.941

			Supplementary Data at 0.05 bar	
			Dia	Noite
Supplied Flammable Mass		kg	61.1165	206.39
Used Flammable Mass		kg	61.1165	206.39
Overpressure Radius		m	66.2135	99.3398
Distance to:				
- Ignition Source		m	40	50
- Cloud Front/Centre		m	40	50
- Explosion Centre		m	20	27.1476

			Supplementary Data at 0.1 bar	
			Dia	Noite
Supplied Flammable Mass		kg	61.1165	206.39
Used Flammable Mass		kg	61.1165	206.39
Overpressure Radius		m	41.1044	61.6688
Distance to:				
- Ignition Source		m	40	50
- Cloud Front/Centre		m	40	50
- Explosion Centre		m	20	27.1476

			Supplementary Data at 0.3 bar	
			Dia	Noite
Supplied Flammable Mass		kg	61.1165	206.39
Used Flammable Mass		kg	61.1165	206.39
Overpressure Radius		m	20.5249	30.7934
Distance to:				
- Ignition Source		m	40	50
- Cloud Front/Centre		m	40	50
- Explosion Centre		m	20	27.1476

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Weather Conditions

Path: \Terminal Adonai - Efeitos físicos\Simulações\H095

		Dia	Noite
Wind Speed	m/s	3	2
Pasquill Stability		C	E
Surface Roughness Length	mm	1000	1000
Surface Roughness Parameter		0.173718	0.173718
Atmospheric Temperature	degC	25	20
Surface Temperature	degC	30	20
Relative Humidity	fraction	0.8	0.8

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

H096

Base Case

CASE Name: Data

Path: \Terminal Adonai - Efeitos físicos\Simulações\H096

User-Defined Data

Location

Use STEL averaging time STEL not selected
Supply a user defined averaging time Not supplied

Bund

Status of Bund Bund present
Bund Area 1940 m2
[Type of Bund Surface User-Defined (Land)]
Bund Height 3 m
[Bund Failure Modeling Bund cannot fail]

Indoor/Outdoor

Location of release Open air release
Outdoor Release Direction Horizontal

Flammable

Explosion Method TNT
Jet Fire Method Cone Model

Dispersion

Late Ignition Location No ignition location
Mass Inventory of material to Disperse 2.099E6 kg

Fireball Parameters

[Mass Modification Factor 3]
[Calculation method for fireball DNV Recommended]
[TNO model flame temperature 1727 degC]

Toxic Parameters

[Indoor Calculations Unselected]
[Wind Dependent Exchange Rate Case Specified]
[Building Exchange Rate 4 /hr]
[Tail Time 1800 s]
[Set averaging time equal to exposure time Use a fixed averaging time]
[Cut-off fraction of toxic load for exposure time calculation 0.05 fraction]
[Cut-off concentration for exposure time calculations 0 fraction]

Geometry

Shape Point
Dimension 2D
System Absolute
East(1) 0 m
North(1) 0 m

Material

Material Identifier N-HEXANE
Type of Vessel Padded Liquid

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Pressure Specification	Pressure specified
Storage Pressure - gauge	0.03 bar
Temperature	25 degC
Volume Inventory	3200 m3
Scenario	
Scenario Type	Leak
Phase to be Released	Liquid
Hole Diameter	15.24 mm
Building Wake Effect	None
Vessel/Tank	
Duration of Interest	600 s
Method Used for Time Varying Releases	Average Rates
Tank Type	Vertical
Tank Height	22.64 m
Tank Diameter	15 m
Height of Discharge from Vessel Bottom	1 m
Location	
Elevation	1 m
Use ERPG averaging time	ERPG not selected
Use IDLH averaging time	IDLH not selected

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Path: \Terminal Adonai - Efeitos físicos\Simulações\H096

DISCHARGE DATA for Weather: Global Weathers\Dia

Wind Speed: 3.00 m/s
Wind Speed at Height (Calculated) 1.78 m/s
Pasquill Stability: C

USER-DEFINED QUANTITIES

Material N-HEXANE
Scenario Leak
Inventory 2,099,283.75 kg
Fixed Duration n/a s

Stagnation data (data at upstream end for long pipe):

- Pressure 1.04 bar
- Temperature 25.00 degC
- Fluid State Non-saturated liquid

CALCULATED QUANTITIES

Mass Flow of Air (Vent from Vapor Space only) n/a
Mass Flowrate 1.40918E+000 kg/s
Release Duration 600.00 s

Orifice or pipe exit data (before atmospheric expansion):

- Pressure n/a bar
- Temperature n/a degC
- Vena Contracta Velocity (exit velocity for pipe releases) n/a m/s
- Discharge Coefficient n/a

Final data (after atmospheric expansion):

- Temperature 24.97 degC
- Liquid Mass Fraction 1.00 fraction
- Droplet Diameter 495.80 um
- Expanded Radius n/a m
- Velocity 19.63 m/s

DISCHARGE DATA for Weather: Global Weathers\Noite

Wind Speed: 2.00 m/s
Wind Speed at Height (Calculated) 0.83 m/s
Pasquill Stability: E

USER-DEFINED QUANTITIES

Material N-HEXANE
Scenario Leak
Inventory 2,099,283.75 kg
Fixed Duration n/a s

Stagnation data (data at upstream end for long pipe):

- Pressure 1.04 bar
- Temperature 25.00 degC
- Fluid State Non-saturated liquid

CALCULATED QUANTITIES

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Mass Flow of Air (Vent from Vapor Space only)	n/a
Mass Flowrate	1.40918E+000 kg/s
Release Duration	600.00 s
Orifice or pipe exit data (before atmospheric expansion):	
- Pressure	n/a bar
- Temperature	n/a degC
- Vena Contracta Velocity (exit velocity for pipe releases)	n/a m/s
- Discharge Coefficient	n/a
Final data (after atmospheric expansion):	
- Temperature	24.96 degC
- Liquid Mass Fraction	1.00 fraction
- Droplet Diameter	486.28 um
- Expanded Radius	n/a m
- Velocity	19.63 m/s

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Consequence Results

Pool Vaporization Results

Path: \Terminal Adonai - Efeitos físicos\Simulações\H096

		Dia	Noite
	Release Segment 1		
Release Duration	s	600	600
Liquid Rainout	fraction	0.764525	0.781019
	Release Segment 1 Cloud Segment 1		
Cloud Segment Duration	s	203.776	199.516
Pool Vaporization Rate	kg/s	0.0250451	0.0156009
Total Vapor Flowrate	kg/s	0.356872	0.324186
	Release Segment 1 Cloud Segment 2		
Cloud Segment Duration	s	76.7869	77.7069
Pool Vaporization Rate	kg/s	0.0669775	0.0405346
Total Vapor Flowrate	kg/s	0.398804	0.34912
	Release Segment 1 Cloud Segment 3		
Cloud Segment Duration	s	57.9975	58.5831
Pool Vaporization Rate	kg/s	0.0878661	0.0531392
Total Vapor Flowrate	kg/s	0.419693	0.361724
	Release Segment 1 Cloud Segment 4		
Cloud Segment Duration	s	49.53	50.3169
Pool Vaporization Rate	kg/s	0.104297	0.063117
Total Vapor Flowrate	kg/s	0.436124	0.371702
	Release Segment 1 Cloud Segment 5		
Cloud Segment Duration	s	43.5106	44.44
Pool Vaporization Rate	kg/s	0.118295	0.0717065
Total Vapor Flowrate	kg/s	0.450122	0.380292
	Release Segment 1 Cloud Segment 6		
Cloud Segment Duration	s	75.775	76.8131
Pool Vaporization Rate	kg/s	0.135897	0.0825504
Total Vapor Flowrate	kg/s	0.467723	0.391136
	Release Segment 1 Cloud Segment 7		
Cloud Segment Duration	s	92.6244	
Pool Vaporization Rate	kg/s	0.160116	
Total Vapor Flowrate	kg/s	0.491943	0.308585
Maximum Pool Radius	m	3.09431	3.16473

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Distance to Concentration Results

Path: \Terminal Adonai - Efeitos físicos\Simulações\H096

The height for user defined concentrations is the user defined height 0 m

All toxic results are reported at the toxic effect height 1 m

All flammable results are reported at the flammable effect height 0 m

Concentration(ppm)	Averaging Time		Distance (m)	
			Dia	Noite
UFL (76800)	18.75	s	No Hazard	No Hazard
LFL (10500)	18.75	s	11.3121	14.4289
LFL Frac (10500)	18.75	s	11.3121	14.4289

Concentration(ppm)	Averaging Time		Heights (m) for above distances	
			Dia	Noite
UFL (76800)	18.75	s	0	0
LFL (10500)	18.75	s	0	0
LFL Frac (10500)	18.75	s	0	0

Jet Fire Hazard

Path: \Terminal Adonai - Efeitos físicos\Simulações\H096

Jet fire method used: Cone model - DNV recommended

	Dia	Noite
Jet Fire Status	Truncated	Truncated
Flame Direction	Horizontal	Horizontal

Radiation Effects: Jet Fire Ellipse

Path: \Terminal Adonai - Efeitos físicos\Simulações\H096

This table gives the distances to the specified radiation levels for each jet fire listed in the above hazard table

Radiation Level			Distance (m)	
			Dia	Noite
9.83	kW/m2		24.0877	24.9685
19.46	kW/m2		21.0167	21.905
35	kW/m2		18.9086	19.7552

Radiation Effects: Jet Fire Distance

Path: \Terminal Adonai - Efeitos físicos\Simulações\H096

	Dia	Radiation Level (kW/m2)
		Noite

Early Pool Fire Hazard

Path: \Terminal Adonai - Efeitos físicos\Simulações\H096

	Dia	Noite
Early Pool Fire Status	Hazard	Hazard

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos fisicos

Phast 6.7

Radiation Effects: Early Pool Fire Ellipse

Path: \Terminal Adonai - Efeitos fisicos\Simulações\H096

			Dia	Noite
Radiation Level	9.83	kW/m2	19.5458	18.7969
Radiation Level	19.46	kW/m2	14.7098	13.9022
Radiation Level	35	kW/m2	10.1899	9.92965

Radiation Effects: Early Pool Fire Distance

Path: \Terminal Adonai - Efeitos fisicos\Simulações\H096

Dia
Radiation Level (kW/m2)
Noite

Late Pool Fire Hazard

Path: \Terminal Adonai - Efeitos fisicos\Simulações\H096

	Dia	Noite
Late Pool Fire Status	Hazard	Hazard

Radiation Effects: Late Pool Fire Ellipse

Path: \Terminal Adonai - Efeitos fisicos\Simulações\H096

			Dia	Noite
Radiation Level	9.83	kW/m2	24.4064	23.0828
Radiation Level	19.46	kW/m2	16.5613	15.654
Radiation Level	35	kW/m2	11.0412	10.766

Radiation Effects: Late Pool Fire Distance

Path: \Terminal Adonai - Efeitos fisicos\Simulações\H096

Dia
Radiation Level (kW/m2)
Noite

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Flash Fire Envelope

Path: \Terminal Adonai - Efeitos físicos\Simulações\H096

All flammable results are reported at the flammable effect height 0 m

				Distance (m)	
				Dia	Noite
Furthest Extent	10500	ppm	11.3121	14.4289	
Furthest Extent	10500	ppm	11.3121	14.4289	
				Heights (m) for above distances	
				Dia	Noite
Furthest Extent	10500	ppm	0	0	
Furthest Extent	10500	ppm	0	0	

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Explosion Effects: Late Ignition

Path: \Terminal Adonai - Efeitos físicos\Simulações\H096

Explosion Model Used : TNT

Explosion Location Criterion: Cloud Center

All distances are measured from the Source

All flammable results are reported at the flammable effect height 0 m

			Maximum Distance (m) at Overpressure Level	
			Dia	Noite
Overpressure	0.05	bar	17.0776	16.2971
Overpressure	0.1	bar	12.5055	12.0138
Overpressure	0.3	bar	8.75816	8.50321

Supplementary Data at 0.05 bar

			Dia	Noite
Supplied Flammable Mass		kg	0.368985	0.303388
Used Flammable Mass		kg	0.368985	0.303388
Overpressure Radius		m	12.0567	11.2952
Distance to:				
- Ignition Source		m	10	10
- Cloud Front/Centre		m	10	10
- Explosion Centre		m	5.02081	5.00193

Supplementary Data at 0.1 bar

			Dia	Noite
Supplied Flammable Mass		kg	0.368985	0.303388
Used Flammable Mass		kg	0.368985	0.303388
Overpressure Radius		m	7.48466	7.01189
Distance to:				
- Ignition Source		m	10	10
- Cloud Front/Centre		m	10	10
- Explosion Centre		m	5.02081	5.00193

Supplementary Data at 0.3 bar

			Dia	Noite
Supplied Flammable Mass		kg	0.368985	0.303388
Used Flammable Mass		kg	0.368985	0.303388
Overpressure Radius		m	3.73735	3.50128
Distance to:				
- Ignition Source		m	10	10
- Cloud Front/Centre		m	10	10
- Explosion Centre		m	5.02081	5.00193

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Weather Conditions

Path: \Terminal Adonai - Efeitos físicos\Simulações\H096

		Dia	Noite
Wind Speed	m/s	3	2
Pasquill Stability		C	E
Surface Roughness Length	mm	1000	1000
Surface Roughness Parameter		0.173718	0.173718
Atmospheric Temperature	degC	25	20
Surface Temperature	degC	30	20
Relative Humidity	fraction	0.8	0.8

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

H097

Base Case

CASE Name: Data

Path: \Terminal Adonai - Efeitos físicos\Simulações\H097

User-Defined Data

Material

Material Identifier N-HEXANE

Scenario

Building Wake Effect None

Vessel/Tank

Release Type Continuous

Location

Elevation 1 m
Use ERPG averaging time ERPG not selected
Use IDLH averaging time IDLH not selected
Use STEL averaging time STEL not selected
Supply a user defined averaging time Not supplied

Bund

Status of Bund No bund present
[Type of Bund Surface User-Defined (Land)]
[Bund Height 0 m]
[Bund Failure Modeling Bund cannot fail]

Indoor/Outdoor

Location of release Open air release
Outdoor Release Direction Horizontal

Flammable

Explosion Method TNT
Jet Fire Method Cone Model

Dispersion

Number of Release Segments 1
Fluid Phase(1) Liquid
Discharge Velocity(1) 19.19 m/s
Droplet Diameter(1) 507.9 um
Duration of Discharge(1) 600 s
Final Temperature(1) 25.14 degC
Release Rate(1) 17.75 kg/s
Pre-Dilution Air Rates(1) 0 kg/s
Late Ignition Location No ignition location
Mass Inventory of material to Disperse 2.099E6 kg

Fireball Parameters

[Mass Modification Factor 3]
[Calculation method for fireball DNV Recommended]
[TNO model flame temperature 1727 degC]

Toxic Parameters

Date: 07/08/2015

633 of 2,112

Time: 10:10:31

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

[Indoor Calculations	Unselected]
[Wind Dependent Exchange Rate	Case Specified]
[Building Exchange Rate	4 /hr]
[Tail Time	1800 s]
[Set averaging time equal to exposure time	Use a fixed averaging time]
[Cut-off fraction of toxic load for exposure time calculation	0.05 fraction]
[Cut-off concentration for exposure time calculations	0 fraction]

Geometry

Shape	Point
Dimension	2D
System	Absolute
East(1)	0 m
North(1)	0 m

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Consequence Results

Pool Vaporization Results

Path: \Terminal Adonai - Efeitos físicos\Simulações\H097

		Dia	Noite
	Release Segment 1		
Release Duration	s	600	600
Liquid Rainout	fraction	0.844872	0.860724
	Release Segment 1 Cloud Segment 1		
Cloud Segment Duration	s	196.701	189.751
Pool Vaporization Rate	kg/s	0.265306	0.182158
Total Vapor Flowrate	kg/s	3.01883	2.6543
	Release Segment 1 Cloud Segment 2		
Cloud Segment Duration	s	78.03	78.39
Pool Vaporization Rate	kg/s	0.6721	0.443367
Total Vapor Flowrate	kg/s	3.42562	2.91551
	Release Segment 1 Cloud Segment 3		
Cloud Segment Duration	s	59.245	60.375
Pool Vaporization Rate	kg/s	0.881489	0.577322
Total Vapor Flowrate	kg/s	3.63501	3.04946
	Release Segment 1 Cloud Segment 4		
Cloud Segment Duration	s	50.1844	50.76
Pool Vaporization Rate	kg/s	1.04749	0.683139
Total Vapor Flowrate	kg/s	3.80102	3.15528
	Release Segment 1 Cloud Segment 5		
Cloud Segment Duration	s	44.33	45.0844
Pool Vaporization Rate	kg/s	1.18958	0.773227
Total Vapor Flowrate	kg/s	3.9431	3.24537
	Release Segment 1 Cloud Segment 6		
Cloud Segment Duration	s	77.76	78.5206
Pool Vaporization Rate	kg/s	1.37072	0.887649
Total Vapor Flowrate	kg/s	4.12424	3.35979
	Release Segment 1 Cloud Segment 7		
Cloud Segment Duration	s	93.75	97.1194
Pool Vaporization Rate	kg/s	1.62034	1.04705
Total Vapor Flowrate	kg/s	4.37387	3.51919
Maximum Pool Radius	m	11.6419	11.8305

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Distance to Concentration Results

Path: \Terminal Adonai - Efeitos físicos\Simulações\H097

The height for user defined concentrations is the user defined height 0 m

All toxic results are reported at the toxic effect height 1 m

All flammable results are reported at the flammable effect height 0 m

Concentration(ppm)	Averaging Time		Distance (m)	
			Dia	Noite
UFL (76800)	18.75	s	7.41368	7.49309
LFL (10500)	18.75	s	38.5989	41.803
LFL Frac (10500)	18.75	s	38.5989	41.803

Concentration(ppm)	Averaging Time		Heights (m) for above distances	
			Dia	Noite
UFL (76800)	18.75	s	0	0
LFL (10500)	18.75	s	0	0
LFL Frac (10500)	18.75	s	0	0

Jet Fire Hazard

Path: \Terminal Adonai - Efeitos físicos\Simulações\H097

Jet fire method used: Cone model - DNV recommended

	Dia	Noite
Jet Fire Status	Truncated	Truncated
Flame Direction	Horizontal	Horizontal

Radiation Effects: Jet Fire Ellipse

Path: \Terminal Adonai - Efeitos físicos\Simulações\H097

This table gives the distances to the specified radiation levels for each jet fire listed in the above hazard table

Radiation Level			Distance (m)	
			Dia	Noite
9.83	kW/m2		61.7493	62.9592
19.46	kW/m2		53.6356	55.0071
35	kW/m2		48.1752	49.5616

Radiation Effects: Jet Fire Distance

Path: \Terminal Adonai - Efeitos físicos\Simulações\H097

	Dia	Radiation Level (kW/m2)
		Noite

Early Pool Fire Hazard

Path: \Terminal Adonai - Efeitos físicos\Simulações\H097

	Dia	Noite
Early Pool Fire Status	Hazard	Hazard

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Radiation Effects: Early Pool Fire Ellipse

Path: \Terminal Adonai - Efeitos físicos\Simulações\H097

			Dia	Noite
Radiation Level	9.83	kW/m2	31.7232	29.5837
Radiation Level	19.46	kW/m2	19.1386	18.4717
Radiation Level	35	kW/m2	15.6157	15.7828

Radiation Effects: Early Pool Fire Distance

Path: \Terminal Adonai - Efeitos físicos\Simulações\H097

Dia	Noite
-----	-------

Late Pool Fire Hazard

Path: \Terminal Adonai - Efeitos físicos\Simulações\H097

	Dia	Noite
Late Pool Fire Status	Hazard	Hazard

Radiation Effects: Late Pool Fire Ellipse

Path: \Terminal Adonai - Efeitos físicos\Simulações\H097

			Dia	Noite
Radiation Level	9.83	kW/m2	30.7811	29.265
Radiation Level	19.46	kW/m2	20.3773	20.5727
Radiation Level	35	kW/m2	Not Reached	Not Reached

Radiation Effects: Late Pool Fire Distance

Path: \Terminal Adonai - Efeitos físicos\Simulações\H097

Dia	Noite
-----	-------

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Flash Fire Envelope

Path: \Terminal Adonai - Efeitos físicos\Simulações\H097

All flammable results are reported at the flammable effect height 0 m

				Distance (m)	
				Dia	Noite
Furthest Extent	10500	ppm		38.5989	41.803
Furthest Extent	10500	ppm		38.5989	41.803
				Heights (m) for above distances	
				Dia	Noite
Furthest Extent	10500	ppm		0	0
Furthest Extent	10500	ppm		0	0

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Explosion Effects: Late Ignition

Path: \Terminal Adonai - Efeitos físicos\Simulações\H097

Explosion Model Used : TNT

Explosion Location Criterion: Cloud Center

All distances are measured from the Source

All flammable results are reported at the flammable effect height 0 m

			Maximum Distance (m) at Overpressure Level	
			Dia	Noite
Overpressure	0.05	bar	54.1945	75.8748
Overpressure	0.1	bar	39.3314	54.6863
Overpressure	0.3	bar	27.1495	37.3201

Supplementary Data at 0.05 bar

			Dia	Noite
Supplied Flammable Mass		kg	12.6763	36.7253
Used Flammable Mass		kg	12.6763	36.7253
Overpressure Radius		m	39.1945	55.8748
Distance to:				
- Ignition Source		m	30	40
- Cloud Front/Centre		m	30	40
- Explosion Centre		m	15	20

Supplementary Data at 0.1 bar

			Dia	Noite
Supplied Flammable Mass		kg	12.6763	36.7253
Used Flammable Mass		kg	12.6763	36.7253
Overpressure Radius		m	24.3314	34.6863
Distance to:				
- Ignition Source		m	30	40
- Cloud Front/Centre		m	30	40
- Explosion Centre		m	15	20

Supplementary Data at 0.3 bar

			Dia	Noite
Supplied Flammable Mass		kg	12.6763	36.7253
Used Flammable Mass		kg	12.6763	36.7253
Overpressure Radius		m	12.1495	17.3201
Distance to:				
- Ignition Source		m	30	40
- Cloud Front/Centre		m	30	40
- Explosion Centre		m	15	20

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Weather Conditions

Path: \Terminal Adonai - Efeitos físicos\Simulações\H097

		Dia	Noite
Wind Speed	m/s	3	2
Pasquill Stability		C	E
Surface Roughness Length	mm	1000	1000
Surface Roughness Parameter		0.173718	0.173718
Atmospheric Temperature	degC	25	20
Surface Temperature	degC	30	20
Relative Humidity	fraction	0.8	0.8

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

H098

Base Case

CASE Name: Data

Path: \Terminal Adonai - Efeitos físicos\Simulações\H098

User-Defined Data

Material

Material Identifier N-HEXANE

Scenario

Building Wake Effect None

Vessel/Tank

Release Type Continuous

Location

Elevation 1 m
Use ERPG averaging time ERPG not selected
Use IDLH averaging time IDLH not selected
Use STEL averaging time STEL not selected
Supply a user defined averaging time Not supplied

Bund

Status of Bund No bund present
[Type of Bund Surface User-Defined (Land)]
[Bund Height 0 m]
[Bund Failure Modeling Bund cannot fail]

Indoor/Outdoor

Location of release Open air release
Outdoor Release Direction Horizontal

Flammable

Explosion Method TNT
Jet Fire Method Cone Model

Dispersion

Number of Release Segments 1
Fluid Phase(1) Liquid
Discharge Velocity(1) 31.98 m/s
Droplet Diameter(1) 183.2 um
Duration of Discharge(1) 600 s
Final Temperature(1) 24.91 degC
Release Rate(1) 0.18 kg/s
Pre-Dilution Air Rates(1) 0 kg/s
Late Ignition Location No ignition location
Mass Inventory of material to Disperse 2.099E6 kg

Fireball Parameters

[Mass Modification Factor 3]
[Calculation method for fireball DNV Recommended]
[TNO model flame temperature 1727 degC]

Toxic Parameters

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

[Indoor Calculations	Unselected]
[Wind Dependent Exchange Rate	Case Specified]
[Building Exchange Rate	4 /hr]
[Tail Time	1800 s]
[Set averaging time equal to exposure time	Use a fixed averaging time]
[Cut-off fraction of toxic load for exposure time calculation	0.05 fraction]
[Cut-off concentration for exposure time calculations	0 fraction]

Geometry

Shape	Point
Dimension	2D
System	Absolute
East(1)	0 m
North(1)	0 m

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Consequence Results

Pool Vaporization Results

Path: \Terminal Adonai - Efeitos físicos\Simulações\H098

			Noite
	Release Segment 1		
Release Duration	s		600
Liquid Rainout	fraction		0.139654
Maximum Pool Radius	m		0.472344

Distance to Concentration Results

Path: \Terminal Adonai - Efeitos físicos\Simulações\H098

The height for user defined concentrations is the user defined height 0 m
All toxic results are reported at the toxic effect height 1 m
All flammable results are reported at the flammable effect height 0 m

Concentration(ppm)	Averaging Time			Distance (m)
			Dia	Noite
UFL (76800)	18.75	s	No Hazard	No Hazard
LFL (10500)	18.75	s	No Hazard	No Hazard
LFL Frac (10500)	18.75	s	No Hazard	No Hazard

Concentration(ppm)	Averaging Time			Heights (m) for above distances
			Dia	Noite
UFL (76800)	18.75	s	0	0
LFL (10500)	18.75	s	0	0
LFL Frac (10500)	18.75	s	0	0

Jet Fire Hazard

Path: \Terminal Adonai - Efeitos físicos\Simulações\H098

Jet fire method used: Cone model - DNV recommended

		Dia	Noite
Jet Fire Status		Truncated	Truncated
Flame Direction		Horizontal	Horizontal

Radiation Effects: Jet Fire Ellipse

Path: \Terminal Adonai - Efeitos físicos\Simulações\H098

This table gives the distances to the specified radiation levels
for each jet fire listed in the above hazard table

				Distance (m)
			Dia	Noite
Radiation Level	9.83	kW/m2	10.7681	11.5075
Radiation Level	19.46	kW/m2	9.3326	10.0616
Radiation Level	35	kW/m2	8.32916	9.04514

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Radiation Effects: Jet Fire Distance

Path: \\Terminal Adonai - Efeitos físicos\Simulações\H098

Radiation Level (kW/m2)
Dia
Noite

Early Pool Fire Hazard

Path: \\Terminal Adonai - Efeitos físicos\Simulações\H098

Early Pool Fire Status
Noite
Hazard

Radiation Effects: Early Pool Fire Ellipse

Path: \\Terminal Adonai - Efeitos físicos\Simulações\H098

Radiation Level Distance (m)
Noite
Radiation Level 9.83 kW/m2 8.99573
Radiation Level 19.46 kW/m2 8.19471
Radiation Level 35 kW/m2 7.1352

Radiation Effects: Early Pool Fire Distance

Path: \\Terminal Adonai - Efeitos físicos\Simulações\H098

Radiation Level (kW/m2)
Noite

Late Pool Fire Hazard

Path: \\Terminal Adonai - Efeitos físicos\Simulações\H098

Late Pool Fire Status
Noite
Hazard

Radiation Effects: Late Pool Fire Ellipse

Path: \\Terminal Adonai - Efeitos físicos\Simulações\H098

Radiation Level Distance (m)
Noite
Radiation Level 9.83 kW/m2 10.7861
Radiation Level 19.46 kW/m2 9.38345
Radiation Level 35 kW/m2 7.7355

Radiation Effects: Late Pool Fire Distance

Path: \\Terminal Adonai - Efeitos físicos\Simulações\H098

Radiation Level (kW/m2)
Noite

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Weather Conditions

Path: \Terminal Adonai - Efeitos físicos\Simulações\H098

		Dia	Noite
Wind Speed	m/s	3	2
Pasquill Stability		C	E
Surface Roughness Length	mm	1000	1000
Surface Roughness Parameter		0.173718	0.173718
Atmospheric Temperature	degC	25	20
Surface Temperature	degC	30	20
Relative Humidity	fraction	0.8	0.8

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

H099

Base Case

CASE Name: Data

Path: \Terminal Adonai - Efeitos físicos\Simulações\H099

User-Defined Data

Material

Material Identifier N-HEXANE

Scenario

Building Wake Effect None

Vessel/Tank

Release Type Continuous

Location

Elevation 3 m
Use ERPG averaging time ERPG not selected
Use IDLH averaging time IDLH not selected
Use STEL averaging time STEL not selected
Supply a user defined averaging time Not supplied

Bund

Status of Bund No bund present
[Type of Bund Surface User-Defined (Land)]
[Bund Height 0 m]
[Bund Failure Modeling Bund cannot fail]

Indoor/Outdoor

Location of release Open air release
Outdoor Release Direction Horizontal

Flammable

Explosion Method TNT
Jet Fire Method Cone Model

Dispersion

Number of Release Segments 1
Fluid Phase(1) Liquid
Discharge Velocity(1) 19.19 m/s
Droplet Diameter(1) 507.9 um
Duration of Discharge(1) 600 s
Final Temperature(1) 25.14 degC
Release Rate(1) 17.75 kg/s
Pre-Dilution Air Rates(1) 0 kg/s
Late Ignition Location No ignition location
Mass Inventory of material to Disperse 2.099E6 kg

Fireball Parameters

[Mass Modification Factor 3]
[Calculation method for fireball DNV Recommended]
[TNO model flame temperature 1727 degC]

Toxic Parameters

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

[Indoor Calculations	Unselected]
[Wind Dependent Exchange Rate	Case Specified]
[Building Exchange Rate	4 /hr]
[Tail Time	1800 s]
[Set averaging time equal to exposure time	Use a fixed averaging time]
[Cut-off fraction of toxic load for exposure time calculation	0.05 fraction]
[Cut-off concentration for exposure time calculations	0 fraction]

Geometry

Shape	Point
Dimension	2D
System	Absolute
East(1)	0 m
North(1)	0 m

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Consequence Results

Pool Vaporization Results

Path: \Terminal Adonai - Efeitos físicos\Simulações\H099

		Dia	Noite
	Release Segment 1		
Release Duration	s	600	600
Liquid Rainout	fraction	0.745989	0.78311
	Release Segment 1 Cloud Segment 1		
Cloud Segment Duration	s	203.776	196.701
Pool Vaporization Rate	kg/s	0.205553	0.143004
Total Vapor Flowrate	kg/s	4.71424	3.9928
	Release Segment 1 Cloud Segment 2		
Cloud Segment Duration	s	77.625	78.03
Pool Vaporization Rate	kg/s	0.540229	0.360362
Total Vapor Flowrate	kg/s	5.04892	4.21016
	Release Segment 1 Cloud Segment 3		
Cloud Segment Duration	s	59.0019	60.1594
Pool Vaporization Rate	kg/s	0.714762	0.473453
Total Vapor Flowrate	kg/s	5.22345	4.32325
	Release Segment 1 Cloud Segment 4		
Cloud Segment Duration	s	49.66	50.2506
Pool Vaporization Rate	kg/s	0.854581	0.563822
Total Vapor Flowrate	kg/s	5.36327	4.41361
	Release Segment 1 Cloud Segment 5		
Cloud Segment Duration	s	43.6181	44.385
Pool Vaporization Rate	kg/s	0.974491	0.640973
Total Vapor Flowrate	kg/s	5.48318	4.49077
	Release Segment 1 Cloud Segment 6		
Cloud Segment Duration	s	75.95	76.7244
Pool Vaporization Rate	kg/s	1.12729	0.738998
Total Vapor Flowrate	kg/s	5.63598	4.58879
	Release Segment 1 Cloud Segment 7		
Cloud Segment Duration	s	90.3694	93.75
Pool Vaporization Rate	kg/s	1.33736	0.875396
Total Vapor Flowrate	kg/s	5.84604	4.72519
Maximum Pool Radius	m	10.9586	11.2947

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Distance to Concentration Results

Path: \Terminal Adonai - Efeitos físicos\Simulações\H099

The height for user defined concentrations is the user defined height 0 m

All toxic results are reported at the toxic effect height 1 m

All flammable results are reported at the flammable effect height 0 m

Concentration(ppm)	Averaging Time		Distance (m)	
			Dia	Noite
UFL (76800)	18.75	s	No Hazard	No Hazard
LFL (10500)	18.75	s	45.2582	51.7137
LFL Frac (10500)	18.75	s	45.2582	51.7137

Concentration(ppm)	Averaging Time		Heights (m) for above distances	
			Dia	Noite
UFL (76800)	18.75	s	0	0
LFL (10500)	18.75	s	0	0
LFL Frac (10500)	18.75	s	0	0

Jet Fire Hazard

Path: \Terminal Adonai - Efeitos físicos\Simulações\H099

Jet fire method used: Cone model - DNV recommended

	Dia	Noite
Jet Fire Status	Truncated	Truncated
Flame Direction	Horizontal	Horizontal

Radiation Effects: Jet Fire Ellipse

Path: \Terminal Adonai - Efeitos físicos\Simulações\H099

This table gives the distances to the specified radiation levels for each jet fire listed in the above hazard table

Radiation Level			Distance (m)	
			Dia	Noite
9.83	kW/m2		76.5743	76.3379
19.46	kW/m2		66.3191	66.5093
35	kW/m2		59.423	59.8061

Radiation Effects: Jet Fire Distance

Path: \Terminal Adonai - Efeitos físicos\Simulações\H099

	Dia	Radiation Level (kW/m2)
		Noite

Early Pool Fire Hazard

Path: \Terminal Adonai - Efeitos físicos\Simulações\H099

	Dia	Noite
Early Pool Fire Status	Hazard	Hazard

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Radiation Effects: Early Pool Fire Ellipse

Path: \Terminal Adonai - Efeitos físicos\Simulações\H099

			Dia	Noite
Radiation Level	9.83	kW/m2	36.2575	33.9137
Radiation Level	19.46	kW/m2	23.4896	22.8252
Radiation Level	35	kW/m2	19.5507	19.769

Radiation Effects: Early Pool Fire Distance

Path: \Terminal Adonai - Efeitos físicos\Simulações\H099

	Dia	Noite
Radiation Level (kW/m2)		

Late Pool Fire Hazard

Path: \Terminal Adonai - Efeitos físicos\Simulações\H099

	Dia	Noite
Late Pool Fire Status	Hazard	Hazard

Radiation Effects: Late Pool Fire Ellipse

Path: \Terminal Adonai - Efeitos físicos\Simulações\H099

			Dia	Noite
Radiation Level	9.83	kW/m2	35.0852	33.4716
Radiation Level	19.46	kW/m2	24.044	24.3479
Radiation Level	35	kW/m2	Not Reached	Not Reached

Radiation Effects: Late Pool Fire Distance

Path: \Terminal Adonai - Efeitos físicos\Simulações\H099

	Dia	Noite
Radiation Level (kW/m2)		

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Flash Fire Envelope

Path: \Terminal Adonai - Efeitos físicos\Simulações\H099

All flammable results are reported at the flammable effect height 0 m

				Distance (m)	
				Dia	Noite
Furthest Extent	10500	ppm	45.2582	51.7137	
Furthest Extent	10500	ppm	45.2582	51.7137	
				Heights (m) for above distances	
				Dia	Noite
Furthest Extent	10500	ppm	0	0	
Furthest Extent	10500	ppm	0	0	

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Explosion Effects: Late Ignition

Path: \Terminal Adonai - Efeitos físicos\Simulações\H099

Explosion Model Used : TNT

Explosion Location Criterion: Cloud Center

All distances are measured from the Source

All flammable results are reported at the flammable effect height 0 m

			Maximum Distance (m) at Overpressure Level	
			Dia	Noite
Overpressure	0.05	bar	63.2411	85.5692
Overpressure	0.1	bar	46.8434	62.6005
Overpressure	0.3	bar	33.4039	43.7753

			Supplementary Data at 0.05 bar	
			Dia	Noite
Supplied Flammable Mass		kg	17.0219	46.7815
Used Flammable Mass		kg	17.0219	46.7815
Overpressure Radius		m	43.2411	60.5692
Distance to:				
- Ignition Source		m	40	50
- Cloud Front/Centre		m	40	50
- Explosion Centre		m	20	25

			Supplementary Data at 0.1 bar	
			Dia	Noite
Supplied Flammable Mass		kg	17.0219	46.7815
Used Flammable Mass		kg	17.0219	46.7815
Overpressure Radius		m	26.8434	37.6005
Distance to:				
- Ignition Source		m	40	50
- Cloud Front/Centre		m	40	50
- Explosion Centre		m	20	25

			Supplementary Data at 0.3 bar	
			Dia	Noite
Supplied Flammable Mass		kg	17.0219	46.7815
Used Flammable Mass		kg	17.0219	46.7815
Overpressure Radius		m	13.4039	18.7753
Distance to:				
- Ignition Source		m	40	50
- Cloud Front/Centre		m	40	50
- Explosion Centre		m	20	25

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Weather Conditions

Path: \Terminal Adonai - Efeitos físicos\Simulações\H099

		Dia	Noite
Wind Speed	m/s	3	2
Pasquill Stability		C	E
Surface Roughness Length	mm	1000	1000
Surface Roughness Parameter		0.173718	0.173718
Atmospheric Temperature	degC	25	20
Surface Temperature	degC	30	20
Relative Humidity	fraction	0.8	0.8

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

H100

Base Case

CASE Name: Data

Path: \Terminal Adonai - Efeitos físicos\Simulações\H100

User-Defined Data

Material

Material Identifier N-HEXANE

Scenario

Building Wake Effect None

Vessel/Tank

Release Type Continuous

Location

Elevation 3 m
Use ERPG averaging time ERPG not selected
Use IDLH averaging time IDLH not selected
Use STEL averaging time STEL not selected
Supply a user defined averaging time Not supplied

Bund

Status of Bund No bund present
[Type of Bund Surface User-Defined (Land)]
[Bund Height 0 m]
[Bund Failure Modeling Bund cannot fail]

Indoor/Outdoor

Location of release Open air release
Outdoor Release Direction Horizontal

Flammable

Explosion Method TNT
Jet Fire Method Cone Model

Dispersion

Number of Release Segments 1
Fluid Phase(1) Liquid
Discharge Velocity(1) 31.98 m/s
Droplet Diameter(1) 183.2 um
Duration of Discharge(1) 600 s
Final Temperature(1) 24.91 degC
Release Rate(1) 0.18 kg/s
Pre-Dilution Air Rates(1) 0 kg/s
Late Ignition Location No ignition location
Mass Inventory of material to Disperse 2.099E6 kg

Fireball Parameters

[Mass Modification Factor 3]
[Calculation method for fireball DNV Recommended]
[TNO model flame temperature 1727 degC]

Toxic Parameters

Date: 07/08/2015

654 of 2,112

Time: 10:10:31

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

[Indoor Calculations	Unselected]
[Wind Dependent Exchange Rate	Case Specified]
[Building Exchange Rate	4 /hr]
[Tail Time	1800 s]
[Set averaging time equal to exposure time	Use a fixed averaging time]
[Cut-off fraction of toxic load for exposure time calculation	0.05 fraction]
[Cut-off concentration for exposure time calculations	0 fraction]

Geometry

Shape	Point
Dimension	2D
System	Absolute
East(1)	0 m
North(1)	0 m



Consequence Results

Distance to Concentration Results

Path: \Terminal Adonai - Efeitos físicos\Simulações\H100

The height for user defined concentrations is the user defined height 0 m
 All toxic results are reported at the toxic effect height 1 m
 All flammable results are reported at the flammable effect height 0 m

Concentration(ppm)	Averaging Time		Distance (m)	
			Dia	Noite
UFL (76800)	18.75	s	No Hazard	No Hazard
LFL (10500)	18.75	s	No Hazard	No Hazard
LFL Frac (10500)	18.75	s	No Hazard	No Hazard

Concentration(ppm)	Averaging Time		Heights (m) for above distances	
			Dia	Noite
UFL (76800)	18.75	s	0	0
LFL (10500)	18.75	s	0	0
LFL Frac (10500)	18.75	s	0	0

Jet Fire Hazard

Path: \Terminal Adonai - Efeitos físicos\Simulações\H100

Jet fire method used: Cone model - DNV recommended

	Dia	Noite
Jet Fire Status	Hazard	Hazard
Flame Direction	Horizontal	Horizontal

Radiation Effects: Jet Fire Ellipse

Path: \Terminal Adonai - Efeitos físicos\Simulações\H100

This table gives the distances to the specified radiation levels for each jet fire listed in the above hazard table

Radiation Level			Distance (m)	
			Dia	Noite
9.83	kW/m2		9.28842	9.95819
19.46	kW/m2		6.65101	7.39456
35	kW/m2		Not Reached	Not Reached

Radiation Effects: Jet Fire Distance

Path: \Terminal Adonai - Efeitos físicos\Simulações\H100

	Radiation Level (kW/m2)
Dia	Noite

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Weather Conditions

Path: \Terminal Adonai - Efeitos físicos\Simulações\H100

		Dia	Noite
Wind Speed	m/s	3	2
Pasquill Stability		C	E
Surface Roughness Length	mm	1000	1000
Surface Roughness Parameter		0.173718	0.173718
Atmospheric Temperature	degC	25	20
Surface Temperature	degC	30	20
Relative Humidity	fraction	0.8	0.8

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

H101

Base Case

CASE Name: Data

Path: \Terminal Adonai - Efeitos físicos\Simulações\H101

User-Defined Data

Material

Material Identifier N-NONANE

Scenario

Building Wake Effect None

Vessel/Tank

Release Type Continuous

Location

Elevation 0 m
Use ERPG averaging time ERPG not selected
Use IDLH averaging time IDLH not selected
Use STEL averaging time STEL not selected
Supply a user defined averaging time Not supplied

Bund

Status of Bund Bund present
Bund Area 1.152E4 m2
[Type of Bund Surface User-Defined (Land)]
Bund Height 0.3 m
[Bund Failure Modeling Bund cannot fail]

Indoor/Outdoor

Location of release Open air release
Outdoor Release Direction Horizontal

Flammable

Explosion Method TNT
Jet Fire Method Cone Model

Dispersion

Number of Release Segments 1
Fluid Phase(1) Liquid
Discharge Velocity(1) 21.88 m/s
Droplet Diameter(1) 488.9 um
Duration of Discharge(1) 600 s
Final Temperature(1) 25.24 degC
Release Rate(1) 105.1 kg/s
Pre-Dilution Air Rates(1) 0 kg/s
Late Ignition Location No ignition location
Mass Inventory of material to Disperse 2.143E6 kg

Fireball Parameters

[Mass Modification Factor 3]
[Calculation method for fireball DNV Recommended]
[TNO model flame temperature 1727 degC]

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Toxic Parameters

[Indoor Calculations	Unselected]
[Wind Dependent Exchange Rate	Case Specified]
[Building Exchange Rate	4 /hr]
[Tail Time	1800 s]
[Set averaging time equal to exposure time	Use a fixed averaging time]
[Cut-off fraction of toxic load for exposure time calculation	0.05 fraction]
[Cut-off concentration for exposure time calculations	0 fraction]

Geometry

Shape	Point
Dimension	2D
System	Absolute
East(1)	0 m
North(1)	0 m

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Consequence Results

Pool Vaporization Results

Path: \Terminal Adonai - Efeitos físicos\Simulações\H101

		Dia	Noite
	Release Segment 1		
Release Duration	s	600	600
Liquid Rainout	fraction	1	1
	Release Segment 1 Cloud Segment 1		
Cloud Segment Duration	s	191.822	178.223
Pool Vaporization Rate	kg/s	0.101712	0.0653279
Total Vapor Flowrate	kg/s	0.101715	0.0653306
	Release Segment 1 Cloud Segment 2		
Cloud Segment Duration	s	79.6031	78.5781
Pool Vaporization Rate	kg/s	0.246279	0.148583
Total Vapor Flowrate	kg/s	0.246281	0.148586
	Release Segment 1 Cloud Segment 3		
Cloud Segment Duration	s	60.725	61.8219
Pool Vaporization Rate	kg/s	0.322747	0.190686
Total Vapor Flowrate	kg/s	0.32275	0.190688
	Release Segment 1 Cloud Segment 4		
Cloud Segment Duration	s	51.03	51.94
Pool Vaporization Rate	kg/s	0.384424	0.223808
Total Vapor Flowrate	kg/s	0.384426	0.22381
	Release Segment 1 Cloud Segment 5		
Cloud Segment Duration	s	45.3094	89.54
Pool Vaporization Rate	kg/s	0.438108	0.263979
Total Vapor Flowrate	kg/s	0.438111	0.263982
	Release Segment 1 Cloud Segment 6		
Cloud Segment Duration	s	77.76	111.108
Pool Vaporization Rate	kg/s	0.507368	0.31951
Total Vapor Flowrate	kg/s	0.507371	0.319513
	Release Segment 1 Cloud Segment 7		
Cloud Segment Duration	s	93.75	28.79
Pool Vaporization Rate	kg/s	0.604985	0.357463
Total Vapor Flowrate	kg/s	0.604988	0.357466
Maximum Pool Radius	m	30.6263	30.5387

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Distance to Concentration Results

Path: \Terminal Adonai - Efeitos físicos\Simulações\H101

The height for user defined concentrations is the user defined height 0 m
All toxic results are reported at the toxic effect height 1 m
All flammable results are reported at the flammable effect height 0 m

Concentration(ppm)	Averaging Time		Distance (m)	
			Dia	Noite
UFL (56000)	18.75	s	0	0
LFL (7000)	18.75	s	0	0
LFL Frac (7000)	18.75	s	0	0

Concentration(ppm)	Averaging Time		Heights (m) for above distances	
			Dia	Noite
UFL (56000)	18.75	s	0	0
LFL (7000)	18.75	s	0	0
LFL Frac (7000)	18.75	s	0	0

Jet Fire Hazard

Path: \Terminal Adonai - Efeitos físicos\Simulações\H101

Jet fire method used: Cone model - DNV recommended

	Dia	Noite
Jet Fire Status	Truncated	Truncated
Flame Direction	Horizontal	Horizontal

Radiation Effects: Jet Fire Ellipse

Path: \Terminal Adonai - Efeitos físicos\Simulações\H101

This table gives the distances to the specified radiation levels for each jet fire listed in the above hazard table

Radiation Level			Distance (m)	
			Dia	Noite
9.83	kW/m2	1.08947	1.09986	
19.46	kW/m2	1.08947	1.09986	
35	kW/m2	Not Reached	Not Reached	

Radiation Effects: Jet Fire Distance

Path: \Terminal Adonai - Efeitos físicos\Simulações\H101

	Dia	Radiation Level (kW/m2)
		Noite

Early Pool Fire Hazard

Path: \Terminal Adonai - Efeitos físicos\Simulações\H101

	Dia	Noite
Early Pool Fire Status	Hazard	Hazard

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Radiation Effects: Early Pool Fire Ellipse

Path: \Terminal Adonai - Efeitos físicos\Simulações\H101

			Dia	Noite
Radiation Level	9.83	kW/m2	30.0771	28.9435
Radiation Level	19.46	kW/m2	23.5195	23.771
Radiation Level	35	kW/m2	Not Reached	Not Reached

Radiation Effects: Early Pool Fire Distance

Path: \Terminal Adonai - Efeitos físicos\Simulações\H101

	Dia	Radiation Level (kW/m2)
		Noite

Late Pool Fire Hazard

Path: \Terminal Adonai - Efeitos físicos\Simulações\H101

	Dia	Noite
Late Pool Fire Status	Hazard	Hazard

Radiation Effects: Late Pool Fire Ellipse

Path: \Terminal Adonai - Efeitos físicos\Simulações\H101

			Dia	Noite
Radiation Level	9.83	kW/m2	38.5473	36.8191
Radiation Level	19.46	kW/m2	31.6263	31.5387
Radiation Level	35	kW/m2	Not Reached	Not Reached

Radiation Effects: Late Pool Fire Distance

Path: \Terminal Adonai - Efeitos físicos\Simulações\H101

	Dia	Radiation Level (kW/m2)
		Noite

Weather Conditions

Path: \Terminal Adonai - Efeitos físicos\Simulações\H101

		Dia	Noite
Wind Speed	m/s	3	2
Pasquill Stability		C	E
Surface Roughness Length	mm	1000	1000
Surface Roughness Parameter		0.173718	0.173718
Atmospheric Temperature	degC	25	20
Surface Temperature	degC	30	20
Relative Humidity	fraction	0.8	0.8

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

H102

Base Case

CASE Name: Data

Path: \Terminal Adonai - Efeitos físicos\Simulações\H102

User-Defined Data

Material

Material Identifier N-NONANE

Scenario

Building Wake Effect None

Vessel/Tank

Release Type Continuous

Location

Elevation 0 m
Use ERPG averaging time ERPG not selected
Use IDLH averaging time IDLH not selected
Use STEL averaging time STEL not selected
Supply a user defined averaging time Not supplied

Bund

Status of Bund Bund present
Bund Area 1.152E4 m2
[Type of Bund Surface User-Defined (Land)]
Bund Height 0.3 m
[Bund Failure Modeling Bund cannot fail]

Indoor/Outdoor

Location of release Open air release
Outdoor Release Direction Horizontal

Flammable

Explosion Method TNT
Jet Fire Method Cone Model

Dispersion

Number of Release Segments 1
Fluid Phase(1) Liquid
Discharge Velocity(1) 36.45 m/s
Droplet Diameter(1) 176.4 um
Duration of Discharge(1) 600 s
Final Temperature(1) 24.92 degC
Release Rate(1) 1.05 kg/s
Pre-Dilution Air Rates(1) 0 kg/s
Late Ignition Location No ignition location
Mass Inventory of material to Disperse 2.143E6 kg

Fireball Parameters

[Mass Modification Factor 3]
[Calculation method for fireball DNV Recommended]
[TNO model flame temperature 1727 degC]

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Toxic Parameters

[Indoor Calculations	Unselected]
[Wind Dependent Exchange Rate	Case Specified]
[Building Exchange Rate	4 /hr]
[Tail Time	1800 s]
[Set averaging time equal to exposure time	Use a fixed averaging time]
[Cut-off fraction of toxic load for exposure time calculation	0.05 fraction]
[Cut-off concentration for exposure time calculations	0 fraction]

Geometry

Shape	Point
Dimension	2D
System	Absolute
East(1)	0 m
North(1)	0 m

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Consequence Results

Pool Vaporization Results

Path: \Terminal Adonai - Efeitos físicos\Simulações\H102

			Dia	Noite
		Release Segment 1		
Release Duration	s		600	600
Liquid Rainout	fraction		1	1
Maximum Pool Radius	m		3.0602	3.04915

Distance to Concentration Results

Path: \Terminal Adonai - Efeitos físicos\Simulações\H102

The height for user defined concentrations is the user defined height 0 m
All toxic results are reported at the toxic effect height 1 m
All flammable results are reported at the flammable effect height 0 m

Concentration(ppm)		Averaging Time		Distance (m)	
				Dia	Noite
UFL (56000)	18.75	s		0	0
LFL (7000)	18.75	s		0	0
LFL Frac (7000)	18.75	s		0	0
Concentration(ppm)		Averaging Time		Heights (m) for above distances	
				Dia	Noite
UFL (56000)	18.75	s		0	0
LFL (7000)	18.75	s		0	0
LFL Frac (7000)	18.75	s		0	0

Jet Fire Hazard

Path: \Terminal Adonai - Efeitos físicos\Simulações\H102

Jet fire method used: Cone model - DNV recommended

	Dia	Noite
Jet Fire Status	No Hazard	No Hazard
Flame Direction	Horizontal	Horizontal

Early Pool Fire Hazard

Path: \Terminal Adonai - Efeitos físicos\Simulações\H102

	Dia	Noite
Early Pool Fire Status	Hazard	Hazard

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Radiation Effects: Early Pool Fire Ellipse

Path: \Terminal Adonai - Efeitos físicos\Simulações\H102

			Dia	Noite
Radiation Level	9.83	kW/m2	13.9998	13.3374
Radiation Level	19.46	kW/m2	10.0426	9.09892
Radiation Level	35	kW/m2	5.18406	4.83356

Radiation Effects: Early Pool Fire Distance

Path: \Terminal Adonai - Efeitos físicos\Simulações\H102

Dia
Noite
Radiation Level (kW/m2)

Late Pool Fire Hazard

Path: \Terminal Adonai - Efeitos físicos\Simulações\H102

	Dia	Noite
Late Pool Fire Status	Hazard	Hazard

Radiation Effects: Late Pool Fire Ellipse

Path: \Terminal Adonai - Efeitos físicos\Simulações\H102

			Dia	Noite
Radiation Level	9.83	kW/m2	16.7596	15.7044
Radiation Level	19.46	kW/m2	11.1577	10.0884
Radiation Level	35	kW/m2	5.60296	5.31244

Radiation Effects: Late Pool Fire Distance

Path: \Terminal Adonai - Efeitos físicos\Simulações\H102

Dia
Noite
Radiation Level (kW/m2)

Weather Conditions

Path: \Terminal Adonai - Efeitos físicos\Simulações\H102

		Dia	Noite
Wind Speed	m/s	3	2
Pasquill Stability		C	E
Surface Roughness Length	mm	1000	1000
Surface Roughness Parameter		0.173718	0.173718
Atmospheric Temperature	degC	25	20
Surface Temperature	degC	30	20
Relative Humidity	fraction	0.8	0.8

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

H103

Base Case

CASE Name: Data

Path: \Terminal Adonai - Efeitos físicos\Simulações\H103

User-Defined Data

Material

Material Identifier N-NONANE

Scenario

Building Wake Effect None

Vessel/Tank

Release Type Continuous

Location

Elevation 1 m
Use ERPG averaging time ERPG not selected
Use IDLH averaging time IDLH not selected
Use STEL averaging time STEL not selected
Supply a user defined averaging time Not supplied

Bund

Status of Bund No bund present
[Type of Bund Surface User-Defined (Land)]
[Bund Height 0 m]
[Bund Failure Modeling Bund cannot fail]

Indoor/Outdoor

Location of release Open air release
Outdoor Release Direction Horizontal

Flammable

Explosion Method TNT
Jet Fire Method Cone Model

Dispersion

Number of Release Segments 1
Fluid Phase(1) Liquid
Discharge Velocity(1) 21.88 m/s
Droplet Diameter(1) 488.9 um
Duration of Discharge(1) 600 s
Final Temperature(1) 25.24 degC
Release Rate(1) 105.1 kg/s
Pre-Dilution Air Rates(1) 0 kg/s
Late Ignition Location No ignition location
Mass Inventory of material to Disperse 2.143E6 kg

Fireball Parameters

[Mass Modification Factor 3]
[Calculation method for fireball DNV Recommended]
[TNO model flame temperature 1727 degC]

Toxic Parameters

Date: 07/08/2015

667 of 2,112

Time: 10:10:31

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

[Indoor Calculations	Unselected]
[Wind Dependent Exchange Rate	Case Specified]
[Building Exchange Rate	4 /hr]
[Tail Time	1800 s]
[Set averaging time equal to exposure time	Use a fixed averaging time]
[Cut-off fraction of toxic load for exposure time calculation	0.05 fraction]
[Cut-off concentration for exposure time calculations	0 fraction]

Geometry

Shape	Point
Dimension	2D
System	Absolute
East(1)	0 m
North(1)	0 m

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Consequence Results

Pool Vaporization Results

Path: \Terminal Adonai - Efeitos físicos\Simulações\H103

		Dia	Noite
	Release Segment 1		
Release Duration	s	600	600
Liquid Rainout	fraction	0.993485	0.994293
	Release Segment 1 Cloud Segment 1		
Cloud Segment Duration	s	192.516	179.56
Pool Vaporization Rate	kg/s	0.0970971	0.0612999
Total Vapor Flowrate	kg/s	0.78196	0.66126
	Release Segment 1 Cloud Segment 2		
Cloud Segment Duration	s	79.7344	78.8456
Pool Vaporization Rate	kg/s	0.236432	0.140408
Total Vapor Flowrate	kg/s	0.921295	0.740368
	Release Segment 1 Cloud Segment 3		
Cloud Segment Duration	s	60.8125	61.11
Pool Vaporization Rate	kg/s	0.31054	0.180453
Total Vapor Flowrate	kg/s	0.995404	0.780413
	Release Segment 1 Cloud Segment 4		
Cloud Segment Duration	s	51.0975	52.01
Pool Vaporization Rate	kg/s	0.370457	0.212007
Total Vapor Flowrate	kg/s	1.05532	0.811967
	Release Segment 1 Cloud Segment 5		
Cloud Segment Duration	s	44.33	46.6769
Pool Vaporization Rate	kg/s	0.422131	0.239057
Total Vapor Flowrate	kg/s	1.10699	0.839016
	Release Segment 1 Cloud Segment 6		
Cloud Segment Duration	s	77.76	81.32
Pool Vaporization Rate	kg/s	0.489003	0.273553
Total Vapor Flowrate	kg/s	1.17387	0.873513
	Release Segment 1 Cloud Segment 7		
Cloud Segment Duration	s	93.75	100.478
Pool Vaporization Rate	kg/s	0.584166	0.321663
Total Vapor Flowrate	kg/s	1.26903	0.921622
Maximum Pool Radius	m	30.5202	30.4418

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Distance to Concentration Results

Path: \Terminal Adonai - Efeitos físicos\Simulações\H103

The height for user defined concentrations is the user defined height 0 m

All toxic results are reported at the toxic effect height 1 m

All flammable results are reported at the flammable effect height 0 m

Concentration(ppm)	Averaging Time		Distance (m)	
			Dia	Noite
UFL (56000)	18.75	s	11.2509	11.1575
LFL (7000)	18.75	s	11.3798	11.2482
LFL Frac (7000)	18.75	s	11.3798	11.2482

Concentration(ppm)	Averaging Time		Heights (m) for above distances	
			Dia	Noite
UFL (56000)	18.75	s	0	0
LFL (7000)	18.75	s	0	0
LFL Frac (7000)	18.75	s	0	0

Jet Fire Hazard

Path: \Terminal Adonai - Efeitos físicos\Simulações\H103

Jet fire method used: Cone model - DNV recommended

	Dia	Noite
Jet Fire Status	Truncated	Truncated
Flame Direction	Horizontal	Horizontal

Radiation Effects: Jet Fire Ellipse

Path: \Terminal Adonai - Efeitos físicos\Simulações\H103

This table gives the distances to the specified radiation levels for each jet fire listed in the above hazard table

Radiation Level			Distance (m)	
			Dia	Noite
9.83	kW/m2		31.5951	31.79
19.46	kW/m2		27.378	27.7292
35	kW/m2		24.541	24.9547

Radiation Effects: Jet Fire Distance

Path: \Terminal Adonai - Efeitos físicos\Simulações\H103

	Dia	Radiation Level (kW/m2)
		Noite

Early Pool Fire Hazard

Path: \Terminal Adonai - Efeitos físicos\Simulações\H103

	Dia	Noite
Early Pool Fire Status	Hazard	Hazard

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos fisicos

Phast 6.7

Radiation Effects: Early Pool Fire Ellipse

Path: \Terminal Adonai - Efeitos fisicos\Simulações\H103

			Dia	Noite
Radiation Level	9.83	kW/m2	41.3965	40.1397
Radiation Level	19.46	kW/m2	34.8396	34.9649
Radiation Level	35	kW/m2	Not Reached	Not Reached

Radiation Effects: Early Pool Fire Distance

Path: \Terminal Adonai - Efeitos fisicos\Simulações\H103

	Dia	Noite
Radiation Level (kW/m2)		

Late Pool Fire Hazard

Path: \Terminal Adonai - Efeitos fisicos\Simulações\H103

	Dia	Noite
Late Pool Fire Status	Hazard	Hazard

Radiation Effects: Late Pool Fire Ellipse

Path: \Terminal Adonai - Efeitos fisicos\Simulações\H103

			Dia	Noite
Radiation Level	9.83	kW/m2	49.8254	47.9756
Radiation Level	19.46	kW/m2	42.9137	42.7008
Radiation Level	35	kW/m2	Not Reached	Not Reached

Radiation Effects: Late Pool Fire Distance

Path: \Terminal Adonai - Efeitos fisicos\Simulações\H103

	Dia	Noite
Radiation Level (kW/m2)		

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Flash Fire Envelope

Path: \Terminal Adonai - Efeitos físicos\Simulações\H103

All flammable results are reported at the flammable effect height 0 m

				Distance (m)	
				Dia	Noite
Furthest Extent	7000	ppm		11.3798	11.2482
Furthest Extent	7000	ppm		11.3798	11.2482
				Heights (m) for above distances	
				Dia	Noite
Furthest Extent	7000	ppm		0	0
Furthest Extent	7000	ppm		0	0

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Explosion Effects: Late Ignition

Path: \Terminal Adonai - Efeitos físicos\Simulações\H103

Explosion Model Used : TNT

Explosion Location Criterion: Cloud Center

All distances are measured from the Source

All flammable results are reported at the flammable effect height 0 m

			Maximum Distance (m) at Overpressure Level	
			Dia	Noite
Overpressure	0.05	bar	8.24836	7.8915
Overpressure	0.1	bar	7.01802	6.79643
Overpressure	0.3	bar	6.00963	5.8989

			Supplementary Data at 0.05 bar	
			Dia	Noite
Supplied Flammable Mass		kg	0.00725722	0.00511714
Used Flammable Mass		kg	0.00725722	0.00511714
Overpressure Radius		m	3.24444	2.88775
Distance to:				
- Ignition Source		m	10	10
- Cloud Front/Centre		m	10	10
- Explosion Centre		m	5.00392	5.00375

			Supplementary Data at 0.1 bar	
			Dia	Noite
Supplied Flammable Mass		kg	0.00725722	0.00511714
Used Flammable Mass		kg	0.00725722	0.00511714
Overpressure Radius		m	2.0141	1.79267
Distance to:				
- Ignition Source		m	10	10
- Cloud Front/Centre		m	10	10
- Explosion Centre		m	5.00392	5.00375

			Supplementary Data at 0.3 bar	
			Dia	Noite
Supplied Flammable Mass		kg	0.00725722	0.00511714
Used Flammable Mass		kg	0.00725722	0.00511714
Overpressure Radius		m	1.00571	0.895144
Distance to:				
- Ignition Source		m	10	10
- Cloud Front/Centre		m	10	10
- Explosion Centre		m	5.00392	5.00375

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Weather Conditions

Path: \Terminal Adonai - Efeitos físicos\Simulações\H103

		Dia	Noite
Wind Speed	m/s	3	2
Pasquill Stability		C	E
Surface Roughness Length	mm	1000	1000
Surface Roughness Parameter		0.173718	0.173718
Atmospheric Temperature	degC	25	20
Surface Temperature	degC	30	20
Relative Humidity	fraction	0.8	0.8

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

H104

Base Case

CASE Name: Data

Path: \Terminal Adonai - Efeitos físicos\Simulações\H104

User-Defined Data

Material

Material Identifier N-NONANE

Scenario

Building Wake Effect None

Vessel/Tank

Release Type Continuous

Location

Elevation 1 m
Use ERPG averaging time ERPG not selected
Use IDLH averaging time IDLH not selected
Use STEL averaging time STEL not selected
Supply a user defined averaging time Not supplied

Bund

Status of Bund No bund present
[Type of Bund Surface User-Defined (Land)]
[Bund Height 0 m]
[Bund Failure Modeling Bund cannot fail]

Indoor/Outdoor

Location of release Open air release
Outdoor Release Direction Horizontal

Flammable

Explosion Method TNT
Jet Fire Method Cone Model

Dispersion

Number of Release Segments 1
Fluid Phase(1) Liquid
Discharge Velocity(1) 36.45 m/s
Droplet Diameter(1) 176.4 um
Duration of Discharge(1) 600 s
Final Temperature(1) 24.92 degC
Release Rate(1) 1.05 kg/s
Pre-Dilution Air Rates(1) 0 kg/s
Late Ignition Location No ignition location
Mass Inventory of material to Disperse 2.143E6 kg

Fireball Parameters

[Mass Modification Factor 3]
[Calculation method for fireball DNV Recommended]
[TNO model flame temperature 1727 degC]

Toxic Parameters

Date: 07/08/2015

675 of 2,112

Time: 10:10:31

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

[Indoor Calculations	Unselected]
[Wind Dependent Exchange Rate	Case Specified]
[Building Exchange Rate	4 /hr]
[Tail Time	1800 s]
[Set averaging time equal to exposure time	Use a fixed averaging time]
[Cut-off fraction of toxic load for exposure time calculation	0.05 fraction]
[Cut-off concentration for exposure time calculations	0 fraction]

Geometry

Shape	Point
Dimension	2D
System	Absolute
East(1)	0 m
North(1)	0 m

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Consequence Results

Pool Vaporization Results

Path: \Terminal Adonai - Efeitos físicos\Simulações\H104

			Dia	Noite
		Release Segment 1		
Release Duration	s		600	600
Liquid Rainout	fraction		0.864856	0.907173
Maximum Pool Radius	m		2.84502	2.90237

Distance to Concentration Results

Path: \Terminal Adonai - Efeitos físicos\Simulações\H104

The height for user defined concentrations is the user defined height 0 m
All toxic results are reported at the toxic effect height 1 m
All flammable results are reported at the flammable effect height 0 m

Concentration(ppm)		Averaging Time		Distance (m)	
				Dia	Noite
UFL (56000)	18.75	s		No Hazard	No Hazard
LFL (7000)	18.75	s		8.17766	8.05765
LFL Frac (7000)	18.75	s		8.17766	8.05765

Concentration(ppm)		Averaging Time		Heights (m) for above distances	
				Dia	Noite
UFL (56000)	18.75	s		0	0
LFL (7000)	18.75	s		0	0
LFL Frac (7000)	18.75	s		0	0

Jet Fire Hazard

Path: \Terminal Adonai - Efeitos físicos\Simulações\H104

Jet fire method used: Cone model - DNV recommended

		Dia	Noite
Jet Fire Status		Truncated	Truncated
Flame Direction		Horizontal	Horizontal

Radiation Effects: Jet Fire Ellipse

Path: \Terminal Adonai - Efeitos físicos\Simulações\H104

This table gives the distances to the specified radiation levels
for each jet fire listed in the above hazard table

			Distance (m)	
			Dia	Noite
Radiation Level	9.83	kW/m2	15.1027	13.5158
Radiation Level	19.46	kW/m2	13.0597	11.7794
Radiation Level	35	kW/m2	11.6789	10.5856

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Radiation Effects: Jet Fire Distance

Path: \Terminal Adonai - Efeitos físicos\Simulações\H104

Dia Radiation Level (kW/m2)
Noite

Early Pool Fire Hazard

Path: \Terminal Adonai - Efeitos físicos\Simulações\H104

Early Pool Fire Status Dia Noite
Hazard Hazard

Radiation Effects: Early Pool Fire Ellipse

Path: \Terminal Adonai - Efeitos físicos\Simulações\H104

			Dia	Distance (m) Noite
Radiation Level	9.83	kW/m2	22.2538	21.2818
Radiation Level	19.46	kW/m2	18.5627	17.2196
Radiation Level	35	kW/m2	13.9159	13.0955

Radiation Effects: Early Pool Fire Distance

Path: \Terminal Adonai - Efeitos físicos\Simulações\H104

Dia Radiation Level (kW/m2)
Noite

Late Pool Fire Hazard

Path: \Terminal Adonai - Efeitos físicos\Simulações\H104

Late Pool Fire Status Dia Noite
Hazard Hazard

Radiation Effects: Late Pool Fire Ellipse

Path: \Terminal Adonai - Efeitos físicos\Simulações\H104

			Dia	Distance (m) Noite
Radiation Level	9.83	kW/m2	24.9607	23.6284
Radiation Level	19.46	kW/m2	19.8035	18.3276
Radiation Level	35	kW/m2	14.411	13.5806

Radiation Effects: Late Pool Fire Distance

Path: \Terminal Adonai - Efeitos físicos\Simulações\H104

Dia Radiation Level (kW/m2)
Noite

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Flash Fire Envelope

Path: \Terminal Adonai - Efeitos físicos\Simulações\H104

All flammable results are reported at the flammable effect height 0 m

				Distance (m)	
				Dia	Noite
Furthest Extent	7000	ppm	8.17766	8.05765	
Furthest Extent	7000	ppm	8.17766	8.05765	
				Heights (m) for above distances	
				Dia	Noite
Furthest Extent	7000	ppm	0	0	
Furthest Extent	7000	ppm	0	0	

Weather Conditions

Path: \Terminal Adonai - Efeitos físicos\Simulações\H104

			Dia	Noite
Wind Speed	m/s		3	2
Pasquill Stability			C	E
Surface Roughness Length	mm		1000	1000
Surface Roughness Parameter			0.173718	0.173718
Atmospheric Temperature	degC		25	20
Surface Temperature	degC		30	20
Relative Humidity	fraction		0.8	0.8

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

H105

Base Case

CASE Name: Data

Path: \Terminal Adonai - Efeitos físicos\Simulações\H105

User-Defined Data

Material

Material Identifier	N-NONANE
Type of Vessel	Padded Liquid
Pressure Specification	Pressure specified
Storage Pressure - gauge	0.03 bar
Temperature	25 degC
Volume Inventory	3200 m3

Scenario

Scenario Type	Line rupture
Phase to be Released	Liquid
Building Wake Effect	None
Specify Pump Head	No pump head supplied
Number of Excess Flow Valves	0
Number of Non-Return Valves	0
Number of Shut-Off Valves	0

Pipe

Internal Diameter	203.2 mm
Line length	1 m

Vessel/Tank

Duration of Interest	600 s
Method Used for Time Varying Releases	Average Rates
Tank Type	Vertical
Tank Height	22.64 m
Tank Diameter	15 m
Height of Discharge from Vessel Bottom	1 m

Location

Elevation	1 m
Use ERPG averaging time	ERPG not selected
Use IDLH averaging time	IDLH not selected
Use STEL averaging time	STEL not selected
Supply a user defined averaging time	Not supplied

Bund

Status of Bund	Bund present
Bund Area	1940 m2
[Type of Bund Surface	User-Defined (Land)]
Bund Height	3 m
[Bund Failure Modeling	Bund cannot fail]

Indoor/Outdoor

Location of release	Open air release
Outdoor Release Direction	Horizontal

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Flammable

Explosion Method	TNT
Jet Fire Method	Cone Model

Dispersion

Late Ignition Location	No ignition location
Mass Inventory of material to Disperse	2.286E6 kg

Fireball Parameters

[Mass Modification Factor	3]
[Calculation method for fireball	DNV Recommended]
[TNO model flame temperature	1727 degC]

Toxic Parameters

[Indoor Calculations	Unselected]
[Wind Dependent Exchange Rate	Case Specified]
[Building Exchange Rate	4 /hr]
[Tail Time	1800 s]
[Set averaging time equal to exposure time	Use a fixed averaging time]
[Cut-off fraction of toxic load for exposure time calculation	0.05 fraction]
[Cut-off concentration for exposure time calculations	0 fraction]

Geometry

Shape	Point
Dimension	2D
System	Absolute
East(1)	0 m
North(1)	0 m

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Path: \Terminal Adonai - Efeitos físicos\Simulações\H105

DISCHARGE DATA for Weather: Global Weathers\Dia

Wind Speed: 3.00 m/s
Wind Speed at Height (Calculated) 1.78 m/s
Pasquill Stability: C

USER-DEFINED QUANTITIES

Material N-NONANE
Scenario Line rupture
Inventory 2,285,736.50 kg
Fixed Duration n/a s

Stagnation data (data at upstream end for long pipe):

- Pressure 1.04 bar
- Temperature 25.00 degC
- Fluid State Non-saturated liquid

CALCULATED QUANTITIES

Mass Flow of Air (Vent from Vapor Space only) n/a
Mass Flowrate 2.71881E+002 kg/s
Release Duration 600.00 s

Orifice or pipe exit data (before atmospheric expansion):

- Pressure n/a bar
- Temperature n/a degC
- Vena Contracta Velocity (exit velocity for pipe releases) n/a m/s
- Discharge Coefficient n/a

Final data (after atmospheric expansion):

- Temperature 25.07 degC
- Liquid Mass Fraction 1.00 fraction
- Droplet Diameter 1,732.60 um
- Expanded Radius n/a m
- Velocity 11.74 m/s

DISCHARGE DATA for Weather: Global Weathers\Noite

Wind Speed: 2.00 m/s
Wind Speed at Height (Calculated) 0.83 m/s
Pasquill Stability: E

USER-DEFINED QUANTITIES

Material N-NONANE
Scenario Line rupture
Inventory 2,285,736.50 kg
Fixed Duration n/a s

Stagnation data (data at upstream end for long pipe):

- Pressure 1.04 bar
- Temperature 25.00 degC
- Fluid State Non-saturated liquid

CALCULATED QUANTITIES

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Mass Flow of Air (Vent from Vapor Space only)	n/a
Mass Flowrate	2.71881E+002 kg/s
Release Duration	600.00 s
Orifice or pipe exit data (before atmospheric expansion):	
- Pressure	n/a bar
- Temperature	n/a degC
- Vena Contracta Velocity (exit velocity for pipe releases)	n/a m/s
- Discharge Coefficient	n/a
Final data (after atmospheric expansion):	
- Temperature	25.07 degC
- Liquid Mass Fraction	1.00 fraction
- Droplet Diameter	1,699.31 um
- Expanded Radius	n/a m
- Velocity	11.74 m/s

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Consequence Results

Pool Vaporization Results

Path: \Terminal Adonai - Efeitos físicos\Simulações\H105

		Dia	Noite
Release Segment 1			
Release Duration	s	600	600
Liquid Rainout	fraction	0.999004	0.999179
Release Segment 1 Cloud Segment 1			
Cloud Segment Duration	s	81.4506	124.323
Pool Vaporization Rate	kg/s	0.104383	0.113702
Total Vapor Flowrate	kg/s	0.37507	0.336918
Release Segment 1 Cloud Segment 2			
Cloud Segment Duration	s	34.1119	475.678
Pool Vaporization Rate	kg/s	0.250818	0.265176
Total Vapor Flowrate	kg/s	0.521505	0.488393
Release Segment 1 Cloud Segment 3			
Cloud Segment Duration	s	26.0475	
Pool Vaporization Rate	kg/s	0.327176	
Total Vapor Flowrate	kg/s	0.597863	
Release Segment 1 Cloud Segment 4			
Cloud Segment Duration	s	458.39	
Pool Vaporization Rate	kg/s	0.389767	
Total Vapor Flowrate	kg/s	0.660454	
Maximum Pool Radius	m	24.85	24.85

Distance to Concentration Results

Path: \Terminal Adonai - Efeitos físicos\Simulações\H105

The height for user defined concentrations is the user defined height 0 m
 All toxic results are reported at the toxic effect height 1 m
 All flammable results are reported at the flammable effect height 0 m

Concentration(ppm)	Averaging Time		Dia	Noite	Distance (m)
UFL (56000)	18.75	s	6.25877	6.31079	
LFL (7000)	18.75	s	11.167	10.5287	
LFL Frac (7000)	18.75	s	11.167	10.5287	
Concentration(ppm)	Averaging Time		Dia	Noite	Heights (m) for above distances
UFL (56000)	18.75	s	0	0	
LFL (7000)	18.75	s	0	0	
LFL Frac (7000)	18.75	s	0	0	

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Jet Fire Hazard

Path: \Terminal Adonai - Efeitos físicos\Simulações\H105

Jet fire method used: Cone model - DNV recommended

	Dia	Noite
Jet Fire Status	Truncated	Truncated
Flame Direction	Horizontal	Horizontal

Radiation Effects: Jet Fire Ellipse

Path: \Terminal Adonai - Efeitos físicos\Simulações\H105

This table gives the distances to the specified radiation levels for each jet fire listed in the above hazard table

			Dia	Noite
Radiation Level	9.83	kW/m2	21.3198	20.9759
Radiation Level	19.46	kW/m2	18.5949	18.377
Radiation Level	35	kW/m2	16.7392	16.5591

Radiation Effects: Jet Fire Distance

Path: \Terminal Adonai - Efeitos físicos\Simulações\H105

	Dia	Noite
Radiation Level (kW/m2)		

Early Pool Fire Hazard

Path: \Terminal Adonai - Efeitos físicos\Simulações\H105

	Dia	Noite
Early Pool Fire Status	Hazard	Hazard

Radiation Effects: Early Pool Fire Ellipse

Path: \Terminal Adonai - Efeitos físicos\Simulações\H105

			Dia	Noite
Radiation Level	9.83	kW/m2	32.47	30.9616
Radiation Level	19.46	kW/m2	25.85	25.85
Radiation Level	35	kW/m2	Not Reached	Not Reached

Radiation Effects: Early Pool Fire Distance

Path: \Terminal Adonai - Efeitos físicos\Simulações\H105

	Dia	Noite
Radiation Level (kW/m2)		

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Late Pool Fire Hazard

Path: \Terminal Adonai - Efeitos físicos\Simulações\H105

	Dia	Noite
Late Pool Fire Status	Hazard	Hazard

Radiation Effects: Late Pool Fire Ellipse

Path: \Terminal Adonai - Efeitos físicos\Simulações\H105

			Dia	Noite
				Distance (m)
Radiation Level	9.83	kW/m2	32.47	Noite
Radiation Level	19.46	kW/m2	25.85	30.9616
Radiation Level	35	kW/m2	Not Reached	25.85
				Not Reached

Radiation Effects: Late Pool Fire Distance

Path: \Terminal Adonai - Efeitos físicos\Simulações\H105

	Dia	Radiation Level (kW/m2)
		Noite

Flash Fire Envelope

Path: \Terminal Adonai - Efeitos físicos\Simulações\H105

All flammable results are reported at the flammable effect height 0 m

			Dia	Noite
				Distance (m)
Furthest Extent	7000	ppm	11.167	Noite
Furthest Extent	7000	ppm	11.167	10.5287
				Heights (m) for above distances
			Dia	Noite
Furthest Extent	7000	ppm	0	0
Furthest Extent	7000	ppm	0	0

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Explosion Effects: Late Ignition

Path: \Terminal Adonai - Efeitos físicos\Simulações\H105

Explosion Model Used : TNT

Explosion Location Criterion: Cloud Center

All distances are measured from the Source

All flammable results are reported at the flammable effect height 0 m

			Maximum Distance (m) at Overpressure Level	
			Dia	Noite
Overpressure	0.05	bar	11.9721	12.0467
Overpressure	0.1	bar	9.32837	9.37464
Overpressure	0.3	bar	7.16155	7.1846

			Supplementary Data at 0.05 bar	
			Dia	Noite
Supplied Flammable Mass		kg	0.0720032	0.0743426
Used Flammable Mass		kg	0.0720032	0.0743426
Overpressure Radius		m	6.97162	7.04632
Distance to:				
- Ignition Source		m	10	10
- Cloud Front/Centre		m	10	10
- Explosion Centre		m	5.00048	5.00038

			Supplementary Data at 0.1 bar	
			Dia	Noite
Supplied Flammable Mass		kg	0.0720032	0.0743426
Used Flammable Mass		kg	0.0720032	0.0743426
Overpressure Radius		m	4.32788	4.37426
Distance to:				
- Ignition Source		m	10	10
- Cloud Front/Centre		m	10	10
- Explosion Centre		m	5.00048	5.00038

			Supplementary Data at 0.3 bar	
			Dia	Noite
Supplied Flammable Mass		kg	0.0720032	0.0743426
Used Flammable Mass		kg	0.0720032	0.0743426
Overpressure Radius		m	2.16106	2.18422
Distance to:				
- Ignition Source		m	10	10
- Cloud Front/Centre		m	10	10
- Explosion Centre		m	5.00048	5.00038

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Weather Conditions

Path: \Terminal Adonai - Efeitos físicos\Simulações\H105

		Dia	Noite
Wind Speed	m/s	3	2
Pasquill Stability		C	E
Surface Roughness Length	mm	1000	1000
Surface Roughness Parameter		0.173718	0.173718
Atmospheric Temperature	degC	25	20
Surface Temperature	degC	30	20
Relative Humidity	fraction	0.8	0.8

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

H106

Base Case

CASE Name: Data

Path: \Terminal Adonai - Efeitos físicos\Simulações\H106

User-Defined Data

Material

Material Identifier	N-NONANE
Type of Vessel	Padded Liquid
Pressure Specification	Pressure specified
Storage Pressure - gauge	0.03 bar
Temperature	25 degC
Volume Inventory	3200 m3

Scenario

Scenario Type	Leak
Phase to be Released	Liquid
Hole Diameter	20.32 mm
Building Wake Effect	None

Vessel/Tank

Duration of Interest	600 s
Method Used for Time Varying Releases	Average Rates
Tank Type	Vertical
Tank Height	22.64 m
Tank Diameter	15 m
Height of Discharge from Vessel Bottom	1 m

Location

Elevation	1 m
Use ERPG averaging time	ERPG not selected
Use IDLH averaging time	IDLH not selected
Use STEL averaging time	STEL not selected
Supply a user defined averaging time	Not supplied

Bund

Status of Bund	Bund present
Bund Area	1940 m2
[Type of Bund Surface	User-Defined (Land)]
Bund Height	3 m
[Bund Failure Modeling	Bund cannot fail]

Indoor/Outdoor

Location of release	Open air release
Outdoor Release Direction	Horizontal

Flammable

Explosion Method	TNT
Jet Fire Method	Cone Model

Dispersion

Late Ignition Location	No ignition location
Mass Inventory of material to Disperse	2.286E6 kg

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Fireball Parameters

[Mass Modification Factor	3]
[Calculation method for fireball	DNV Recommended]
[TNO model flame temperature	1727 degC]

Toxic Parameters

[Indoor Calculations	Unselected]
[Wind Dependent Exchange Rate	Case Specified]
[Building Exchange Rate	4 /hr]
[Tail Time	1800 s]
[Set averaging time equal to exposure time	Use a fixed averaging time]
[Cut-off fraction of toxic load for exposure time calculation	0.05 fraction]
[Cut-off concentration for exposure time calculations	0 fraction]

Geometry

Shape	Point
Dimension	2D
System	Absolute
East(1)	0 m
North(1)	0 m

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Path: \Terminal Adonai - Efeitos físicos\Simulações\H106

DISCHARGE DATA for Weather: Global Weathers\Dia

Wind Speed: 3.00 m/s
Wind Speed at Height (Calculated) 1.78 m/s
Pasquill Stability: C

USER-DEFINED QUANTITIES

Material N-NONANE
Scenario Leak
Inventory 2,285,736.50 kg
Fixed Duration n/a s

Stagnation data (data at upstream end for long pipe):

- Pressure 1.04 bar
- Temperature 25.00 degC
- Fluid State Non-saturated liquid

CALCULATED QUANTITIES

Mass Flow of Air (Vent from Vapor Space only) n/a
Mass Flowrate 2.80591E+000 kg/s
Release Duration 600.00 s

Orifice or pipe exit data (before atmospheric expansion):

- Pressure n/a bar
- Temperature n/a degC
- Vena Contracta Velocity (exit velocity for pipe releases) n/a m/s
- Discharge Coefficient n/a

Final data (after atmospheric expansion):

- Temperature 24.98 degC
- Liquid Mass Fraction 1.00 fraction
- Droplet Diameter 585.97 um
- Expanded Radius n/a m
- Velocity 20.19 m/s

DISCHARGE DATA for Weather: Global Weathers\Noite

Wind Speed: 2.00 m/s
Wind Speed at Height (Calculated) 0.83 m/s
Pasquill Stability: E

USER-DEFINED QUANTITIES

Material N-NONANE
Scenario Leak
Inventory 2,285,736.50 kg
Fixed Duration n/a s

Stagnation data (data at upstream end for long pipe):

- Pressure 1.04 bar
- Temperature 25.00 degC
- Fluid State Non-saturated liquid

CALCULATED QUANTITIES

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Mass Flow of Air (Vent from Vapor Space only)	n/a
Mass Flowrate	2.80591E+000 kg/s
Release Duration	600.00 s
Orifice or pipe exit data (before atmospheric expansion):	
- Pressure	n/a bar
- Temperature	n/a degC
- Vena Contracta Velocity (exit velocity for pipe releases)	n/a m/s
- Discharge Coefficient	n/a
Final data (after atmospheric expansion):	
- Temperature	24.97 degC
- Liquid Mass Fraction	1.00 fraction
- Droplet Diameter	574.72 um
- Expanded Radius	n/a m
- Velocity	20.19 m/s



Consequence Results

Pool Vaporization Results

Path: \Terminal Adonai - Efeitos físicos\Simulações\H106

			Dia	Noite
		Release Segment 1		
Release Duration	s		600	600
Liquid Rainout	fraction		0.983438	0.984934
Maximum Pool Radius	m		4.96017	4.94589

Distance to Concentration Results

Path: \Terminal Adonai - Efeitos físicos\Simulações\H106

The height for user defined concentrations is the user defined height 0 m
 All toxic results are reported at the toxic effect height 1 m
 All flammable results are reported at the flammable effect height 0 m

Concentration(ppm)	Averaging Time		Dia	Noite
			Distance (m)	
UFL (56000)	18.75	s	No Hazard	No Hazard
LFL (7000)	18.75	s	5.96653	6.01552
LFL Frac (7000)	18.75	s	5.96653	6.01552
Concentration(ppm)	Averaging Time		Dia	Noite
			Heights (m) for above distances	
UFL (56000)	18.75	s	0	0
LFL (7000)	18.75	s	0	0
LFL Frac (7000)	18.75	s	0	0

Jet Fire Hazard

Path: \Terminal Adonai - Efeitos físicos\Simulações\H106

Jet fire method used: Cone model - DNV recommended

	Dia	Noite
Jet Fire Status	Truncated	Truncated
Flame Direction	Horizontal	Horizontal

Radiation Effects: Jet Fire Ellipse

Path: \Terminal Adonai - Efeitos físicos\Simulações\H106

This table gives the distances to the specified radiation levels for each jet fire listed in the above hazard table

			Dia	Noite
			Distance (m)	
Radiation Level	9.83	kW/m2	9.31901	9.55817
Radiation Level	19.46	kW/m2	8.03244	8.29084
Radiation Level	35	kW/m2	7.12493	7.40003

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Radiation Effects: Jet Fire Distance

Path: \Terminal Adonai - Efeitos físicos\Simulações\H106

Dia Radiation Level (kW/m2)
Noite

Early Pool Fire Hazard

Path: \Terminal Adonai - Efeitos físicos\Simulações\H106

Early Pool Fire Status Dia Noite
Hazard Hazard

Radiation Effects: Early Pool Fire Ellipse

Path: \Terminal Adonai - Efeitos físicos\Simulações\H106

			Dia	Distance (m) Noite
Radiation Level	9.83	kW/m2	24.4769	23.4074
Radiation Level	19.46	kW/m2	17.6095	16.7171
Radiation Level	35	kW/m2	11.8391	11.6577

Radiation Effects: Early Pool Fire Distance

Path: \Terminal Adonai - Efeitos físicos\Simulações\H106

Dia Radiation Level (kW/m2)
Noite

Late Pool Fire Hazard

Path: \Terminal Adonai - Efeitos físicos\Simulações\H106

Late Pool Fire Status Dia Noite
Hazard Hazard

Radiation Effects: Late Pool Fire Ellipse

Path: \Terminal Adonai - Efeitos físicos\Simulações\H106

			Dia	Distance (m) Noite
Radiation Level	9.83	kW/m2	27.1982	25.5823
Radiation Level	19.46	kW/m2	17.7696	17.0393
Radiation Level	35	kW/m2	12.0462	12.0927

Radiation Effects: Late Pool Fire Distance

Path: \Terminal Adonai - Efeitos físicos\Simulações\H106

Dia Radiation Level (kW/m2)
Noite

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Flash Fire Envelope

Path: \Terminal Adonai - Efeitos físicos\Simulações\H106

All flammable results are reported at the flammable effect height 0 m

				Distance (m)	
				Dia	Noite
Furthest Extent	7000	ppm	5.96653	6.01552	
Furthest Extent	7000	ppm	5.96653	6.01552	
				Heights (m) for above distances	
				Dia	Noite
Furthest Extent	7000	ppm	0	0	
Furthest Extent	7000	ppm	0	0	

Weather Conditions

Path: \Terminal Adonai - Efeitos físicos\Simulações\H106

			Dia	Noite
Wind Speed	m/s		3	2
Pasquill Stability			C	E
Surface Roughness Length	mm		1000	1000
Surface Roughness Parameter			0.173718	0.173718
Atmospheric Temperature	degC		25	20
Surface Temperature	degC		30	20
Relative Humidity	fraction		0.8	0.8

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

H107

Base Case

CASE Name: Data

Path: \Terminal Adonai - Efeitos físicos\Simulações\H107

User-Defined Data

Material

Material Identifier N-NONANE

Scenario

Building Wake Effect None

Vessel/Tank

Release Type Continuous

Location

Elevation 1 m
Use ERPG averaging time ERPG not selected
Use IDLH averaging time IDLH not selected
Use STEL averaging time STEL not selected
Supply a user defined averaging time Not supplied

Bund

Status of Bund No bund present
[Type of Bund Surface User-Defined (Land)]
[Bund Height 0 m]
[Bund Failure Modeling Bund cannot fail]

Indoor/Outdoor

Location of release Open air release
Outdoor Release Direction Horizontal

Flammable

Explosion Method TNT
Jet Fire Method Cone Model

Dispersion

Number of Release Segments 1
Fluid Phase(1) Liquid
Discharge Velocity(1) 21.88 m/s
Droplet Diameter(1) 488.9 um
Duration of Discharge(1) 600 s
Final Temperature(1) 25.24 degC
Release Rate(1) 105.1 kg/s
Pre-Dilution Air Rates(1) 0 kg/s
Late Ignition Location No ignition location
Mass Inventory of material to Disperse 2.286E6 kg

Fireball Parameters

[Mass Modification Factor 3]
[Calculation method for fireball DNV Recommended]
[TNO model flame temperature 1727 degC]

Toxic Parameters

Date: 07/08/2015

696 of 2,112

Time: 10:10:31

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

[Indoor Calculations	Unselected]
[Wind Dependent Exchange Rate	Case Specified]
[Building Exchange Rate	4 /hr]
[Tail Time	1800 s]
[Set averaging time equal to exposure time	Use a fixed averaging time]
[Cut-off fraction of toxic load for exposure time calculation	0.05 fraction]
[Cut-off concentration for exposure time calculations	0 fraction]

Geometry

Shape	Point
Dimension	2D
System	Absolute
East(1)	0 m
North(1)	0 m

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Consequence Results

Pool Vaporization Results

Path: \Terminal Adonai - Efeitos físicos\Simulações\H107

		Dia	Noite
	Release Segment 1		
Release Duration	s	600	600
Liquid Rainout	fraction	0.993485	0.994293
	Release Segment 1 Cloud Segment 1		
Cloud Segment Duration	s	192.516	179.56
Pool Vaporization Rate	kg/s	0.0970971	0.0612999
Total Vapor Flowrate	kg/s	0.78196	0.66126
	Release Segment 1 Cloud Segment 2		
Cloud Segment Duration	s	79.7344	78.8456
Pool Vaporization Rate	kg/s	0.236432	0.140408
Total Vapor Flowrate	kg/s	0.921295	0.740368
	Release Segment 1 Cloud Segment 3		
Cloud Segment Duration	s	60.8125	61.11
Pool Vaporization Rate	kg/s	0.31054	0.180453
Total Vapor Flowrate	kg/s	0.995404	0.780413
	Release Segment 1 Cloud Segment 4		
Cloud Segment Duration	s	51.0975	52.01
Pool Vaporization Rate	kg/s	0.370457	0.212007
Total Vapor Flowrate	kg/s	1.05532	0.811967
	Release Segment 1 Cloud Segment 5		
Cloud Segment Duration	s	44.33	46.6769
Pool Vaporization Rate	kg/s	0.422131	0.239057
Total Vapor Flowrate	kg/s	1.10699	0.839016
	Release Segment 1 Cloud Segment 6		
Cloud Segment Duration	s	77.76	81.32
Pool Vaporization Rate	kg/s	0.489003	0.273553
Total Vapor Flowrate	kg/s	1.17387	0.873513
	Release Segment 1 Cloud Segment 7		
Cloud Segment Duration	s	93.75	100.478
Pool Vaporization Rate	kg/s	0.584166	0.321663
Total Vapor Flowrate	kg/s	1.26903	0.921622
Maximum Pool Radius	m	30.5202	30.4418

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Distance to Concentration Results

Path: \Terminal Adonai - Efeitos físicos\Simulações\H107

The height for user defined concentrations is the user defined height 0 m

All toxic results are reported at the toxic effect height 1 m

All flammable results are reported at the flammable effect height 0 m

Concentration(ppm)	Averaging Time		Distance (m)	
			Dia	Noite
UFL (56000)	18.75	s	11.2509	11.1575
LFL (7000)	18.75	s	11.3798	11.2482
LFL Frac (7000)	18.75	s	11.3798	11.2482

Concentration(ppm)	Averaging Time		Heights (m) for above distances	
			Dia	Noite
UFL (56000)	18.75	s	0	0
LFL (7000)	18.75	s	0	0
LFL Frac (7000)	18.75	s	0	0

Jet Fire Hazard

Path: \Terminal Adonai - Efeitos físicos\Simulações\H107

Jet fire method used: Cone model - DNV recommended

	Dia	Noite
Jet Fire Status	Truncated	Truncated
Flame Direction	Horizontal	Horizontal

Radiation Effects: Jet Fire Ellipse

Path: \Terminal Adonai - Efeitos físicos\Simulações\H107

This table gives the distances to the specified radiation levels for each jet fire listed in the above hazard table

Radiation Level			Distance (m)	
			Dia	Noite
9.83	kW/m2		31.5951	31.79
19.46	kW/m2		27.378	27.7292
35	kW/m2		24.541	24.9547

Radiation Effects: Jet Fire Distance

Path: \Terminal Adonai - Efeitos físicos\Simulações\H107

	Dia	Radiation Level (kW/m2)
		Noite

Early Pool Fire Hazard

Path: \Terminal Adonai - Efeitos físicos\Simulações\H107

	Dia	Noite
Early Pool Fire Status	Hazard	Hazard

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Radiation Effects: Early Pool Fire Ellipse

Path: \Terminal Adonai - Efeitos físicos\Simulações\H107

			Dia	Noite
Radiation Level	9.83	kW/m2	41.3965	40.1397
Radiation Level	19.46	kW/m2	34.8396	34.9649
Radiation Level	35	kW/m2	Not Reached	Not Reached

Radiation Effects: Early Pool Fire Distance

Path: \Terminal Adonai - Efeitos físicos\Simulações\H107

	Dia	Noite
Radiation Level (kW/m2)		

Late Pool Fire Hazard

Path: \Terminal Adonai - Efeitos físicos\Simulações\H107

	Dia	Noite
Late Pool Fire Status	Hazard	Hazard

Radiation Effects: Late Pool Fire Ellipse

Path: \Terminal Adonai - Efeitos físicos\Simulações\H107

			Dia	Noite
Radiation Level	9.83	kW/m2	49.8254	47.9756
Radiation Level	19.46	kW/m2	42.9137	42.7008
Radiation Level	35	kW/m2	Not Reached	Not Reached

Radiation Effects: Late Pool Fire Distance

Path: \Terminal Adonai - Efeitos físicos\Simulações\H107

	Dia	Noite
Radiation Level (kW/m2)		

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Flash Fire Envelope

Path: \Terminal Adonai - Efeitos físicos\Simulações\H107

All flammable results are reported at the flammable effect height 0 m

				Distance (m)	
				Dia	Noite
Furthest Extent	7000	ppm	11.3798	11.2482	
Furthest Extent	7000	ppm	11.3798	11.2482	
				Heights (m) for above distances	
				Dia	Noite
Furthest Extent	7000	ppm	0	0	
Furthest Extent	7000	ppm	0	0	

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Explosion Effects: Late Ignition

Path: \Terminal Adonai - Efeitos físicos\Simulações\H107

Explosion Model Used : TNT

Explosion Location Criterion: Cloud Center

All distances are measured from the Source

All flammable results are reported at the flammable effect height 0 m

			Maximum Distance (m) at Overpressure Level	
			Dia	Noite
Overpressure	0.05	bar	8.24836	7.8915
Overpressure	0.1	bar	7.01802	6.79643
Overpressure	0.3	bar	6.00963	5.8989
			Supplementary Data at 0.05 bar	
			Dia	Noite
Supplied Flammable Mass		kg	0.00725722	0.00511714
Used Flammable Mass		kg	0.00725722	0.00511714
Overpressure Radius		m	3.24444	2.88775
Distance to:				
- Ignition Source		m	10	10
- Cloud Front/Centre		m	10	10
- Explosion Centre		m	5.00392	5.00375
			Supplementary Data at 0.1 bar	
			Dia	Noite
Supplied Flammable Mass		kg	0.00725722	0.00511714
Used Flammable Mass		kg	0.00725722	0.00511714
Overpressure Radius		m	2.0141	1.79267
Distance to:				
- Ignition Source		m	10	10
- Cloud Front/Centre		m	10	10
- Explosion Centre		m	5.00392	5.00375
			Supplementary Data at 0.3 bar	
			Dia	Noite
Supplied Flammable Mass		kg	0.00725722	0.00511714
Used Flammable Mass		kg	0.00725722	0.00511714
Overpressure Radius		m	1.00571	0.895144
Distance to:				
- Ignition Source		m	10	10
- Cloud Front/Centre		m	10	10
- Explosion Centre		m	5.00392	5.00375

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Weather Conditions

Path: \Terminal Adonai - Efeitos físicos\Simulações\H107

		Dia	Noite
Wind Speed	m/s	3	2
Pasquill Stability		C	E
Surface Roughness Length	mm	1000	1000
Surface Roughness Parameter		0.173718	0.173718
Atmospheric Temperature	degC	25	20
Surface Temperature	degC	30	20
Relative Humidity	fraction	0.8	0.8

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

H108

Base Case

CASE Name: Data

Path: \Terminal Adonai - Efeitos físicos\Simulações\H108

User-Defined Data

Material

Material Identifier N-NONANE

Scenario

Building Wake Effect None

Vessel/Tank

Release Type Continuous

Location

Elevation 1 m
Use ERPG averaging time ERPG not selected
Use IDLH averaging time IDLH not selected
Use STEL averaging time STEL not selected
Supply a user defined averaging time Not supplied

Bund

Status of Bund No bund present
[Type of Bund Surface User-Defined (Land)]
[Bund Height 0 m]
[Bund Failure Modeling Bund cannot fail]

Indoor/Outdoor

Location of release Open air release
Outdoor Release Direction Horizontal

Flammable

Explosion Method TNT
Jet Fire Method Cone Model

Dispersion

Number of Release Segments 1
Fluid Phase(1) Liquid
Discharge Velocity(1) 36.45 m/s
Droplet Diameter(1) 176.4 um
Duration of Discharge(1) 600 s
Final Temperature(1) 24.92 degC
Release Rate(1) 1.05 kg/s
Pre-Dilution Air Rates(1) 0 kg/s
Late Ignition Location No ignition location
Mass Inventory of material to Disperse 2.286E6 kg

Fireball Parameters

[Mass Modification Factor 3]
[Calculation method for fireball DNV Recommended]
[TNO model flame temperature 1727 degC]

Toxic Parameters

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

[Indoor Calculations	Unselected]
[Wind Dependent Exchange Rate	Case Specified]
[Building Exchange Rate	4 /hr]
[Tail Time	1800 s]
[Set averaging time equal to exposure time	Use a fixed averaging time]
[Cut-off fraction of toxic load for exposure time calculation	0.05 fraction]
[Cut-off concentration for exposure time calculations	0 fraction]

Geometry

Shape	Point
Dimension	2D
System	Absolute
East(1)	0 m
North(1)	0 m

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Consequence Results

Pool Vaporization Results

Path: \Terminal Adonai - Efeitos físicos\Simulações\H108

			Dia	Noite
		Release Segment 1		
Release Duration	s		600	600
Liquid Rainout	fraction		0.864856	0.907173
Maximum Pool Radius	m		2.84502	2.90237

Distance to Concentration Results

Path: \Terminal Adonai - Efeitos físicos\Simulações\H108

The height for user defined concentrations is the user defined height 0 m
 All toxic results are reported at the toxic effect height 1 m
 All flammable results are reported at the flammable effect height 0 m

Concentration(ppm)	Averaging Time		Dia	Noite	Distance (m)
UFL (56000)	18.75	s	No Hazard	No Hazard	
LFL (7000)	18.75	s	8.17766	8.05765	
LFL Frac (7000)	18.75	s	8.17766	8.05765	
Concentration(ppm)	Averaging Time		Dia	Noite	Heights (m) for above distances
UFL (56000)	18.75	s	0	0	
LFL (7000)	18.75	s	0	0	
LFL Frac (7000)	18.75	s	0	0	

Jet Fire Hazard

Path: \Terminal Adonai - Efeitos físicos\Simulações\H108

Jet fire method used: Cone model - DNV recommended

	Dia	Noite
Jet Fire Status	Truncated	Truncated
Flame Direction	Horizontal	Horizontal

Radiation Effects: Jet Fire Ellipse

Path: \Terminal Adonai - Efeitos físicos\Simulações\H108

This table gives the distances to the specified radiation levels for each jet fire listed in the above hazard table

			Dia	Noite	Distance (m)
Radiation Level	9.83	kW/m2	15.1027	13.5158	
Radiation Level	19.46	kW/m2	13.0597	11.7794	
Radiation Level	35	kW/m2	11.6789	10.5856	

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Radiation Effects: Jet Fire Distance

Path: \Terminal Adonai - Efeitos físicos\Simulações\H108

Dia Radiation Level (kW/m2)
Noite

Early Pool Fire Hazard

Path: \Terminal Adonai - Efeitos físicos\Simulações\H108

Early Pool Fire Status Dia Noite
Hazard Hazard

Radiation Effects: Early Pool Fire Ellipse

Path: \Terminal Adonai - Efeitos físicos\Simulações\H108

			Dia	Distance (m) Noite
Radiation Level	9.83	kW/m2	22.2538	21.2818
Radiation Level	19.46	kW/m2	18.5627	17.2196
Radiation Level	35	kW/m2	13.9159	13.0955

Radiation Effects: Early Pool Fire Distance

Path: \Terminal Adonai - Efeitos físicos\Simulações\H108

Dia Radiation Level (kW/m2)
Noite

Late Pool Fire Hazard

Path: \Terminal Adonai - Efeitos físicos\Simulações\H108

Late Pool Fire Status Dia Noite
Hazard Hazard

Radiation Effects: Late Pool Fire Ellipse

Path: \Terminal Adonai - Efeitos físicos\Simulações\H108

			Dia	Distance (m) Noite
Radiation Level	9.83	kW/m2	24.9607	23.6284
Radiation Level	19.46	kW/m2	19.8035	18.3276
Radiation Level	35	kW/m2	14.411	13.5806

Radiation Effects: Late Pool Fire Distance

Path: \Terminal Adonai - Efeitos físicos\Simulações\H108

Dia Radiation Level (kW/m2)
Noite

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Flash Fire Envelope

Path: \Terminal Adonai - Efeitos físicos\Simulações\H108

All flammable results are reported at the flammable effect height 0 m

				Distance (m)	
				Dia	Noite
Furthest Extent	7000	ppm	8.17766	8.05765	
Furthest Extent	7000	ppm	8.17766	8.05765	
				Heights (m) for above distances	
				Dia	Noite
Furthest Extent	7000	ppm	0	0	
Furthest Extent	7000	ppm	0	0	

Weather Conditions

Path: \Terminal Adonai - Efeitos físicos\Simulações\H108

			Dia	Noite
Wind Speed	m/s		3	2
Pasquill Stability			C	E
Surface Roughness Length	mm		1000	1000
Surface Roughness Parameter			0.173718	0.173718
Atmospheric Temperature	degC		25	20
Surface Temperature	degC		30	20
Relative Humidity	fraction		0.8	0.8

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

H109

Base Case

CASE Name: Data

Path: \Terminal Adonai - Efeitos físicos\Simulações\H109

User-Defined Data

Dispersion

Duration of Discharge(1)	600 s
Final Temperature(1)	25.24 degC
Release Rate(1)	105.1 kg/s
Pre-Dilution Air Rates(1)	0 kg/s
Late Ignition Location	No ignition location
Mass Inventory of material to Disperse	2.286E6 kg

Fireball Parameters

[Mass Modification Factor	3]
[Calculation method for fireball	DNV Recommended]
[TNO model flame temperature	1727 degC]

Toxic Parameters

[Indoor Calculations	Unselected]
[Wind Dependent Exchange Rate	Case Specified]
[Building Exchange Rate	4 /hr]
[Tail Time	1800 s]
[Set averaging time equal to exposure time	Use a fixed averaging time]
[Cut-off fraction of toxic load for exposure time calculation	0.05 fraction]
[Cut-off concentration for exposure time calculations	0 fraction]

Geometry

Shape	Point
Dimension	2D
System	Absolute
East(1)	0 m
North(1)	0 m

Material

Material Identifier	N-NONANE
---------------------	----------

Scenario

Building Wake Effect	None
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Vessel/Tank

Release Type	Continuous
--------------	------------

Location

Elevation	0 m
Use ERPG averaging time	ERPG not selected
Use IDLH averaging time	IDLH not selected
Use STEL averaging time	STEL not selected
Supply a user defined averaging time	Not supplied

Bund

Status of Bund	Bund present
----------------	--------------

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Bund Area	1.152E4 m2
[Type of Bund Surface	User-Defined (Land)]
Bund Height	0.3 m
[Bund Failure Modeling	Bund cannot fail]

Indoor/Outdoor

Location of release	Open air release
Outdoor Release Direction	Horizontal

Flammable

Explosion Method	TNT
Jet Fire Method	Cone Model

Dispersion

Number of Release Segments	1
Fluid Phase(1)	Liquid
Discharge Velocity(1)	21.88 m/s
Droplet Diameter(1)	488.9 um

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Consequence Results

Pool Vaporization Results

Path: \Terminal Adonai - Efeitos físicos\Simulações\H109

		Dia	Noite
	Release Segment 1		
Release Duration	s	600	600
Liquid Rainout	fraction	1	1
	Release Segment 1 Cloud Segment 1		
Cloud Segment Duration	s	191.822	178.223
Pool Vaporization Rate	kg/s	0.101712	0.0653279
Total Vapor Flowrate	kg/s	0.101715	0.0653306
	Release Segment 1 Cloud Segment 2		
Cloud Segment Duration	s	79.6031	78.5781
Pool Vaporization Rate	kg/s	0.246279	0.148583
Total Vapor Flowrate	kg/s	0.246281	0.148586
	Release Segment 1 Cloud Segment 3		
Cloud Segment Duration	s	60.725	61.8219
Pool Vaporization Rate	kg/s	0.322747	0.190686
Total Vapor Flowrate	kg/s	0.32275	0.190688
	Release Segment 1 Cloud Segment 4		
Cloud Segment Duration	s	51.03	51.94
Pool Vaporization Rate	kg/s	0.384424	0.223808
Total Vapor Flowrate	kg/s	0.384426	0.22381
	Release Segment 1 Cloud Segment 5		
Cloud Segment Duration	s	45.3094	89.54
Pool Vaporization Rate	kg/s	0.438108	0.263979
Total Vapor Flowrate	kg/s	0.438111	0.263982
	Release Segment 1 Cloud Segment 6		
Cloud Segment Duration	s	77.76	111.108
Pool Vaporization Rate	kg/s	0.507368	0.31951
Total Vapor Flowrate	kg/s	0.507371	0.319513
	Release Segment 1 Cloud Segment 7		
Cloud Segment Duration	s	93.75	28.79
Pool Vaporization Rate	kg/s	0.604985	0.357463
Total Vapor Flowrate	kg/s	0.604988	0.357466
Maximum Pool Radius	m	30.6263	30.5387

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Distance to Concentration Results

Path: \Terminal Adonai - Efeitos físicos\Simulações\H109

The height for user defined concentrations is the user defined height 0 m
All toxic results are reported at the toxic effect height 1 m
All flammable results are reported at the flammable effect height 0 m

Concentration(ppm)	Averaging Time		Distance (m)	
			Dia	Noite
UFL (56000)	18.75	s	0	0
LFL (7000)	18.75	s	0	0
LFL Frac (7000)	18.75	s	0	0

Concentration(ppm)	Averaging Time		Heights (m) for above distances	
			Dia	Noite
UFL (56000)	18.75	s	0	0
LFL (7000)	18.75	s	0	0
LFL Frac (7000)	18.75	s	0	0

Jet Fire Hazard

Path: \Terminal Adonai - Efeitos físicos\Simulações\H109

Jet fire method used: Cone model - DNV recommended

	Dia	Noite
Jet Fire Status	Truncated	Truncated
Flame Direction	Horizontal	Horizontal

Radiation Effects: Jet Fire Ellipse

Path: \Terminal Adonai - Efeitos físicos\Simulações\H109

This table gives the distances to the specified radiation levels for each jet fire listed in the above hazard table

Radiation Level			Distance (m)	
			Dia	Noite
9.83	kW/m2	1.08947	1.09986	
19.46	kW/m2	1.08947	1.09986	
35	kW/m2	Not Reached	Not Reached	

Radiation Effects: Jet Fire Distance

Path: \Terminal Adonai - Efeitos físicos\Simulações\H109

	Dia	Radiation Level (kW/m2)
		Noite

Early Pool Fire Hazard

Path: \Terminal Adonai - Efeitos físicos\Simulações\H109

	Dia	Noite
Early Pool Fire Status	Hazard	Hazard

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Radiation Effects: Early Pool Fire Ellipse

Path: \Terminal Adonai - Efeitos físicos\Simulações\H109

			Dia	Noite
Radiation Level	9.83	kW/m2	30.0771	28.9435
Radiation Level	19.46	kW/m2	23.5195	23.771
Radiation Level	35	kW/m2	Not Reached	Not Reached

Radiation Effects: Early Pool Fire Distance

Path: \Terminal Adonai - Efeitos físicos\Simulações\H109

	Dia	Noite
Radiation Level (kW/m2)		

Late Pool Fire Hazard

Path: \Terminal Adonai - Efeitos físicos\Simulações\H109

	Dia	Noite
Late Pool Fire Status	Hazard	Hazard

Radiation Effects: Late Pool Fire Ellipse

Path: \Terminal Adonai - Efeitos físicos\Simulações\H109

			Dia	Noite
Radiation Level	9.83	kW/m2	38.5473	36.8191
Radiation Level	19.46	kW/m2	31.6263	31.5387
Radiation Level	35	kW/m2	Not Reached	Not Reached

Radiation Effects: Late Pool Fire Distance

Path: \Terminal Adonai - Efeitos físicos\Simulações\H109

	Dia	Noite
Radiation Level (kW/m2)		

Weather Conditions

Path: \Terminal Adonai - Efeitos físicos\Simulações\H109

		Dia	Noite
Wind Speed	m/s	3	2
Pasquill Stability		C	E
Surface Roughness Length	mm	1000	1000
Surface Roughness Parameter		0.173718	0.173718
Atmospheric Temperature	degC	25	20
Surface Temperature	degC	30	20
Relative Humidity	fraction	0.8	0.8

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

H110

Base Case

CASE Name: Data

Path: \Terminal Adonai - Efeitos físicos\Simulações\H110

User-Defined Data

Material

Material Identifier N-NONANE

Scenario

Building Wake Effect None

Vessel/Tank

Release Type Continuous

Location

Elevation 0 m
Use ERPG averaging time ERPG not selected
Use IDLH averaging time IDLH not selected
Use STEL averaging time STEL not selected
Supply a user defined averaging time Not supplied

Bund

Status of Bund Bund present
Bund Area 1.152E4 m2
[Type of Bund Surface User-Defined (Land)]
Bund Height 0.3 m
[Bund Failure Modeling Bund cannot fail]

Indoor/Outdoor

Location of release Open air release
Outdoor Release Direction Horizontal

Flammable

Explosion Method TNT
Jet Fire Method Cone Model

Dispersion

Number of Release Segments 1
Fluid Phase(1) Liquid
Discharge Velocity(1) 36.45 m/s
Droplet Diameter(1) 176.4 um
Duration of Discharge(1) 600 s
Final Temperature(1) 24.92 degC
Release Rate(1) 1.05 kg/s
Pre-Dilution Air Rates(1) 0 kg/s
Late Ignition Location No ignition location
Mass Inventory of material to Disperse 2.286E6 kg

Fireball Parameters

[Mass Modification Factor 3]
[Calculation method for fireball DNV Recommended]
[TNO model flame temperature 1727 degC]

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Toxic Parameters

[Indoor Calculations	Unselected]
[Wind Dependent Exchange Rate	Case Specified]
[Building Exchange Rate	4 /hr]
[Tail Time	1800 s]
[Set averaging time equal to exposure time	Use a fixed averaging time]
[Cut-off fraction of toxic load for exposure time calculation	0.05 fraction]
[Cut-off concentration for exposure time calculations	0 fraction]

Geometry

Shape	Point
Dimension	2D
System	Absolute
East(1)	0 m
North(1)	0 m

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Consequence Results

Pool Vaporization Results

Path: \Terminal Adonai - Efeitos físicos\Simulações\H110

Release Segment 1		Dia	Noite
Release Duration	s	600	600
Liquid Rainout	fraction	1	1
Maximum Pool Radius	m	3.0602	3.04915

Distance to Concentration Results

Path: \Terminal Adonai - Efeitos físicos\Simulações\H110

The height for user defined concentrations is the user defined height 0 m
All toxic results are reported at the toxic effect height 1 m
All flammable results are reported at the flammable effect height 0 m

Concentration(ppm)	Averaging Time		Dia	Noite
UFL (56000)	18.75	s	0	0
LFL (7000)	18.75	s	0	0
LFL Frac (7000)	18.75	s	0	0

Concentration(ppm)	Averaging Time		Dia	Noite	Heights (m) for above distances
UFL (56000)	18.75	s	0	0	Noite
LFL (7000)	18.75	s	0	0	Noite
LFL Frac (7000)	18.75	s	0	0	Noite

Jet Fire Hazard

Path: \Terminal Adonai - Efeitos físicos\Simulações\H110

Jet fire method used: Cone model - DNV recommended

	Dia	Noite
Jet Fire Status	No Hazard	No Hazard
Flame Direction	Horizontal	Horizontal

Early Pool Fire Hazard

Path: \Terminal Adonai - Efeitos físicos\Simulações\H110

	Dia	Noite
Early Pool Fire Status	Hazard	Hazard

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Radiation Effects: Early Pool Fire Ellipse

Path: \Terminal Adonai - Efeitos físicos\Simulações\H110

			Dia	Noite
Radiation Level	9.83	kW/m2	13.9998	13.3374
Radiation Level	19.46	kW/m2	10.0426	9.09892
Radiation Level	35	kW/m2	5.18406	4.83356

Radiation Effects: Early Pool Fire Distance

Path: \Terminal Adonai - Efeitos físicos\Simulações\H110

Dia
Noite

Radiation Level (kW/m2)

Late Pool Fire Hazard

Path: \Terminal Adonai - Efeitos físicos\Simulações\H110

	Dia	Noite
Late Pool Fire Status	Hazard	Hazard

Radiation Effects: Late Pool Fire Ellipse

Path: \Terminal Adonai - Efeitos físicos\Simulações\H110

			Dia	Noite
Radiation Level	9.83	kW/m2	16.7596	15.7044
Radiation Level	19.46	kW/m2	11.1577	10.0884
Radiation Level	35	kW/m2	5.60296	5.31244

Radiation Effects: Late Pool Fire Distance

Path: \Terminal Adonai - Efeitos físicos\Simulações\H110

Dia
Noite

Radiation Level (kW/m2)

Weather Conditions

Path: \Terminal Adonai - Efeitos físicos\Simulações\H110

		Dia	Noite
Wind Speed	m/s	3	2
Pasquill Stability		C	E
Surface Roughness Length	mm	1000	1000
Surface Roughness Parameter		0.173718	0.173718
Atmospheric Temperature	degC	25	20
Surface Temperature	degC	30	20
Relative Humidity	fraction	0.8	0.8

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

H111

Base Case

CASE Name: Data

Path: \Terminal Adonai - Efeitos físicos\Simulações\H111

User-Defined Data

Material

Material Identifier N-NONANE

Scenario

Building Wake Effect None

Vessel/Tank

Release Type Continuous

Location

Elevation 0 m
Use ERPG averaging time ERPG not selected
Use IDLH averaging time IDLH not selected
Use STEL averaging time STEL not selected
Supply a user defined averaging time Not supplied

Bund

Status of Bund No bund present
[Type of Bund Surface User-Defined (Land)]
[Bund Height 0 m]
[Bund Failure Modeling Bund cannot fail]

Indoor/Outdoor

Location of release Open air release
Outdoor Release Direction Horizontal

Flammable

Explosion Method TNT
Jet Fire Method Cone Model

Dispersion

Number of Release Segments 1
Fluid Phase(1) Liquid
Discharge Velocity(1) 18.94 m/s
Droplet Diameter(1) 652.1 um
Duration of Discharge(1) 600 s
Final Temperature(1) 25.18 degC
Release Rate(1) 42.05 kg/s
Pre-Dilution Air Rates(1) 0 kg/s
Late Ignition Location No ignition location
Mass Inventory of material to Disperse 4.286E4 kg

Fireball Parameters

[Mass Modification Factor 3]
[Calculation method for fireball DNV Recommended]
[TNO model flame temperature 1727 degC]

Toxic Parameters

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

[Indoor Calculations	Unselected]
[Wind Dependent Exchange Rate	Case Specified]
[Building Exchange Rate	4 /hr]
[Tail Time	1800 s]
[Set averaging time equal to exposure time	Use a fixed averaging time]
[Cut-off fraction of toxic load for exposure time calculation	0.05 fraction]
[Cut-off concentration for exposure time calculations	0 fraction]

Geometry

Shape	Point
Dimension	2D
System	Absolute
East(1)	0 m
North(1)	0 m

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Consequence Results

Pool Vaporization Results

Path: \Terminal Adonai - Efeitos físicos\Simulações\H111

		Dia	Noite
	Release Segment 1		
Release Duration	s	600	600
Liquid Rainout	fraction	1	1
	Release Segment 1 Cloud Segment 1		
Cloud Segment Duration	s	191.822	178.223
Pool Vaporization Rate	kg/s	0.0429432	0.0272065
Total Vapor Flowrate	kg/s	0.0429443	0.0272076
	Release Segment 1 Cloud Segment 2		
Cloud Segment Duration	s	79.6031	78.5781
Pool Vaporization Rate	kg/s	0.104138	0.0617105
Total Vapor Flowrate	kg/s	0.104139	0.0617116
	Release Segment 1 Cloud Segment 3		
Cloud Segment Duration	s	60.725	61.8219
Pool Vaporization Rate	kg/s	0.136507	0.0791167
Total Vapor Flowrate	kg/s	0.136508	0.0791178
	Release Segment 1 Cloud Segment 4		
Cloud Segment Duration	s	51.03	51.94
Pool Vaporization Rate	kg/s	0.162589	0.092803
Total Vapor Flowrate	kg/s	0.16259	0.0928041
	Release Segment 1 Cloud Segment 5		
Cloud Segment Duration	s	45.3094	89.54
Pool Vaporization Rate	kg/s	0.185266	0.109399
Total Vapor Flowrate	kg/s	0.185268	0.1094
	Release Segment 1 Cloud Segment 6		
Cloud Segment Duration	s	77.76	111.108
Pool Vaporization Rate	kg/s	0.214484	0.132344
Total Vapor Flowrate	kg/s	0.214485	0.132345
	Release Segment 1 Cloud Segment 7		
Cloud Segment Duration	s	93.75	28.79
Pool Vaporization Rate	kg/s	0.255588	0.14803
Total Vapor Flowrate	kg/s	0.255589	0.148031
Maximum Pool Radius	m	19.3692	19.3116

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Distance to Concentration Results

Path: \Terminal Adonai - Efeitos físicos\Simulações\H111

The height for user defined concentrations is the user defined height 0 m

All toxic results are reported at the toxic effect height 1 m

All flammable results are reported at the flammable effect height 0 m

Concentration(ppm)	Averaging Time		Distance (m)	
			Dia	Noite
UFL (56000)	18.75	s	0	0
LFL (7000)	18.75	s	0	0
LFL Frac (7000)	18.75	s	0	0

Concentration(ppm)	Averaging Time		Heights (m) for above distances	
			Dia	Noite
UFL (56000)	18.75	s	0	0
LFL (7000)	18.75	s	0	0
LFL Frac (7000)	18.75	s	0	0

Jet Fire Hazard

Path: \Terminal Adonai - Efeitos físicos\Simulações\H111

Jet fire method used: Cone model - DNV recommended

	Dia	Noite
Jet Fire Status	Truncated	Truncated
Flame Direction	Horizontal	Horizontal

Radiation Effects: Jet Fire Ellipse

Path: \Terminal Adonai - Efeitos físicos\Simulações\H111

This table gives the distances to the specified radiation levels for each jet fire listed in the above hazard table

Radiation Level			Distance (m)	
			Dia	Noite
9.83	kW/m2	1.06141	1.06854	
19.46	kW/m2	1.06141	Not Reached	
35	kW/m2	Not Reached	Not Reached	

Radiation Effects: Jet Fire Distance

Path: \Terminal Adonai - Efeitos físicos\Simulações\H111

	Dia	Radiation Level (kW/m2)
		Noite

Early Pool Fire Hazard

Path: \Terminal Adonai - Efeitos físicos\Simulações\H111

	Dia	Noite
Early Pool Fire Status	Hazard	Hazard

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Radiation Effects: Early Pool Fire Ellipse

Path: \Terminal Adonai - Efeitos físicos\Simulações\H111

			Dia	Noite
Radiation Level	9.83	kW/m2	23.7409	22.384
Radiation Level	19.46	kW/m2	15.243	15.402
Radiation Level	35	kW/m2	Not Reached	Not Reached

Radiation Effects: Early Pool Fire Distance

Path: \Terminal Adonai - Efeitos físicos\Simulações\H111

	Dia	Radiation Level (kW/m2)
		Noite

Late Pool Fire Hazard

Path: \Terminal Adonai - Efeitos físicos\Simulações\H111

	Dia	Noite
Late Pool Fire Status	Hazard	Hazard

Radiation Effects: Late Pool Fire Ellipse

Path: \Terminal Adonai - Efeitos físicos\Simulações\H111

			Dia	Noite
Radiation Level	9.83	kW/m2	27.1584	25.748
Radiation Level	19.46	kW/m2	20.3692	20.3116
Radiation Level	35	kW/m2	Not Reached	Not Reached

Radiation Effects: Late Pool Fire Distance

Path: \Terminal Adonai - Efeitos físicos\Simulações\H111

	Dia	Radiation Level (kW/m2)
		Noite

Weather Conditions

Path: \Terminal Adonai - Efeitos físicos\Simulações\H111

		Dia	Noite
Wind Speed	m/s	3	2
Pasquill Stability		C	E
Surface Roughness Length	mm	1000	1000
Surface Roughness Parameter		0.173718	0.173718
Atmospheric Temperature	degC	25	20
Surface Temperature	degC	30	20
Relative Humidity	fraction	0.8	0.8

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

H112

Base Case

CASE Name: Data

Path: \Terminal Adonai - Efeitos físicos\Simulações\H112

User-Defined Data

Material

Material Identifier N-NONANE

Scenario

Building Wake Effect None

Vessel/Tank

Release Type Continuous

Location

Elevation 0 m
Use ERPG averaging time ERPG not selected
Use IDLH averaging time IDLH not selected
Use STEL averaging time STEL not selected
Supply a user defined averaging time Not supplied

Bund

Status of Bund No bund present
[Type of Bund Surface User-Defined (Land)]
[Bund Height 0 m]
[Bund Failure Modeling Bund cannot fail]

Indoor/Outdoor

Location of release Open air release
Outdoor Release Direction Horizontal

Flammable

Explosion Method TNT
Jet Fire Method Cone Model

Dispersion

Number of Release Segments 1
Fluid Phase(1) Liquid
Discharge Velocity(1) 31.57 m/s
Droplet Diameter(1) 235.1 um
Duration of Discharge(1) 600 s
Final Temperature(1) 24.94 degC
Release Rate(1) 0.42 kg/s
Pre-Dilution Air Rates(1) 0 kg/s
Late Ignition Location No ignition location
Mass Inventory of material to Disperse 4.286E4 kg

Fireball Parameters

[Mass Modification Factor 3]
[Calculation method for fireball DNV Recommended]
[TNO model flame temperature 1727 degC]

Toxic Parameters

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

[Indoor Calculations	Unselected]
[Wind Dependent Exchange Rate	Case Specified]
[Building Exchange Rate	4 /hr]
[Tail Time	1800 s]
[Set averaging time equal to exposure time	Use a fixed averaging time]
[Cut-off fraction of toxic load for exposure time calculation	0.05 fraction]
[Cut-off concentration for exposure time calculations	0 fraction]

Geometry

Shape	Point
Dimension	2D
System	Absolute
East(1)	0 m
North(1)	0 m

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Consequence Results

Pool Vaporization Results

Path: \Terminal Adonai - Efeitos físicos\Simulações\H112

			Dia	Noite
		Release Segment 1		
Release Duration	s		600	600
Liquid Rainout	fraction		1	1
Maximum Pool Radius	m		1.9353	1.92813

Distance to Concentration Results

Path: \Terminal Adonai - Efeitos físicos\Simulações\H112

The height for user defined concentrations is the user defined height 0 m
All toxic results are reported at the toxic effect height 1 m
All flammable results are reported at the flammable effect height 0 m

Concentration(ppm)		Averaging Time		Distance (m)	
				Dia	Noite
UFL (56000)	18.75	s		0	0
LFL (7000)	18.75	s		0	0
LFL Frac (7000)	18.75	s		0	0

Concentration(ppm)		Averaging Time		Heights (m) for above distances	
				Dia	Noite
UFL (56000)	18.75	s		0	0
LFL (7000)	18.75	s		0	0
LFL Frac (7000)	18.75	s		0	0

Jet Fire Hazard

Path: \Terminal Adonai - Efeitos físicos\Simulações\H112

Jet fire method used: Cone model - DNV recommended

		Dia	Noite
Jet Fire Status		No Hazard	No Hazard
Flame Direction		Horizontal	Horizontal

Early Pool Fire Hazard

Path: \Terminal Adonai - Efeitos físicos\Simulações\H112

		Dia	Noite
Early Pool Fire Status		Hazard	Hazard

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Radiation Effects: Early Pool Fire Ellipse

Path: \Terminal Adonai - Efeitos físicos\Simulações\H112

			Dia	Noite
Radiation Level	9.83	kW/m2	10.3956	9.9911
Radiation Level	19.46	kW/m2	7.77857	7.10117
Radiation Level	35	kW/m2	4.23826	3.93029

Radiation Effects: Early Pool Fire Distance

Path: \Terminal Adonai - Efeitos físicos\Simulações\H112

Dia
Noite
Radiation Level (kW/m2)

Late Pool Fire Hazard

Path: \Terminal Adonai - Efeitos físicos\Simulações\H112

	Dia	Noite
Late Pool Fire Status	Hazard	Hazard

Radiation Effects: Late Pool Fire Ellipse

Path: \Terminal Adonai - Efeitos físicos\Simulações\H112

			Dia	Noite
Radiation Level	9.83	kW/m2	12.733	12.0605
Radiation Level	19.46	kW/m2	9.30041	8.38037
Radiation Level	35	kW/m2	4.89735	4.53469

Radiation Effects: Late Pool Fire Distance

Path: \Terminal Adonai - Efeitos físicos\Simulações\H112

Dia
Noite
Radiation Level (kW/m2)

Weather Conditions

Path: \Terminal Adonai - Efeitos físicos\Simulações\H112

		Dia	Noite
Wind Speed	m/s	3	2
Pasquill Stability		C	E
Surface Roughness Length	mm	1000	1000
Surface Roughness Parameter		0.173718	0.173718
Atmospheric Temperature	degC	25	20
Surface Temperature	degC	30	20
Relative Humidity	fraction	0.8	0.8

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

H113

Base Case

CASE Name: Data

Path: \Terminal Adonai - Efeitos físicos\Simulações\H113

User-Defined Data

Material

Material Identifier N-NONANE

Scenario

Building Wake Effect None

Vessel/Tank

Release Type Continuous

Location

Elevation 1 m
Use ERPG averaging time ERPG not selected
Use IDLH averaging time IDLH not selected
Use STEL averaging time STEL not selected
Supply a user defined averaging time Not supplied

Bund

Status of Bund No bund present
[Type of Bund Surface User-Defined (Land)]
[Bund Height 0 m]
[Bund Failure Modeling Bund cannot fail]

Indoor/Outdoor

Location of release Open air release
Outdoor Release Direction Horizontal

Flammable

Explosion Method TNT
Jet Fire Method Cone Model

Dispersion

Number of Release Segments 1
Fluid Phase(1) Liquid
Discharge Velocity(1) 18.94 m/s
Droplet Diameter(1) 652.1 um
Duration of Discharge(1) 600 s
Final Temperature(1) 25.18 degC
Release Rate(1) 42.05 kg/s
Pre-Dilution Air Rates(1) 0 kg/s
Late Ignition Location No ignition location
Mass Inventory of material to Disperse 4.286E4 kg

Fireball Parameters

[Mass Modification Factor 3]
[Calculation method for fireball DNV Recommended]
[TNO model flame temperature 1727 degC]

Toxic Parameters

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

[Indoor Calculations	Unselected]
[Wind Dependent Exchange Rate	Case Specified]
[Building Exchange Rate	4 /hr]
[Tail Time	1800 s]
[Set averaging time equal to exposure time	Use a fixed averaging time]
[Cut-off fraction of toxic load for exposure time calculation	0.05 fraction]
[Cut-off concentration for exposure time calculations	0 fraction]

Geometry

Shape	Point
Dimension	2D
System	Absolute
East(1)	0 m
North(1)	0 m

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Consequence Results

Pool Vaporization Results

Path: \Terminal Adonai - Efeitos físicos\Simulações\H113

		Dia	Noite
	Release Segment 1		
Release Duration	s	600	600
Liquid Rainout	fraction	0.992675	0.993624
	Release Segment 1 Cloud Segment 1		
Cloud Segment Duration	s	193.21	179.56
Pool Vaporization Rate	kg/s	0.040978	0.0253607
Total Vapor Flowrate	kg/s	0.348994	0.293484
	Release Segment 1 Cloud Segment 2		
Cloud Segment Duration	s	79.04	78.8456
Pool Vaporization Rate	kg/s	0.0998447	0.0580403
Total Vapor Flowrate	kg/s	0.407861	0.326164
	Release Segment 1 Cloud Segment 3		
Cloud Segment Duration	s	60.8125	61.11
Pool Vaporization Rate	kg/s	0.131038	0.0745798
Total Vapor Flowrate	kg/s	0.439054	0.342703
	Release Segment 1 Cloud Segment 4		
Cloud Segment Duration	s	51.0975	52.01
Pool Vaporization Rate	kg/s	0.156366	0.0876156
Total Vapor Flowrate	kg/s	0.464382	0.355739
	Release Segment 1 Cloud Segment 5		
Cloud Segment Duration	s	44.33	46.6769
Pool Vaporization Rate	kg/s	0.178191	0.0987938
Total Vapor Flowrate	kg/s	0.486207	0.366917
	Release Segment 1 Cloud Segment 6		
Cloud Segment Duration	s	77.76	81.32
Pool Vaporization Rate	kg/s	0.206403	0.113055
Total Vapor Flowrate	kg/s	0.514419	0.381179
	Release Segment 1 Cloud Segment 7		
Cloud Segment Duration	s	93.75	100.478
Pool Vaporization Rate	kg/s	0.246484	0.132956
Total Vapor Flowrate	kg/s	0.5545	0.401079
Maximum Pool Radius	m	19.2943	19.2438

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Distance to Concentration Results

Path: \Terminal Adonai - Efeitos físicos\Simulações\H113

The height for user defined concentrations is the user defined height 0 m
All toxic results are reported at the toxic effect height 1 m
All flammable results are reported at the flammable effect height 0 m

Concentration(ppm)	Averaging Time		Distance (m)	
			Dia	Noite
UFL (56000)	18.75	s	8.29918	8.31915
LFL (7000)	18.75	s	8.44773	8.4409
LFL Frac (7000)	18.75	s	8.44773	8.4409

Concentration(ppm)	Averaging Time		Heights (m) for above distances	
			Dia	Noite
UFL (56000)	18.75	s	0	0
LFL (7000)	18.75	s	0	0
LFL Frac (7000)	18.75	s	0	0

Jet Fire Hazard

Path: \Terminal Adonai - Efeitos físicos\Simulações\H113

Jet fire method used: Cone model - DNV recommended

	Dia	Noite
Jet Fire Status	Truncated	Truncated
Flame Direction	Horizontal	Horizontal

Radiation Effects: Jet Fire Ellipse

Path: \Terminal Adonai - Efeitos físicos\Simulações\H113

This table gives the distances to the specified radiation levels
for each jet fire listed in the above hazard table

Radiation Level			Distance (m)	
			Dia	Noite
9.83	kW/m2		22.2171	22.3273
19.46	kW/m2		19.2926	19.504
35	kW/m2		17.3131	17.5546

Radiation Effects: Jet Fire Distance

Path: \Terminal Adonai - Efeitos físicos\Simulações\H113

	Dia	Radiation Level (kW/m2)
		Noite

Early Pool Fire Hazard

Path: \Terminal Adonai - Efeitos físicos\Simulações\H113

	Dia	Noite
Early Pool Fire Status	Hazard	Hazard

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Radiation Effects: Early Pool Fire Ellipse

Path: \Terminal Adonai - Efeitos físicos\Simulações\H113

			Dia	Noite
Radiation Level	9.83	kW/m2	32.1888	30.8241
Radiation Level	19.46	kW/m2	23.6586	23.8138
Radiation Level	35	kW/m2	Not Reached	Not Reached

Radiation Effects: Early Pool Fire Distance

Path: \Terminal Adonai - Efeitos físicos\Simulações\H113

	Dia	Radiation Level (kW/m2)
		Noite

Late Pool Fire Hazard

Path: \Terminal Adonai - Efeitos físicos\Simulações\H113

	Dia	Noite
Late Pool Fire Status	Hazard	Hazard

Radiation Effects: Late Pool Fire Ellipse

Path: \Terminal Adonai - Efeitos físicos\Simulações\H113

			Dia	Noite
Radiation Level	9.83	kW/m2	35.5566	34.1452
Radiation Level	19.46	kW/m2	28.7622	28.7016
Radiation Level	35	kW/m2	Not Reached	Not Reached

Radiation Effects: Late Pool Fire Distance

Path: \Terminal Adonai - Efeitos físicos\Simulações\H113

	Dia	Radiation Level (kW/m2)
		Noite

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Flash Fire Envelope

Path: \Terminal Adonai - Efeitos físicos\Simulações\H113

All flammable results are reported at the flammable effect height 0 m

				Distance (m)	
				Dia	Noite
Furthest Extent	7000	ppm	8.44773	8.4409	
Furthest Extent	7000	ppm	8.44773	8.4409	
				Heights (m) for above distances	
				Dia	Noite
Furthest Extent	7000	ppm	0	0	
Furthest Extent	7000	ppm	0	0	

Weather Conditions

Path: \Terminal Adonai - Efeitos físicos\Simulações\H113

			Dia	Noite
Wind Speed	m/s		3	2
Pasquill Stability			C	E
Surface Roughness Length	mm		1000	1000
Surface Roughness Parameter			0.173718	0.173718
Atmospheric Temperature	degC		25	20
Surface Temperature	degC		30	20
Relative Humidity	fraction		0.8	0.8

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

H114

Base Case

CASE Name: Data

Path: \Terminal Adonai - Efeitos físicos\Simulações\H114

User-Defined Data

Material

Material Identifier N-NONANE

Scenario

Building Wake Effect None

Vessel/Tank

Release Type Continuous

Location

Elevation 1 m
Use ERPG averaging time ERPG not selected
Use IDLH averaging time IDLH not selected
Use STEL averaging time STEL not selected
Supply a user defined averaging time Not supplied

Bund

Status of Bund No bund present
[Type of Bund Surface User-Defined (Land)]
[Bund Height 0 m]
[Bund Failure Modeling Bund cannot fail]

Indoor/Outdoor

Location of release Open air release
Outdoor Release Direction Horizontal

Flammable

Explosion Method TNT
Jet Fire Method Cone Model

Dispersion

Number of Release Segments 1
Fluid Phase(1) Liquid
Discharge Velocity(1) 31.57 m/s
Droplet Diameter(1) 235.1 um
Duration of Discharge(1) 600 s
Final Temperature(1) 24.94 degC
Release Rate(1) 0.42 kg/s
Pre-Dilution Air Rates(1) 0 kg/s
Late Ignition Location No ignition location
Mass Inventory of material to Disperse 4.286E4 kg

Fireball Parameters

[Mass Modification Factor 3]
[Calculation method for fireball DNV Recommended]
[TNO model flame temperature 1727 degC]

Toxic Parameters

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

[Indoor Calculations	Unselected]
[Wind Dependent Exchange Rate	Case Specified]
[Building Exchange Rate	4 /hr]
[Tail Time	1800 s]
[Set averaging time equal to exposure time	Use a fixed averaging time]
[Cut-off fraction of toxic load for exposure time calculation	0.05 fraction]
[Cut-off concentration for exposure time calculations	0 fraction]

Geometry

Shape	Point
Dimension	2D
System	Absolute
East(1)	0 m
North(1)	0 m

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Consequence Results

Pool Vaporization Results

Path: \Terminal Adonai - Efeitos físicos\Simulações\H114

			Dia	Noite
		Release Segment 1		
Release Duration	s		600	600
Liquid Rainout	fraction		0.900506	0.927365
Maximum Pool Radius	m		1.83613	1.85601

Distance to Concentration Results

Path: \Terminal Adonai - Efeitos físicos\Simulações\H114

The height for user defined concentrations is the user defined height 0 m
 All toxic results are reported at the toxic effect height 1 m
 All flammable results are reported at the flammable effect height 0 m

Concentration(ppm)	Averaging Time		Dia	Noite	Distance (m)
UFL (56000)	18.75	s	No Hazard	No Hazard	
LFL (7000)	18.75	s	No Hazard	5.77285	
LFL Frac (7000)	18.75	s	No Hazard	5.77285	
Concentration(ppm)	Averaging Time		Dia	Noite	Heights (m) for above distances
UFL (56000)	18.75	s	0	0	
LFL (7000)	18.75	s	0	0	
LFL Frac (7000)	18.75	s	0	0	

Jet Fire Hazard

Path: \Terminal Adonai - Efeitos físicos\Simulações\H114

Jet fire method used: Cone model - DNV recommended

		Dia	Noite
Jet Fire Status		Truncated	Truncated
Flame Direction		Horizontal	Horizontal

Radiation Effects: Jet Fire Ellipse

Path: \Terminal Adonai - Efeitos físicos\Simulações\H114

This table gives the distances to the specified radiation levels for each jet fire listed in the above hazard table

			Dia	Noite	Distance (m)
Radiation Level	9.83	kW/m2	8.61616	7.90119	
Radiation Level	19.46	kW/m2	7.38431	6.78569	
Radiation Level	35	kW/m2	6.50744	6.26708	

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Radiation Effects: Jet Fire Distance

Path: \\Terminal Adonai - Efeitos físicos\Simulações\H114

Dia Radiation Level (kW/m2)
Noite

Early Pool Fire Hazard

Path: \\Terminal Adonai - Efeitos físicos\Simulações\H114

Early Pool Fire Status Dia Noite
Hazard Hazard

Radiation Effects: Early Pool Fire Ellipse

Path: \\Terminal Adonai - Efeitos físicos\Simulações\H114

			Dia	Noite
Radiation Level	9.83	kW/m2	16.4246	15.7458
Radiation Level	19.46	kW/m2	13.9235	12.945
Radiation Level	35	kW/m2	10.5312	9.86518

Radiation Effects: Early Pool Fire Distance

Path: \\Terminal Adonai - Efeitos físicos\Simulações\H114

Dia Radiation Level (kW/m2)
Noite

Late Pool Fire Hazard

Path: \\Terminal Adonai - Efeitos físicos\Simulações\H114

Late Pool Fire Status Dia Noite
Hazard Hazard

Radiation Effects: Late Pool Fire Ellipse

Path: \\Terminal Adonai - Efeitos físicos\Simulações\H114

			Dia	Noite
Radiation Level	9.83	kW/m2	18.7027	17.7793
Radiation Level	19.46	kW/m2	15.4301	14.215
Radiation Level	35	kW/m2	11.1924	10.4834

Radiation Effects: Late Pool Fire Distance

Path: \\Terminal Adonai - Efeitos físicos\Simulações\H114

Dia Radiation Level (kW/m2)
Noite

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Flash Fire Envelope

Path: \Terminal Adonai - Efeitos físicos\Simulações\H114

All flammable results are reported at the flammable effect height 0 m

				Distance (m)
				Noite
Furthest Extent	7000	ppm		5.77285
Furthest Extent	7000	ppm		5.77285
				Heights (m) for above distances
				Noite
Furthest Extent	7000	ppm		0
Furthest Extent	7000	ppm		0

Weather Conditions

Path: \Terminal Adonai - Efeitos físicos\Simulações\H114

		Dia	Noite
Wind Speed	m/s	3	2
Pasquill Stability		C	E
Surface Roughness Length	mm	1000	1000
Surface Roughness Parameter		0.173718	0.173718
Atmospheric Temperature	degC	25	20
Surface Temperature	degC	30	20
Relative Humidity	fraction	0.8	0.8

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

H115

Base Case

CASE Name: Data

Path: \Terminal Adonai - Efeitos físicos\Simulações\H115

User-Defined Data

Material

Material Identifier	N-NONANE
Type of Vessel	Padded Liquid
Pressure Specification	Pressure specified
Storage Pressure - gauge	0.03 bar
Temperature	25 degC
Volume Inventory	3200 m3

Scenario

Scenario Type	Line rupture
Phase to be Released	Liquid
Building Wake Effect	None
Specify Pump Head	No pump head supplied
Number of Excess Flow Valves	0
Number of Non-Return Valves	0
Number of Shut-Off Valves	0

Pipe

Internal Diameter	152.4 mm
Line length	1 m

Vessel/Tank

Duration of Interest	600 s
Method Used for Time Varying Releases	Average Rates
Tank Type	Vertical
Tank Height	22.64 m
Tank Diameter	15 m
Height of Discharge from Vessel Bottom	1 m

Location

Elevation	1 m
Use ERPG averaging time	ERPG not selected
Use IDLH averaging time	IDLH not selected
Use STEL averaging time	STEL not selected
Supply a user defined averaging time	Not supplied

Bund

Status of Bund	Bund present
Bund Area	1940 m2
[Type of Bund Surface	User-Defined (Land)]
Bund Height	3 m
[Bund Failure Modeling	Bund cannot fail]

Indoor/Outdoor

Location of release	Open air release
Outdoor Release Direction	Horizontal

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Flammable

Explosion Method TNT
Jet Fire Method Cone Model

Dispersion

Late Ignition Location No ignition location
Mass Inventory of material to Disperse 2.286E6 kg

Fireball Parameters

[Mass Modification Factor 3]
[Calculation method for fireball DNV Recommended]
[TNO model flame temperature 1727 degC]

Toxic Parameters

[Indoor Calculations Unselected]
[Wind Dependent Exchange Rate Case Specified]
[Building Exchange Rate 4 /hr]
[Tail Time 1800 s]
[Set averaging time equal to exposure time Use a fixed averaging time]
[Cut-off fraction of toxic load for exposure time calculation 0.05 fraction]
[Cut-off concentration for exposure time calculations 0 fraction]

Geometry

Shape Point
Dimension 2D
System Absolute
East(1) 0 m
North(1) 0 m

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Path: \Terminal Adonai - Efeitos físicos\Simulações\H115

DISCHARGE DATA for Weather: Global Weathers\Dia

Wind Speed: 3.00 m/s
Wind Speed at Height (Calculated) 1.78 m/s
Pasquill Stability: C

USER-DEFINED QUANTITIES

Material N-NONANE
Scenario Line rupture
Inventory 2,285,736.50 kg
Fixed Duration n/a s

Stagnation data (data at upstream end for long pipe):

- Pressure 1.04 bar
- Temperature 25.00 degC
- Fluid State Non-saturated liquid

CALCULATED QUANTITIES

Mass Flow of Air (Vent from Vapor Space only) n/a
Mass Flowrate 1.54694E+002 kg/s
Release Duration 600.00 s

Orifice or pipe exit data (before atmospheric expansion):

- Pressure n/a bar
- Temperature n/a degC
- Vena Contracta Velocity (exit velocity for pipe releases) n/a m/s
- Discharge Coefficient n/a

Final data (after atmospheric expansion):

- Temperature 25.07 degC
- Liquid Mass Fraction 1.00 fraction
- Droplet Diameter 1,694.35 um
- Expanded Radius n/a m
- Velocity 11.87 m/s

DISCHARGE DATA for Weather: Global Weathers\Noite

Wind Speed: 2.00 m/s
Wind Speed at Height (Calculated) 0.83 m/s
Pasquill Stability: E

USER-DEFINED QUANTITIES

Material N-NONANE
Scenario Line rupture
Inventory 2,285,736.50 kg
Fixed Duration n/a s

Stagnation data (data at upstream end for long pipe):

- Pressure 1.04 bar
- Temperature 25.00 degC
- Fluid State Non-saturated liquid

CALCULATED QUANTITIES

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Mass Flow of Air (Vent from Vapor Space only)	n/a
Mass Flowrate	1.54694E+002 kg/s
Release Duration	600.00 s
Orifice or pipe exit data (before atmospheric expansion):	
- Pressure	n/a bar
- Temperature	n/a degC
- Vena Contracta Velocity (exit velocity for pipe releases)	n/a m/s
- Discharge Coefficient	n/a
Final data (after atmospheric expansion):	
- Temperature	25.07 degC
- Liquid Mass Fraction	1.00 fraction
- Droplet Diameter	1,661.80 um
- Expanded Radius	n/a m
- Velocity	11.87 m/s

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Consequence Results

Pool Vaporization Results

Path: \Terminal Adonai - Efeitos físicos\Simulações\H115

		Dia	Noite
Release Segment 1			
Release Duration	s	600	600
Liquid Rainout	fraction	0.998538	0.998802
Release Segment 1 Cloud Segment 1			
Cloud Segment Duration	s	138.063	152.523
Pool Vaporization Rate	kg/s	0.103294	0.0799866
Total Vapor Flowrate	kg/s	0.329507	0.265372
Release Segment 1 Cloud Segment 2			
Cloud Segment Duration	s	57.2381	66.5175
Pool Vaporization Rate	kg/s	0.249013	0.182635
Total Vapor Flowrate	kg/s	0.475226	0.36802
Release Segment 1 Cloud Segment 3			
Cloud Segment Duration	s	44.175	380.96
Pool Vaporization Rate	kg/s	0.326011	0.254108
Total Vapor Flowrate	kg/s	0.552224	0.439493
Release Segment 1 Cloud Segment 4			
Cloud Segment Duration	s	360.524	
Pool Vaporization Rate	kg/s	0.405956	
Total Vapor Flowrate	kg/s	0.632169	
Maximum Pool Radius	m	24.85	24.85

Distance to Concentration Results

Path: \Terminal Adonai - Efeitos físicos\Simulações\H115

The height for user defined concentrations is the user defined height 0 m
 All toxic results are reported at the toxic effect height 1 m
 All flammable results are reported at the flammable effect height 0 m

Concentration(ppm)	Averaging Time		Distance (m)	
			Dia	Noite
UFL (56000)	18.75	s	6.02385	6.05886
LFL (7000)	18.75	s	11.1674	10.0726
LFL Frac (7000)	18.75	s	11.1674	10.0726
Concentration(ppm)	Averaging Time		Heights (m) for above distances	
			Dia	Noite
UFL (56000)	18.75	s	0	0
LFL (7000)	18.75	s	0	0
LFL Frac (7000)	18.75	s	0	0

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Jet Fire Hazard

Path: \Terminal Adonai - Efeitos físicos\Simulações\H115

Jet fire method used: Cone model - DNV recommended

	Dia	Noite
Jet Fire Status	Truncated	Truncated
Flame Direction	Horizontal	Horizontal

Radiation Effects: Jet Fire Ellipse

Path: \Terminal Adonai - Efeitos físicos\Simulações\H115

This table gives the distances to the specified radiation levels for each jet fire listed in the above hazard table

			Distance (m)	
			Dia	Noite
Radiation Level	9.83	kW/m2	19.6635	19.2951
Radiation Level	19.46	kW/m2	17.1527	16.9034
Radiation Level	35	kW/m2	15.4335	15.2267

Radiation Effects: Jet Fire Distance

Path: \Terminal Adonai - Efeitos físicos\Simulações\H115

	Radiation Level (kW/m2)	
	Dia	Noite

Early Pool Fire Hazard

Path: \Terminal Adonai - Efeitos físicos\Simulações\H115

	Dia	Noite
Early Pool Fire Status	Hazard	Hazard

Radiation Effects: Early Pool Fire Ellipse

Path: \Terminal Adonai - Efeitos físicos\Simulações\H115

			Distance (m)	
			Dia	Noite
Radiation Level	9.83	kW/m2	32.47	30.9616
Radiation Level	19.46	kW/m2	25.85	25.85
Radiation Level	35	kW/m2	Not Reached	Not Reached

Radiation Effects: Early Pool Fire Distance

Path: \Terminal Adonai - Efeitos físicos\Simulações\H115

	Radiation Level (kW/m2)	
	Dia	Noite

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Late Pool Fire Hazard

Path: \Terminal Adonai - Efeitos físicos\Simulações\H115

	Dia	Noite
Late Pool Fire Status	Hazard	Hazard

Radiation Effects: Late Pool Fire Ellipse

Path: \Terminal Adonai - Efeitos físicos\Simulações\H115

			Dia	Noite
				Distance (m)
Radiation Level	9.83	kW/m2	32.47	30.9616
Radiation Level	19.46	kW/m2	25.85	25.85
Radiation Level	35	kW/m2	Not Reached	Not Reached

Radiation Effects: Late Pool Fire Distance

Path: \Terminal Adonai - Efeitos físicos\Simulações\H115

	Dia	Noite
		Radiation Level (kW/m2)
		Noite

Flash Fire Envelope

Path: \Terminal Adonai - Efeitos físicos\Simulações\H115

All flammable results are reported at the flammable effect height 0 m

			Dia	Noite
				Distance (m)
Furthest Extent	7000	ppm	11.1674	10.0726
Furthest Extent	7000	ppm	11.1674	10.0726
				Heights (m) for above distances
			Dia	Noite
Furthest Extent	7000	ppm	0	0
Furthest Extent	7000	ppm	0	0

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Explosion Effects: Late Ignition

Path: \Terminal Adonai - Efeitos físicos\Simulações\H115

Explosion Model Used : TNT

Explosion Location Criterion: Cloud Center

All distances are measured from the Source

All flammable results are reported at the flammable effect height 0 m

			Maximum Distance (m) at Overpressure Level	
			Dia	Noite
Overpressure	0.05	bar	13.1569	11.8091
Overpressure	0.1	bar	10.0649	9.22718
Overpressure	0.3	bar	7.53059	7.11101

Supplementary Data at 0.05 bar

			Dia	Noite
Supplied Flammable Mass		kg	0.115197	0.0670715
Used Flammable Mass		kg	0.115197	0.0670715
Overpressure Radius		m	8.15386	6.80867
Distance to:				
- Ignition Source		m	10	10
- Cloud Front/Centre		m	10	10
- Explosion Centre		m	5.00305	5.00045

Supplementary Data at 0.1 bar

			Dia	Noite
Supplied Flammable Mass		kg	0.115197	0.0670715
Used Flammable Mass		kg	0.115197	0.0670715
Overpressure Radius		m	5.0618	4.22673
Distance to:				
- Ignition Source		m	10	10
- Cloud Front/Centre		m	10	10
- Explosion Centre		m	5.00305	5.00045

Supplementary Data at 0.3 bar

			Dia	Noite
Supplied Flammable Mass		kg	0.115197	0.0670715
Used Flammable Mass		kg	0.115197	0.0670715
Overpressure Radius		m	2.52753	2.11055
Distance to:				
- Ignition Source		m	10	10
- Cloud Front/Centre		m	10	10
- Explosion Centre		m	5.00305	5.00045

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Weather Conditions

Path: \Terminal Adonai - Efeitos físicos\Simulações\H115

		Dia	Noite
Wind Speed	m/s	3	2
Pasquill Stability		C	E
Surface Roughness Length	mm	1000	1000
Surface Roughness Parameter		0.173718	0.173718
Atmospheric Temperature	degC	25	20
Surface Temperature	degC	30	20
Relative Humidity	fraction	0.8	0.8

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

H116

Base Case

CASE Name: Data

Path: \Terminal Adonai - Efeitos físicos\Simulações\H116

User-Defined Data

Material

Material Identifier	N-NONANE
Type of Vessel	Padded Liquid
Pressure Specification	Pressure specified
Storage Pressure - gauge	0.03 bar
Temperature	25 degC
Volume Inventory	3200 m3

Scenario

Scenario Type	Leak
Phase to be Released	Liquid
Hole Diameter	15.24 mm
Building Wake Effect	None

Vessel/Tank

Duration of Interest	600 s
Method Used for Time Varying Releases	Average Rates
Tank Type	Vertical
Tank Height	22.64 m
Tank Diameter	15 m
Height of Discharge from Vessel Bottom	1 m

Location

Elevation	1 m
Use ERPG averaging time	ERPG not selected
Use IDLH averaging time	IDLH not selected
Use STEL averaging time	STEL not selected
Supply a user defined averaging time	Not supplied

Bund

Status of Bund	Bund present
Bund Area	1940 m2
[Type of Bund Surface	User-Defined (Land)]
Bund Height	3 m
[Bund Failure Modeling	Bund cannot fail]

Indoor/Outdoor

Location of release	Open air release
Outdoor Release Direction	Horizontal

Flammable

Explosion Method	TNT
Jet Fire Method	Cone Model

Dispersion

Late Ignition Location	No ignition location
Mass Inventory of material to Disperse	2.286E6 kg

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Fireball Parameters

[Mass Modification Factor	3]
[Calculation method for fireball	DNV Recommended]
[TNO model flame temperature	1727 degC]

Toxic Parameters

[Indoor Calculations	Unselected]
[Wind Dependent Exchange Rate	Case Specified]
[Building Exchange Rate	4 /hr]
[Tail Time	1800 s]
[Set averaging time equal to exposure time	Use a fixed averaging time]
[Cut-off fraction of toxic load for exposure time calculation	0.05 fraction]
[Cut-off concentration for exposure time calculations	0 fraction]

Geometry

Shape	Point
Dimension	2D
System	Absolute
East(1)	0 m
North(1)	0 m

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Path: \Terminal Adonai - Efeitos físicos\Simulações\H116

DISCHARGE DATA for Weather: Global Weathers\Dia

Wind Speed: 3.00 m/s
Wind Speed at Height (Calculated) 1.78 m/s
Pasquill Stability: C

USER-DEFINED QUANTITIES

Material N-NONANE
Scenario Leak
Inventory 2,285,736.50 kg
Fixed Duration n/a s

Stagnation data (data at upstream end for long pipe):

- Pressure 1.04 bar
- Temperature 25.00 degC
- Fluid State Non-saturated liquid

CALCULATED QUANTITIES

Mass Flow of Air (Vent from Vapor Space only) n/a
Mass Flowrate 1.57867E+000 kg/s
Release Duration 600.00 s

Orifice or pipe exit data (before atmospheric expansion):

- Pressure n/a bar
- Temperature n/a degC
- Vena Contracta Velocity (exit velocity for pipe releases) n/a m/s
- Discharge Coefficient n/a

Final data (after atmospheric expansion):

- Temperature 24.98 degC
- Liquid Mass Fraction 1.00 fraction
- Droplet Diameter 585.71 um
- Expanded Radius n/a m
- Velocity 20.19 m/s

DISCHARGE DATA for Weather: Global Weathers\Noite

Wind Speed: 2.00 m/s
Wind Speed at Height (Calculated) 0.83 m/s
Pasquill Stability: E

USER-DEFINED QUANTITIES

Material N-NONANE
Scenario Leak
Inventory 2,285,736.50 kg
Fixed Duration n/a s

Stagnation data (data at upstream end for long pipe):

- Pressure 1.04 bar
- Temperature 25.00 degC
- Fluid State Non-saturated liquid

CALCULATED QUANTITIES

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Mass Flow of Air (Vent from Vapor Space only)	n/a
Mass Flowrate	1.57867E+000 kg/s
Release Duration	600.00 s
Orifice or pipe exit data (before atmospheric expansion):	
- Pressure	n/a bar
- Temperature	n/a degC
- Vena Contracta Velocity (exit velocity for pipe releases)	n/a m/s
- Discharge Coefficient	n/a
Final data (after atmospheric expansion):	
- Temperature	24.97 degC
- Liquid Mass Fraction	1.00 fraction
- Droplet Diameter	574.46 um
- Expanded Radius	n/a m
- Velocity	20.19 m/s

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Consequence Results

Pool Vaporization Results

Path: \Terminal Adonai - Efeitos físicos\Simulações\H116

Release Segment 1		Dia	Noite
Release Duration	s	600	600
Liquid Rainout	fraction	0.981832	0.983388
Maximum Pool Radius	m	3.71751	3.7066

Distance to Concentration Results

Path: \Terminal Adonai - Efeitos físicos\Simulações\H116

The height for user defined concentrations is the user defined height 0 m
All toxic results are reported at the toxic effect height 1 m
All flammable results are reported at the flammable effect height 0 m

Concentration(ppm)	Averaging Time		Dia	Noite
UFL (56000)	18.75	s	No Hazard	No Hazard
LFL (7000)	18.75	s	5.27313	5.38802
LFL Frac (7000)	18.75	s	5.27313	5.38802

Concentration(ppm)	Averaging Time		Dia	Noite	Heights (m) for above distances
UFL (56000)	18.75	s	0	0	Noite
LFL (7000)	18.75	s	0	0	0
LFL Frac (7000)	18.75	s	0	0	0

Jet Fire Hazard

Path: \Terminal Adonai - Efeitos físicos\Simulações\H116

Jet fire method used: Cone model - DNV recommended

	Dia	Noite
Jet Fire Status	Truncated	Truncated
Flame Direction	Horizontal	Horizontal

Radiation Effects: Jet Fire Ellipse

Path: \Terminal Adonai - Efeitos físicos\Simulações\H116

This table gives the distances to the specified radiation levels for each jet fire listed in the above hazard table

			Dia	Noite
Radiation Level	9.83	kW/m2	7.38174	7.59264
Radiation Level	19.46	kW/m2	6.28575	6.51519
Radiation Level	35	kW/m2	5.831	6.19835

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Radiation Effects: Jet Fire Distance

Path: \Terminal Adonai - Efeitos físicos\Simulações\H116

Dia Radiation Level (kW/m2)
Noite

Early Pool Fire Hazard

Path: \Terminal Adonai - Efeitos físicos\Simulações\H116

Early Pool Fire Status Dia Noite
Hazard Hazard

Radiation Effects: Early Pool Fire Ellipse

Path: \Terminal Adonai - Efeitos físicos\Simulações\H116

			Dia	Distance (m) Noite
Radiation Level	9.83	kW/m2	21.2415	20.4639
Radiation Level	19.46	kW/m2	16.3613	15.4004
Radiation Level	35	kW/m2	11.0304	10.717

Radiation Effects: Early Pool Fire Distance

Path: \Terminal Adonai - Efeitos físicos\Simulações\H116

Dia Radiation Level (kW/m2)
Noite

Late Pool Fire Hazard

Path: \Terminal Adonai - Efeitos físicos\Simulações\H116

Late Pool Fire Status Dia Noite
Hazard Hazard

Radiation Effects: Late Pool Fire Ellipse

Path: \Terminal Adonai - Efeitos físicos\Simulações\H116

			Dia	Distance (m) Noite
Radiation Level	9.83	kW/m2	24.0795	22.847
Radiation Level	19.46	kW/m2	17.0917	16.1207
Radiation Level	35	kW/m2	11.2853	11.0815

Radiation Effects: Late Pool Fire Distance

Path: \Terminal Adonai - Efeitos físicos\Simulações\H116

Dia Radiation Level (kW/m2)
Noite

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Flash Fire Envelope

Path: \Terminal Adonai - Efeitos físicos\Simulações\H116

All flammable results are reported at the flammable effect height 0 m

				Distance (m)	
				Dia	Noite
Furthest Extent	7000	ppm	5.27313	5.38802	
Furthest Extent	7000	ppm	5.27313	5.38802	
				Heights (m) for above distances	
				Dia	Noite
Furthest Extent	7000	ppm	0	0	
Furthest Extent	7000	ppm	0	0	

Weather Conditions

Path: \Terminal Adonai - Efeitos físicos\Simulações\H116

			Dia	Noite
Wind Speed	m/s		3	2
Pasquill Stability			C	E
Surface Roughness Length	mm		1000	1000
Surface Roughness Parameter			0.173718	0.173718
Atmospheric Temperature	degC		25	20
Surface Temperature	degC		30	20
Relative Humidity	fraction		0.8	0.8

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

H117

Base Case

CASE Name: Data

Path: \Terminal Adonai - Efeitos físicos\Simulações\H117

User-Defined Data

Material

Material Identifier N-NONANE

Scenario

Building Wake Effect None

Vessel/Tank

Release Type Continuous

Location

Elevation 1 m
Use ERPG averaging time ERPG not selected
Use IDLH averaging time IDLH not selected
Use STEL averaging time STEL not selected
Supply a user defined averaging time Not supplied

Bund

Status of Bund No bund present
[Type of Bund Surface User-Defined (Land)]
[Bund Height 0 m]
[Bund Failure Modeling Bund cannot fail]

Indoor/Outdoor

Location of release Open air release
Outdoor Release Direction Horizontal

Flammable

Explosion Method TNT
Jet Fire Method Cone Model

Dispersion

Number of Release Segments 1
Fluid Phase(1) Liquid
Discharge Velocity(1) 18.94 m/s
Droplet Diameter(1) 652.1 um
Duration of Discharge(1) 600 s
Final Temperature(1) 25.18 degC
Release Rate(1) 21.02 kg/s
Pre-Dilution Air Rates(1) 0 kg/s
Late Ignition Location No ignition location
Mass Inventory of material to Disperse 2.286E6 kg

Fireball Parameters

[Mass Modification Factor 3]
[Calculation method for fireball DNV Recommended]
[TNO model flame temperature 1727 degC]

Toxic Parameters

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

[Indoor Calculations	Unselected]
[Wind Dependent Exchange Rate	Case Specified]
[Building Exchange Rate	4 /hr]
[Tail Time	1800 s]
[Set averaging time equal to exposure time	Use a fixed averaging time]
[Cut-off fraction of toxic load for exposure time calculation	0.05 fraction]
[Cut-off concentration for exposure time calculations	0 fraction]

Geometry

Shape	Point
Dimension	2D
System	Absolute
East(1)	0 m
North(1)	0 m

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Consequence Results

Pool Vaporization Results

Path: \Terminal Adonai - Efeitos físicos\Simulações\H117

		Dia	Noite
	Release Segment 1		
Release Duration	s	600	600
Liquid Rainout	fraction	0.990722	0.991845
	Release Segment 1 Cloud Segment 1		
Cloud Segment Duration	s	193.21	
Pool Vaporization Rate	kg/s	0.0211857	
Total Vapor Flowrate	kg/s	0.2162	0.171412
	Release Segment 1 Cloud Segment 2		
Cloud Segment Duration	s	79.04	
Pool Vaporization Rate	kg/s	0.051796	
Total Vapor Flowrate	kg/s	0.24681	
	Release Segment 1 Cloud Segment 3		
Cloud Segment Duration	s	60.8125	
Pool Vaporization Rate	kg/s	0.0680375	
Total Vapor Flowrate	kg/s	0.263051	
	Release Segment 1 Cloud Segment 4		
Cloud Segment Duration	s	51.0975	
Pool Vaporization Rate	kg/s	0.0812159	
Total Vapor Flowrate	kg/s	0.27623	
	Release Segment 1 Cloud Segment 5		
Cloud Segment Duration	s	44.33	
Pool Vaporization Rate	kg/s	0.092562	
Total Vapor Flowrate	kg/s	0.287576	
	Release Segment 1 Cloud Segment 6		
Cloud Segment Duration	s	77.76	
Pool Vaporization Rate	kg/s	0.107212	
Total Vapor Flowrate	kg/s	0.302226	
	Release Segment 1 Cloud Segment 7		
Cloud Segment Duration	s	93.75	
Pool Vaporization Rate	kg/s	0.127993	
Total Vapor Flowrate	kg/s	0.323007	
Maximum Pool Radius	m	13.6274	13.5912

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Distance to Concentration Results

Path: \Terminal Adonai - Efeitos físicos\Simulações\H117

The height for user defined concentrations is the user defined height 0 m
All toxic results are reported at the toxic effect height 1 m
All flammable results are reported at the flammable effect height 0 m

Concentration(ppm)	Averaging Time		Distance (m)	
			Dia	Noite
UFL (56000)	18.75	s	7.7693	7.78687
LFL (7000)	18.75	s	7.77155	7.79544
LFL Frac (7000)	18.75	s	7.77155	7.79544

Concentration(ppm)	Averaging Time		Heights (m) for above distances	
			Dia	Noite
UFL (56000)	18.75	s	0	0
LFL (7000)	18.75	s	0	0
LFL Frac (7000)	18.75	s	0	0

Jet Fire Hazard

Path: \Terminal Adonai - Efeitos físicos\Simulações\H117

Jet fire method used: Cone model - DNV recommended

	Dia	Noite
Jet Fire Status	Truncated	Truncated
Flame Direction	Horizontal	Horizontal

Radiation Effects: Jet Fire Ellipse

Path: \Terminal Adonai - Efeitos físicos\Simulações\H117

This table gives the distances to the specified radiation levels
for each jet fire listed in the above hazard table

Radiation Level			Distance (m)	
			Dia	Noite
9.83	kW/m2		18.0812	18.2538
19.46	kW/m2		15.7084	15.9511
35	kW/m2		14.0851	14.3487

Radiation Effects: Jet Fire Distance

Path: \Terminal Adonai - Efeitos físicos\Simulações\H117

	Dia	Radiation Level (kW/m2)
		Noite

Early Pool Fire Hazard

Path: \Terminal Adonai - Efeitos físicos\Simulações\H117

	Dia	Noite
Early Pool Fire Status	Hazard	Hazard

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Radiation Effects: Early Pool Fire Ellipse

Path: \Terminal Adonai - Efeitos físicos\Simulações\H117

			Dia	Noite
Radiation Level	9.83	kW/m2	30.9247	29.178
Radiation Level	19.46	kW/m2	18.8707	18.9509
Radiation Level	35	kW/m2	Not Reached	Not Reached

Radiation Effects: Early Pool Fire Distance

Path: \Terminal Adonai - Efeitos físicos\Simulações\H117

	Dia	Noite
Radiation Level (kW/m2)		

Late Pool Fire Hazard

Path: \Terminal Adonai - Efeitos físicos\Simulações\H117

	Dia	Noite
Late Pool Fire Status	Hazard	Hazard

Radiation Effects: Late Pool Fire Ellipse

Path: \Terminal Adonai - Efeitos físicos\Simulações\H117

			Dia	Noite
Radiation Level	9.83	kW/m2	31.3532	29.8406
Radiation Level	19.46	kW/m2	22.4139	22.4011
Radiation Level	35	kW/m2	Not Reached	Not Reached

Radiation Effects: Late Pool Fire Distance

Path: \Terminal Adonai - Efeitos físicos\Simulações\H117

	Dia	Noite
Radiation Level (kW/m2)		

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Flash Fire Envelope

Path: \Terminal Adonai - Efeitos físicos\Simulações\H117

All flammable results are reported at the flammable effect height 0 m

				Distance (m)	
				Dia	Noite
Furthest Extent	7000	ppm	7.77155	7.79544	
Furthest Extent	7000	ppm	7.77155	7.79544	
				Heights (m) for above distances	
				Dia	Noite
Furthest Extent	7000	ppm	0	0	
Furthest Extent	7000	ppm	0	0	

Weather Conditions

Path: \Terminal Adonai - Efeitos físicos\Simulações\H117

			Dia	Noite
Wind Speed	m/s		3	2
Pasquill Stability			C	E
Surface Roughness Length	mm		1000	1000
Surface Roughness Parameter			0.173718	0.173718
Atmospheric Temperature	degC		25	20
Surface Temperature	degC		30	20
Relative Humidity	fraction		0.8	0.8

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

H118

Base Case

CASE Name: Data

Path: \Terminal Adonai - Efeitos físicos\Simulações\H118

User-Defined Data

Material

Material Identifier N-NONANE

Scenario

Building Wake Effect None

Vessel/Tank

Release Type Continuous

Location

Elevation 1 m
Use ERPG averaging time ERPG not selected
Use IDLH averaging time IDLH not selected
Use STEL averaging time STEL not selected
Supply a user defined averaging time Not supplied

Bund

Status of Bund No bund present
[Type of Bund Surface User-Defined (Land)]
[Bund Height 0 m]
[Bund Failure Modeling Bund cannot fail]

Indoor/Outdoor

Location of release Open air release
Outdoor Release Direction Horizontal

Flammable

Explosion Method TNT
Jet Fire Method Cone Model

Dispersion

Number of Release Segments 1
Fluid Phase(1) Liquid
Discharge Velocity(1) 31.57 m/s
Droplet Diameter(1) 235.1 um
Duration of Discharge(1) 600 s
Final Temperature(1) 24.94 degC
Release Rate(1) 0.21 kg/s
Pre-Dilution Air Rates(1) 0 kg/s
Late Ignition Location No ignition location
Mass Inventory of material to Disperse 2.286E6 kg

Fireball Parameters

[Mass Modification Factor 3]
[Calculation method for fireball DNV Recommended]
[TNO model flame temperature 1727 degC]

Toxic Parameters

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

[Indoor Calculations	Unselected]
[Wind Dependent Exchange Rate	Case Specified]
[Building Exchange Rate	4 /hr]
[Tail Time	1800 s]
[Set averaging time equal to exposure time	Use a fixed averaging time]
[Cut-off fraction of toxic load for exposure time calculation	0.05 fraction]
[Cut-off concentration for exposure time calculations	0 fraction]

Geometry

Shape	Point
Dimension	2D
System	Absolute
East(1)	0 m
North(1)	0 m

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Consequence Results

Pool Vaporization Results

Path: \Terminal Adonai - Efeitos físicos\Simulações\H118

			Dia	Noite
		Release Segment 1		
Release Duration	s		600	600
Liquid Rainout	fraction		0.887293	0.918098
Maximum Pool Radius	m		1.28876	1.30583

Distance to Concentration Results

Path: \Terminal Adonai - Efeitos físicos\Simulações\H118

The height for user defined concentrations is the user defined height 0 m
All toxic results are reported at the toxic effect height 1 m
All flammable results are reported at the flammable effect height 0 m

Concentration(ppm)		Averaging Time		Distance (m)	
				Dia	Noite
UFL (56000)	18.75	s		No Hazard	No Hazard
LFL (7000)	18.75	s		No Hazard	No Hazard
LFL Frac (7000)	18.75	s		No Hazard	No Hazard

Concentration(ppm)		Averaging Time		Heights (m) for above distances	
				Dia	Noite
UFL (56000)	18.75	s		0	0
LFL (7000)	18.75	s		0	0
LFL Frac (7000)	18.75	s		0	0

Jet Fire Hazard

Path: \Terminal Adonai - Efeitos físicos\Simulações\H118

Jet fire method used: Cone model - DNV recommended

		Dia	Noite
Jet Fire Status		Hazard	Hazard
Flame Direction		Horizontal	Horizontal

Radiation Effects: Jet Fire Ellipse

Path: \Terminal Adonai - Efeitos físicos\Simulações\H118

This table gives the distances to the specified radiation levels for each jet fire listed in the above hazard table

				Distance (m)	
				Dia	Noite
Radiation Level	9.83	kW/m2		6.52125	5.93353
Radiation Level	19.46	kW/m2		5.48344	4.95648
Radiation Level	35	kW/m2		4.62913	4.24109

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Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Radiation Effects: Jet Fire Distance

Path: \Terminal Adonai - Efeitos físicos\Simulações\H118

Dia Radiation Level (kW/m2)
Noite

Early Pool Fire Hazard

Path: \Terminal Adonai - Efeitos físicos\Simulações\H118

Early Pool Fire Status Dia Noite
Hazard Hazard

Radiation Effects: Early Pool Fire Ellipse

Path: \Terminal Adonai - Efeitos físicos\Simulações\H118

			Dia	Noite
Radiation Level	9.83	kW/m2	13.5494	12.8781
Radiation Level	19.46	kW/m2	11.6974	10.7753
Radiation Level	35	kW/m2	9.06823	8.34942

Radiation Effects: Early Pool Fire Distance

Path: \Terminal Adonai - Efeitos físicos\Simulações\H118

Dia Radiation Level (kW/m2)
Noite

Late Pool Fire Hazard

Path: \Terminal Adonai - Efeitos físicos\Simulações\H118

Late Pool Fire Status Dia Noite
Hazard Hazard

Radiation Effects: Late Pool Fire Ellipse

Path: \Terminal Adonai - Efeitos físicos\Simulações\H118

			Dia	Noite
Radiation Level	9.83	kW/m2	15.4295	14.5835
Radiation Level	19.46	kW/m2	13.0276	11.9173
Radiation Level	35	kW/m2	9.76179	8.95543

Radiation Effects: Late Pool Fire Distance

Path: \Terminal Adonai - Efeitos físicos\Simulações\H118

Dia Radiation Level (kW/m2)
Noite

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Weather Conditions

Path: \Terminal Adonai - Efeitos físicos\Simulações\H118

		Dia	Noite
Wind Speed	m/s	3	2
Pasquill Stability		C	E
Surface Roughness Length	mm	1000	1000
Surface Roughness Parameter		0.173718	0.173718
Atmospheric Temperature	degC	25	20
Surface Temperature	degC	30	20
Relative Humidity	fraction	0.8	0.8

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

H119

Base Case

CASE Name: Data

Path: \Terminal Adonai - Efeitos físicos\Simulações\H119

User-Defined Data

Material

Material Identifier N-NONANE

Scenario

Building Wake Effect None

Vessel/Tank

Release Type Continuous

Location

Elevation 3 m
Use ERPG averaging time ERPG not selected
Use IDLH averaging time IDLH not selected
Use STEL averaging time STEL not selected
Supply a user defined averaging time Not supplied

Bund

Status of Bund No bund present
[Type of Bund Surface User-Defined (Land)]
[Bund Height 0 m]
[Bund Failure Modeling Bund cannot fail]

Indoor/Outdoor

Location of release Open air release
Outdoor Release Direction Horizontal

Flammable

Explosion Method TNT
Jet Fire Method Cone Model

Dispersion

Number of Release Segments 1
Fluid Phase(1) Liquid
Discharge Velocity(1) 18.94 m/s
Droplet Diameter(1) 652.1 um
Duration of Discharge(1) 600 s
Final Temperature(1) 25.18 degC
Release Rate(1) 21.02 kg/s
Pre-Dilution Air Rates(1) 0 kg/s
Late Ignition Location No ignition location
Mass Inventory of material to Disperse 2.286E6 kg

Fireball Parameters

[Mass Modification Factor 3]
[Calculation method for fireball DNV Recommended]
[TNO model flame temperature 1727 degC]

Toxic Parameters

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

[Indoor Calculations	Unselected]
[Wind Dependent Exchange Rate	Case Specified]
[Building Exchange Rate	4 /hr]
[Tail Time	1800 s]
[Set averaging time equal to exposure time	Use a fixed averaging time]
[Cut-off fraction of toxic load for exposure time calculation	0.05 fraction]
[Cut-off concentration for exposure time calculations	0 fraction]

Geometry

Shape	Point
Dimension	2D
System	Absolute
East(1)	0 m
North(1)	0 m

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Consequence Results

Pool Vaporization Results

Path: \Terminal Adonai - Efeitos físicos\Simulações\H119

		Dia	Noite
	Release Segment 1		
Release Duration	s	600	600
Liquid Rainout	fraction	0.980706	0.984052
	Release Segment 1 Cloud Segment 1		
Cloud Segment Duration	s	194.602	
Pool Vaporization Rate	kg/s	0.0201527	
Total Vapor Flowrate	kg/s	0.425719	0.335229
	Release Segment 1 Cloud Segment 2		
Cloud Segment Duration	s	79.3	
Pool Vaporization Rate	kg/s	0.0496434	
Total Vapor Flowrate	kg/s	0.45521	
	Release Segment 1 Cloud Segment 3		
Cloud Segment Duration	s	60.0731	
Pool Vaporization Rate	kg/s	0.0652808	
Total Vapor Flowrate	kg/s	0.470847	
	Release Segment 1 Cloud Segment 4		
Cloud Segment Duration	s	51.165	
Pool Vaporization Rate	kg/s	0.0779741	
Total Vapor Flowrate	kg/s	0.483541	
	Release Segment 1 Cloud Segment 5		
Cloud Segment Duration	s	44.385	
Pool Vaporization Rate	kg/s	0.0890039	
Total Vapor Flowrate	kg/s	0.49457	
	Release Segment 1 Cloud Segment 6		
Cloud Segment Duration	s	76.7244	
Pool Vaporization Rate	kg/s	0.103138	
Total Vapor Flowrate	kg/s	0.508704	
	Release Segment 1 Cloud Segment 7		
Cloud Segment Duration	s	93.75	
Pool Vaporization Rate	kg/s	0.123263	
Total Vapor Flowrate	kg/s	0.52883	
Maximum Pool Radius	m	13.5558	13.5337

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Distance to Concentration Results

Path: \Terminal Adonai - Efeitos físicos\Simulações\H119

The height for user defined concentrations is the user defined height 0 m

All toxic results are reported at the toxic effect height 1 m

All flammable results are reported at the flammable effect height 0 m

Concentration(ppm)	Averaging Time		Distance (m)	
			Dia	Noite
UFL (56000)	18.75	s	No Hazard	No Hazard
LFL (7000)	18.75	s	11.6695	11.7933
LFL Frac (7000)	18.75	s	11.6695	11.7933

Concentration(ppm)	Averaging Time		Heights (m) for above distances	
			Dia	Noite
UFL (56000)	18.75	s	0	0
LFL (7000)	18.75	s	0	0
LFL Frac (7000)	18.75	s	0	0

Jet Fire Hazard

Path: \Terminal Adonai - Efeitos físicos\Simulações\H119

Jet fire method used: Cone model - DNV recommended

	Dia	Noite
Jet Fire Status	Truncated	Truncated
Flame Direction	Horizontal	Horizontal

Radiation Effects: Jet Fire Ellipse

Path: \Terminal Adonai - Efeitos físicos\Simulações\H119

This table gives the distances to the specified radiation levels for each jet fire listed in the above hazard table

Radiation Level			Distance (m)	
			Dia	Noite
9.83	kW/m2	24.3972	23.88	
19.46	kW/m2	20.7712	20.4229	
35	kW/m2	18.1645	17.9352	

Radiation Effects: Jet Fire Distance

Path: \Terminal Adonai - Efeitos físicos\Simulações\H119

	Dia	Radiation Level (kW/m2)
		Noite

Early Pool Fire Hazard

Path: \Terminal Adonai - Efeitos físicos\Simulações\H119

	Dia	Noite
Early Pool Fire Status	Hazard	Hazard

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Radiation Effects: Early Pool Fire Ellipse

Path: \Terminal Adonai - Efeitos físicos\Simulações\H119

			Dia	Noite
Radiation Level	9.83	kW/m2	35.1855	33.4588
Radiation Level	19.46	kW/m2	23.1001	23.1974
Radiation Level	35	kW/m2	Not Reached	Not Reached

Radiation Effects: Early Pool Fire Distance

Path: \Terminal Adonai - Efeitos físicos\Simulações\H119

	Dia	Noite
Radiation Level (kW/m2)		

Late Pool Fire Hazard

Path: \Terminal Adonai - Efeitos físicos\Simulações\H119

	Dia	Noite
Late Pool Fire Status	Hazard	Hazard

Radiation Effects: Late Pool Fire Ellipse

Path: \Terminal Adonai - Efeitos físicos\Simulações\H119

			Dia	Noite
Radiation Level	9.83	kW/m2	35.5885	34.0995
Radiation Level	19.46	kW/m2	26.6114	26.6301
Radiation Level	35	kW/m2	Not Reached	Not Reached

Radiation Effects: Late Pool Fire Distance

Path: \Terminal Adonai - Efeitos físicos\Simulações\H119

	Dia	Noite
Radiation Level (kW/m2)		

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Flash Fire Envelope

Path: \Terminal Adonai - Efeitos físicos\Simulações\H119

All flammable results are reported at the flammable effect height 0 m

				Distance (m)	
				Dia	Noite
Furthest Extent	7000	ppm	11.6695	11.6695	11.7933
Furthest Extent	7000	ppm	11.6695	11.6695	11.7933
				Heights (m) for above distances	
				Dia	Noite
Furthest Extent	7000	ppm	0	0	0
Furthest Extent	7000	ppm	0	0	0

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Explosion Effects: Late Ignition

Path: \Terminal Adonai - Efeitos físicos\Simulações\H119

Explosion Model Used : TNT

Explosion Location Criterion: Cloud Center

All distances are measured from the Source

All flammable results are reported at the flammable effect height 0 m

			Maximum Distance (m) at Overpressure Level	
			Dia	Noite
Overpressure	0.05	bar	11.154	No Hazard
Overpressure	0.1	bar	8.90866	No Hazard
Overpressure	0.3	bar	7.06837	No Hazard
			Supplementary Data at 0.05 bar	
			Dia	Noite
Supplied Flammable Mass		kg	0.0441103	No Hazard
Used Flammable Mass		kg	0.0441103	No Hazard
Overpressure Radius		m	5.92102	0
Distance to:				
- Ignition Source		m	10	No Hazard
- Cloud Front/Centre		m	10	No Hazard
- Explosion Centre		m	5.23297	0
			Supplementary Data at 0.1 bar	
			Dia	Noite
Supplied Flammable Mass		kg	0.0441103	No Hazard
Used Flammable Mass		kg	0.0441103	No Hazard
Overpressure Radius		m	3.67569	0
Distance to:				
- Ignition Source		m	10	No Hazard
- Cloud Front/Centre		m	10	No Hazard
- Explosion Centre		m	5.23297	0
			Supplementary Data at 0.3 bar	
			Dia	Noite
Supplied Flammable Mass		kg	0.0441103	No Hazard
Used Flammable Mass		kg	0.0441103	No Hazard
Overpressure Radius		m	1.8354	0
Distance to:				
- Ignition Source		m	10	No Hazard
- Cloud Front/Centre		m	10	No Hazard
- Explosion Centre		m	5.23297	0

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Weather Conditions

Path: \Terminal Adonai - Efeitos físicos\Simulações\H119

		Dia	Noite
Wind Speed	m/s	3	2
Pasquill Stability		C	E
Surface Roughness Length	mm	1000	1000
Surface Roughness Parameter		0.173718	0.173718
Atmospheric Temperature	degC	25	20
Surface Temperature	degC	30	20
Relative Humidity	fraction	0.8	0.8

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

H120

Base Case

CASE Name: Data

Path: \Terminal Adonai - Efeitos físicos\Simulações\H120

User-Defined Data

Material

Material Identifier N-NONANE

Scenario

Building Wake Effect None

Vessel/Tank

Release Type Continuous

Location

Elevation 3 m
Use ERPG averaging time ERPG not selected
Use IDLH averaging time IDLH not selected
Use STEL averaging time STEL not selected
Supply a user defined averaging time Not supplied

Bund

Status of Bund No bund present
[Type of Bund Surface User-Defined (Land)]
[Bund Height 0 m]
[Bund Failure Modeling Bund cannot fail]

Indoor/Outdoor

Location of release Open air release
Outdoor Release Direction Horizontal

Flammable

Explosion Method TNT
Jet Fire Method Cone Model

Dispersion

Number of Release Segments 1
Fluid Phase(1) Liquid
Discharge Velocity(1) 31.57 m/s
Droplet Diameter(1) 235.1 um
Duration of Discharge(1) 600 s
Final Temperature(1) 24.94 degC
Release Rate(1) 0.21 kg/s
Pre-Dilution Air Rates(1) 0 kg/s
Late Ignition Location No ignition location
Mass Inventory of material to Disperse 2.286E6 kg

Fireball Parameters

[Mass Modification Factor 3]
[Calculation method for fireball DNV Recommended]
[TNO model flame temperature 1727 degC]

Toxic Parameters

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

[Indoor Calculations	Unselected]
[Wind Dependent Exchange Rate	Case Specified]
[Building Exchange Rate	4 /hr]
[Tail Time	1800 s]
[Set averaging time equal to exposure time	Use a fixed averaging time]
[Cut-off fraction of toxic load for exposure time calculation	0.05 fraction]
[Cut-off concentration for exposure time calculations	0 fraction]

Geometry

Shape	Point
Dimension	2D
System	Absolute
East(1)	0 m
North(1)	0 m

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Consequence Results

Pool Vaporization Results

Path: \Terminal Adonai - Efeitos físicos\Simulações\H120

			Dia	Noite
		Release Segment 1		
Release Duration	s		600	600
Liquid Rainout	fraction		0.675845	0.78931
Maximum Pool Radius	m		1.12475	1.21076

Distance to Concentration Results

Path: \Terminal Adonai - Efeitos físicos\Simulações\H120

The height for user defined concentrations is the user defined height 0 m
All toxic results are reported at the toxic effect height 1 m
All flammable results are reported at the flammable effect height 0 m

Concentration(ppm)		Averaging Time		Distance (m)	
				Dia	Noite
UFL (56000)	18.75	s		No Hazard	No Hazard
LFL (7000)	18.75	s		No Hazard	No Hazard
LFL Frac (7000)	18.75	s		No Hazard	No Hazard
Concentration(ppm)		Averaging Time		Heights (m) for above distances	
				Dia	Noite
UFL (56000)	18.75	s		0	0
LFL (7000)	18.75	s		0	0
LFL Frac (7000)	18.75	s		0	0

Jet Fire Hazard

Path: \Terminal Adonai - Efeitos físicos\Simulações\H120

Jet fire method used: Cone model - DNV recommended

		Dia	Noite
Jet Fire Status		Hazard	Hazard
Flame Direction		Horizontal	Horizontal

Radiation Effects: Jet Fire Ellipse

Path: \Terminal Adonai - Efeitos físicos\Simulações\H120

This table gives the distances to the specified radiation levels
for each jet fire listed in the above hazard table

				Distance (m)	
				Dia	Noite
Radiation Level	9.83	kW/m2		9.49492	7.84007
Radiation Level	19.46	kW/m2		6.78686	5.43893
Radiation Level	35	kW/m2		Not Reached	Not Reached

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Radiation Effects: Jet Fire Distance

Path: \Terminal Adonai - Efeitos físicos\Simulações\H120

	Dia	Radiation Level (kW/m2)
	Noite	

Early Pool Fire Hazard

Path: \Terminal Adonai - Efeitos físicos\Simulações\H120

	Dia	Noite
Early Pool Fire Status	Hazard	Hazard

Radiation Effects: Early Pool Fire Ellipse

Path: \Terminal Adonai - Efeitos físicos\Simulações\H120

			Dia	Distance (m)
			Noite	
Radiation Level	9.83	kW/m2	19.8677	16.7693
Radiation Level	19.46	kW/m2	18.2145	14.7926
Radiation Level	35	kW/m2	15.8172	12.4832

Radiation Effects: Early Pool Fire Distance

Path: \Terminal Adonai - Efeitos físicos\Simulações\H120

	Dia	Radiation Level (kW/m2)
	Noite	

Late Pool Fire Hazard

Path: \Terminal Adonai - Efeitos físicos\Simulações\H120

	Dia	Noite
Late Pool Fire Status	Hazard	Hazard

Radiation Effects: Late Pool Fire Ellipse

Path: \Terminal Adonai - Efeitos físicos\Simulações\H120

			Dia	Distance (m)
			Noite	
Radiation Level	9.83	kW/m2	21.6026	18.4043
Radiation Level	19.46	kW/m2	19.462	15.8984
Radiation Level	35	kW/m2	16.4626	13.0797

Radiation Effects: Late Pool Fire Distance

Path: \Terminal Adonai - Efeitos físicos\Simulações\H120

	Dia	Radiation Level (kW/m2)
	Noite	

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Weather Conditions

Path: \Terminal Adonai - Efeitos físicos\Simulações\H120

		Dia	Noite
Wind Speed	m/s	3	2
Pasquill Stability		C	E
Surface Roughness Length	mm	1000	1000
Surface Roughness Parameter		0.173718	0.173718
Atmospheric Temperature	degC	25	20
Surface Temperature	degC	30	20
Relative Humidity	fraction	0.8	0.8

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

H121

Base Case

CASE Name: Data

Path: \Terminal Adonai - Efeitos físicos\Simulações\H121

User-Defined Data

Material

Material Identifier N-PENTANE

Scenario

Building Wake Effect None

Vessel/Tank

Release Type Continuous

Location

Elevation 0 m
Use ERPG averaging time ERPG not selected
Use IDLH averaging time IDLH not selected
Use STEL averaging time STEL not selected
Supply a user defined averaging time Not supplied

Bund

Status of Bund Bund present
Bund Area 1.152E4 m2
[Type of Bund Surface User-Defined (Land)]
Bund Height 0.3 m
[Bund Failure Modeling Bund cannot fail]

Indoor/Outdoor

Location of release Open air release
Outdoor Release Direction Horizontal

Flammable

Explosion Method TNT
Jet Fire Method Cone Model

Dispersion

Number of Release Segments 1
Fluid Phase(1) Liquid
Discharge Velocity(1) 22.54 m/s
Droplet Diameter(1) 318 um
Duration of Discharge(1) 600 s
Final Temperature(1) 25.15 degC
Release Rate(1) 86.25 kg/s
Pre-Dilution Air Rates(1) 0 kg/s
Late Ignition Location No ignition location
Mass Inventory of material to Disperse 1.865E6 kg

Fireball Parameters

[Mass Modification Factor 3]
[Calculation method for fireball DNV Recommended]
[TNO model flame temperature 1727 degC]

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Toxic Parameters

[Indoor Calculations	Unselected]
[Wind Dependent Exchange Rate	Case Specified]
[Building Exchange Rate	4 /hr]
[Tail Time	1800 s]
[Set averaging time equal to exposure time	Use a fixed averaging time]
[Cut-off fraction of toxic load for exposure time calculation	0.05 fraction]
[Cut-off concentration for exposure time calculations	0 fraction]

Geometry

Shape	Point
Dimension	2D
System	Absolute
East(1)	0 m
North(1)	0 m

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Consequence Results

Pool Vaporization Results

Path: \Terminal Adonai - Efeitos físicos\Simulações\H121

		Dia	Noite
	Release Segment 1		
Release Duration	s	600	600
Liquid Rainout	fraction	0.999995	0.999995
	Release Segment 1 Cloud Segment 1		
Cloud Segment Duration	s	148.231	147.016
Pool Vaporization Rate	kg/s	6.53184	5.05287
Total Vapor Flowrate	kg/s	6.5323	5.05332
	Release Segment 1 Cloud Segment 2		
Cloud Segment Duration	s	76.02	75.74
Pool Vaporization Rate	kg/s	12.8189	9.86096
Total Vapor Flowrate	kg/s	12.8193	9.86141
	Release Segment 1 Cloud Segment 3		
Cloud Segment Duration	s	62.205	62.8544
Pool Vaporization Rate	kg/s	15.6031	11.9884
Total Vapor Flowrate	kg/s	15.6036	11.9889
	Release Segment 1 Cloud Segment 4		
Cloud Segment Duration	s	105.584	105.441
Pool Vaporization Rate	kg/s	18.4975	14.1884
Total Vapor Flowrate	kg/s	18.498	14.1888
	Release Segment 1 Cloud Segment 5		
Cloud Segment Duration	s	132.37	133.359
Pool Vaporization Rate	kg/s	22.0457	16.8945
Total Vapor Flowrate	kg/s	22.0462	16.8949
	Release Segment 1 Cloud Segment 6		
Cloud Segment Duration	s	75.59	75.59
Pool Vaporization Rate	kg/s	24.7868	18.9944
Total Vapor Flowrate	kg/s	24.7872	18.9949
Maximum Pool Radius	m	26.5066	27.1494

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Distance to Concentration Results

Path: \Terminal Adonai - Efeitos físicos\Simulações\H121

The height for user defined concentrations is the user defined height 0 m

All toxic results are reported at the toxic effect height 1 m

All flammable results are reported at the flammable effect height 0 m

Concentration(ppm)	Averaging Time		Distance (m)	
			Dia	Noite
UFL (80000)	18.75	s	0	0
LFL (13000)	18.75	s	10.8485	32.5696
LFL Frac (13000)	18.75	s	10.8485	32.5696

Concentration(ppm)	Averaging Time		Heights (m) for above distances	
			Dia	Noite
UFL (80000)	18.75	s	0	0
LFL (13000)	18.75	s	0	0
LFL Frac (13000)	18.75	s	0	0

Jet Fire Hazard

Path: \Terminal Adonai - Efeitos físicos\Simulações\H121

Jet fire method used: Cone model - DNV recommended

	Dia	Noite
Jet Fire Status	Truncated	Truncated
Flame Direction	Horizontal	Horizontal

Radiation Effects: Jet Fire Ellipse

Path: \Terminal Adonai - Efeitos físicos\Simulações\H121

This table gives the distances to the specified radiation levels for each jet fire listed in the above hazard table

			Distance (m)	
Radiation Level			Dia	Noite
9.83	kW/m2		1.9319	2.04018
19.46	kW/m2		1.9319	2.04018
35	kW/m2		1.9319	Not Reached

Radiation Effects: Jet Fire Distance

Path: \Terminal Adonai - Efeitos físicos\Simulações\H121

	Dia	Radiation Level (kW/m2)
		Noite

Early Pool Fire Hazard

Path: \Terminal Adonai - Efeitos físicos\Simulações\H121

	Dia	Noite
Early Pool Fire Status	Hazard	Hazard

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Radiation Effects: Early Pool Fire Ellipse

Path: \Terminal Adonai - Efeitos físicos\Simulações\H121

			Dia	Noite
Radiation Level	9.83	kW/m2	24.1177	23.0407
Radiation Level	19.46	kW/m2	16.3512	16.5845
Radiation Level	35	kW/m2	Not Reached	Not Reached

Radiation Effects: Early Pool Fire Distance

Path: \Terminal Adonai - Efeitos físicos\Simulações\H121

	Dia	Noite
Radiation Level (kW/m2)		

Late Pool Fire Hazard

Path: \Terminal Adonai - Efeitos físicos\Simulações\H121

	Dia	Noite
Late Pool Fire Status	Hazard	Hazard

Radiation Effects: Late Pool Fire Ellipse

Path: \Terminal Adonai - Efeitos físicos\Simulações\H121

			Dia	Noite
Radiation Level	9.83	kW/m2	34.1798	33.4503
Radiation Level	19.46	kW/m2	27.5066	28.1494
Radiation Level	35	kW/m2	Not Reached	Not Reached

Radiation Effects: Late Pool Fire Distance

Path: \Terminal Adonai - Efeitos físicos\Simulações\H121

	Dia	Noite
Radiation Level (kW/m2)		

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Flash Fire Envelope

Path: \Terminal Adonai - Efeitos físicos\Simulações\H121

All flammable results are reported at the flammable effect height 0 m

				Distance (m)	
				Dia	Noite
Furthest Extent	13000	ppm	10.8485	10.8485	32.5696
Furthest Extent	13000	ppm	10.8485	10.8485	32.5696
				Heights (m) for above distances	
				Dia	Noite
Furthest Extent	13000	ppm	0	0	0
Furthest Extent	13000	ppm	0	0	0

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Explosion Effects: Late Ignition

Path: \Terminal Adonai - Efeitos físicos\Simulações\H121

Explosion Model Used : TNT

Explosion Location Criterion: Cloud Center

All distances are measured from the Source

All flammable results are reported at the flammable effect height 0 m

			Maximum Distance (m) at Overpressure Level	
			Dia	Noite
Overpressure	0.05	bar	35.6911	96.2006
Overpressure	0.1	bar	24.0526	65.4082
Overpressure	0.3	bar	14.5136	40.1706

			Supplementary Data at 0.05 bar	
			Dia	Noite
Supplied Flammable Mass		kg	6.05387	112.117
Used Flammable Mass		kg	6.05387	112.117
Overpressure Radius		m	30.6911	81.2006
Distance to:				
- Ignition Source		m	10	30
- Cloud Front/Centre		m	10	30
- Explosion Centre		m	5	15

			Supplementary Data at 0.1 bar	
			Dia	Noite
Supplied Flammable Mass		kg	6.05387	112.117
Used Flammable Mass		kg	6.05387	112.117
Overpressure Radius		m	19.0526	50.4082
Distance to:				
- Ignition Source		m	10	30
- Cloud Front/Centre		m	10	30
- Explosion Centre		m	5	15

			Supplementary Data at 0.3 bar	
			Dia	Noite
Supplied Flammable Mass		kg	6.05387	112.117
Used Flammable Mass		kg	6.05387	112.117
Overpressure Radius		m	9.51365	25.1706
Distance to:				
- Ignition Source		m	10	30
- Cloud Front/Centre		m	10	30
- Explosion Centre		m	5	15

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Weather Conditions

Path: \Terminal Adonai - Efeitos físicos\Simulações\H121

		Dia	Noite
Wind Speed	m/s	3	2
Pasquill Stability		C	E
Surface Roughness Length	mm	1000	1000
Surface Roughness Parameter		0.173718	0.173718
Atmospheric Temperature	degC	25	20
Surface Temperature	degC	30	20
Relative Humidity	fraction	0.8	0.8

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

H122

Base Case

CASE Name: Data

Path: \Terminal Adonai - Efeitos físicos\Simulações\H122

User-Defined Data

Material

Material Identifier N-PENTANE

Scenario

Building Wake Effect None

Vessel/Tank

Release Type Continuous

Location

Elevation 0 m
Use ERPG averaging time ERPG not selected
Use IDLH averaging time IDLH not selected
Use STEL averaging time STEL not selected
Supply a user defined averaging time Not supplied

Bund

Status of Bund Bund present
Bund Area 1.152E4 m2
[Type of Bund Surface User-Defined (Land)]
Bund Height 0.3 m
[Bund Failure Modeling Bund cannot fail]

Indoor/Outdoor

Location of release Open air release
Outdoor Release Direction Horizontal

Flammable

Explosion Method TNT
Jet Fire Method Cone Model

Dispersion

Number of Release Segments 1
Fluid Phase(1) Liquid
Discharge Velocity(1) 37.54 m/s
Droplet Diameter(1) 114.9 um
Duration of Discharge(1) 600 s
Final Temperature(1) 24.85 degC
Release Rate(1) 0.86 kg/s
Pre-Dilution Air Rates(1) 0 kg/s
Late Ignition Location No ignition location
Mass Inventory of material to Disperse 1.865E6 kg

Fireball Parameters

[Mass Modification Factor 3]
[Calculation method for fireball DNV Recommended]
[TNO model flame temperature 1727 degC]

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Toxic Parameters

[Indoor Calculations	Unselected]
[Wind Dependent Exchange Rate	Case Specified]
[Building Exchange Rate	4 /hr]
[Tail Time	1800 s]
[Set averaging time equal to exposure time	Use a fixed averaging time]
[Cut-off fraction of toxic load for exposure time calculation	0.05 fraction]
[Cut-off concentration for exposure time calculations	0 fraction]

Geometry

Shape	Point
Dimension	2D
System	Absolute
East(1)	0 m
North(1)	0 m

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Consequence Results

Pool Vaporization Results

Path: \Terminal Adonai - Efeitos físicos\Simulações\H122

		Dia	Noite
	Release Segment 1		
Release Duration	s	600	600
Liquid Rainout	fraction	0.999995	0.999995
	Release Segment 1 Cloud Segment 1		
Cloud Segment Duration	s	157.503	157.503
Pool Vaporization Rate	kg/s	0.0931162	0.0648306
Total Vapor Flowrate	kg/s	0.0931207	0.064835
	Release Segment 1 Cloud Segment 2		
Cloud Segment Duration	s	76.5875	78.12
Pool Vaporization Rate	kg/s	0.191116	0.131811
Total Vapor Flowrate	kg/s	0.191121	0.131815
	Release Segment 1 Cloud Segment 3		
Cloud Segment Duration	s	61.75	62.8031
Pool Vaporization Rate	kg/s	0.236789	0.164168
Total Vapor Flowrate	kg/s	0.236794	0.164172
	Release Segment 1 Cloud Segment 4		
Cloud Segment Duration	s	53.85	54.075
Pool Vaporization Rate	kg/s	0.271445	0.188884
Total Vapor Flowrate	kg/s	0.27145	0.188888
	Release Segment 1 Cloud Segment 5		
Cloud Segment Duration	s	94.4656	94.8219
Pool Vaporization Rate	kg/s	0.311914	0.218137
Total Vapor Flowrate	kg/s	0.311918	0.218142
	Release Segment 1 Cloud Segment 6		
Cloud Segment Duration	s	155.844	120.308
Pool Vaporization Rate	kg/s	0.371781	0.257234
Total Vapor Flowrate	kg/s	0.371785	0.257238
	Release Segment 1 Cloud Segment 7		
Cloud Segment Duration	s		32.3694
Pool Vaporization Rate	kg/s		0.28326
Total Vapor Flowrate	kg/s		0.283264
Maximum Pool Radius	m	2.49694	2.63183

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Distance to Concentration Results

Path: \Terminal Adonai - Efeitos físicos\Simulações\H122

The height for user defined concentrations is the user defined height 0 m
All toxic results are reported at the toxic effect height 1 m
All flammable results are reported at the flammable effect height 0 m

Concentration(ppm)	Averaging Time		Distance (m)	
			Dia	Noite
UFL (80000)	18.75	s	0	0
LFL (13000)	18.75	s	2.20903	2.87188
LFL Frac (13000)	18.75	s	2.20903	2.87188

Concentration(ppm)	Averaging Time		Heights (m) for above distances	
			Dia	Noite
UFL (80000)	18.75	s	0	0
LFL (13000)	18.75	s	0	0
LFL Frac (13000)	18.75	s	0	0

Jet Fire Hazard

Path: \Terminal Adonai - Efeitos físicos\Simulações\H122

Jet fire method used: Cone model - DNV recommended

	Dia	Noite
Jet Fire Status	Truncated	Truncated
Flame Direction	Horizontal	Horizontal

Radiation Effects: Jet Fire Ellipse

Path: \Terminal Adonai - Efeitos físicos\Simulações\H122

This table gives the distances to the specified radiation levels
for each jet fire listed in the above hazard table

Radiation Level			Distance (m)	
			Dia	Noite
9.83	kW/m2	1.1116	1.12456	
19.46	kW/m2	1.1116	1.12456	
35	kW/m2	Not Reached	Not Reached	

Radiation Effects: Jet Fire Distance

Path: \Terminal Adonai - Efeitos físicos\Simulações\H122

	Dia	Radiation Level (kW/m2)
		Noite

Early Pool Fire Hazard

Path: \Terminal Adonai - Efeitos físicos\Simulações\H122

	Dia	Noite
Early Pool Fire Status	Hazard	Hazard

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Radiation Effects: Early Pool Fire Ellipse

Path: \Terminal Adonai - Efeitos físicos\Simulações\H122

			Dia	Noite
Radiation Level	9.83	kW/m2	13.1804	12.3538
Radiation Level	19.46	kW/m2	8.51501	7.69152
Radiation Level	35	kW/m2	4.39933	4.08947

Radiation Effects: Early Pool Fire Distance

Path: \Terminal Adonai - Efeitos físicos\Simulações\H122

Dia	Noite
-----	-------

Late Pool Fire Hazard

Path: \Terminal Adonai - Efeitos físicos\Simulações\H122

	Dia	Noite
Late Pool Fire Status	Hazard	Hazard

Radiation Effects: Late Pool Fire Ellipse

Path: \Terminal Adonai - Efeitos físicos\Simulações\H122

			Dia	Noite
Radiation Level	9.83	kW/m2	17.6646	16.6782
Radiation Level	19.46	kW/m2	10.5595	9.70475
Radiation Level	35	kW/m2	5.39453	5.11194

Radiation Effects: Late Pool Fire Distance

Path: \Terminal Adonai - Efeitos físicos\Simulações\H122

Dia	Noite
-----	-------

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Flash Fire Envelope

Path: \Terminal Adonai - Efeitos físicos\Simulações\H122

All flammable results are reported at the flammable effect height 0 m

				Distance (m)	
				Dia	Noite
Furthest Extent	13000	ppm	2.20903	2.20903	2.87188
Furthest Extent	13000	ppm	2.20903	2.20903	2.87188

				Heights (m) for above distances	
				Dia	Noite
Furthest Extent	13000	ppm	0	0	0
Furthest Extent	13000	ppm	0	0	0

Weather Conditions

Path: \Terminal Adonai - Efeitos físicos\Simulações\H122

			Dia	Noite
Wind Speed	m/s		3	2
Pasquill Stability			C	E
Surface Roughness Length	mm		1000	1000
Surface Roughness Parameter			0.173718	0.173718
Atmospheric Temperature	degC		25	20
Surface Temperature	degC		30	20
Relative Humidity	fraction		0.8	0.8

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

H123

Base Case

CASE Name: Data

Path: \Terminal Adonai - Efeitos físicos\Simulações\H123

User-Defined Data

Material

Material Identifier N-PENTANE

Scenario

Building Wake Effect None

Vessel/Tank

Release Type Continuous

Location

Elevation 1 m
Use ERPG averaging time ERPG not selected
Use IDLH averaging time IDLH not selected
Use STEL averaging time STEL not selected
Supply a user defined averaging time Not supplied

Bund

Status of Bund No bund present
[Type of Bund Surface User-Defined (Land)]
[Bund Height 0 m]
[Bund Failure Modeling Bund cannot fail]

Indoor/Outdoor

Location of release Open air release
Outdoor Release Direction Horizontal

Flammable

Explosion Method TNT
Jet Fire Method Cone Model

Dispersion

Number of Release Segments 1
Fluid Phase(1) Liquid
Discharge Velocity(1) 22.54 m/s
Droplet Diameter(1) 318 um
Duration of Discharge(1) 600 s
Final Temperature(1) 25.15 degC
Release Rate(1) 86.25 kg/s
Pre-Dilution Air Rates(1) 0 kg/s
Late Ignition Location No ignition location
Mass Inventory of material to Disperse 1.865E6 kg

Fireball Parameters

[Mass Modification Factor 3]
[Calculation method for fireball DNV Recommended]
[TNO model flame temperature 1727 degC]

Toxic Parameters

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

[Indoor Calculations	Unselected]
[Wind Dependent Exchange Rate	Case Specified]
[Building Exchange Rate	4 /hr]
[Tail Time	1800 s]
[Set averaging time equal to exposure time	Use a fixed averaging time]
[Cut-off fraction of toxic load for exposure time calculation	0.05 fraction]
[Cut-off concentration for exposure time calculations	0 fraction]

Geometry

Shape	Point
Dimension	2D
System	Absolute
East(1)	0 m
North(1)	0 m

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Consequence Results

Pool Vaporization Results

Path: \Terminal Adonai - Efeitos físicos\Simulações\H123

		Dia	Noite
	Release Segment 1		
Release Duration	s	600	600
Liquid Rainout	fraction	0.743261	0.767795
	Release Segment 1 Cloud Segment 1		
Cloud Segment Duration	s	187.006	184.96
Pool Vaporization Rate	kg/s	2.38106	1.77921
Total Vapor Flowrate	kg/s	24.5248	21.8069
	Release Segment 1 Cloud Segment 2		
Cloud Segment Duration	s	77.0569	77.48
Pool Vaporization Rate	kg/s	5.82929	4.26662
Total Vapor Flowrate	kg/s	27.973	24.2943
	Release Segment 1 Cloud Segment 3		
Cloud Segment Duration	s	59.9375	59.7625
Pool Vaporization Rate	kg/s	7.51749	5.48799
Total Vapor Flowrate	kg/s	29.6612	25.5157
	Release Segment 1 Cloud Segment 4		
Cloud Segment Duration	s	51.3906	51.2531
Pool Vaporization Rate	kg/s	8.82091	6.43228
Total Vapor Flowrate	kg/s	30.9646	26.46
	Release Segment 1 Cloud Segment 5		
Cloud Segment Duration	s	86.8594	87.72
Pool Vaporization Rate	kg/s	10.353	7.55976
Total Vapor Flowrate	kg/s	32.4968	27.5875
	Release Segment 1 Cloud Segment 6		
Cloud Segment Duration	s	108.96	108.84
Pool Vaporization Rate	kg/s	12.3835	9.06659
Total Vapor Flowrate	kg/s	34.5272	29.0943
	Release Segment 1 Cloud Segment 7		
Cloud Segment Duration	s	28.79	29.9844
Pool Vaporization Rate	kg/s	13.7307	10.0792
Total Vapor Flowrate	kg/s	35.8744	30.1069
Maximum Pool Radius	m	23.6876	24.4573

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Distance to Concentration Results

Path: \Terminal Adonai - Efeitos físicos\Simulações\H123

The height for user defined concentrations is the user defined height 0 m
All toxic results are reported at the toxic effect height 1 m
All flammable results are reported at the flammable effect height 0 m

Concentration(ppm)	Averaging Time		Distance (m)	
			Dia	Noite
UFL (80000)	18.75	s	38.3311	46.4078
LFL (13000)	18.75	s	92.5063	101.541
LFL Frac (13000)	18.75	s	92.5063	101.541

Concentration(ppm)	Averaging Time		Heights (m) for above distances	
			Dia	Noite
UFL (80000)	18.75	s	0	0
LFL (13000)	18.75	s	0	0
LFL Frac (13000)	18.75	s	0	0

Jet Fire Hazard

Path: \Terminal Adonai - Efeitos físicos\Simulações\H123

Jet fire method used: Cone model - DNV recommended

	Dia	Noite
Jet Fire Status	Truncated	Truncated
Flame Direction	Horizontal	Horizontal

Radiation Effects: Jet Fire Ellipse

Path: \Terminal Adonai - Efeitos físicos\Simulações\H123

This table gives the distances to the specified radiation levels for each jet fire listed in the above hazard table

Radiation Level			Distance (m)	
			Dia	Noite
9.83	kW/m2		157.292	160.682
19.46	kW/m2		135.99	139.8
35	kW/m2		121.784	125.745

Radiation Effects: Jet Fire Distance

Path: \Terminal Adonai - Efeitos físicos\Simulações\H123

	Dia	Radiation Level (kW/m2)
		Noite

Early Pool Fire Hazard

Path: \Terminal Adonai - Efeitos físicos\Simulações\H123

	Dia	Noite
Early Pool Fire Status	Hazard	Hazard

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Radiation Effects: Early Pool Fire Ellipse

Path: \Terminal Adonai - Efeitos físicos\Simulações\H123

			Dia	Noite
Radiation Level	9.83	kW/m2	35.7779	34.2229
Radiation Level	19.46	kW/m2	26.7238	26.8095
Radiation Level	35	kW/m2	Not Reached	Not Reached

Radiation Effects: Early Pool Fire Distance

Path: \Terminal Adonai - Efeitos físicos\Simulações\H123

	Dia	Noite
Radiation Level (kW/m2)		

Late Pool Fire Hazard

Path: \Terminal Adonai - Efeitos físicos\Simulações\H123

	Dia	Noite
Late Pool Fire Status	Hazard	Hazard

Radiation Effects: Late Pool Fire Ellipse

Path: \Terminal Adonai - Efeitos físicos\Simulações\H123

			Dia	Noite
Radiation Level	9.83	kW/m2	43.617	42.8059
Radiation Level	19.46	kW/m2	37.1766	37.6111
Radiation Level	35	kW/m2	Not Reached	Not Reached

Radiation Effects: Late Pool Fire Distance

Path: \Terminal Adonai - Efeitos físicos\Simulações\H123

	Dia	Noite
Radiation Level (kW/m2)		

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Flash Fire Envelope

Path: \Terminal Adonai - Efeitos físicos\Simulações\H123

All flammable results are reported at the flammable effect height 0 m

				Distance (m)	
				Dia	Noite
Furthest Extent	13000	ppm	92.5063	101.541	
Furthest Extent	13000	ppm	92.5063	101.541	
				Heights (m) for above distances	
				Dia	Noite
Furthest Extent	13000	ppm	0	0	
Furthest Extent	13000	ppm	0	0	

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Explosion Effects: Late Ignition

Path: \Terminal Adonai - Efeitos físicos\Simulações\H123

Explosion Model Used : TNT

Explosion Location Criterion: Cloud Center

All distances are measured from the Source

All flammable results are reported at the flammable effect height 0 m

			Maximum Distance (m) at Overpressure Level	
			Dia	Noite
Overpressure	0.05	bar	184.952	236.239
Overpressure	0.1	bar	131.88	165.614
Overpressure	0.3	bar	88.3825	107.73

			Supplementary Data at 0.05 bar	
			Dia	Noite
Supplied Flammable Mass		kg	574.029	1352.7
Used Flammable Mass		kg	574.029	1352.7
Overpressure Radius		m	139.952	186.239
Distance to:				
- Ignition Source		m	90	100
- Cloud Front/Centre		m	90	100
- Explosion Centre		m	45	50

			Supplementary Data at 0.1 bar	
			Dia	Noite
Supplied Flammable Mass		kg	574.029	1352.7
Used Flammable Mass		kg	574.029	1352.7
Overpressure Radius		m	86.8804	115.614
Distance to:				
- Ignition Source		m	90	100
- Cloud Front/Centre		m	90	100
- Explosion Centre		m	45	50

			Supplementary Data at 0.3 bar	
			Dia	Noite
Supplied Flammable Mass		kg	574.029	1352.7
Used Flammable Mass		kg	574.029	1352.7
Overpressure Radius		m	43.3825	57.7303
Distance to:				
- Ignition Source		m	90	100
- Cloud Front/Centre		m	90	100
- Explosion Centre		m	45	50

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Weather Conditions

Path: \Terminal Adonai - Efeitos físicos\Simulações\H123

		Dia	Noite
Wind Speed	m/s	3	2
Pasquill Stability		C	E
Surface Roughness Length	mm	1000	1000
Surface Roughness Parameter		0.173718	0.173718
Atmospheric Temperature	degC	25	20
Surface Temperature	degC	30	20
Relative Humidity	fraction	0.8	0.8

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

H124

Base Case

CASE Name: Data

Path: \Terminal Adonai - Efeitos físicos\Simulações\H124

User-Defined Data

Material

Material Identifier N-PENTANE

Scenario

Building Wake Effect None

Vessel/Tank

Release Type Continuous

Location

Elevation 1 m
Use ERPG averaging time ERPG not selected
Use IDLH averaging time IDLH not selected
Use STEL averaging time STEL not selected
Supply a user defined averaging time Not supplied

Bund

Status of Bund No bund present
[Type of Bund Surface User-Defined (Land)]
[Bund Height 0 m]
[Bund Failure Modeling Bund cannot fail]

Indoor/Outdoor

Location of release Open air release
Outdoor Release Direction Horizontal

Flammable

Explosion Method TNT
Jet Fire Method Cone Model

Dispersion

Number of Release Segments 1
Fluid Phase(1) Liquid
Discharge Velocity(1) 37.54 m/s
Droplet Diameter(1) 114.9 um
Duration of Discharge(1) 600 s
Final Temperature(1) 24.85 degC
Release Rate(1) 0.86 kg/s
Pre-Dilution Air Rates(1) 0 kg/s
Late Ignition Location No ignition location
Mass Inventory of material to Disperse 1.865E6 kg

Fireball Parameters

[Mass Modification Factor 3]
[Calculation method for fireball DNV Recommended]
[TNO model flame temperature 1727 degC]

Toxic Parameters

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

[Indoor Calculations	Unselected]
[Wind Dependent Exchange Rate	Case Specified]
[Building Exchange Rate	4 /hr]
[Tail Time	1800 s]
[Set averaging time equal to exposure time	Use a fixed averaging time]
[Cut-off fraction of toxic load for exposure time calculation	0.05 fraction]
[Cut-off concentration for exposure time calculations	0 fraction]

Geometry

Shape	Point
Dimension	2D
System	Absolute
East(1)	0 m
North(1)	0 m



Consequence Results

Distance to Concentration Results

Path: \Terminal Adonai - Efeitos físicos\Simulações\H124

The height for user defined concentrations is the user defined height 0 m
 All toxic results are reported at the toxic effect height 1 m
 All flammable results are reported at the flammable effect height 0 m

Concentration(ppm)	Averaging Time			Dia	Noite
UFL (80000)	18.75	s		No Hazard	No Hazard
LFL (13000)	18.75	s		13.68	20.2719
LFL Frac (13000)	18.75	s		13.68	20.2719

Concentration(ppm)	Averaging Time			Dia	Noite	Heights (m) for above distances
UFL (80000)	18.75	s		0	0	
LFL (13000)	18.75	s		0	0	
LFL Frac (13000)	18.75	s		0	0	

Jet Fire Hazard

Path: \Terminal Adonai - Efeitos físicos\Simulações\H124

Jet fire method used: Cone model - DNV recommended

	Dia	Noite
Jet Fire Status	Truncated	Truncated
Flame Direction	Horizontal	Horizontal

Radiation Effects: Jet Fire Ellipse

Path: \Terminal Adonai - Efeitos físicos\Simulações\H124

This table gives the distances to the specified radiation levels for each jet fire listed in the above hazard table

			Dia	Noite
Radiation Level	9.83	kW/m2	22.2785	23.7294
Radiation Level	19.46	kW/m2	19.416	20.8499
Radiation Level	35	kW/m2	17.4647	18.866

Radiation Effects: Jet Fire Distance

Path: \Terminal Adonai - Efeitos físicos\Simulações\H124

	Dia	Radiation Level (kW/m2)
		Noite

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Flash Fire Envelope

Path: \Terminal Adonai - Efeitos físicos\Simulações\H124

All flammable results are reported at the flammable effect height 0 m

				Distance (m)	
				Dia	Noite
Furthest Extent	13000	ppm	13.68	20.2719	
Furthest Extent	13000	ppm	13.68	20.2719	
				Heights (m) for above distances	
				Dia	Noite
Furthest Extent	13000	ppm	0	0	
Furthest Extent	13000	ppm	0	0	

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Explosion Effects: Late Ignition

Path: \Terminal Adonai - Efeitos físicos\Simulações\H124

Explosion Model Used : TNT

Explosion Location Criterion: Cloud Center

All distances are measured from the Source

All flammable results are reported at the flammable effect height 0 m

			Maximum Distance (m) at Overpressure Level	
			Dia	Noite
Overpressure	0.05	bar	20.5697	34.0669
Overpressure	0.1	bar	14.6716	24.9404
Overpressure	0.3	bar	9.83747	17.4603

			Supplementary Data at 0.05 bar	
			Dia	Noite
Supplied Flammable Mass		kg	0.787913	2.91914
Used Flammable Mass		kg	0.787913	2.91914
Overpressure Radius		m	15.5535	24.0669
Distance to:				
- Ignition Source		m	10	20
- Cloud Front/Centre		m	10	20
- Explosion Centre		m	5.01619	10

			Supplementary Data at 0.1 bar	
			Dia	Noite
Supplied Flammable Mass		kg	0.787913	2.91914
Used Flammable Mass		kg	0.787913	2.91914
Overpressure Radius		m	9.6554	14.9404
Distance to:				
- Ignition Source		m	10	20
- Cloud Front/Centre		m	10	20
- Explosion Centre		m	5.01619	10

			Supplementary Data at 0.3 bar	
			Dia	Noite
Supplied Flammable Mass		kg	0.787913	2.91914
Used Flammable Mass		kg	0.787913	2.91914
Overpressure Radius		m	4.82128	7.46027
Distance to:				
- Ignition Source		m	10	20
- Cloud Front/Centre		m	10	20
- Explosion Centre		m	5.01619	10

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Weather Conditions

Path: \Terminal Adonai - Efeitos físicos\Simulações\H124

		Dia	Noite
Wind Speed	m/s	3	2
Pasquill Stability		C	E
Surface Roughness Length	mm	1000	1000
Surface Roughness Parameter		0.173718	0.173718
Atmospheric Temperature	degC	25	20
Surface Temperature	degC	30	20
Relative Humidity	fraction	0.8	0.8

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

H125

Base Case

CASE Name: Data

Path: \Terminal Adonai - Efeitos físicos\Simulações\H125

User-Defined Data

Material

Material Identifier	N-PENTANE
Type of Vessel	Padded Liquid
Pressure Specification	Pressure specified
Storage Pressure - gauge	0.03 bar
Temperature	25 degC
Volume Inventory	3200 m3

Scenario

Scenario Type	Line rupture
Phase to be Released	Liquid
Building Wake Effect	None
Specify Pump Head	No pump head supplied
Number of Excess Flow Valves	0
Number of Non-Return Valves	0
Number of Shut-Off Valves	0

Pipe

Internal Diameter	203.2 mm
Line length	1 m

Vessel/Tank

Duration of Interest	600 s
Method Used for Time Varying Releases	Average Rates
Tank Type	Vertical
Tank Height	22.64 m
Tank Diameter	15 m
Height of Discharge from Vessel Bottom	1 m

Location

Elevation	1 m
Use ERPG averaging time	ERPG not selected
Use IDLH averaging time	IDLH not selected
Use STEL averaging time	STEL not selected
Supply a user defined averaging time	Not supplied

Bund

Status of Bund	Bund present
Bund Area	1940 m2
[Type of Bund Surface	User-Defined (Land)]
Bund Height	3 m
[Bund Failure Modeling	Bund cannot fail]

Indoor/Outdoor

Location of release	Open air release
Outdoor Release Direction	Horizontal

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Flammable

Explosion Method TNT
Jet Fire Method Cone Model

Dispersion

Late Ignition Location No ignition location
Mass Inventory of material to Disperse 1.99E6 kg

Fireball Parameters

[Mass Modification Factor 3]
[Calculation method for fireball DNV Recommended]
[TNO model flame temperature 1727 degC]

Toxic Parameters

[Indoor Calculations Unselected]
[Wind Dependent Exchange Rate Case Specified]
[Building Exchange Rate 4 /hr]
[Tail Time 1800 s]
[Set averaging time equal to exposure time Use a fixed averaging time]
[Cut-off fraction of toxic load for exposure time calculation 0.05 fraction]
[Cut-off concentration for exposure time calculations 0 fraction]

Geometry

Shape Point
Dimension 2D
System Absolute
East(1) 0 m
North(1) 0 m

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Path: \Terminal Adonai - Efeitos físicos\Simulações\H125

DISCHARGE DATA for Weather: Global Weathers\Dia

Wind Speed: 3.00 m/s
Wind Speed at Height (Calculated) 1.78 m/s
Pasquill Stability: C

USER-DEFINED QUANTITIES

Material N-PENTANE
Scenario Line rupture
Inventory 1,989,578.88 kg
Fixed Duration n/a s

Stagnation data (data at upstream end for long pipe):

- Pressure 1.04 bar
- Temperature 25.00 degC
- Fluid State Non-saturated liquid

CALCULATED QUANTITIES

Mass Flow of Air (Vent from Vapor Space only) n/a
Mass Flowrate 2.27762E+002 kg/s
Release Duration 600.00 s

Orifice or pipe exit data (before atmospheric expansion):

- Pressure n/a bar
- Temperature n/a degC
- Vena Contracta Velocity (exit velocity for pipe releases) n/a m/s
- Discharge Coefficient n/a

Final data (after atmospheric expansion):

- Temperature 25.02 degC
- Liquid Mass Fraction 1.00 fraction
- Droplet Diameter 1,291.92 um
- Expanded Radius n/a m
- Velocity 11.30 m/s

DISCHARGE DATA for Weather: Global Weathers\Noite

Wind Speed: 2.00 m/s
Wind Speed at Height (Calculated) 0.83 m/s
Pasquill Stability: E

USER-DEFINED QUANTITIES

Material N-PENTANE
Scenario Line rupture
Inventory 1,989,578.88 kg
Fixed Duration n/a s

Stagnation data (data at upstream end for long pipe):

- Pressure 1.04 bar
- Temperature 25.00 degC
- Fluid State Non-saturated liquid

CALCULATED QUANTITIES

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Mass Flow of Air (Vent from Vapor Space only)	n/a
Mass Flowrate	2.27762E+002 kg/s
Release Duration	600.00 s
Orifice or pipe exit data (before atmospheric expansion):	
- Pressure	n/a bar
- Temperature	n/a degC
- Vena Contracta Velocity (exit velocity for pipe releases)	n/a m/s
- Discharge Coefficient	n/a
Final data (after atmospheric expansion):	
- Temperature	25.02 degC
- Liquid Mass Fraction	1.00 fraction
- Droplet Diameter	1,267.11 um
- Expanded Radius	n/a m
- Velocity	11.30 m/s

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Consequence Results

Pool Vaporization Results

Path: \Terminal Adonai - Efeitos físicos\Simulações\H125

		Dia	Noite
	Release Segment 1		
Release Duration	s	600	600
Liquid Rainout	fraction	0.906204	0.915019
	Release Segment 1 Cloud Segment 1		
Cloud Segment Duration	s	79.21	71.4025
Pool Vaporization Rate	kg/s	5.32252	3.95317
Total Vapor Flowrate	kg/s	26.6856	23.3086
	Release Segment 1 Cloud Segment 2		
Cloud Segment Duration	s	34.7456	31.62
Pool Vaporization Rate	kg/s	12.1626	8.88629
Total Vapor Flowrate	kg/s	33.5257	28.2417
	Release Segment 1 Cloud Segment 3		
Cloud Segment Duration	s	27.6544	25.2331
Pool Vaporization Rate	kg/s	15.4545	11.2408
Total Vapor Flowrate	kg/s	36.8177	30.5962
	Release Segment 1 Cloud Segment 4		
Cloud Segment Duration	s	23.5125	21.8069
Pool Vaporization Rate	kg/s	17.9815	13.059
Total Vapor Flowrate	kg/s	39.3446	32.4145
	Release Segment 1 Cloud Segment 5		
Cloud Segment Duration	s	59.8775	449.938
Pool Vaporization Rate	kg/s	20.6375	14.6271
Total Vapor Flowrate	kg/s	42.0007	33.9825
	Release Segment 1 Cloud Segment 6		
Cloud Segment Duration	s	375	
Pool Vaporization Rate	kg/s	18.2123	
Total Vapor Flowrate	kg/s	39.5754	
Maximum Pool Radius	m	24.85	24.85

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Distance to Concentration Results

Path: \Terminal Adonai - Efeitos físicos\Simulações\H125

The height for user defined concentrations is the user defined height 0 m

All toxic results are reported at the toxic effect height 1 m

All flammable results are reported at the flammable effect height 0 m

Concentration(ppm)	Averaging Time		Distance (m)	
			Dia	Noite
UFL (80000)	18.75	s	35.5478	44.4312
LFL (13000)	18.75	s	84.0665	94.4408
LFL Frac (13000)	18.75	s	84.0665	94.4408

Concentration(ppm)	Averaging Time		Heights (m) for above distances	
			Dia	Noite
UFL (80000)	18.75	s	0	0
LFL (13000)	18.75	s	0	0
LFL Frac (13000)	18.75	s	0	0

Jet Fire Hazard

Path: \Terminal Adonai - Efeitos físicos\Simulações\H125

Jet fire method used: Cone model - DNV recommended

	Dia	Noite
Jet Fire Status	Truncated	Truncated
Flame Direction	Horizontal	Horizontal

Radiation Effects: Jet Fire Ellipse

Path: \Terminal Adonai - Efeitos físicos\Simulações\H125

This table gives the distances to the specified radiation levels for each jet fire listed in the above hazard table

Radiation Level			Distance (m)	
			Dia	Noite
9.83	kW/m2		156.965	161.05
19.46	kW/m2		136.371	140.564
35	kW/m2		122.619	126.653

Radiation Effects: Jet Fire Distance

Path: \Terminal Adonai - Efeitos físicos\Simulações\H125

	Dia	Radiation Level (kW/m2)
		Noite

Early Pool Fire Hazard

Path: \Terminal Adonai - Efeitos físicos\Simulações\H125

	Dia	Noite
Early Pool Fire Status	Hazard	Hazard

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Radiation Effects: Early Pool Fire Ellipse

Path: \Terminal Adonai - Efeitos físicos\Simulações\H125

			Dia	Noite
Radiation Level	9.83	kW/m2	32.2926	31.0395
Radiation Level	19.46	kW/m2	25.85	25.85
Radiation Level	35	kW/m2	Not Reached	Not Reached

Radiation Effects: Early Pool Fire Distance

Path: \Terminal Adonai - Efeitos físicos\Simulações\H125

	Dia	Noite
Radiation Level (kW/m2)		

Late Pool Fire Hazard

Path: \Terminal Adonai - Efeitos físicos\Simulações\H125

	Dia	Noite
Late Pool Fire Status	Hazard	Hazard

Radiation Effects: Late Pool Fire Ellipse

Path: \Terminal Adonai - Efeitos físicos\Simulações\H125

			Dia	Noite
Radiation Level	9.83	kW/m2	32.3709	31.0567
Radiation Level	19.46	kW/m2	25.85	25.85
Radiation Level	35	kW/m2	Not Reached	Not Reached

Radiation Effects: Late Pool Fire Distance

Path: \Terminal Adonai - Efeitos físicos\Simulações\H125

	Dia	Noite
Radiation Level (kW/m2)		

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Flash Fire Envelope

Path: \Terminal Adonai - Efeitos físicos\Simulações\H125

All flammable results are reported at the flammable effect height 0 m

				Distance (m)	
				Dia	Noite
Furthest Extent	13000	ppm	84.0665	84.0665	94.4408
Furthest Extent	13000	ppm	84.0665	84.0665	94.4408
				Heights (m) for above distances	
				Dia	Noite
Furthest Extent	13000	ppm	0	0	0
Furthest Extent	13000	ppm	0	0	0

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Explosion Effects: Late Ignition

Path: \Terminal Adonai - Efeitos físicos\Simulações\H125

Explosion Model Used : TNT

Explosion Location Criterion: Cloud Center

All distances are measured from the Source

All flammable results are reported at the flammable effect height 0 m

			Maximum Distance (m) at Overpressure Level	
			Dia	Noite
Overpressure	0.05	bar	179.147	232.266
Overpressure	0.1	bar	126.538	161.707
Overpressure	0.3	bar	83.4199	103.877

			Supplementary Data at 0.05 bar	
			Dia	Noite
Supplied Flammable Mass		kg	559.137	1348.92
Used Flammable Mass		kg	559.137	1348.92
Overpressure Radius		m	138.731	186.065
Distance to:				
- Ignition Source		m	80	90
- Cloud Front/Centre		m	80	90
- Explosion Centre		m	40.4159	46.2006

			Supplementary Data at 0.1 bar	
			Dia	Noite
Supplied Flammable Mass		kg	559.137	1348.92
Used Flammable Mass		kg	559.137	1348.92
Overpressure Radius		m	86.1225	115.507
Distance to:				
- Ignition Source		m	80	90
- Cloud Front/Centre		m	80	90
- Explosion Centre		m	40.4159	46.2006

			Supplementary Data at 0.3 bar	
			Dia	Noite
Supplied Flammable Mass		kg	559.137	1348.92
Used Flammable Mass		kg	559.137	1348.92
Overpressure Radius		m	43.004	57.6765
Distance to:				
- Ignition Source		m	80	90
- Cloud Front/Centre		m	80	90
- Explosion Centre		m	40.4159	46.2006

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Weather Conditions

Path: \Terminal Adonai - Efeitos físicos\Simulações\H125

		Dia	Noite
Wind Speed	m/s	3	2
Pasquill Stability		C	E
Surface Roughness Length	mm	1000	1000
Surface Roughness Parameter		0.173718	0.173718
Atmospheric Temperature	degC	25	20
Surface Temperature	degC	30	20
Relative Humidity	fraction	0.8	0.8

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

H126

Base Case

CASE Name: Data

Path: \Terminal Adonai - Efeitos físicos\Simulações\H126

User-Defined Data

Material

Material Identifier	N-PENTANE
Type of Vessel	Padded Liquid
Pressure Specification	Pressure specified
Storage Pressure - gauge	0.03 bar
Temperature	25 degC
Volume Inventory	3200 m3

Scenario

Scenario Type	Leak
Phase to be Released	Liquid
Hole Diameter	20.32 mm
Building Wake Effect	None

Vessel/Tank

Duration of Interest	600 s
Method Used for Time Varying Releases	Average Rates
Tank Type	Vertical
Tank Height	22.64 m
Tank Diameter	15 m
Height of Discharge from Vessel Bottom	1 m

Location

Elevation	1 m
Use ERPG averaging time	ERPG not selected
Use IDLH averaging time	IDLH not selected
Use STEL averaging time	STEL not selected
Supply a user defined averaging time	Not supplied

Bund

Status of Bund	Bund present
Bund Area	1940 m2
[Type of Bund Surface	User-Defined (Land)]
Bund Height	3 m
[Bund Failure Modeling	Bund cannot fail]

Indoor/Outdoor

Location of release	Open air release
Outdoor Release Direction	Horizontal

Flammable

Explosion Method	TNT
Jet Fire Method	Cone Model

Dispersion

Late Ignition Location	No ignition location
Mass Inventory of material to Disperse	1.99E6 kg

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Fireball Parameters

[Mass Modification Factor	3]
[Calculation method for fireball	DNV Recommended]
[TNO model flame temperature	1727 degC]

Toxic Parameters

[Indoor Calculations	Unselected]
[Wind Dependent Exchange Rate	Case Specified]
[Building Exchange Rate	4 /hr]
[Tail Time	1800 s]
[Set averaging time equal to exposure time	Use a fixed averaging time]
[Cut-off fraction of toxic load for exposure time calculation	0.05 fraction]
[Cut-off concentration for exposure time calculations	0 fraction]

Geometry

Shape	Point
Dimension	2D
System	Absolute
East(1)	0 m
North(1)	0 m

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Path: \Terminal Adonai - Efeitos físicos\Simulações\H126

DISCHARGE DATA for Weather: Global Weathers\Dia

Wind Speed: 3.00 m/s
Wind Speed at Height (Calculated) 1.78 m/s
Pasquill Stability: C

USER-DEFINED QUANTITIES

Material N-PENTANE
Scenario Leak
Inventory 1,989,578.88 kg
Fixed Duration n/a s

Stagnation data (data at upstream end for long pipe):

- Pressure 1.04 bar
- Temperature 25.00 degC
- Fluid State Non-saturated liquid

CALCULATED QUANTITIES

Mass Flow of Air (Vent from Vapor Space only) n/a
Mass Flowrate 2.35193E+000 kg/s
Release Duration 600.00 s

Orifice or pipe exit data (before atmospheric expansion):

- Pressure n/a bar
- Temperature n/a degC
- Vena Contracta Velocity (exit velocity for pipe releases) n/a m/s
- Discharge Coefficient n/a

Final data (after atmospheric expansion):

- Temperature 24.96 degC
- Liquid Mass Fraction 1.00 fraction
- Droplet Diameter 436.41 um
- Expanded Radius n/a m
- Velocity 19.44 m/s

DISCHARGE DATA for Weather: Global Weathers\Noite

Wind Speed: 2.00 m/s
Wind Speed at Height (Calculated) 0.83 m/s
Pasquill Stability: E

USER-DEFINED QUANTITIES

Material N-PENTANE
Scenario Leak
Inventory 1,989,578.88 kg
Fixed Duration n/a s

Stagnation data (data at upstream end for long pipe):

- Pressure 1.04 bar
- Temperature 25.00 degC
- Fluid State Non-saturated liquid

CALCULATED QUANTITIES

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Mass Flow of Air (Vent from Vapor Space only)	n/a
Mass Flowrate	2.35194E+000 kg/s
Release Duration	600.00 s
Orifice or pipe exit data (before atmospheric expansion):	
- Pressure	n/a bar
- Temperature	n/a degC
- Vena Contracta Velocity (exit velocity for pipe releases)	n/a m/s
- Discharge Coefficient	n/a
Final data (after atmospheric expansion):	
- Temperature	24.96 degC
- Liquid Mass Fraction	1.00 fraction
- Droplet Diameter	428.04 um
- Expanded Radius	n/a m
- Velocity	19.44 m/s

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Consequence Results

Pool Vaporization Results

Path: \Terminal Adonai - Efeitos físicos\Simulações\H126

		Dia	Noite
	Release Segment 1		
Release Duration	s	600	600
Liquid Rainout	fraction	0.608381	0.63638
	Release Segment 1 Cloud Segment 1		
Cloud Segment Duration	s	200.223	201.64
Pool Vaporization Rate	kg/s	0.0781951	0.0541153
Total Vapor Flowrate	kg/s	0.999257	0.909328
	Release Segment 1 Cloud Segment 2		
Cloud Segment Duration	s	74.5081	75.5825
Pool Vaporization Rate	kg/s	0.210612	0.144399
Total Vapor Flowrate	kg/s	1.13167	0.999612
	Release Segment 1 Cloud Segment 3		
Cloud Segment Duration	s	57.42	57.6675
Pool Vaporization Rate	kg/s	0.272517	0.188013
Total Vapor Flowrate	kg/s	1.19358	1.04323
	Release Segment 1 Cloud Segment 4		
Cloud Segment Duration	s	49.075	49.27
Pool Vaporization Rate	kg/s	0.319744	0.221821
Total Vapor Flowrate	kg/s	1.24081	1.07703
	Release Segment 1 Cloud Segment 5		
Cloud Segment Duration	s	84.255	44.33
Pool Vaporization Rate	kg/s	0.375362	0.250482
Total Vapor Flowrate	kg/s	1.29642	1.10569
	Release Segment 1 Cloud Segment 6		
Cloud Segment Duration	s	105.729	76.6356
Pool Vaporization Rate	kg/s	0.448995	0.286183
Total Vapor Flowrate	kg/s	1.37006	1.14139
	Release Segment 1 Cloud Segment 7		
Cloud Segment Duration	s	28.79	94.8744
Pool Vaporization Rate	kg/s	0.49798	0.33451
Total Vapor Flowrate	kg/s	1.41904	1.18972
Maximum Pool Radius	m	3.42118	3.61334

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Distance to Concentration Results

Path: \Terminal Adonai - Efeitos físicos\Simulações\H126

The height for user defined concentrations is the user defined height 0 m

All toxic results are reported at the toxic effect height 1 m

All flammable results are reported at the flammable effect height 0 m

Concentration(ppm)	Averaging Time		Distance (m)	
			Dia	Noite
UFL (80000)	18.75	s	No Hazard	No Hazard
LFL (13000)	18.75	s	21.822	24.8484
LFL Frac (13000)	18.75	s	21.822	24.8484

Concentration(ppm)	Averaging Time		Heights (m) for above distances	
			Dia	Noite
UFL (80000)	18.75	s	0	0
LFL (13000)	18.75	s	0	0
LFL Frac (13000)	18.75	s	0	0

Jet Fire Hazard

Path: \Terminal Adonai - Efeitos físicos\Simulações\H126

Jet fire method used: Cone model - DNV recommended

	Dia	Noite
Jet Fire Status	Truncated	Truncated
Flame Direction	Horizontal	Horizontal

Radiation Effects: Jet Fire Ellipse

Path: \Terminal Adonai - Efeitos físicos\Simulações\H126

This table gives the distances to the specified radiation levels for each jet fire listed in the above hazard table

Radiation Level			Distance (m)	
			Dia	Noite
9.83	kW/m2		36.1135	38.6701
19.46	kW/m2		31.5274	33.9371
35	kW/m2		28.3863	30.6254

Radiation Effects: Jet Fire Distance

Path: \Terminal Adonai - Efeitos físicos\Simulações\H126

	Dia	Radiation Level (kW/m2)
		Noite

Early Pool Fire Hazard

Path: \Terminal Adonai - Efeitos físicos\Simulações\H126

	Dia	Noite
Early Pool Fire Status	Hazard	Hazard

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Radiation Effects: Early Pool Fire Ellipse

Path: \Terminal Adonai - Efeitos físicos\Simulações\H126

			Dia	Noite
Radiation Level	9.83	kW/m2	21.2574	20.4134
Radiation Level	19.46	kW/m2	15.4304	14.6195
Radiation Level	35	kW/m2	10.7636	10.4934

Radiation Effects: Early Pool Fire Distance

Path: \Terminal Adonai - Efeitos físicos\Simulações\H126

Dia
Radiation Level (kW/m2)
Noite

Late Pool Fire Hazard

Path: \Terminal Adonai - Efeitos físicos\Simulações\H126

	Dia	Noite
Late Pool Fire Status	Hazard	Hazard

Radiation Effects: Late Pool Fire Ellipse

Path: \Terminal Adonai - Efeitos físicos\Simulações\H126

			Dia	Noite
Radiation Level	9.83	kW/m2	26.5237	25.0892
Radiation Level	19.46	kW/m2	17.2067	16.3333
Radiation Level	35	kW/m2	11.5536	11.3335

Radiation Effects: Late Pool Fire Distance

Path: \Terminal Adonai - Efeitos físicos\Simulações\H126

Dia
Radiation Level (kW/m2)
Noite

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Flash Fire Envelope

Path: \Terminal Adonai - Efeitos físicos\Simulações\H126

All flammable results are reported at the flammable effect height 0 m

				Distance (m)	
				Dia	Noite
Furthest Extent	13000	ppm		21.822	24.8484
Furthest Extent	13000	ppm		21.822	24.8484
				Heights (m) for above distances	
				Dia	Noite
Furthest Extent	13000	ppm		0	0
Furthest Extent	13000	ppm		0	0

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Explosion Effects: Late Ignition

Path: \Terminal Adonai - Efeitos físicos\Simulações\H126

Explosion Model Used : TNT

Explosion Location Criterion: Cloud Center

All distances are measured from the Source

All flammable results are reported at the flammable effect height 0 m

			Maximum Distance (m) at Overpressure Level	
			Dia	Noite
Overpressure	0.05	bar	34.1571	37.4264
Overpressure	0.1	bar	24.9964	27.0259
Overpressure	0.3	bar	17.4882	18.5017

Supplementary Data at 0.05 bar

			Dia	Noite
Supplied Flammable Mass		kg	2.95209	4.32018
Used Flammable Mass		kg	2.95209	4.32018
Overpressure Radius		m	24.1571	27.4264
Distance to:				
- Ignition Source		m	20	20
- Cloud Front/Centre		m	20	20
- Explosion Centre		m	10	10

Supplementary Data at 0.1 bar

			Dia	Noite
Supplied Flammable Mass		kg	2.95209	4.32018
Used Flammable Mass		kg	2.95209	4.32018
Overpressure Radius		m	14.9964	17.0259
Distance to:				
- Ignition Source		m	20	20
- Cloud Front/Centre		m	20	20
- Explosion Centre		m	10	10

Supplementary Data at 0.3 bar

			Dia	Noite
Supplied Flammable Mass		kg	2.95209	4.32018
Used Flammable Mass		kg	2.95209	4.32018
Overpressure Radius		m	7.48824	8.50165
Distance to:				
- Ignition Source		m	20	20
- Cloud Front/Centre		m	20	20
- Explosion Centre		m	10	10

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Weather Conditions

Path: \Terminal Adonai - Efeitos físicos\Simulações\H126

		Dia	Noite
Wind Speed	m/s	3	2
Pasquill Stability		C	E
Surface Roughness Length	mm	1000	1000
Surface Roughness Parameter		0.173718	0.173718
Atmospheric Temperature	degC	25	20
Surface Temperature	degC	30	20
Relative Humidity	fraction	0.8	0.8

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

H127

Base Case

CASE Name: Data

Path: \Terminal Adonai - Efeitos físicos\Simulações\H127

User-Defined Data

Material

Material Identifier N-PENTANE

Scenario

Building Wake Effect None

Vessel/Tank

Release Type Continuous

Location

Elevation 1 m
Use ERPG averaging time ERPG not selected
Use IDLH averaging time IDLH not selected
Use STEL averaging time STEL not selected
Supply a user defined averaging time Not supplied

Bund

Status of Bund No bund present
[Type of Bund Surface User-Defined (Land)]
[Bund Height 0 m]
[Bund Failure Modeling Bund cannot fail]

Indoor/Outdoor

Location of release Open air release
Outdoor Release Direction Horizontal

Flammable

Explosion Method TNT
Jet Fire Method Cone Model

Dispersion

Number of Release Segments 1
Fluid Phase(1) Liquid
Discharge Velocity(1) 22.54 m/s
Droplet Diameter(1) 318 um
Duration of Discharge(1) 600 s
Final Temperature(1) 25.15 degC
Release Rate(1) 86.25 kg/s
Pre-Dilution Air Rates(1) 0 kg/s
Late Ignition Location No ignition location
Mass Inventory of material to Disperse 1.99E6 kg

Fireball Parameters

[Mass Modification Factor 3]
[Calculation method for fireball DNV Recommended]
[TNO model flame temperature 1727 degC]

Toxic Parameters

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

[Indoor Calculations	Unselected]
[Wind Dependent Exchange Rate	Case Specified]
[Building Exchange Rate	4 /hr]
[Tail Time	1800 s]
[Set averaging time equal to exposure time	Use a fixed averaging time]
[Cut-off fraction of toxic load for exposure time calculation	0.05 fraction]
[Cut-off concentration for exposure time calculations	0 fraction]

Geometry

Shape	Point
Dimension	2D
System	Absolute
East(1)	0 m
North(1)	0 m

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Consequence Results

Pool Vaporization Results

Path: \Terminal Adonai - Efeitos físicos\Simulações\H127

		Dia	Noite
	Release Segment 1		
Release Duration	s	600	600
Liquid Rainout	fraction	0.743261	0.767795
	Release Segment 1 Cloud Segment 1		
Cloud Segment Duration	s	187.006	184.96
Pool Vaporization Rate	kg/s	2.38106	1.77921
Total Vapor Flowrate	kg/s	24.5248	21.8069
	Release Segment 1 Cloud Segment 2		
Cloud Segment Duration	s	77.0569	77.48
Pool Vaporization Rate	kg/s	5.82929	4.26662
Total Vapor Flowrate	kg/s	27.973	24.2943
	Release Segment 1 Cloud Segment 3		
Cloud Segment Duration	s	59.9375	59.7625
Pool Vaporization Rate	kg/s	7.51749	5.48799
Total Vapor Flowrate	kg/s	29.6612	25.5157
	Release Segment 1 Cloud Segment 4		
Cloud Segment Duration	s	51.3906	51.2531
Pool Vaporization Rate	kg/s	8.82091	6.43228
Total Vapor Flowrate	kg/s	30.9646	26.46
	Release Segment 1 Cloud Segment 5		
Cloud Segment Duration	s	86.8594	87.72
Pool Vaporization Rate	kg/s	10.353	7.55976
Total Vapor Flowrate	kg/s	32.4968	27.5875
	Release Segment 1 Cloud Segment 6		
Cloud Segment Duration	s	108.96	108.84
Pool Vaporization Rate	kg/s	12.3835	9.06659
Total Vapor Flowrate	kg/s	34.5272	29.0943
	Release Segment 1 Cloud Segment 7		
Cloud Segment Duration	s	28.79	29.9844
Pool Vaporization Rate	kg/s	13.7307	10.0792
Total Vapor Flowrate	kg/s	35.8744	30.1069
Maximum Pool Radius	m	23.6876	24.4573

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Distance to Concentration Results

Path: \Terminal Adonai - Efeitos físicos\Simulações\H127

The height for user defined concentrations is the user defined height 0 m

All toxic results are reported at the toxic effect height 1 m

All flammable results are reported at the flammable effect height 0 m

Concentration(ppm)	Averaging Time		Distance (m)	
			Dia	Noite
UFL (80000)	18.75	s	38.3311	46.4078
LFL (13000)	18.75	s	92.5063	101.541
LFL Frac (13000)	18.75	s	92.5063	101.541

Concentration(ppm)	Averaging Time		Heights (m) for above distances	
			Dia	Noite
UFL (80000)	18.75	s	0	0
LFL (13000)	18.75	s	0	0
LFL Frac (13000)	18.75	s	0	0

Jet Fire Hazard

Path: \Terminal Adonai - Efeitos físicos\Simulações\H127

Jet fire method used: Cone model - DNV recommended

	Dia	Noite
Jet Fire Status	Truncated	Truncated
Flame Direction	Horizontal	Horizontal

Radiation Effects: Jet Fire Ellipse

Path: \Terminal Adonai - Efeitos físicos\Simulações\H127

This table gives the distances to the specified radiation levels for each jet fire listed in the above hazard table

Radiation Level			Distance (m)	
			Dia	Noite
9.83	kW/m2		157.292	160.682
19.46	kW/m2		135.99	139.8
35	kW/m2		121.784	125.745

Radiation Effects: Jet Fire Distance

Path: \Terminal Adonai - Efeitos físicos\Simulações\H127

	Dia	Radiation Level (kW/m2)
		Noite

Early Pool Fire Hazard

Path: \Terminal Adonai - Efeitos físicos\Simulações\H127

	Dia	Noite
Early Pool Fire Status	Hazard	Hazard

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Radiation Effects: Early Pool Fire Ellipse

Path: \Terminal Adonai - Efeitos físicos\Simulações\H127

			Dia	Noite
Radiation Level	9.83	kW/m2	35.7779	34.2229
Radiation Level	19.46	kW/m2	26.7238	26.8095
Radiation Level	35	kW/m2	Not Reached	Not Reached

Radiation Effects: Early Pool Fire Distance

Path: \Terminal Adonai - Efeitos físicos\Simulações\H127

	Dia	Noite
Radiation Level (kW/m2)		

Late Pool Fire Hazard

Path: \Terminal Adonai - Efeitos físicos\Simulações\H127

	Dia	Noite
Late Pool Fire Status	Hazard	Hazard

Radiation Effects: Late Pool Fire Ellipse

Path: \Terminal Adonai - Efeitos físicos\Simulações\H127

			Dia	Noite
Radiation Level	9.83	kW/m2	43.617	42.8059
Radiation Level	19.46	kW/m2	37.1766	37.6111
Radiation Level	35	kW/m2	Not Reached	Not Reached

Radiation Effects: Late Pool Fire Distance

Path: \Terminal Adonai - Efeitos físicos\Simulações\H127

	Dia	Noite
Radiation Level (kW/m2)		

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Flash Fire Envelope

Path: \Terminal Adonai - Efeitos físicos\Simulações\H127

All flammable results are reported at the flammable effect height 0 m

				Distance (m)	
				Dia	Noite
Furthest Extent	13000	ppm	92.5063	101.541	
Furthest Extent	13000	ppm	92.5063	101.541	
				Heights (m) for above distances	
				Dia	Noite
Furthest Extent	13000	ppm	0	0	
Furthest Extent	13000	ppm	0	0	

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Explosion Effects: Late Ignition

Path: \Terminal Adonai - Efeitos físicos\Simulações\H127

Explosion Model Used : TNT

Explosion Location Criterion: Cloud Center

All distances are measured from the Source

All flammable results are reported at the flammable effect height 0 m

			Maximum Distance (m) at Overpressure Level	
			Dia	Noite
Overpressure	0.05	bar	184.952	236.239
Overpressure	0.1	bar	131.88	165.614
Overpressure	0.3	bar	88.3825	107.73

			Supplementary Data at 0.05 bar	
			Dia	Noite
Supplied Flammable Mass		kg	574.029	1352.7
Used Flammable Mass		kg	574.029	1352.7
Overpressure Radius		m	139.952	186.239
Distance to:				
- Ignition Source		m	90	100
- Cloud Front/Centre		m	90	100
- Explosion Centre		m	45	50

			Supplementary Data at 0.1 bar	
			Dia	Noite
Supplied Flammable Mass		kg	574.029	1352.7
Used Flammable Mass		kg	574.029	1352.7
Overpressure Radius		m	86.8804	115.614
Distance to:				
- Ignition Source		m	90	100
- Cloud Front/Centre		m	90	100
- Explosion Centre		m	45	50

			Supplementary Data at 0.3 bar	
			Dia	Noite
Supplied Flammable Mass		kg	574.029	1352.7
Used Flammable Mass		kg	574.029	1352.7
Overpressure Radius		m	43.3825	57.7303
Distance to:				
- Ignition Source		m	90	100
- Cloud Front/Centre		m	90	100
- Explosion Centre		m	45	50

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Weather Conditions

Path: \Terminal Adonai - Efeitos físicos\Simulações\H127

		Dia	Noite
Wind Speed	m/s	3	2
Pasquill Stability		C	E
Surface Roughness Length	mm	1000	1000
Surface Roughness Parameter		0.173718	0.173718
Atmospheric Temperature	degC	25	20
Surface Temperature	degC	30	20
Relative Humidity	fraction	0.8	0.8

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

H128

Base Case

CASE Name: Data

Path: \Terminal Adonai - Efeitos físicos\Simulações\H128

User-Defined Data

Material

Material Identifier N-PENTANE

Scenario

Building Wake Effect None

Vessel/Tank

Release Type Continuous

Location

Elevation 1 m
Use ERPG averaging time ERPG not selected
Use IDLH averaging time IDLH not selected
Use STEL averaging time STEL not selected
Supply a user defined averaging time Not supplied

Bund

Status of Bund No bund present
[Type of Bund Surface User-Defined (Land)]
[Bund Height 0 m]
[Bund Failure Modeling Bund cannot fail]

Indoor/Outdoor

Location of release Open air release
Outdoor Release Direction Horizontal

Flammable

Explosion Method TNT
Jet Fire Method Cone Model

Dispersion

Number of Release Segments 1
Fluid Phase(1) Liquid
Discharge Velocity(1) 37.54 m/s
Droplet Diameter(1) 114.9 um
Duration of Discharge(1) 600 s
Final Temperature(1) 24.85 degC
Release Rate(1) 0.86 kg/s
Pre-Dilution Air Rates(1) 0 kg/s
Late Ignition Location No ignition location
Mass Inventory of material to Disperse 1.99E6 kg

Fireball Parameters

[Mass Modification Factor 3]
[Calculation method for fireball DNV Recommended]
[TNO model flame temperature 1727 degC]

Toxic Parameters

Date: 07/08/2015

834 of 2,112

Time: 10:10:31

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

[Indoor Calculations	Unselected]
[Wind Dependent Exchange Rate	Case Specified]
[Building Exchange Rate	4 /hr]
[Tail Time	1800 s]
[Set averaging time equal to exposure time	Use a fixed averaging time]
[Cut-off fraction of toxic load for exposure time calculation	0.05 fraction]
[Cut-off concentration for exposure time calculations	0 fraction]

Geometry

Shape	Point
Dimension	2D
System	Absolute
East(1)	0 m
North(1)	0 m



Consequence Results

Distance to Concentration Results

Path: \Terminal Adonai - Efeitos físicos\Simulações\H128

The height for user defined concentrations is the user defined height 0 m
 All toxic results are reported at the toxic effect height 1 m
 All flammable results are reported at the flammable effect height 0 m

Concentration(ppm)	Averaging Time		Distance (m)	
			Dia	Noite
UFL (80000)	18.75	s	No Hazard	No Hazard
LFL (13000)	18.75	s	13.68	20.2719
LFL Frac (13000)	18.75	s	13.68	20.2719

Concentration(ppm)	Averaging Time		Heights (m) for above distances	
			Dia	Noite
UFL (80000)	18.75	s	0	0
LFL (13000)	18.75	s	0	0
LFL Frac (13000)	18.75	s	0	0

Jet Fire Hazard

Path: \Terminal Adonai - Efeitos físicos\Simulações\H128

Jet fire method used: Cone model - DNV recommended

	Dia	Noite
Jet Fire Status	Truncated	Truncated
Flame Direction	Horizontal	Horizontal

Radiation Effects: Jet Fire Ellipse

Path: \Terminal Adonai - Efeitos físicos\Simulações\H128

This table gives the distances to the specified radiation levels for each jet fire listed in the above hazard table

Radiation Level			Distance (m)	
			Dia	Noite
9.83	kW/m2		22.2785	23.7294
19.46	kW/m2		19.416	20.8499
35	kW/m2		17.4647	18.866

Radiation Effects: Jet Fire Distance

Path: \Terminal Adonai - Efeitos físicos\Simulações\H128

	Radiation Level (kW/m2)
Dia	Noite

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Flash Fire Envelope

Path: \Terminal Adonai - Efeitos físicos\Simulações\H128

All flammable results are reported at the flammable effect height 0 m

				Distance (m)	
				Dia	Noite
Furthest Extent	13000	ppm	13.68	20.2719	
Furthest Extent	13000	ppm	13.68	20.2719	
				Heights (m) for above distances	
				Dia	Noite
Furthest Extent	13000	ppm	0	0	
Furthest Extent	13000	ppm	0	0	

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Explosion Effects: Late Ignition

Path: \Terminal Adonai - Efeitos físicos\Simulações\H128

Explosion Model Used : TNT

Explosion Location Criterion: Cloud Center

All distances are measured from the Source

All flammable results are reported at the flammable effect height 0 m

			Maximum Distance (m) at Overpressure Level	
			Dia	Noite
Overpressure	0.05	bar	20.5697	34.0669
Overpressure	0.1	bar	14.6716	24.9404
Overpressure	0.3	bar	9.83747	17.4603

			Supplementary Data at 0.05 bar	
			Dia	Noite
Supplied Flammable Mass		kg	0.787913	2.91914
Used Flammable Mass		kg	0.787913	2.91914
Overpressure Radius		m	15.5535	24.0669
Distance to:				
- Ignition Source		m	10	20
- Cloud Front/Centre		m	10	20
- Explosion Centre		m	5.01619	10

			Supplementary Data at 0.1 bar	
			Dia	Noite
Supplied Flammable Mass		kg	0.787913	2.91914
Used Flammable Mass		kg	0.787913	2.91914
Overpressure Radius		m	9.6554	14.9404
Distance to:				
- Ignition Source		m	10	20
- Cloud Front/Centre		m	10	20
- Explosion Centre		m	5.01619	10

			Supplementary Data at 0.3 bar	
			Dia	Noite
Supplied Flammable Mass		kg	0.787913	2.91914
Used Flammable Mass		kg	0.787913	2.91914
Overpressure Radius		m	4.82128	7.46027
Distance to:				
- Ignition Source		m	10	20
- Cloud Front/Centre		m	10	20
- Explosion Centre		m	5.01619	10

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Weather Conditions

Path: \Terminal Adonai - Efeitos físicos\Simulações\H128

		Dia	Noite
Wind Speed	m/s	3	2
Pasquill Stability		C	E
Surface Roughness Length	mm	1000	1000
Surface Roughness Parameter		0.173718	0.173718
Atmospheric Temperature	degC	25	20
Surface Temperature	degC	30	20
Relative Humidity	fraction	0.8	0.8

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

H129

Base Case

CASE Name: Data

Path: \Terminal Adonai - Efeitos físicos\Simulações\H129

User-Defined Data

Material

Material Identifier N-PENTANE

Scenario

Building Wake Effect None

Vessel/Tank

Release Type Continuous

Location

Elevation 0 m
Use ERPG averaging time ERPG not selected
Use IDLH averaging time IDLH not selected
Use STEL averaging time STEL not selected
Supply a user defined averaging time Not supplied

Bund

Status of Bund Bund present
Bund Area 1.152E4 m2
[Type of Bund Surface User-Defined (Land)]
Bund Height 0.3 m
[Bund Failure Modeling Bund cannot fail]

Indoor/Outdoor

Location of release Open air release
Outdoor Release Direction Horizontal

Flammable

Explosion Method TNT
Jet Fire Method Cone Model

Dispersion

Number of Release Segments 1
Fluid Phase(1) Liquid
Discharge Velocity(1) 22.54 m/s
Droplet Diameter(1) 318 um
Duration of Discharge(1) 600 s
Final Temperature(1) 25.15 degC
Release Rate(1) 86.25 kg/s
Pre-Dilution Air Rates(1) 0 kg/s
Late Ignition Location No ignition location
Mass Inventory of material to Disperse 1.99E6 kg

Fireball Parameters

[Mass Modification Factor 3]
[Calculation method for fireball DNV Recommended]
[TNO model flame temperature 1727 degC]

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Toxic Parameters

[Indoor Calculations	Unselected]
[Wind Dependent Exchange Rate	Case Specified]
[Building Exchange Rate	4 /hr]
[Tail Time	1800 s]
[Set averaging time equal to exposure time	Use a fixed averaging time]
[Cut-off fraction of toxic load for exposure time calculation	0.05 fraction]
[Cut-off concentration for exposure time calculations	0 fraction]

Geometry

Shape	Point
Dimension	2D
System	Absolute
East(1)	0 m
North(1)	0 m

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Consequence Results

Pool Vaporization Results

Path: \Terminal Adonai - Efeitos físicos\Simulações\H129

		Dia	Noite
	Release Segment 1		
Release Duration	s	600	600
Liquid Rainout	fraction	0.999995	0.999995
	Release Segment 1 Cloud Segment 1		
Cloud Segment Duration	s	148.231	147.016
Pool Vaporization Rate	kg/s	6.53184	5.05287
Total Vapor Flowrate	kg/s	6.5323	5.05332
	Release Segment 1 Cloud Segment 2		
Cloud Segment Duration	s	76.02	75.74
Pool Vaporization Rate	kg/s	12.8189	9.86096
Total Vapor Flowrate	kg/s	12.8193	9.86141
	Release Segment 1 Cloud Segment 3		
Cloud Segment Duration	s	62.205	62.8544
Pool Vaporization Rate	kg/s	15.6031	11.9884
Total Vapor Flowrate	kg/s	15.6036	11.9889
	Release Segment 1 Cloud Segment 4		
Cloud Segment Duration	s	105.584	105.441
Pool Vaporization Rate	kg/s	18.4975	14.1884
Total Vapor Flowrate	kg/s	18.498	14.1888
	Release Segment 1 Cloud Segment 5		
Cloud Segment Duration	s	132.37	133.359
Pool Vaporization Rate	kg/s	22.0457	16.8945
Total Vapor Flowrate	kg/s	22.0462	16.8949
	Release Segment 1 Cloud Segment 6		
Cloud Segment Duration	s	75.59	75.59
Pool Vaporization Rate	kg/s	24.7868	18.9944
Total Vapor Flowrate	kg/s	24.7872	18.9949
Maximum Pool Radius	m	26.5066	27.1494

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Distance to Concentration Results

Path: \Terminal Adonai - Efeitos físicos\Simulações\H129

The height for user defined concentrations is the user defined height 0 m

All toxic results are reported at the toxic effect height 1 m

All flammable results are reported at the flammable effect height 0 m

Concentration(ppm)	Averaging Time		Distance (m)	
			Dia	Noite
UFL (80000)	18.75	s	0	0
LFL (13000)	18.75	s	10.8485	32.5696
LFL Frac (13000)	18.75	s	10.8485	32.5696

Concentration(ppm)	Averaging Time		Heights (m) for above distances	
			Dia	Noite
UFL (80000)	18.75	s	0	0
LFL (13000)	18.75	s	0	0
LFL Frac (13000)	18.75	s	0	0

Jet Fire Hazard

Path: \Terminal Adonai - Efeitos físicos\Simulações\H129

Jet fire method used: Cone model - DNV recommended

	Dia	Noite
Jet Fire Status	Truncated	Truncated
Flame Direction	Horizontal	Horizontal

Radiation Effects: Jet Fire Ellipse

Path: \Terminal Adonai - Efeitos físicos\Simulações\H129

This table gives the distances to the specified radiation levels for each jet fire listed in the above hazard table

			Distance (m)	
Radiation Level			Dia	Noite
9.83	kW/m2		1.9319	2.04018
19.46	kW/m2		1.9319	2.04018
35	kW/m2		1.9319	Not Reached

Radiation Effects: Jet Fire Distance

Path: \Terminal Adonai - Efeitos físicos\Simulações\H129

	Dia	Radiation Level (kW/m2)
		Noite

Early Pool Fire Hazard

Path: \Terminal Adonai - Efeitos físicos\Simulações\H129

	Dia	Noite
Early Pool Fire Status	Hazard	Hazard

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Radiation Effects: Early Pool Fire Ellipse

Path: \Terminal Adonai - Efeitos físicos\Simulações\H129

			Dia	Noite
Radiation Level	9.83	kW/m2	24.1177	23.0407
Radiation Level	19.46	kW/m2	16.3512	16.5845
Radiation Level	35	kW/m2	Not Reached	Not Reached

Radiation Effects: Early Pool Fire Distance

Path: \Terminal Adonai - Efeitos físicos\Simulações\H129

	Dia	Noite
Radiation Level (kW/m2)		

Late Pool Fire Hazard

Path: \Terminal Adonai - Efeitos físicos\Simulações\H129

	Dia	Noite
Late Pool Fire Status	Hazard	Hazard

Radiation Effects: Late Pool Fire Ellipse

Path: \Terminal Adonai - Efeitos físicos\Simulações\H129

			Dia	Noite
Radiation Level	9.83	kW/m2	34.1798	33.4503
Radiation Level	19.46	kW/m2	27.5066	28.1494
Radiation Level	35	kW/m2	Not Reached	Not Reached

Radiation Effects: Late Pool Fire Distance

Path: \Terminal Adonai - Efeitos físicos\Simulações\H129

	Dia	Noite
Radiation Level (kW/m2)		

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Flash Fire Envelope

Path: \Terminal Adonai - Efeitos físicos\Simulações\H129

All flammable results are reported at the flammable effect height 0 m

				Distance (m)	
				Dia	Noite
Furthest Extent	13000	ppm	10.8485	10.8485	32.5696
Furthest Extent	13000	ppm	10.8485	10.8485	32.5696
				Heights (m) for above distances	
				Dia	Noite
Furthest Extent	13000	ppm	0	0	0
Furthest Extent	13000	ppm	0	0	0

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Explosion Effects: Late Ignition

Path: \Terminal Adonai - Efeitos físicos\Simulações\H129

Explosion Model Used : TNT

Explosion Location Criterion: Cloud Center

All distances are measured from the Source

All flammable results are reported at the flammable effect height 0 m

			Maximum Distance (m) at Overpressure Level	
			Dia	Noite
Overpressure	0.05	bar	35.6911	96.2006
Overpressure	0.1	bar	24.0526	65.4082
Overpressure	0.3	bar	14.5136	40.1706

			Supplementary Data at 0.05 bar	
			Dia	Noite
Supplied Flammable Mass		kg	6.05387	112.117
Used Flammable Mass		kg	6.05387	112.117
Overpressure Radius		m	30.6911	81.2006
Distance to:				
- Ignition Source		m	10	30
- Cloud Front/Centre		m	10	30
- Explosion Centre		m	5	15

			Supplementary Data at 0.1 bar	
			Dia	Noite
Supplied Flammable Mass		kg	6.05387	112.117
Used Flammable Mass		kg	6.05387	112.117
Overpressure Radius		m	19.0526	50.4082
Distance to:				
- Ignition Source		m	10	30
- Cloud Front/Centre		m	10	30
- Explosion Centre		m	5	15

			Supplementary Data at 0.3 bar	
			Dia	Noite
Supplied Flammable Mass		kg	6.05387	112.117
Used Flammable Mass		kg	6.05387	112.117
Overpressure Radius		m	9.51365	25.1706
Distance to:				
- Ignition Source		m	10	30
- Cloud Front/Centre		m	10	30
- Explosion Centre		m	5	15

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Weather Conditions

Path: \Terminal Adonai - Efeitos físicos\Simulações\H129

		Dia	Noite
Wind Speed	m/s	3	2
Pasquill Stability		C	E
Surface Roughness Length	mm	1000	1000
Surface Roughness Parameter		0.173718	0.173718
Atmospheric Temperature	degC	25	20
Surface Temperature	degC	30	20
Relative Humidity	fraction	0.8	0.8

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

H130

Base Case

CASE Name: Data

Path: \Terminal Adonai - Efeitos físicos\Simulações\H130

User-Defined Data

Material

Material Identifier N-PENTANE

Scenario

Building Wake Effect None

Vessel/Tank

Release Type Continuous

Location

Elevation 0 m
Use ERPG averaging time ERPG not selected
Use IDLH averaging time IDLH not selected
Use STEL averaging time STEL not selected
Supply a user defined averaging time Not supplied

Bund

Status of Bund Bund present
Bund Area 1.152E4 m2
[Type of Bund Surface User-Defined (Land)]
Bund Height 0.3 m
[Bund Failure Modeling Bund cannot fail]

Indoor/Outdoor

Location of release Open air release
Outdoor Release Direction Horizontal

Flammable

Explosion Method TNT
Jet Fire Method Cone Model

Dispersion

Number of Release Segments 1
Fluid Phase(1) Liquid
Discharge Velocity(1) 37.54 m/s
Droplet Diameter(1) 114.9 um
Duration of Discharge(1) 600 s
Final Temperature(1) 24.85 degC
Release Rate(1) 0.86 kg/s
Pre-Dilution Air Rates(1) 0 kg/s
Late Ignition Location No ignition location
Mass Inventory of material to Disperse 1.99E6 kg

Fireball Parameters

[Mass Modification Factor 3]
[Calculation method for fireball DNV Recommended]
[TNO model flame temperature 1727 degC]

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Toxic Parameters

[Indoor Calculations	Unselected]
[Wind Dependent Exchange Rate	Case Specified]
[Building Exchange Rate	4 /hr]
[Tail Time	1800 s]
[Set averaging time equal to exposure time	Use a fixed averaging time]
[Cut-off fraction of toxic load for exposure time calculation	0.05 fraction]
[Cut-off concentration for exposure time calculations	0 fraction]

Geometry

Shape	Point
Dimension	2D
System	Absolute
East(1)	0 m
North(1)	0 m

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Consequence Results

Pool Vaporization Results

Path: \Terminal Adonai - Efeitos físicos\Simulações\H130

		Dia	Noite
	Release Segment 1		
Release Duration	s	600	600
Liquid Rainout	fraction	0.999995	0.999995
	Release Segment 1 Cloud Segment 1		
Cloud Segment Duration	s	157.503	157.503
Pool Vaporization Rate	kg/s	0.0931162	0.0648306
Total Vapor Flowrate	kg/s	0.0931207	0.064835
	Release Segment 1 Cloud Segment 2		
Cloud Segment Duration	s	76.5875	78.12
Pool Vaporization Rate	kg/s	0.191116	0.131811
Total Vapor Flowrate	kg/s	0.191121	0.131815
	Release Segment 1 Cloud Segment 3		
Cloud Segment Duration	s	61.75	62.8031
Pool Vaporization Rate	kg/s	0.236789	0.164168
Total Vapor Flowrate	kg/s	0.236794	0.164172
	Release Segment 1 Cloud Segment 4		
Cloud Segment Duration	s	53.85	54.075
Pool Vaporization Rate	kg/s	0.271445	0.188884
Total Vapor Flowrate	kg/s	0.27145	0.188888
	Release Segment 1 Cloud Segment 5		
Cloud Segment Duration	s	94.4656	94.8219
Pool Vaporization Rate	kg/s	0.311914	0.218137
Total Vapor Flowrate	kg/s	0.311918	0.218142
	Release Segment 1 Cloud Segment 6		
Cloud Segment Duration	s	155.844	120.308
Pool Vaporization Rate	kg/s	0.371781	0.257234
Total Vapor Flowrate	kg/s	0.371785	0.257238
	Release Segment 1 Cloud Segment 7		
Cloud Segment Duration	s		32.3694
Pool Vaporization Rate	kg/s		0.28326
Total Vapor Flowrate	kg/s		0.283264
Maximum Pool Radius	m	2.49694	2.63183

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Distance to Concentration Results

Path: \Terminal Adonai - Efeitos físicos\Simulações\H130

The height for user defined concentrations is the user defined height 0 m

All toxic results are reported at the toxic effect height 1 m

All flammable results are reported at the flammable effect height 0 m

Concentration(ppm)	Averaging Time		Distance (m)	
			Dia	Noite
UFL (80000)	18.75	s	0	0
LFL (13000)	18.75	s	2.20903	2.87188
LFL Frac (13000)	18.75	s	2.20903	2.87188

Concentration(ppm)	Averaging Time		Heights (m) for above distances	
			Dia	Noite
UFL (80000)	18.75	s	0	0
LFL (13000)	18.75	s	0	0
LFL Frac (13000)	18.75	s	0	0

Jet Fire Hazard

Path: \Terminal Adonai - Efeitos físicos\Simulações\H130

Jet fire method used: Cone model - DNV recommended

	Dia	Noite
Jet Fire Status	Truncated	Truncated
Flame Direction	Horizontal	Horizontal

Radiation Effects: Jet Fire Ellipse

Path: \Terminal Adonai - Efeitos físicos\Simulações\H130

This table gives the distances to the specified radiation levels for each jet fire listed in the above hazard table

Radiation Level			Distance (m)	
			Dia	Noite
9.83	kW/m2	1.1116	1.12456	
19.46	kW/m2	1.1116	1.12456	
35	kW/m2	Not Reached	Not Reached	

Radiation Effects: Jet Fire Distance

Path: \Terminal Adonai - Efeitos físicos\Simulações\H130

	Dia	Radiation Level (kW/m2)
		Noite

Early Pool Fire Hazard

Path: \Terminal Adonai - Efeitos físicos\Simulações\H130

	Dia	Noite
Early Pool Fire Status	Hazard	Hazard

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Radiation Effects: Early Pool Fire Ellipse

Path: \Terminal Adonai - Efeitos físicos\Simulações\H130

			Dia	Noite
Radiation Level	9.83	kW/m2	13.1804	12.3538
Radiation Level	19.46	kW/m2	8.51501	7.69152
Radiation Level	35	kW/m2	4.39933	4.08947

Radiation Effects: Early Pool Fire Distance

Path: \Terminal Adonai - Efeitos físicos\Simulações\H130

	Dia	Noite
Radiation Level (kW/m2)		

Late Pool Fire Hazard

Path: \Terminal Adonai - Efeitos físicos\Simulações\H130

	Dia	Noite
Late Pool Fire Status	Hazard	Hazard

Radiation Effects: Late Pool Fire Ellipse

Path: \Terminal Adonai - Efeitos físicos\Simulações\H130

			Dia	Noite
Radiation Level	9.83	kW/m2	17.6646	16.6782
Radiation Level	19.46	kW/m2	10.5595	9.70475
Radiation Level	35	kW/m2	5.39453	5.11194

Radiation Effects: Late Pool Fire Distance

Path: \Terminal Adonai - Efeitos físicos\Simulações\H130

	Dia	Noite
Radiation Level (kW/m2)		

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Flash Fire Envelope

Path: \Terminal Adonai - Efeitos físicos\Simulações\H130

All flammable results are reported at the flammable effect height 0 m

				Distance (m)	
				Dia	Noite
Furthest Extent	13000	ppm	2.20903	2.87188	
Furthest Extent	13000	ppm	2.20903	2.87188	
				Heights (m) for above distances	
				Dia	Noite
Furthest Extent	13000	ppm	0	0	
Furthest Extent	13000	ppm	0	0	

Weather Conditions

Path: \Terminal Adonai - Efeitos físicos\Simulações\H130

			Dia	Noite
Wind Speed	m/s		3	2
Pasquill Stability			C	E
Surface Roughness Length	mm		1000	1000
Surface Roughness Parameter			0.173718	0.173718
Atmospheric Temperature	degC		25	20
Surface Temperature	degC		30	20
Relative Humidity	fraction		0.8	0.8

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

H131

Base Case

CASE Name: Data

Path: \Terminal Adonai - Efeitos físicos\Simulações\H131

User-Defined Data

Material

Material Identifier N-PENTANE

Scenario

Building Wake Effect None

Vessel/Tank

Release Type Continuous

Location

Elevation 0 m
Use ERPG averaging time ERPG not selected
Use IDLH averaging time IDLH not selected
Use STEL averaging time STEL not selected
Supply a user defined averaging time Not supplied

Bund

Status of Bund No bund present
[Type of Bund Surface User-Defined (Land)]
[Bund Height 0 m]
[Bund Failure Modeling Bund cannot fail]

Indoor/Outdoor

Location of release Open air release
Outdoor Release Direction Horizontal

Flammable

Explosion Method TNT
Jet Fire Method Cone Model

Dispersion

Number of Release Segments 1
Fluid Phase(1) Liquid
Discharge Velocity(1) 19.52 m/s
Droplet Diameter(1) 424.2 um
Duration of Discharge(1) 600 s
Final Temperature(1) 25.12 degC
Release Rate(1) 34.5 kg/s
Pre-Dilution Air Rates(1) 0 kg/s
Late Ignition Location No ignition location
Mass Inventory of material to Disperse 3.73E4 kg

Fireball Parameters

[Mass Modification Factor 3]
[Calculation method for fireball DNV Recommended]
[TNO model flame temperature 1727 degC]

Toxic Parameters

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

[Indoor Calculations	Unselected]
[Wind Dependent Exchange Rate	Case Specified]
[Building Exchange Rate	4 /hr]
[Tail Time	1800 s]
[Set averaging time equal to exposure time	Use a fixed averaging time]
[Cut-off fraction of toxic load for exposure time calculation	0.05 fraction]
[Cut-off concentration for exposure time calculations	0 fraction]

Geometry

Shape	Point
Dimension	2D
System	Absolute
East(1)	0 m
North(1)	0 m

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Consequence Results

Pool Vaporization Results

Path: \Terminal Adonai - Efeitos físicos\Simulações\H131

		Dia	Noite
	Release Segment 1		
Release Duration	s	600	600
Liquid Rainout	fraction	0.999995	0.999995
	Release Segment 1 Cloud Segment 1		
Cloud Segment Duration	s	148.84	147.623
Pool Vaporization Rate	kg/s	2.73607	2.10227
Total Vapor Flowrate	kg/s	2.73625	2.10245
	Release Segment 1 Cloud Segment 2		
Cloud Segment Duration	s	76.16	75.88
Pool Vaporization Rate	kg/s	5.37362	4.1012
Total Vapor Flowrate	kg/s	5.3738	4.10138
	Release Segment 1 Cloud Segment 3		
Cloud Segment Duration	s	62.3025	62.1075
Pool Vaporization Rate	kg/s	6.54672	4.9875
Total Vapor Flowrate	kg/s	6.5469	4.98768
	Release Segment 1 Cloud Segment 4		
Cloud Segment Duration	s	104.738	106.43
Pool Vaporization Rate	kg/s	7.76086	5.91461
Total Vapor Flowrate	kg/s	7.76105	5.91479
	Release Segment 1 Cloud Segment 5		
Cloud Segment Duration	s	132.37	132.37
Pool Vaporization Rate	kg/s	9.25813	7.05784
Total Vapor Flowrate	kg/s	9.25832	7.05802
	Release Segment 1 Cloud Segment 6		
Cloud Segment Duration	s	75.59	75.59
Pool Vaporization Rate	kg/s	10.4231	7.94501
Total Vapor Flowrate	kg/s	10.4233	7.94519
Maximum Pool Radius	m	16.6734	17.1109

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Distance to Concentration Results

Path: \Terminal Adonai - Efeitos físicos\Simulações\H131

The height for user defined concentrations is the user defined height 0 m

All toxic results are reported at the toxic effect height 1 m

All flammable results are reported at the flammable effect height 0 m

Concentration(ppm)	Averaging Time		Distance (m)	
			Dia	Noite
UFL (80000)	18.75	s	0	0
LFL (13000)	18.75	s	7.34451	17.6144
LFL Frac (13000)	18.75	s	7.34451	17.6144

Concentration(ppm)	Averaging Time		Heights (m) for above distances	
			Dia	Noite
UFL (80000)	18.75	s	0	0
LFL (13000)	18.75	s	0	0
LFL Frac (13000)	18.75	s	0	0

Jet Fire Hazard

Path: \Terminal Adonai - Efeitos físicos\Simulações\H131

Jet fire method used: Cone model - DNV recommended

	Dia	Noite
Jet Fire Status	Truncated	Truncated
Flame Direction	Horizontal	Horizontal

Radiation Effects: Jet Fire Ellipse

Path: \Terminal Adonai - Efeitos físicos\Simulações\H131

This table gives the distances to the specified radiation levels for each jet fire listed in the above hazard table

Radiation Level			Distance (m)	
			Dia	Noite
9.83	kW/m2	1.64022	1.71461	
19.46	kW/m2	1.64022	1.71461	
35	kW/m2	Not Reached	Not Reached	

Radiation Effects: Jet Fire Distance

Path: \Terminal Adonai - Efeitos físicos\Simulações\H131

	Dia	Radiation Level (kW/m2)
		Noite

Early Pool Fire Hazard

Path: \Terminal Adonai - Efeitos físicos\Simulações\H131

	Dia	Noite
Early Pool Fire Status	Hazard	Hazard

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Radiation Effects: Early Pool Fire Ellipse

Path: \Terminal Adonai - Efeitos físicos\Simulações\H131

			Dia	Noite
Radiation Level	9.83	kW/m2	23.1137	21.4228
Radiation Level	19.46	kW/m2	11.0057	10.8565
Radiation Level	35	kW/m2	Not Reached	Not Reached

Radiation Effects: Early Pool Fire Distance

Path: \Terminal Adonai - Efeitos físicos\Simulações\H131

Dia
Noite

Radiation Level (kW/m2)

Late Pool Fire Hazard

Path: \Terminal Adonai - Efeitos físicos\Simulações\H131

	Dia	Noite
Late Pool Fire Status	Hazard	Hazard

Radiation Effects: Late Pool Fire Ellipse

Path: \Terminal Adonai - Efeitos físicos\Simulações\H131

			Dia	Noite
Radiation Level	9.83	kW/m2	25.1232	24.0259
Radiation Level	19.46	kW/m2	17.6734	18.1109
Radiation Level	35	kW/m2	Not Reached	Not Reached

Radiation Effects: Late Pool Fire Distance

Path: \Terminal Adonai - Efeitos físicos\Simulações\H131

Dia

Radiation Level (kW/m2)

Noite

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Flash Fire Envelope

Path: \Terminal Adonai - Efeitos físicos\Simulações\H131

All flammable results are reported at the flammable effect height 0 m

				Distance (m)	
				Dia	Noite
Furthest Extent	13000	ppm	7.34451	17.6144	
Furthest Extent	13000	ppm	7.34451	17.6144	
				Heights (m) for above distances	
				Dia	Noite
Furthest Extent	13000	ppm	0	0	
Furthest Extent	13000	ppm	0	0	

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Explosion Effects: Late Ignition

Path: \Terminal Adonai - Efeitos físicos\Simulações\H131

Explosion Model Used : TNT

Explosion Location Criterion: Cloud Center

All distances are measured from the Source

All flammable results are reported at the flammable effect height 0 m

			Maximum Distance (m) at Overpressure Level
			Noite
Overpressure	0.05	bar	43.6556
Overpressure	0.1	bar	28.9969
Overpressure	0.3	bar	16.9825
			Supplementary Data at 0.05 bar
			Noite
Supplied Flammable Mass		kg	12.0957
Used Flammable Mass		kg	12.0957
Overpressure Radius		m	38.6556
Distance to:			
- Ignition Source		m	10
- Cloud Front/Centre		m	10
- Explosion Centre		m	5
			Supplementary Data at 0.1 bar
			Noite
Supplied Flammable Mass		kg	12.0957
Used Flammable Mass		kg	12.0957
Overpressure Radius		m	23.9969
Distance to:			
- Ignition Source		m	10
- Cloud Front/Centre		m	10
- Explosion Centre		m	5
			Supplementary Data at 0.3 bar
			Noite
Supplied Flammable Mass		kg	12.0957
Used Flammable Mass		kg	12.0957
Overpressure Radius		m	11.9825
Distance to:			
- Ignition Source		m	10
- Cloud Front/Centre		m	10
- Explosion Centre		m	5

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Weather Conditions

Path: \Terminal Adonai - Efeitos físicos\Simulações\H131

		Dia	Noite
Wind Speed	m/s	3	2
Pasquill Stability		C	E
Surface Roughness Length	mm	1000	1000
Surface Roughness Parameter		0.173718	0.173718
Atmospheric Temperature	degC	25	20
Surface Temperature	degC	30	20
Relative Humidity	fraction	0.8	0.8

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

H132

Base Case

CASE Name: Data

Path: \Terminal Adonai - Efeitos físicos\Simulações\H132

User-Defined Data

Material

Material Identifier N-PENTANE

Scenario

Building Wake Effect None

Vessel/Tank

Release Type Continuous

Location

Elevation 0 m
Use ERPG averaging time ERPG not selected
Use IDLH averaging time IDLH not selected
Use STEL averaging time STEL not selected
Supply a user defined averaging time Not supplied

Bund

Status of Bund No bund present
[Type of Bund Surface User-Defined (Land)]
[Bund Height 0 m]
[Bund Failure Modeling Bund cannot fail]

Indoor/Outdoor

Location of release Open air release
Outdoor Release Direction Horizontal

Flammable

Explosion Method TNT
Jet Fire Method Cone Model

Dispersion

Number of Release Segments 1
Fluid Phase(1) Liquid
Discharge Velocity(1) 32.52 m/s
Droplet Diameter(1) 153.1 um
Duration of Discharge(1) 600 s
Final Temperature(1) 24.89 degC
Release Rate(1) 0.35 kg/s
Pre-Dilution Air Rates(1) 0 kg/s
Late Ignition Location No ignition location
Mass Inventory of material to Disperse 3.73E4 kg

Fireball Parameters

[Mass Modification Factor 3]
[Calculation method for fireball DNV Recommended]
[TNO model flame temperature 1727 degC]

Toxic Parameters

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

[Indoor Calculations	Unselected]
[Wind Dependent Exchange Rate	Case Specified]
[Building Exchange Rate	4 /hr]
[Tail Time	1800 s]
[Set averaging time equal to exposure time	Use a fixed averaging time]
[Cut-off fraction of toxic load for exposure time calculation	0.05 fraction]
[Cut-off concentration for exposure time calculations	0 fraction]

Geometry

Shape	Point
Dimension	2D
System	Absolute
East(1)	0 m
North(1)	0 m

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Consequence Results

Pool Vaporization Results

Path: \Terminal Adonai - Efeitos físicos\Simulações\H132

		Dia	Noite
	Release Segment 1		
Release Duration	s	600	600
Liquid Rainout	fraction	0.999995	0.999995
	Release Segment 1 Cloud Segment 1		
Cloud Segment Duration	s	159.391	161.29
Pool Vaporization Rate	kg/s	0.0425813	0.0284351
Total Vapor Flowrate	kg/s	0.0425831	0.0284369
	Release Segment 1 Cloud Segment 2		
Cloud Segment Duration	s	77	77.4125
Pool Vaporization Rate	kg/s	0.0888199	0.0588922
Total Vapor Flowrate	kg/s	0.0888217	0.058894
	Release Segment 1 Cloud Segment 3		
Cloud Segment Duration	s	62.035	62.32
Pool Vaporization Rate	kg/s	0.110469	0.0736775
Total Vapor Flowrate	kg/s	0.110471	0.0736793
	Release Segment 1 Cloud Segment 4		
Cloud Segment Duration	s	54.075	54.3
Pool Vaporization Rate	kg/s	0.126958	0.0850918
Total Vapor Flowrate	kg/s	0.12696	0.0850936
	Release Segment 1 Cloud Segment 5		
Cloud Segment Duration	s	93.765	93.0581
Pool Vaporization Rate	kg/s	0.145808	0.0985152
Total Vapor Flowrate	kg/s	0.14581	0.098517
	Release Segment 1 Cloud Segment 6		
Cloud Segment Duration	s	153.734	119.25
Pool Vaporization Rate	kg/s	0.173097	0.116428
Total Vapor Flowrate	kg/s	0.173098	0.11643
	Release Segment 1 Cloud Segment 7		
Cloud Segment Duration	s		32.3694
Pool Vaporization Rate	kg/s		0.128467
Total Vapor Flowrate	kg/s		0.128469
Maximum Pool Radius	m	1.55163	1.66025

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Distance to Concentration Results

Path: \Terminal Adonai - Efeitos físicos\Simulações\H132

The height for user defined concentrations is the user defined height 0 m

All toxic results are reported at the toxic effect height 1 m

All flammable results are reported at the flammable effect height 0 m

Concentration(ppm)	Averaging Time		Distance (m)	
			Dia	Noite
UFL (80000)	18.75	s	0	0
LFL (13000)	18.75	s	2.16361	2.31125
LFL Frac (13000)	18.75	s	2.16361	2.31125

Concentration(ppm)	Averaging Time		Heights (m) for above distances	
			Dia	Noite
UFL (80000)	18.75	s	0	0
LFL (13000)	18.75	s	0	0
LFL Frac (13000)	18.75	s	0	0

Jet Fire Hazard

Path: \Terminal Adonai - Efeitos físicos\Simulações\H132

Jet fire method used: Cone model - DNV recommended

	Dia	Noite
Jet Fire Status	Truncated	Truncated
Flame Direction	Horizontal	Horizontal

Radiation Effects: Jet Fire Ellipse

Path: \Terminal Adonai - Efeitos físicos\Simulações\H132

This table gives the distances to the specified radiation levels for each jet fire listed in the above hazard table

Radiation Level			Distance (m)	
			Dia	Noite
9.83	kW/m2	1.07736	1.08634	
19.46	kW/m2	1.07736	Not Reached	
35	kW/m2	Not Reached	Not Reached	

Radiation Effects: Jet Fire Distance

Path: \Terminal Adonai - Efeitos físicos\Simulações\H132

	Dia	Radiation Level (kW/m2)
		Noite

Early Pool Fire Hazard

Path: \Terminal Adonai - Efeitos físicos\Simulações\H132

	Dia	Noite
Early Pool Fire Status	Hazard	Hazard

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Radiation Effects: Early Pool Fire Ellipse

Path: \Terminal Adonai - Efeitos físicos\Simulações\H132

			Dia	Noite
Radiation Level	9.83	kW/m2	9.76981	9.21356
Radiation Level	19.46	kW/m2	6.56906	5.94909
Radiation Level	35	kW/m2	3.42732	3.15926

Radiation Effects: Early Pool Fire Distance

Path: \Terminal Adonai - Efeitos físicos\Simulações\H132

	Dia	Noite
Radiation Level (kW/m2)		

Late Pool Fire Hazard

Path: \Terminal Adonai - Efeitos físicos\Simulações\H132

	Dia	Noite
Late Pool Fire Status	Hazard	Hazard

Radiation Effects: Late Pool Fire Ellipse

Path: \Terminal Adonai - Efeitos físicos\Simulações\H132

			Dia	Noite
Radiation Level	9.83	kW/m2	13.2835	12.8592
Radiation Level	19.46	kW/m2	8.58132	7.98811
Radiation Level	35	kW/m2	4.42679	4.2663

Radiation Effects: Late Pool Fire Distance

Path: \Terminal Adonai - Efeitos físicos\Simulações\H132

	Dia	Noite
Radiation Level (kW/m2)		

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Flash Fire Envelope

Path: \Terminal Adonai - Efeitos físicos\Simulações\H132

All flammable results are reported at the flammable effect height 0 m

				Distance (m)	
				Dia	Noite
Furthest Extent	13000	ppm	2.16361	2.31125	
Furthest Extent	13000	ppm	2.16361	2.31125	
				Heights (m) for above distances	
				Dia	Noite
Furthest Extent	13000	ppm	0	0	
Furthest Extent	13000	ppm	0	0	

Weather Conditions

Path: \Terminal Adonai - Efeitos físicos\Simulações\H132

			Dia	Noite
Wind Speed	m/s		3	2
Pasquill Stability			C	E
Surface Roughness Length	mm		1000	1000
Surface Roughness Parameter			0.173718	0.173718
Atmospheric Temperature	degC		25	20
Surface Temperature	degC		30	20
Relative Humidity	fraction		0.8	0.8

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

H133

Base Case

CASE Name: Data

Path: \Terminal Adonai - Efeitos físicos\Simulações\H133

User-Defined Data

Material

Material Identifier N-PENTANE

Scenario

Building Wake Effect None

Vessel/Tank

Release Type Continuous

Location

Elevation 1 m
Use ERPG averaging time ERPG not selected
Use IDLH averaging time IDLH not selected
Use STEL averaging time STEL not selected
Supply a user defined averaging time Not supplied

Bund

Status of Bund No bund present
[Type of Bund Surface User-Defined (Land)]
[Bund Height 0 m]
[Bund Failure Modeling Bund cannot fail]

Indoor/Outdoor

Location of release Open air release
Outdoor Release Direction Horizontal

Flammable

Explosion Method TNT
Jet Fire Method Cone Model

Dispersion

Number of Release Segments 1
Fluid Phase(1) Liquid
Discharge Velocity(1) 19.52 m/s
Droplet Diameter(1) 424.2 um
Duration of Discharge(1) 600 s
Final Temperature(1) 25.12 degC
Release Rate(1) 34.5 kg/s
Pre-Dilution Air Rates(1) 0 kg/s
Late Ignition Location No ignition location
Mass Inventory of material to Disperse 3.73E4 kg

Fireball Parameters

[Mass Modification Factor 3]
[Calculation method for fireball DNV Recommended]
[TNO model flame temperature 1727 degC]

Toxic Parameters

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

[Indoor Calculations	Unselected]
[Wind Dependent Exchange Rate	Case Specified]
[Building Exchange Rate	4 /hr]
[Tail Time	1800 s]
[Set averaging time equal to exposure time	Use a fixed averaging time]
[Cut-off fraction of toxic load for exposure time calculation	0.05 fraction]
[Cut-off concentration for exposure time calculations	0 fraction]

Geometry

Shape	Point
Dimension	2D
System	Absolute
East(1)	0 m
North(1)	0 m

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Consequence Results

Pool Vaporization Results

Path: \Terminal Adonai - Efeitos físicos\Simulações\H133

		Dia	Noite
	Release Segment 1		
Release Duration	s	600	600
Liquid Rainout	fraction	0.734933	0.760132
	Release Segment 1 Cloud Segment 1		
Cloud Segment Duration	s	189.751	187.69
Pool Vaporization Rate	kg/s	0.981069	0.730978
Total Vapor Flowrate	kg/s	10.1259	9.00643
	Release Segment 1 Cloud Segment 2		
Cloud Segment Duration	s	76.755	77.1856
Pool Vaporization Rate	kg/s	2.44636	1.78089
Total Vapor Flowrate	kg/s	11.5912	10.0563
	Release Segment 1 Cloud Segment 3		
Cloud Segment Duration	s	59.2969	60.025
Pool Vaporization Rate	kg/s	3.1628	2.29988
Total Vapor Flowrate	kg/s	12.3076	10.5753
	Release Segment 1 Cloud Segment 4		
Cloud Segment Duration	s	50.5575	51.4594
Pool Vaporization Rate	kg/s	3.71405	2.70459
Total Vapor Flowrate	kg/s	12.8589	10.98
	Release Segment 1 Cloud Segment 5		
Cloud Segment Duration	s	85.89	85.89
Pool Vaporization Rate	kg/s	4.36355	3.18171
Total Vapor Flowrate	kg/s	13.5083	11.4572
	Release Segment 1 Cloud Segment 6		
Cloud Segment Duration	s	108.96	108.96
Pool Vaporization Rate	kg/s	5.23288	3.82319
Total Vapor Flowrate	kg/s	14.3777	12.0986
	Release Segment 1 Cloud Segment 7		
Cloud Segment Duration	s	28.79	28.79
Pool Vaporization Rate	kg/s	5.81338	4.25575
Total Vapor Flowrate	kg/s	14.9582	12.5312
Maximum Pool Radius	m	14.8446	15.3576

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Distance to Concentration Results

Path: \Terminal Adonai - Efeitos físicos\Simulações\H133

The height for user defined concentrations is the user defined height 0 m

All toxic results are reported at the toxic effect height 1 m

All flammable results are reported at the flammable effect height 0 m

Concentration(ppm)	Averaging Time		Distance (m)	
			Dia	Noite
UFL (80000)	18.75	s	23.056	27.6416
LFL (13000)	18.75	s	61.4517	67.323
LFL Frac (13000)	18.75	s	61.4517	67.323

Concentration(ppm)	Averaging Time		Heights (m) for above distances	
			Dia	Noite
UFL (80000)	18.75	s	0	0
LFL (13000)	18.75	s	0	0
LFL Frac (13000)	18.75	s	0	0

Jet Fire Hazard

Path: \Terminal Adonai - Efeitos físicos\Simulações\H133

Jet fire method used: Cone model - DNV recommended

	Dia	Noite
Jet Fire Status	Truncated	Truncated
Flame Direction	Horizontal	Horizontal

Radiation Effects: Jet Fire Ellipse

Path: \Terminal Adonai - Efeitos físicos\Simulações\H133

This table gives the distances to the specified radiation levels for each jet fire listed in the above hazard table

Radiation Level			Distance (m)	
			Dia	Noite
9.83	kW/m2		106.975	109.472
19.46	kW/m2		92.7916	95.508
35	kW/m2		83.281	86.0175

Radiation Effects: Jet Fire Distance

Path: \Terminal Adonai - Efeitos físicos\Simulações\H133

	Dia	Radiation Level (kW/m2)
		Noite

Early Pool Fire Hazard

Path: \Terminal Adonai - Efeitos físicos\Simulações\H133

	Dia	Noite
Early Pool Fire Status	Hazard	Hazard

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Radiation Effects: Early Pool Fire Ellipse

Path: \Terminal Adonai - Efeitos físicos\Simulações\H133

			Dia	Noite
Radiation Level	9.83	kW/m2	32.1616	30.146
Radiation Level	19.46	kW/m2	19.7501	19.1734
Radiation Level	35	kW/m2	18.0021	18.1864

Radiation Effects: Early Pool Fire Distance

Path: \Terminal Adonai - Efeitos físicos\Simulações\H133

	Dia	Noite
Radiation Level (kW/m2)		

Late Pool Fire Hazard

Path: \Terminal Adonai - Efeitos físicos\Simulações\H133

	Dia	Noite
Late Pool Fire Status	Hazard	Hazard

Radiation Effects: Late Pool Fire Ellipse

Path: \Terminal Adonai - Efeitos físicos\Simulações\H133

			Dia	Noite
Radiation Level	9.83	kW/m2	32.6861	31.4911
Radiation Level	19.46	kW/m2	24.5233	24.9505
Radiation Level	35	kW/m2	Not Reached	Not Reached

Radiation Effects: Late Pool Fire Distance

Path: \Terminal Adonai - Efeitos físicos\Simulações\H133

	Dia	Noite
Radiation Level (kW/m2)		

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Flash Fire Envelope

Path: \Terminal Adonai - Efeitos físicos\Simulações\H133

All flammable results are reported at the flammable effect height 0 m

				Distance (m)	
				Dia	Noite
Furthest Extent	13000	ppm		61.4517	67.323
Furthest Extent	13000	ppm		61.4517	67.323
				Heights (m) for above distances	
				Dia	Noite
Furthest Extent	13000	ppm		0	0
Furthest Extent	13000	ppm		0	0

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Explosion Effects: Late Ignition

Path: \Terminal Adonai - Efeitos físicos\Simulações\H133

Explosion Model Used : TNT

Explosion Location Criterion: Cloud Center

All distances are measured from the Source

All flammable results are reported at the flammable effect height 0 m

			Maximum Distance (m) at Overpressure Level	
			Dia	Noite
Overpressure	0.05	bar	121.573	134.786
Overpressure	0.1	bar	86.8471	95.0496
Overpressure	0.3	bar	58.3857	62.4815

			Supplementary Data at 0.05 bar	
			Dia	Noite
Supplied Flammable Mass		kg	160.802	240.936
Used Flammable Mass		kg	160.802	240.936
Overpressure Radius		m	91.5727	104.786
Distance to:				
- Ignition Source		m	60	60
- Cloud Front/Centre		m	60	60
- Explosion Centre		m	30	30

			Supplementary Data at 0.1 bar	
			Dia	Noite
Supplied Flammable Mass		kg	160.802	240.936
Used Flammable Mass		kg	160.802	240.936
Overpressure Radius		m	56.8471	65.0496
Distance to:				
- Ignition Source		m	60	60
- Cloud Front/Centre		m	60	60
- Explosion Centre		m	30	30

			Supplementary Data at 0.3 bar	
			Dia	Noite
Supplied Flammable Mass		kg	160.802	240.936
Used Flammable Mass		kg	160.802	240.936
Overpressure Radius		m	28.3857	32.4815
Distance to:				
- Ignition Source		m	60	60
- Cloud Front/Centre		m	60	60
- Explosion Centre		m	30	30

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Weather Conditions

Path: \Terminal Adonai - Efeitos físicos\Simulações\H133

		Dia	Noite
Wind Speed	m/s	3	2
Pasquill Stability		C	E
Surface Roughness Length	mm	1000	1000
Surface Roughness Parameter		0.173718	0.173718
Atmospheric Temperature	degC	25	20
Surface Temperature	degC	30	20
Relative Humidity	fraction	0.8	0.8

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

H134

Base Case

CASE Name: Data

Path: \Terminal Adonai - Efeitos físicos\Simulações\H134

User-Defined Data

Material

Material Identifier N-PENTANE

Scenario

Building Wake Effect None

Vessel/Tank

Release Type Continuous

Location

Elevation 1 m
Use ERPG averaging time ERPG not selected
Use IDLH averaging time IDLH not selected
Use STEL averaging time STEL not selected
Supply a user defined averaging time Not supplied

Bund

Status of Bund No bund present
[Type of Bund Surface User-Defined (Land)]
[Bund Height 0 m]
[Bund Failure Modeling Bund cannot fail]

Indoor/Outdoor

Location of release Open air release
Outdoor Release Direction Horizontal

Flammable

Explosion Method TNT
Jet Fire Method Cone Model

Dispersion

Number of Release Segments 1
Fluid Phase(1) Liquid
Discharge Velocity(1) 32.52 m/s
Droplet Diameter(1) 153.1 um
Duration of Discharge(1) 600 s
Final Temperature(1) 24.89 degC
Release Rate(1) 0.35 kg/s
Pre-Dilution Air Rates(1) 0 kg/s
Late Ignition Location No ignition location
Mass Inventory of material to Disperse 3.73E4 kg

Fireball Parameters

[Mass Modification Factor 3]
[Calculation method for fireball DNV Recommended]
[TNO model flame temperature 1727 degC]

Toxic Parameters

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

[Indoor Calculations	Unselected]
[Wind Dependent Exchange Rate	Case Specified]
[Building Exchange Rate	4 /hr]
[Tail Time	1800 s]
[Set averaging time equal to exposure time	Use a fixed averaging time]
[Cut-off fraction of toxic load for exposure time calculation	0.05 fraction]
[Cut-off concentration for exposure time calculations	0 fraction]

Geometry

Shape	Point
Dimension	2D
System	Absolute
East(1)	0 m
North(1)	0 m



Consequence Results

Distance to Concentration Results

Path: \Terminal Adonai - Efeitos físicos\Simulações\H134

The height for user defined concentrations is the user defined height 0 m
 All toxic results are reported at the toxic effect height 1 m
 All flammable results are reported at the flammable effect height 0 m

Concentration(ppm)	Averaging Time	Distance (m)	
		Dia	Noite
UFL (80000)	18.75 s	No Hazard	No Hazard
LFL (13000)	18.75 s	No Hazard	10.6833
LFL Frac (13000)	18.75 s	No Hazard	10.6833

Concentration(ppm)	Averaging Time	Heights (m) for above distances	
		Dia	Noite
UFL (80000)	18.75 s	0	0
LFL (13000)	18.75 s	0	0
LFL Frac (13000)	18.75 s	0	0

Jet Fire Hazard

Path: \Terminal Adonai - Efeitos físicos\Simulações\H134

Jet fire method used: Cone model - DNV recommended

	Dia	Noite
Jet Fire Status	Truncated	Truncated
Flame Direction	Horizontal	Horizontal

Radiation Effects: Jet Fire Ellipse

Path: \Terminal Adonai - Efeitos físicos\Simulações\H134

This table gives the distances to the specified radiation levels for each jet fire listed in the above hazard table

Radiation Level	kW/m2	Distance (m)	
		Dia	Noite
9.83	kW/m2	14.958	15.9727
19.46	kW/m2	13.034	14.0292
35	kW/m2	11.7036	12.6688

Radiation Effects: Jet Fire Distance

Path: \Terminal Adonai - Efeitos físicos\Simulações\H134

	Radiation Level (kW/m2)
Dia	Noite

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Flash Fire Envelope

Path: \Terminal Adonai - Efeitos físicos\Simulações\H134

All flammable results are reported at the flammable effect height 0 m

				Distance (m)
			Noite	
Furthest Extent	13000	ppm	10.6833	
Furthest Extent	13000	ppm	10.6833	
				Heights (m) for above distances
			Noite	
Furthest Extent	13000	ppm	0	
Furthest Extent	13000	ppm	0	

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Explosion Effects: Late Ignition

Path: \Terminal Adonai - Efeitos físicos\Simulações\H134

Explosion Model Used : TNT

Explosion Location Criterion: Cloud Center

All distances are measured from the Source

All flammable results are reported at the flammable effect height 0 m

			Maximum Distance (m) at Overpressure Level
			Noite
Overpressure	0.05	bar	17.5558
Overpressure	0.1	bar	12.7945
Overpressure	0.3	bar	8.89205

Supplementary Data at 0.05 bar

Noite

Supplied Flammable Mass	kg	0.414502
Used Flammable Mass	kg	0.414502
Overpressure Radius	m	12.5558
Distance to:		
- Ignition Source	m	10
- Cloud Front/Centre	m	10
- Explosion Centre	m	5

Supplementary Data at 0.1 bar

Noite

Supplied Flammable Mass	kg	0.414502
Used Flammable Mass	kg	0.414502
Overpressure Radius	m	7.79447
Distance to:		
- Ignition Source	m	10
- Cloud Front/Centre	m	10
- Explosion Centre	m	5

Supplementary Data at 0.3 bar

Noite

Supplied Flammable Mass	kg	0.414502
Used Flammable Mass	kg	0.414502
Overpressure Radius	m	3.89205
Distance to:		
- Ignition Source	m	10
- Cloud Front/Centre	m	10
- Explosion Centre	m	5

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Weather Conditions

Path: \Terminal Adonai - Efeitos físicos\Simulações\H134

		Dia	Noite
Wind Speed	m/s	3	2
Pasquill Stability		C	E
Surface Roughness Length	mm	1000	1000
Surface Roughness Parameter		0.173718	0.173718
Atmospheric Temperature	degC	25	20
Surface Temperature	degC	30	20
Relative Humidity	fraction	0.8	0.8

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

H135

Base Case

CASE Name: Data

Path: \Terminal Adonai - Efeitos físicos\Simulações\H135

User-Defined Data

Material

Material Identifier	N-PENTANE
Type of Vessel	Padded Liquid
Pressure Specification	Pressure specified
Storage Pressure - gauge	0.03 bar
Temperature	25 degC
Volume Inventory	3200 m3

Scenario

Scenario Type	Line rupture
Phase to be Released	Liquid
Building Wake Effect	None
Specify Pump Head	No pump head supplied
Number of Excess Flow Valves	0
Number of Non-Return Valves	0
Number of Shut-Off Valves	0

Pipe

Internal Diameter	152.4 mm
Line length	1 m

Vessel/Tank

Duration of Interest	600 s
Method Used for Time Varying Releases	Average Rates
Tank Type	Vertical
Tank Height	22.64 m
Tank Diameter	15 m
Height of Discharge from Vessel Bottom	1 m

Location

Elevation	1 m
Use ERPG averaging time	ERPG not selected
Use IDLH averaging time	IDLH not selected
Use STEL averaging time	STEL not selected
Supply a user defined averaging time	Not supplied

Bund

Status of Bund	Bund present
Bund Area	1940 m2
[Type of Bund Surface	User-Defined (Land)]
Bund Height	3 m
[Bund Failure Modeling	Bund cannot fail]

Indoor/Outdoor

Location of release	Open air release
Outdoor Release Direction	Horizontal

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Flammable

Explosion Method	TNT
Jet Fire Method	Cone Model

Dispersion

Late Ignition Location	No ignition location
Mass Inventory of material to Disperse	1.99E6 kg

Fireball Parameters

[Mass Modification Factor	3]
[Calculation method for fireball	DNV Recommended]
[TNO model flame temperature	1727 degC]

Toxic Parameters

[Indoor Calculations	Unselected]
[Wind Dependent Exchange Rate	Case Specified]
[Building Exchange Rate	4 /hr]
[Tail Time	1800 s]
[Set averaging time equal to exposure time	Use a fixed averaging time]
[Cut-off fraction of toxic load for exposure time calculation	0.05 fraction]
[Cut-off concentration for exposure time calculations	0 fraction]

Geometry

Shape	Point
Dimension	2D
System	Absolute
East(1)	0 m
North(1)	0 m

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Path: \Terminal Adonai - Efeitos físicos\Simulações\H135

DISCHARGE DATA for Weather: Global Weathers\Dia

Wind Speed: 3.00 m/s
Wind Speed at Height (Calculated) 1.78 m/s
Pasquill Stability: C

USER-DEFINED QUANTITIES

Material N-PENTANE
Scenario Line rupture
Inventory 1,989,578.88 kg
Fixed Duration n/a s

Stagnation data (data at upstream end for long pipe):

- Pressure 1.04 bar
- Temperature 25.00 degC
- Fluid State Non-saturated liquid

CALCULATED QUANTITIES

Mass Flow of Air (Vent from Vapor Space only) n/a
Mass Flowrate 1.29603E+002 kg/s
Release Duration 600.00 s

Orifice or pipe exit data (before atmospheric expansion):

- Pressure n/a bar
- Temperature n/a degC
- Vena Contracta Velocity (exit velocity for pipe releases) n/a m/s
- Discharge Coefficient n/a

Final data (after atmospheric expansion):

- Temperature 25.03 degC
- Liquid Mass Fraction 1.00 fraction
- Droplet Diameter 1,263.08 um
- Expanded Radius n/a m
- Velocity 11.43 m/s

DISCHARGE DATA for Weather: Global Weathers\Noite

Wind Speed: 2.00 m/s
Wind Speed at Height (Calculated) 0.83 m/s
Pasquill Stability: E

USER-DEFINED QUANTITIES

Material N-PENTANE
Scenario Line rupture
Inventory 1,989,578.88 kg
Fixed Duration n/a s

Stagnation data (data at upstream end for long pipe):

- Pressure 1.04 bar
- Temperature 25.00 degC
- Fluid State Non-saturated liquid

CALCULATED QUANTITIES

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Mass Flow of Air (Vent from Vapor Space only)	n/a
Mass Flowrate	1.29603E+002 kg/s
Release Duration	600.00 s
Orifice or pipe exit data (before atmospheric expansion):	
- Pressure	n/a bar
- Temperature	n/a degC
- Vena Contracta Velocity (exit velocity for pipe releases)	n/a m/s
- Discharge Coefficient	n/a
Final data (after atmospheric expansion):	
- Temperature	25.03 degC
- Liquid Mass Fraction	1.00 fraction
- Droplet Diameter	1,238.83 um
- Expanded Radius	n/a m
- Velocity	11.43 m/s

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Consequence Results

Pool Vaporization Results

Path: \Terminal Adonai - Efeitos físicos\Simulações\H135

		Dia	Noite
	Release Segment 1		
Release Duration	s	600	600
Liquid Rainout	fraction	0.88637	0.897451
	Release Segment 1 Cloud Segment 1		
Cloud Segment Duration	s	110.776	104.551
Pool Vaporization Rate	kg/s	3.74327	2.87612
Total Vapor Flowrate	kg/s	18.4701	16.1669
	Release Segment 1 Cloud Segment 2		
Cloud Segment Duration	s	48.615	46.7394
Pool Vaporization Rate	kg/s	8.57375	6.44632
Total Vapor Flowrate	kg/s	23.3006	19.7371
	Release Segment 1 Cloud Segment 3		
Cloud Segment Duration	s	38.0119	37.0856
Pool Vaporization Rate	kg/s	10.8816	8.15128
Total Vapor Flowrate	kg/s	25.6084	21.442
	Release Segment 1 Cloud Segment 4		
Cloud Segment Duration	s	32.8781	32.1469
Pool Vaporization Rate	kg/s	12.644	9.46013
Total Vapor Flowrate	kg/s	27.3708	22.7509
	Release Segment 1 Cloud Segment 5		
Cloud Segment Duration	s	57.0219	55.8681
Pool Vaporization Rate	kg/s	14.734	11.0128
Total Vapor Flowrate	kg/s	29.4609	24.3035
	Release Segment 1 Cloud Segment 6		
Cloud Segment Duration	s	312.698	323.609
Pool Vaporization Rate	kg/s	16.9438	12.8332
Total Vapor Flowrate	kg/s	31.6706	26.124
Maximum Pool Radius	m	24.85	24.85

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Distance to Concentration Results

Path: \Terminal Adonai - Efeitos físicos\Simulações\H135

The height for user defined concentrations is the user defined height 0 m
All toxic results are reported at the toxic effect height 1 m
All flammable results are reported at the flammable effect height 0 m

Concentration(ppm)	Averaging Time		Distance (m)	
			Dia	Noite
UFL (80000)	18.75	s	29.8673	37.0973
LFL (13000)	18.75	s	71.9127	81.8867
LFL Frac (13000)	18.75	s	71.9127	81.8867

Concentration(ppm)	Averaging Time		Heights (m) for above distances	
			Dia	Noite
UFL (80000)	18.75	s	0	0
LFL (13000)	18.75	s	0	0
LFL Frac (13000)	18.75	s	0	0

Jet Fire Hazard

Path: \Terminal Adonai - Efeitos físicos\Simulações\H135

Jet fire method used: Cone model - DNV recommended

	Dia	Noite
Jet Fire Status	Truncated	Truncated
Flame Direction	Horizontal	Horizontal

Radiation Effects: Jet Fire Ellipse

Path: \Terminal Adonai - Efeitos físicos\Simulações\H135

This table gives the distances to the specified radiation levels
for each jet fire listed in the above hazard table

Radiation Level			Distance (m)	
			Dia	Noite
9.83	kW/m2		133.361	136.615
19.46	kW/m2		115.979	119.35
35	kW/m2		104.343	107.588

Radiation Effects: Jet Fire Distance

Path: \Terminal Adonai - Efeitos físicos\Simulações\H135

	Dia	Radiation Level (kW/m2)
		Noite

Early Pool Fire Hazard

Path: \Terminal Adonai - Efeitos físicos\Simulações\H135

	Dia	Noite
Early Pool Fire Status	Hazard	Hazard

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Radiation Effects: Early Pool Fire Ellipse

Path: \Terminal Adonai - Efeitos físicos\Simulações\H135

			Dia	Noite
Radiation Level	9.83	kW/m2	31.6427	30.4054
Radiation Level	19.46	kW/m2	24.3323	24.7325
Radiation Level	35	kW/m2	Not Reached	Not Reached

Radiation Effects: Early Pool Fire Distance

Path: \Terminal Adonai - Efeitos físicos\Simulações\H135

	Dia	Noite
Radiation Level (kW/m2)		

Late Pool Fire Hazard

Path: \Terminal Adonai - Efeitos físicos\Simulações\H135

	Dia	Noite
Late Pool Fire Status	Hazard	Hazard

Radiation Effects: Late Pool Fire Ellipse

Path: \Terminal Adonai - Efeitos físicos\Simulações\H135

			Dia	Noite
Radiation Level	9.83	kW/m2	32.3709	31.0567
Radiation Level	19.46	kW/m2	25.85	25.85
Radiation Level	35	kW/m2	Not Reached	Not Reached

Radiation Effects: Late Pool Fire Distance

Path: \Terminal Adonai - Efeitos físicos\Simulações\H135

	Dia	Noite
Radiation Level (kW/m2)		

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Flash Fire Envelope

Path: \Terminal Adonai - Efeitos físicos\Simulações\H135

All flammable results are reported at the flammable effect height 0 m

				Distance (m)	
				Dia	Noite
Furthest Extent	13000	ppm	71.9127	81.8867	
Furthest Extent	13000	ppm	71.9127	81.8867	
				Heights (m) for above distances	
				Dia	Noite
Furthest Extent	13000	ppm	0	0	
Furthest Extent	13000	ppm	0	0	

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Explosion Effects: Late Ignition

Path: \Terminal Adonai - Efeitos físicos\Simulações\H135

Explosion Model Used : TNT

Explosion Location Criterion: Cloud Center

All distances are measured from the Source

All flammable results are reported at the flammable effect height 0 m

			Maximum Distance (m) at Overpressure Level	
			Dia	Noite
Overpressure	0.05	bar	160.466	211.467
Overpressure	0.1	bar	112.888	149.148
Overpressure	0.3	bar	73.892	98.0713

Supplementary Data at 0.05 bar

			Dia	Noite
Supplied Flammable Mass		kg	413.592	929.391
Used Flammable Mass		kg	413.592	929.391
Overpressure Radius		m	125.466	164.337
Distance to:				
- Ignition Source		m	70	80
- Cloud Front/Centre		m	70	80
- Explosion Centre		m	35	47.1302

Supplementary Data at 0.1 bar

			Dia	Noite
Supplied Flammable Mass		kg	413.592	929.391
Used Flammable Mass		kg	413.592	929.391
Overpressure Radius		m	77.8876	102.018
Distance to:				
- Ignition Source		m	70	80
- Cloud Front/Centre		m	70	80
- Explosion Centre		m	35	47.1302

Supplementary Data at 0.3 bar

			Dia	Noite
Supplied Flammable Mass		kg	413.592	929.391
Used Flammable Mass		kg	413.592	929.391
Overpressure Radius		m	38.892	50.9412
Distance to:				
- Ignition Source		m	70	80
- Cloud Front/Centre		m	70	80
- Explosion Centre		m	35	47.1302

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Weather Conditions

Path: \Terminal Adonai - Efeitos físicos\Simulações\H135

		Dia	Noite
Wind Speed	m/s	3	2
Pasquill Stability		C	E
Surface Roughness Length	mm	1000	1000
Surface Roughness Parameter		0.173718	0.173718
Atmospheric Temperature	degC	25	20
Surface Temperature	degC	30	20
Relative Humidity	fraction	0.8	0.8

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

H136

Base Case

CASE Name: Data

Path: \Terminal Adonai - Efeitos físicos\Simulações\H136

User-Defined Data

Material

Material Identifier	N-PENTANE
Type of Vessel	Padded Liquid
Pressure Specification	Pressure specified
Storage Pressure - gauge	0.03 bar
Temperature	25 degC
Volume Inventory	3200 m3

Scenario

Scenario Type	Leak
Phase to be Released	Liquid
Hole Diameter	15.24 mm
Building Wake Effect	None

Vessel/Tank

Duration of Interest	600 s
Method Used for Time Varying Releases	Average Rates
Tank Type	Vertical
Tank Height	22.64 m
Tank Diameter	15 m
Height of Discharge from Vessel Bottom	1 m

Location

Elevation	1 m
Use ERPG averaging time	ERPG not selected
Use IDLH averaging time	IDLH not selected
Use STEL averaging time	STEL not selected
Supply a user defined averaging time	Not supplied

Bund

Status of Bund	Bund present
Bund Area	1940 m2
[Type of Bund Surface	User-Defined (Land)]
Bund Height	3 m
[Bund Failure Modeling	Bund cannot fail]

Indoor/Outdoor

Location of release	Open air release
Outdoor Release Direction	Horizontal

Flammable

Explosion Method	TNT
Jet Fire Method	Cone Model

Dispersion

Late Ignition Location	No ignition location
Mass Inventory of material to Disperse	1.99E6 kg

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Fireball Parameters

[Mass Modification Factor	3]
[Calculation method for fireball	DNV Recommended]
[TNO model flame temperature	1727 degC]

Toxic Parameters

[Indoor Calculations	Unselected]
[Wind Dependent Exchange Rate	Case Specified]
[Building Exchange Rate	4 /hr]
[Tail Time	1800 s]
[Set averaging time equal to exposure time	Use a fixed averaging time]
[Cut-off fraction of toxic load for exposure time calculation	0.05 fraction]
[Cut-off concentration for exposure time calculations	0 fraction]

Geometry

Shape	Point
Dimension	2D
System	Absolute
East(1)	0 m
North(1)	0 m

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Path: \Terminal Adonai - Efeitos físicos\Simulações\H136

DISCHARGE DATA for Weather: Global Weathers\Dia

Wind Speed: 3.00 m/s
Wind Speed at Height (Calculated) 1.78 m/s
Pasquill Stability: C

USER-DEFINED QUANTITIES

Material N-PENTANE
Scenario Leak
Inventory 1,989,578.88 kg
Fixed Duration n/a s

Stagnation data (data at upstream end for long pipe):

- Pressure 1.04 bar
- Temperature 25.00 degC
- Fluid State Non-saturated liquid

CALCULATED QUANTITIES

Mass Flow of Air (Vent from Vapor Space only) n/a
Mass Flowrate 1.32326E+000 kg/s
Release Duration 600.00 s

Orifice or pipe exit data (before atmospheric expansion):

- Pressure n/a bar
- Temperature n/a degC
- Vena Contracta Velocity (exit velocity for pipe releases) n/a m/s
- Discharge Coefficient n/a

Final data (after atmospheric expansion):

- Temperature 24.96 degC
- Liquid Mass Fraction 1.00 fraction
- Droplet Diameter 436.22 um
- Expanded Radius n/a m
- Velocity 19.44 m/s

DISCHARGE DATA for Weather: Global Weathers\Noite

Wind Speed: 2.00 m/s
Wind Speed at Height (Calculated) 0.83 m/s
Pasquill Stability: E

USER-DEFINED QUANTITIES

Material N-PENTANE
Scenario Leak
Inventory 1,989,578.88 kg
Fixed Duration n/a s

Stagnation data (data at upstream end for long pipe):

- Pressure 1.04 bar
- Temperature 25.00 degC
- Fluid State Non-saturated liquid

CALCULATED QUANTITIES

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Mass Flow of Air (Vent from Vapor Space only)	n/a
Mass Flowrate	1.32326E+000 kg/s
Release Duration	600.00 s
Orifice or pipe exit data (before atmospheric expansion):	
- Pressure	n/a bar
- Temperature	n/a degC
- Vena Contracta Velocity (exit velocity for pipe releases)	n/a m/s
- Discharge Coefficient	n/a
Final data (after atmospheric expansion):	
- Temperature	24.96 degC
- Liquid Mass Fraction	1.00 fraction
- Droplet Diameter	427.84 um
- Expanded Radius	n/a m
- Velocity	19.44 m/s

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Consequence Results

Pool Vaporization Results

Path: \Terminal Adonai - Efeitos físicos\Simulações\H136

		Dia	Noite
	Release Segment 1		
Release Duration	s	600	600
Liquid Rainout	fraction	0.584916	0.612954
	Release Segment 1 Cloud Segment 1		
Cloud Segment Duration	s	198.81	200.223
Pool Vaporization Rate	kg/s	0.0490694	0.0331376
Total Vapor Flowrate	kg/s	0.598331	0.5453
	Release Segment 1 Cloud Segment 2		
Cloud Segment Duration	s	74.2656	75.3375
Pool Vaporization Rate	kg/s	0.131441	0.0884026
Total Vapor Flowrate	kg/s	0.680703	0.600565
	Release Segment 1 Cloud Segment 3		
Cloud Segment Duration	s	57.255	58.4156
Pool Vaporization Rate	kg/s	0.169374	0.114946
Total Vapor Flowrate	kg/s	0.718636	0.627108
	Release Segment 1 Cloud Segment 4		
Cloud Segment Duration	s	48.945	49.205
Pool Vaporization Rate	kg/s	0.197954	0.135477
Total Vapor Flowrate	kg/s	0.747216	0.647639
	Release Segment 1 Cloud Segment 5		
Cloud Segment Duration	s	85.1269	84.46
Pool Vaporization Rate	kg/s	0.23155	0.159905
Total Vapor Flowrate	kg/s	0.780811	0.672067
	Release Segment 1 Cloud Segment 6		
Cloud Segment Duration	s	106.807	104.765
Pool Vaporization Rate	kg/s	0.275761	0.192831
Total Vapor Flowrate	kg/s	0.825022	0.704993
	Release Segment 1 Cloud Segment 7		
Cloud Segment Duration	s	28.79	27.5944
Pool Vaporization Rate	kg/s	0.304776	0.214922
Total Vapor Flowrate	kg/s	0.854037	0.727084
Maximum Pool Radius	m	2.47916	2.64013

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Distance to Concentration Results

Path: \Terminal Adonai - Efeitos físicos\Simulações\H136

The height for user defined concentrations is the user defined height 0 m

All toxic results are reported at the toxic effect height 1 m

All flammable results are reported at the flammable effect height 0 m

Concentration(ppm)	Averaging Time		Distance (m)	
			Dia	Noite
UFL (80000)	18.75	s	No Hazard	No Hazard
LFL (13000)	18.75	s	16.3001	19.4738
LFL Frac (13000)	18.75	s	16.3001	19.4738

Concentration(ppm)	Averaging Time		Heights (m) for above distances	
			Dia	Noite
UFL (80000)	18.75	s	0	0
LFL (13000)	18.75	s	0	0
LFL Frac (13000)	18.75	s	0	0

Jet Fire Hazard

Path: \Terminal Adonai - Efeitos físicos\Simulações\H136

Jet fire method used: Cone model - DNV recommended

	Dia	Noite
Jet Fire Status	Truncated	Truncated
Flame Direction	Horizontal	Horizontal

Radiation Effects: Jet Fire Ellipse

Path: \Terminal Adonai - Efeitos físicos\Simulações\H136

This table gives the distances to the specified radiation levels for each jet fire listed in the above hazard table

Radiation Level			Distance (m)	
			Dia	Noite
9.83	kW/m2		27.9583	29.95
19.46	kW/m2		24.4338	26.3089
35	kW/m2		22.0061	23.7449

Radiation Effects: Jet Fire Distance

Path: \Terminal Adonai - Efeitos físicos\Simulações\H136

	Dia	Radiation Level (kW/m2)
		Noite

Early Pool Fire Hazard

Path: \Terminal Adonai - Efeitos físicos\Simulações\H136

	Dia	Noite
Early Pool Fire Status	Hazard	Hazard

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Radiation Effects: Early Pool Fire Ellipse

Path: \Terminal Adonai - Efeitos físicos\Simulações\H136

			Dia	Noite
Radiation Level	9.83	kW/m2	18.0668	17.4436
Radiation Level	19.46	kW/m2	13.5923	12.9037
Radiation Level	35	kW/m2	9.61462	9.3533

Radiation Effects: Early Pool Fire Distance

Path: \Terminal Adonai - Efeitos físicos\Simulações\H136

Dia
Noite
Radiation Level (kW/m2)

Late Pool Fire Hazard

Path: \Terminal Adonai - Efeitos físicos\Simulações\H136

	Dia	Noite
Late Pool Fire Status	Hazard	Hazard

Radiation Effects: Late Pool Fire Ellipse

Path: \Terminal Adonai - Efeitos físicos\Simulações\H136

			Dia	Noite
Radiation Level	9.83	kW/m2	22.9221	22.0174
Radiation Level	19.46	kW/m2	15.8615	15.0319
Radiation Level	35	kW/m2	10.7076	10.419

Radiation Effects: Late Pool Fire Distance

Path: \Terminal Adonai - Efeitos físicos\Simulações\H136

Dia
Noite
Radiation Level (kW/m2)

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Flash Fire Envelope

Path: \Terminal Adonai - Efeitos físicos\Simulações\H136

All flammable results are reported at the flammable effect height 0 m

				Distance (m)	
				Dia	Noite
Furthest Extent	13000	ppm		16.3001	19.4738
Furthest Extent	13000	ppm		16.3001	19.4738
				Heights (m) for above distances	
				Dia	Noite
Furthest Extent	13000	ppm		0	0
Furthest Extent	13000	ppm		0	0

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Explosion Effects: Late Ignition

Path: \Terminal Adonai - Efeitos físicos\Simulações\H136

Explosion Model Used : TNT

Explosion Location Criterion: Cloud Center

All distances are measured from the Source

All flammable results are reported at the flammable effect height 0 m

			Maximum Distance (m) at Overpressure Level	
			Dia	Noite
Overpressure	0.05	bar	20.1101	20.668
Overpressure	0.1	bar	14.3821	14.7265
Overpressure	0.3	bar	9.68743	9.85677

Supplementary Data at 0.05 bar

			Dia	Noite
Supplied Flammable Mass		kg	0.721691	0.805441
Used Flammable Mass		kg	0.721691	0.805441
Overpressure Radius		m	15.1049	15.668
Distance to:				
- Ignition Source		m	10	10
- Cloud Front/Centre		m	10	10
- Explosion Centre		m	5.00519	5

Supplementary Data at 0.1 bar

			Dia	Noite
Supplied Flammable Mass		kg	0.721691	0.805441
Used Flammable Mass		kg	0.721691	0.805441
Overpressure Radius		m	9.37694	9.72647
Distance to:				
- Ignition Source		m	10	10
- Cloud Front/Centre		m	10	10
- Explosion Centre		m	5.00519	5

Supplementary Data at 0.3 bar

			Dia	Noite
Supplied Flammable Mass		kg	0.721691	0.805441
Used Flammable Mass		kg	0.721691	0.805441
Overpressure Radius		m	4.68224	4.85677
Distance to:				
- Ignition Source		m	10	10
- Cloud Front/Centre		m	10	10
- Explosion Centre		m	5.00519	5

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Weather Conditions

Path: \Terminal Adonai - Efeitos físicos\Simulações\H136

		Dia	Noite
Wind Speed	m/s	3	2
Pasquill Stability		C	E
Surface Roughness Length	mm	1000	1000
Surface Roughness Parameter		0.173718	0.173718
Atmospheric Temperature	degC	25	20
Surface Temperature	degC	30	20
Relative Humidity	fraction	0.8	0.8

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

H137

Base Case

CASE Name: Data

Path: \Terminal Adonai - Efeitos físicos\Simulações\H137

User-Defined Data

Material

Material Identifier N-PENTANE

Scenario

Building Wake Effect None

Vessel/Tank

Release Type Continuous

Location

Elevation 1 m
Use ERPG averaging time ERPG not selected
Use IDLH averaging time IDLH not selected
Use STEL averaging time STEL not selected
Supply a user defined averaging time Not supplied

Bund

Status of Bund No bund present
[Type of Bund Surface User-Defined (Land)]
[Bund Height 0 m]
[Bund Failure Modeling Bund cannot fail]

Indoor/Outdoor

Location of release Open air release
Outdoor Release Direction Horizontal

Flammable

Explosion Method TNT
Jet Fire Method Cone Model

Dispersion

Number of Release Segments 1
Fluid Phase(1) Liquid
Discharge Velocity(1) 19.52 m/s
Droplet Diameter(1) 424.2 um
Duration of Discharge(1) 600 s
Final Temperature(1) 25.12 degC
Release Rate(1) 17.25 kg/s
Pre-Dilution Air Rates(1) 0 kg/s
Late Ignition Location No ignition location
Mass Inventory of material to Disperse 1.99E6 kg

Fireball Parameters

[Mass Modification Factor 3]
[Calculation method for fireball DNV Recommended]
[TNO model flame temperature 1727 degC]

Toxic Parameters

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

[Indoor Calculations	Unselected]
[Wind Dependent Exchange Rate	Case Specified]
[Building Exchange Rate	4 /hr]
[Tail Time	1800 s]
[Set averaging time equal to exposure time	Use a fixed averaging time]
[Cut-off fraction of toxic load for exposure time calculation	0.05 fraction]
[Cut-off concentration for exposure time calculations	0 fraction]

Geometry

Shape	Point
Dimension	2D
System	Absolute
East(1)	0 m
North(1)	0 m

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Consequence Results

Pool Vaporization Results

Path: \Terminal Adonai - Efeitos físicos\Simulações\H137

		Dia	Noite
	Release Segment 1		
Release Duration	s	600	600
Liquid Rainout	fraction	0.696638	0.725162
	Release Segment 1 Cloud Segment 1		
Cloud Segment Duration	s	195.301	192.516
Pool Vaporization Rate	kg/s	0.476896	0.348716
Total Vapor Flowrate	kg/s	5.7099	5.08967
	Release Segment 1 Cloud Segment 2		
Cloud Segment Duration	s	76.125	77.265
Pool Vaporization Rate	kg/s	1.22381	0.876648
Total Vapor Flowrate	kg/s	6.45681	5.6176
	Release Segment 1 Cloud Segment 3		
Cloud Segment Duration	s	58.905	59.6419
Pool Vaporization Rate	kg/s	1.58855	1.1403
Total Vapor Flowrate	kg/s	6.82155	5.88126
	Release Segment 1 Cloud Segment 4		
Cloud Segment Duration	s	49.9194	50.8275
Pool Vaporization Rate	kg/s	1.87002	1.34618
Total Vapor Flowrate	kg/s	7.10301	6.08713
	Release Segment 1 Cloud Segment 5		
Cloud Segment Duration	s	85.2306	86.31
Pool Vaporization Rate	kg/s	2.20253	1.59214
Total Vapor Flowrate	kg/s	7.43553	6.3331
	Release Segment 1 Cloud Segment 6		
Cloud Segment Duration	s	106.925	105.846
Pool Vaporization Rate	kg/s	2.6466	1.92051
Total Vapor Flowrate	kg/s	7.8796	6.66146
	Release Segment 1 Cloud Segment 7		
Cloud Segment Duration	s	27.5944	27.5944
Pool Vaporization Rate	kg/s	2.94062	2.13885
Total Vapor Flowrate	kg/s	8.17362	6.8798
Maximum Pool Radius	m	10.1895	10.5932

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Distance to Concentration Results

Path: \Terminal Adonai - Efeitos físicos\Simulações\H137

The height for user defined concentrations is the user defined height 0 m

All toxic results are reported at the toxic effect height 1 m

All flammable results are reported at the flammable effect height 0 m

Concentration(ppm)	Averaging Time		Distance (m)	
			Dia	Noite
UFL (80000)	18.75	s	15.4588	17.1253
LFL (13000)	18.75	s	48.1398	52.5846
LFL Frac (13000)	18.75	s	48.1398	52.5846

Concentration(ppm)	Averaging Time		Heights (m) for above distances	
			Dia	Noite
UFL (80000)	18.75	s	0	0
LFL (13000)	18.75	s	0	0
LFL Frac (13000)	18.75	s	0	0

Jet Fire Hazard

Path: \Terminal Adonai - Efeitos físicos\Simulações\H137

Jet fire method used: Cone model - DNV recommended

	Dia	Noite
Jet Fire Status	Truncated	Truncated
Flame Direction	Horizontal	Horizontal

Radiation Effects: Jet Fire Ellipse

Path: \Terminal Adonai - Efeitos físicos\Simulações\H137

This table gives the distances to the specified radiation levels for each jet fire listed in the above hazard table

Radiation Level			Distance (m)	
			Dia	Noite
9.83	kW/m2		83.6447	85.6528
19.46	kW/m2		72.6672	74.8399
35	kW/m2		65.2818	67.4557

Radiation Effects: Jet Fire Distance

Path: \Terminal Adonai - Efeitos físicos\Simulações\H137

	Dia	Radiation Level (kW/m2)
		Noite

Early Pool Fire Hazard

Path: \Terminal Adonai - Efeitos físicos\Simulações\H137

	Dia	Noite
Early Pool Fire Status	Hazard	Hazard

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos fisicos

Phast 6.7

Radiation Effects: Early Pool Fire Ellipse

Path: \Terminal Adonai - Efeitos fisicos\Simulações\H137

			Dia	Noite
Radiation Level	9.83	kW/m2	32.0846	29.6682
Radiation Level	19.46	kW/m2	19.4898	18.648
Radiation Level	35	kW/m2	14.5419	14.7192

Radiation Effects: Early Pool Fire Distance

Path: \Terminal Adonai - Efeitos fisicos\Simulações\H137

Dia
Noite
Radiation Level (kW/m2)

Late Pool Fire Hazard

Path: \Terminal Adonai - Efeitos fisicos\Simulações\H137

	Dia	Noite
Late Pool Fire Status	Hazard	Hazard

Radiation Effects: Late Pool Fire Ellipse

Path: \Terminal Adonai - Efeitos fisicos\Simulações\H137

			Dia	Noite
Radiation Level	9.83	kW/m2	30.979	29.1409
Radiation Level	19.46	kW/m2	19.0013	19.3774
Radiation Level	35	kW/m2	Not Reached	Not Reached

Radiation Effects: Late Pool Fire Distance

Path: \Terminal Adonai - Efeitos fisicos\Simulações\H137

Dia
Noite
Radiation Level (kW/m2)

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Flash Fire Envelope

Path: \Terminal Adonai - Efeitos físicos\Simulações\H137

All flammable results are reported at the flammable effect height 0 m

				Distance (m)	
				Dia	Noite
Furthest Extent	13000	ppm	48.1398	52.5846	
Furthest Extent	13000	ppm	48.1398	52.5846	
				Heights (m) for above distances	
				Dia	Noite
Furthest Extent	13000	ppm	0	0	
Furthest Extent	13000	ppm	0	0	

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Explosion Effects: Late Ignition

Path: \Terminal Adonai - Efeitos físicos\Simulações\H137

Explosion Model Used : TNT

Explosion Location Criterion: Cloud Center

All distances are measured from the Source

All flammable results are reported at the flammable effect height 0 m

			Maximum Distance (m) at Overpressure Level	
			Dia	Noite
Overpressure	0.05	bar	78.5504	109.127
Overpressure	0.1	bar	56.3473	77.2249
Overpressure	0.3	bar	38.1495	51.0777

			Supplementary Data at 0.05 bar	
			Dia	Noite
Supplied Flammable Mass		kg	42.0323	124.681
Used Flammable Mass		kg	42.0323	124.681
Overpressure Radius		m	58.5504	84.127
Distance to:				
- Ignition Source		m	40	50
- Cloud Front/Centre		m	40	50
- Explosion Centre		m	20	25

			Supplementary Data at 0.1 bar	
			Dia	Noite
Supplied Flammable Mass		kg	42.0323	124.681
Used Flammable Mass		kg	42.0323	124.681
Overpressure Radius		m	36.3473	52.2249
Distance to:				
- Ignition Source		m	40	50
- Cloud Front/Centre		m	40	50
- Explosion Centre		m	20	25

			Supplementary Data at 0.3 bar	
			Dia	Noite
Supplied Flammable Mass		kg	42.0323	124.681
Used Flammable Mass		kg	42.0323	124.681
Overpressure Radius		m	18.1495	26.0777
Distance to:				
- Ignition Source		m	40	50
- Cloud Front/Centre		m	40	50
- Explosion Centre		m	20	25

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Weather Conditions

Path: \Terminal Adonai - Efeitos físicos\Simulações\H137

		Dia	Noite
Wind Speed	m/s	3	2
Pasquill Stability		C	E
Surface Roughness Length	mm	1000	1000
Surface Roughness Parameter		0.173718	0.173718
Atmospheric Temperature	degC	25	20
Surface Temperature	degC	30	20
Relative Humidity	fraction	0.8	0.8

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

H138

Base Case

CASE Name: Data

Path: \Terminal Adonai - Efeitos físicos\Simulações\H138

User-Defined Data

Material

Material Identifier N-PENTANE

Scenario

Building Wake Effect None

Vessel/Tank

Release Type Continuous

Location

Elevation 1 m
Use ERPG averaging time ERPG not selected
Use IDLH averaging time IDLH not selected
Use STEL averaging time STEL not selected
Supply a user defined averaging time Not supplied

Bund

Status of Bund No bund present
[Type of Bund Surface User-Defined (Land)]
[Bund Height 0 m]
[Bund Failure Modeling Bund cannot fail]

Indoor/Outdoor

Location of release Open air release
Outdoor Release Direction Horizontal

Flammable

Explosion Method TNT
Jet Fire Method Cone Model

Dispersion

Number of Release Segments 1
Fluid Phase(1) Liquid
Discharge Velocity(1) 32.52 m/s
Droplet Diameter(1) 153.1 um
Duration of Discharge(1) 600 s
Final Temperature(1) 24.89 degC
Release Rate(1) 0.17 kg/s
Pre-Dilution Air Rates(1) 0 kg/s
Late Ignition Location No ignition location
Mass Inventory of material to Disperse 1.99E6 kg

Fireball Parameters

[Mass Modification Factor 3]
[Calculation method for fireball DNV Recommended]
[TNO model flame temperature 1727 degC]

Toxic Parameters

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

[Indoor Calculations	Unselected]
[Wind Dependent Exchange Rate	Case Specified]
[Building Exchange Rate	4 /hr]
[Tail Time	1800 s]
[Set averaging time equal to exposure time	Use a fixed averaging time]
[Cut-off fraction of toxic load for exposure time calculation	0.05 fraction]
[Cut-off concentration for exposure time calculations	0 fraction]

Geometry

Shape	Point
Dimension	2D
System	Absolute
East(1)	0 m
North(1)	0 m



Consequence Results

Distance to Concentration Results

Path: \Terminal Adonai - Efeitos físicos\Simulações\H138

The height for user defined concentrations is the user defined height 0 m
 All toxic results are reported at the toxic effect height 1 m
 All flammable results are reported at the flammable effect height 0 m

Concentration(ppm)	Averaging Time	Distance (m)	
		Dia	Noite
UFL (80000)	18.75 s	No Hazard	No Hazard
LFL (13000)	18.75 s	No Hazard	No Hazard
LFL Frac (13000)	18.75 s	No Hazard	No Hazard

Concentration(ppm)	Averaging Time	Heights (m) for above distances	
		Dia	Noite
UFL (80000)	18.75 s	0	0
LFL (13000)	18.75 s	0	0
LFL Frac (13000)	18.75 s	0	0

Jet Fire Hazard

Path: \Terminal Adonai - Efeitos físicos\Simulações\H138

Jet fire method used: Cone model - DNV recommended

	Dia	Noite
Jet Fire Status	Truncated	Truncated
Flame Direction	Horizontal	Horizontal

Radiation Effects: Jet Fire Ellipse

Path: \Terminal Adonai - Efeitos físicos\Simulações\H138

This table gives the distances to the specified radiation levels for each jet fire listed in the above hazard table

Radiation Level	kW/m2	Distance (m)	
		Dia	Noite
9.83	kW/m2	10.7135	11.4583
19.46	kW/m2	9.30327	10.0331
35	kW/m2	8.31744	9.03158

Radiation Effects: Jet Fire Distance

Path: \Terminal Adonai - Efeitos físicos\Simulações\H138

	Radiation Level (kW/m2)
Dia	Noite

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Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Weather Conditions

Path: \Terminal Adonai - Efeitos físicos\Simulações\H138

		Dia	Noite
Wind Speed	m/s	3	2
Pasquill Stability		C	E
Surface Roughness Length	mm	1000	1000
Surface Roughness Parameter		0.173718	0.173718
Atmospheric Temperature	degC	25	20
Surface Temperature	degC	30	20
Relative Humidity	fraction	0.8	0.8

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

H139

Base Case

CASE Name: Data

Path: \Terminal Adonai - Efeitos físicos\Simulações\H139

User-Defined Data

Material

Material Identifier N-PENTANE

Scenario

Building Wake Effect None

Vessel/Tank

Release Type Continuous

Location

Elevation 3 m
Use ERPG averaging time ERPG not selected
Use IDLH averaging time IDLH not selected
Use STEL averaging time STEL not selected
Supply a user defined averaging time Not supplied

Bund

Status of Bund No bund present
[Type of Bund Surface User-Defined (Land)]
[Bund Height 0 m]
[Bund Failure Modeling Bund cannot fail]

Indoor/Outdoor

Location of release Open air release
Outdoor Release Direction Horizontal

Flammable

Explosion Method TNT
Jet Fire Method Cone Model

Dispersion

Number of Release Segments 1
Fluid Phase(1) Liquid
Discharge Velocity(1) 19.52 m/s
Droplet Diameter(1) 424.2 um
Duration of Discharge(1) 600 s
Final Temperature(1) 25.12 degC
Release Rate(1) 17.25 kg/s
Pre-Dilution Air Rates(1) 0 kg/s
Late Ignition Location No ignition location
Mass Inventory of material to Disperse 1.99E6 kg

Fireball Parameters

[Mass Modification Factor 3]
[Calculation method for fireball DNV Recommended]
[TNO model flame temperature 1727 degC]

Toxic Parameters

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

[Indoor Calculations	Unselected]
[Wind Dependent Exchange Rate	Case Specified]
[Building Exchange Rate	4 /hr]
[Tail Time	1800 s]
[Set averaging time equal to exposure time	Use a fixed averaging time]
[Cut-off fraction of toxic load for exposure time calculation	0.05 fraction]
[Cut-off concentration for exposure time calculations	0 fraction]

Geometry

Shape	Point
Dimension	2D
System	Absolute
East(1)	0 m
North(1)	0 m

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Consequence Results

Pool Vaporization Results

Path: \Terminal Adonai - Efeitos físicos\Simulações\H139

		Dia	Noite
	Release Segment 1		
Release Duration	s	600	600
Liquid Rainout	fraction	0.530134	0.596613
	Release Segment 1 Cloud Segment 1		
Cloud Segment Duration	s	203.063	200.931
Pool Vaporization Rate	kg/s	0.339819	0.258932
Total Vapor Flowrate	kg/s	8.44501	7.21736
	Release Segment 1 Cloud Segment 2		
Cloud Segment Duration	s	75.8275	76.2919
Pool Vaporization Rate	kg/s	0.91405	0.677662
Total Vapor Flowrate	kg/s	9.01924	7.63609
	Release Segment 1 Cloud Segment 3		
Cloud Segment Duration	s	57.8325	58.5831
Pool Vaporization Rate	kg/s	1.19653	0.88778
Total Vapor Flowrate	kg/s	9.30172	7.84621
	Release Segment 1 Cloud Segment 4		
Cloud Segment Duration	s	49.4	49.335
Pool Vaporization Rate	kg/s	1.4158	1.05288
Total Vapor Flowrate	kg/s	9.52099	8.01131
	Release Segment 1 Cloud Segment 5		
Cloud Segment Duration	s	82.6	44.385
Pool Vaporization Rate	kg/s	1.67435	1.19335
Total Vapor Flowrate	kg/s	9.77954	8.15178
	Release Segment 1 Cloud Segment 6		
Cloud Segment Duration	s	103.683	76.7244
Pool Vaporization Rate	kg/s	2.0189	1.37027
Total Vapor Flowrate	kg/s	10.1241	8.3287
	Release Segment 1 Cloud Segment 7		
Cloud Segment Duration	s	27.5944	93.75
Pool Vaporization Rate	kg/s	2.24915	1.6111
Total Vapor Flowrate	kg/s	10.3543	8.56953
Maximum Pool Radius	m	8.90271	9.63182

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Distance to Concentration Results

Path: \Terminal Adonai - Efeitos físicos\Simulações\H139

The height for user defined concentrations is the user defined height 0 m

All toxic results are reported at the toxic effect height 1 m

All flammable results are reported at the flammable effect height 0 m

Concentration(ppm)	Averaging Time		Distance (m)	
			Dia	Noite
UFL (80000)	18.75	s	No Hazard	No Hazard
LFL (13000)	18.75	s	56.3043	62.8135
LFL Frac (13000)	18.75	s	56.3043	62.8135

Concentration(ppm)	Averaging Time		Heights (m) for above distances	
			Dia	Noite
UFL (80000)	18.75	s	0	0
LFL (13000)	18.75	s	0	0
LFL Frac (13000)	18.75	s	0	0

Jet Fire Hazard

Path: \Terminal Adonai - Efeitos físicos\Simulações\H139

Jet fire method used: Cone model - DNV recommended

	Dia	Noite
Jet Fire Status	Truncated	Truncated
Flame Direction	Horizontal	Horizontal

Radiation Effects: Jet Fire Ellipse

Path: \Terminal Adonai - Efeitos físicos\Simulações\H139

This table gives the distances to the specified radiation levels for each jet fire listed in the above hazard table

Radiation Level			Distance (m)	
			Dia	Noite
9.83	kW/m2		87.0019	93.0675
19.46	kW/m2		75.4753	81.1935
35	kW/m2		67.7103	73.0912

Radiation Effects: Jet Fire Distance

Path: \Terminal Adonai - Efeitos físicos\Simulações\H139

	Dia	Radiation Level (kW/m2)
		Noite

Early Pool Fire Hazard

Path: \Terminal Adonai - Efeitos físicos\Simulações\H139

	Dia	Noite
Early Pool Fire Status	Hazard	Hazard

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Radiation Effects: Early Pool Fire Ellipse

Path: \Terminal Adonai - Efeitos físicos\Simulações\H139

			Dia	Noite
Radiation Level	9.83	kW/m2	36.0132	33.7715
Radiation Level	19.46	kW/m2	24.0862	23.0583
Radiation Level	35	kW/m2	18.283	18.5418

Radiation Effects: Early Pool Fire Distance

Path: \Terminal Adonai - Efeitos físicos\Simulações\H139

Dia
Noite

Radiation Level (kW/m2)

Late Pool Fire Hazard

Path: \Terminal Adonai - Efeitos físicos\Simulações\H139

	Dia	Noite
Late Pool Fire Status	Hazard	Hazard

Radiation Effects: Late Pool Fire Ellipse

Path: \Terminal Adonai - Efeitos físicos\Simulações\H139

			Dia	Noite
Radiation Level	9.83	kW/m2	35.6663	33.583
Radiation Level	19.46	kW/m2	23.273	22.834
Radiation Level	35	kW/m2	Not Reached	Not Reached

Radiation Effects: Late Pool Fire Distance

Path: \Terminal Adonai - Efeitos físicos\Simulações\H139

Dia

Radiation Level (kW/m2)

Noite

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Flash Fire Envelope

Path: \Terminal Adonai - Efeitos físicos\Simulações\H139

All flammable results are reported at the flammable effect height 0 m

				Distance (m)	
				Dia	Noite
Furthest Extent	13000	ppm	56.3043	62.8135	
Furthest Extent	13000	ppm	56.3043	62.8135	
				Heights (m) for above distances	
				Dia	Noite
Furthest Extent	13000	ppm	0	0	
Furthest Extent	13000	ppm	0	0	

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Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Explosion Effects: Late Ignition

Path: \Terminal Adonai - Efeitos físicos\Simulações\H139

Explosion Model Used : TNT

Explosion Location Criterion: Cloud Center

All distances are measured from the Source

All flammable results are reported at the flammable effect height 0 m

			Maximum Distance (m) at Overpressure Level	
			Dia	Noite
Overpressure	0.05	bar	90.6807	120.07
Overpressure	0.1	bar	65.7737	85.9144
Overpressure	0.3	bar	45.3597	57.92

Supplementary Data at 0.05 bar

			Dia	Noite
Supplied Flammable Mass		kg	59.3346	153.016
Used Flammable Mass		kg	59.3346	153.016
Overpressure Radius		m	65.6807	90.0702
Distance to:				
- Ignition Source		m	50	60
- Cloud Front/Centre		m	50	60
- Explosion Centre		m	25	30

Supplementary Data at 0.1 bar

			Dia	Noite
Supplied Flammable Mass		kg	59.3346	153.016
Used Flammable Mass		kg	59.3346	153.016
Overpressure Radius		m	40.7737	55.9144
Distance to:				
- Ignition Source		m	50	60
- Cloud Front/Centre		m	50	60
- Explosion Centre		m	25	30

Supplementary Data at 0.3 bar

			Dia	Noite
Supplied Flammable Mass		kg	59.3346	153.016
Used Flammable Mass		kg	59.3346	153.016
Overpressure Radius		m	20.3597	27.92
Distance to:				
- Ignition Source		m	50	60
- Cloud Front/Centre		m	50	60
- Explosion Centre		m	25	30

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Weather Conditions

Path: \Terminal Adonai - Efeitos físicos\Simulações\H139

		Dia	Noite
Wind Speed	m/s	3	2
Pasquill Stability		C	E
Surface Roughness Length	mm	1000	1000
Surface Roughness Parameter		0.173718	0.173718
Atmospheric Temperature	degC	25	20
Surface Temperature	degC	30	20
Relative Humidity	fraction	0.8	0.8

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

H140

Base Case

CASE Name: Data

Path: \Terminal Adonai - Efeitos físicos\Simulações\H140

User-Defined Data

Material

Material Identifier N-PENTANE

Scenario

Building Wake Effect None

Vessel/Tank

Release Type Continuous

Location

Elevation 3 m
Use ERPG averaging time ERPG not selected
Use IDLH averaging time IDLH not selected
Use STEL averaging time STEL not selected
Supply a user defined averaging time Not supplied

Bund

Status of Bund No bund present
[Type of Bund Surface User-Defined (Land)]
[Bund Height 0 m]
[Bund Failure Modeling Bund cannot fail]

Indoor/Outdoor

Location of release Open air release
Outdoor Release Direction Horizontal

Flammable

Explosion Method TNT
Jet Fire Method Cone Model

Dispersion

Number of Release Segments 1
Fluid Phase(1) Liquid
Discharge Velocity(1) 32.52 m/s
Droplet Diameter(1) 153.1 um
Duration of Discharge(1) 600 s
Final Temperature(1) 24.89 degC
Release Rate(1) 0.17 kg/s
Pre-Dilution Air Rates(1) 0 kg/s
Late Ignition Location No ignition location
Mass Inventory of material to Disperse 1.99E6 kg

Fireball Parameters

[Mass Modification Factor 3]
[Calculation method for fireball DNV Recommended]
[TNO model flame temperature 1727 degC]

Toxic Parameters

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

[Indoor Calculations	Unselected]
[Wind Dependent Exchange Rate	Case Specified]
[Building Exchange Rate	4 /hr]
[Tail Time	1800 s]
[Set averaging time equal to exposure time	Use a fixed averaging time]
[Cut-off fraction of toxic load for exposure time calculation	0.05 fraction]
[Cut-off concentration for exposure time calculations	0 fraction]

Geometry

Shape	Point
Dimension	2D
System	Absolute
East(1)	0 m
North(1)	0 m



Consequence Results

Distance to Concentration Results

Path: \Terminal Adonai - Efeitos físicos\Simulações\H140

The height for user defined concentrations is the user defined height 0 m
 All toxic results are reported at the toxic effect height 1 m
 All flammable results are reported at the flammable effect height 0 m

Concentration(ppm)	Averaging Time	Distance (m)	
		Dia	Noite
UFL (80000)	18.75 s	No Hazard	No Hazard
LFL (13000)	18.75 s	No Hazard	No Hazard
LFL Frac (13000)	18.75 s	No Hazard	No Hazard

Concentration(ppm)	Averaging Time	Heights (m) for above distances	
		Dia	Noite
UFL (80000)	18.75 s	0	0
LFL (13000)	18.75 s	0	0
LFL Frac (13000)	18.75 s	0	0

Jet Fire Hazard

Path: \Terminal Adonai - Efeitos físicos\Simulações\H140

Jet fire method used: Cone model - DNV recommended

	Dia	Noite
Jet Fire Status	Hazard	Hazard
Flame Direction	Horizontal	Horizontal

Radiation Effects: Jet Fire Ellipse

Path: \Terminal Adonai - Efeitos físicos\Simulações\H140

This table gives the distances to the specified radiation levels for each jet fire listed in the above hazard table

Radiation Level	kW/m2	Distance (m)	
		Dia	Noite
9.83	kW/m2	9.17942	9.85621
19.46	kW/m2	6.63913	7.38905
35	kW/m2	Not Reached	Not Reached

Radiation Effects: Jet Fire Distance

Path: \Terminal Adonai - Efeitos físicos\Simulações\H140

	Radiation Level (kW/m2)
Dia	Noite

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Weather Conditions

Path: \Terminal Adonai - Efeitos físicos\Simulações\H140

		Dia	Noite
Wind Speed	m/s	3	2
Pasquill Stability		C	E
Surface Roughness Length	mm	1000	1000
Surface Roughness Parameter		0.173718	0.173718
Atmospheric Temperature	degC	25	20
Surface Temperature	degC	30	20
Relative Humidity	fraction	0.8	0.8

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

H141 (A)

Base Case

CASE Name: Data

Path: \Terminal Adonai - Efeitos físicos\Simulações\H141 (A)

User-Defined Data

Fireball Parameters

[TNO model flame temperature 1727 degC]

Toxic Parameters

[Indoor Calculations Unselected]
[Wind Dependent Exchange Rate Case Specified]
[Building Exchange Rate 4 /hr]
[Tail Time 1800 s]
[Set averaging time equal to exposure time Use a fixed averaging time]
[Cut-off fraction of toxic load for exposure time calculation 0.05 fraction]
[Cut-off concentration for exposure time calculations 0 fraction]

Geometry

Shape Point
Dimension 2D
System Absolute
East(1) 0 m
North(1) 0 m

Material

Material Identifier ACETONE
Type of Vessel Padded Liquid
Pressure Specification Pressure specified
Storage Pressure - gauge 0.03 bar
Temperature 25 degC
Volume Inventory 480 m3

Scenario

Scenario Type Catastrophic rupture
Phase to be Released Liquid
Building Wake Effect None

Location

Elevation 0 m
Use ERPG averaging time ERPG not selected
Use IDLH averaging time IDLH not selected
Use STEL averaging time STEL not selected
Supply a user defined averaging time Not supplied

Bund

Status of Bund Bund present
Bund Area 593 m2
[Type of Bund Surface User-Defined (Land)]
Bund Height 3 m
[Bund Failure Modeling Bund cannot fail]

Indoor/Outdoor

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Location of release	Open air release
Flammable	
Explosion Method	TNT
Jet Fire Method	Cone Model
Dispersion	
Late Ignition Location	No ignition location
Mass Inventory of material to Disperse	3.776E5 kg
Use Burst Pressure	No - Use release pressure for fireball
Fireball Parameters	
[Mass Modification Factor	3]
[Calculation method for fireball	DNV Recommended]

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Path: \Terminal Adonai - Efeitos físicos\Simulações\H141 (A)

DISCHARGE DATA for Weather: Global Weathers\Dia

Wind Speed: 3.00 m/s
Wind Speed at Height (Calculated) 1.78 m/s
Pasquill Stability: C

USER-DEFINED QUANTITIES

Material ACETONE
Scenario Catastrophic rupture
Inventory 377,558.66 kg
Fixed Duration n/a s

Stagnation data (data at upstream end for long pipe):

- Pressure 1.04 bar
- Temperature 25.00 degC
- Fluid State Non-saturated liquid

CALCULATED QUANTITIES

Mass Flow of Air (Vent from Vapor Space only) n/a
Mass Flowrate n/a kg/s
Release Duration n/a s

Orifice or pipe exit data (before atmospheric expansion):

- Pressure n/a bar
- Temperature n/a degC
- Vena Contracta Velocity (exit velocity for pipe releases) n/a m/s
- Discharge Coefficient n/a

Final data (after atmospheric expansion):

- Temperature 25.00 degC
- Liquid Mass Fraction 1.00 fraction
- Droplet Diameter 734.74 um
- Expanded Radius n/a m
- Velocity 1.11 m/s

DISCHARGE DATA for Weather: Global Weathers\Noite

Wind Speed: 2.00 m/s
Wind Speed at Height (Calculated) 0.83 m/s
Pasquill Stability: E

USER-DEFINED QUANTITIES

Material ACETONE
Scenario Catastrophic rupture
Inventory 377,558.66 kg
Fixed Duration n/a s

Stagnation data (data at upstream end for long pipe):

- Pressure 1.04 bar
- Temperature 25.00 degC
- Fluid State Non-saturated liquid

CALCULATED QUANTITIES

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Mass Flow of Air (Vent from Vapor Space only)	n/a
Mass Flowrate	n/a kg/s
Release Duration	n/a s
Orifice or pipe exit data (before atmospheric expansion):	
- Pressure	n/a bar
- Temperature	n/a degC
- Vena Contracta Velocity (exit velocity for pipe releases)	n/a m/s
- Discharge Coefficient	n/a
Final data (after atmospheric expansion):	
- Temperature	25.00 degC
- Liquid Mass Fraction	1.00 fraction
- Droplet Diameter	734.74 um
- Expanded Radius	n/a m
- Velocity	1.11 m/s



Consequence Results

Pool Vaporization Results

Path: \Terminal Adonai - Efeitos físicos\Simulações\H141 (A)

N.B. Pool vaporization segments begin when the cloud has left the pool

		Dia	Noite
Liquid Rainout	fraction	0.999254	0.999255
Initial Vapor Cloud	kg	281.612	281.445
Time Pool Left Behind	s	31.8504	75.3411

Cloud Segment 1

		Dia	Noite
Cloud Segment Duration	s	600	600
Pool Vaporization Rate	kg/s	4.58908	3.71644
Maximum Pool Radius	m	13.7389	13.7389

Distance to Concentration Results

Path: \Terminal Adonai - Efeitos físicos\Simulações\H141 (A)

The height for user defined concentrations is the user defined height 0 m

All toxic results are reported at the toxic effect height 1 m

All flammable results are reported at the flammable effect height 0 m

Concentration(ppm)	Averaging Time		Dia	Noite	Distance (m)
UFL (128000)	18.75	s	10.5179	11.3617	
LFL (26000)	18.75	s	33.4592	34.9089	
LFL Frac (26000)	18.75	s	33.4592	34.9089	
Concentration(ppm)	Averaging Time		Dia	Noite	Heights (m) for above distances
UFL (128000)	18.75	s	0	0	
LFL (26000)	18.75	s	0	0	
LFL Frac (26000)	18.75	s	0	0	

Late Pool Fire Hazard

Path: \Terminal Adonai - Efeitos físicos\Simulações\H141 (A)

	Dia	Noite
Late Pool Fire Status	Hazard	Hazard

Radiation Effects: Late Pool Fire Ellipse

Path: \Terminal Adonai - Efeitos físicos\Simulações\H141 (A)

			Dia	Noite	Distance (m)
Radiation Level	9.83	kW/m2	54.9122	53.201	
Radiation Level	19.46	kW/m2	41.3296	38.7409	
Radiation Level	35	kW/m2	27.4927	25.685	

SUMMARY REPORT

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Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Radiation Effects: Late Pool Fire Distance

Path: \Terminal Adonai - Efeitos físicos\Simulações\H141 (A)

	Dia	Noite
Radiation Level (kW/m2)		

Fireball Hazard

Path: \Terminal Adonai - Efeitos físicos\Simulações\H141 (A)

	Dia	Noite
Fireball Flame Status	No Hazard	No Hazard

Flash Fire Envelope

Path: \Terminal Adonai - Efeitos físicos\Simulações\H141 (A)

All flammable results are reported at the flammable effect height 0 m

			Dia	Noite
Furthest Extent	26000	ppm	33.4592	34.9089
Furthest Extent	26000	ppm	33.4592	34.9089

			Dia	Noite
Furthest Extent	26000	ppm	0	0
Furthest Extent	26000	ppm	0	0

Explosion Effects: Early Explosion

Path: \Terminal Adonai - Efeitos físicos\Simulações\H141 (A)

Early Explosions are assumed to be centered at the release location
Explosion Model Used : TNT

			Dia	Noite
Supplied Flammable Mass		kg	377559	377559

			Distance (m) at Overpressure Levels	
			Dia	Noite
Overpressure	0.05	bar	No Hazard	No Hazard
Overpressure	0.1	bar	No Hazard	No Hazard
Overpressure	0.3	bar	No Hazard	No Hazard

			Used Mass (kg) at Overpressure Levels	
			Dia	Noite
Overpressure	0.05	bar	0	0
Overpressure	0.1	bar	0	0
Overpressure	0.3	bar	0	0

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Explosion Effects: Late Ignition

Path: \Terminal Adonai - Efeitos físicos\Simulações\H141 (A)

Explosion Model Used : TNT

Explosion Location Criterion: Cloud Center

All distances are measured from the Source

All flammable results are reported at the flammable effect height 0 m

			Maximum Distance (m) at Overpressure Level	
			Dia	Noite
Overpressure	0.05	bar	86.2066	89.3045
Overpressure	0.1	bar	56.9558	57.3112
Overpressure	0.3	bar	32.9817	31.0894

			Supplementary Data at 0.05 bar	
			Dia	Noite
Supplied Flammable Mass		kg	151.322	198
Used Flammable Mass		kg	151.322	198
Overpressure Radius		m	77.1353	84.3674
Distance to:				
- Ignition Source		m	30	30
- Cloud Front/Centre		m	9.07127	4.93714
- Explosion Centre		m	9.07127	4.93714

			Supplementary Data at 0.1 bar	
			Dia	Noite
Supplied Flammable Mass		kg	151.322	198
Used Flammable Mass		kg	151.322	198
Overpressure Radius		m	47.8845	52.3741
Distance to:				
- Ignition Source		m	30	30
- Cloud Front/Centre		m	9.07127	4.93714
- Explosion Centre		m	9.07127	4.93714

			Supplementary Data at 0.3 bar	
			Dia	Noite
Supplied Flammable Mass		kg	151.322	198
Used Flammable Mass		kg	151.322	198
Overpressure Radius		m	23.9104	26.1522
Distance to:				
- Ignition Source		m	30	30
- Cloud Front/Centre		m	9.07127	4.93714
- Explosion Centre		m	9.07127	4.93714

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Weather Conditions

Path: \Terminal Adonai - Efeitos físicos\Simulações\H141 (A)

		Dia	Noite
Wind Speed	m/s	3	2
Pasquill Stability		C	E
Surface Roughness Length	mm	1000	1000
Surface Roughness Parameter		0.173718	0.173718
Atmospheric Temperature	degC	25	20
Surface Temperature	degC	30	20
Relative Humidity	fraction	0.8	0.8

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

H141 (B)

Base Case

CASE Name: Data

Path: \Terminal Adonai - Efeitos físicos\Simulações\H141 (B)

User-Defined Data

Material

Material Identifier	BENZENE
Type of Vessel	Padded Liquid
Pressure Specification	Pressure specified
Storage Pressure - gauge	0.03 bar
Temperature	25 degC
Volume Inventory	480 m3

Scenario

Scenario Type	Catastrophic rupture
Phase to be Released	Liquid
Building Wake Effect	None

Location

Elevation	0 m
Use ERPG averaging time	ERPG not selected
Use IDLH averaging time	IDLH not selected
Use STEL averaging time	STEL not selected
Supply a user defined averaging time	Not supplied

Bund

Status of Bund	Bund present
Bund Area	593 m2
[Type of Bund Surface	User-Defined (Land)]
Bund Height	3 m
[Bund Failure Modeling	Bund cannot fail]

Indoor/Outdoor

Location of release	Open air release
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Flammable

Explosion Method	TNT
Jet Fire Method	Cone Model

Dispersion

Late Ignition Location	No ignition location
Mass Inventory of material to Disperse	4.19E5 kg
Use Burst Pressure	No - Use release pressure for fireball

Fireball Parameters

[Mass Modification Factor	3]
[Calculation method for fireball	DNV Recommended]
[TNO model flame temperature	1727 degC]

Toxic Parameters

[Indoor Calculations	Unselected]
[Wind Dependent Exchange Rate	Case Specified]

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

[Building Exchange Rate	4 /hr]
[Tail Time	1800 s]
[Set averaging time equal to exposure time	Use a fixed averaging time]
[Cut-off fraction of toxic load for exposure time calculation	0.05 fraction]
[Cut-off concentration for exposure time calculations	0 fraction]

Geometry

Shape	Point
Dimension	2D
System	Absolute
East(1)	0 m
North(1)	0 m

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Path: \Terminal Adonai - Efeitos físicos\Simulações\H141 (B)

DISCHARGE DATA for Weather: Global Weathers\Dia

Wind Speed:	3.00 m/s
Wind Speed at Height (Calculated)	1.78 m/s
Pasquill Stability:	C

USER-DEFINED QUANTITIES

Material	BENZENE
Scenario	Catastrophic rupture
Inventory	419,043.56 kg
Fixed Duration	n/a s

Stagnation data (data at upstream end for long pipe):

- Pressure	1.04 bar
- Temperature	25.00 degC
- Fluid State	Non-saturated liquid

CALCULATED QUANTITIES

Mass Flow of Air (Vent from Vapor Space only)	n/a
Mass Flowrate	n/a kg/s
Release Duration	n/a s
Orifice or pipe exit data (before atmospheric expansion):	
- Pressure	n/a bar
- Temperature	n/a degC
- Vena Contracta Velocity (exit velocity for pipe releases)	n/a m/s
- Discharge Coefficient	n/a
Final data (after atmospheric expansion):	
- Temperature	25.00 degC
- Liquid Mass Fraction	1.00 fraction
- Droplet Diameter	742.39 um
- Expanded Radius	n/a m
- Velocity	0.82 m/s

DISCHARGE DATA for Weather: Global Weathers\Noite

Wind Speed:	2.00 m/s
Wind Speed at Height (Calculated)	0.83 m/s
Pasquill Stability:	E

USER-DEFINED QUANTITIES

Material	BENZENE
Scenario	Catastrophic rupture
Inventory	419,043.56 kg
Fixed Duration	n/a s

Stagnation data (data at upstream end for long pipe):

- Pressure	1.04 bar
- Temperature	25.00 degC
- Fluid State	Non-saturated liquid

CALCULATED QUANTITIES

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Mass Flow of Air (Vent from Vapor Space only)	n/a
Mass Flowrate	n/a kg/s
Release Duration	n/a s
Orifice or pipe exit data (before atmospheric expansion):	
- Pressure	n/a bar
- Temperature	n/a degC
- Vena Contracta Velocity (exit velocity for pipe releases)	n/a m/s
- Discharge Coefficient	n/a
Final data (after atmospheric expansion):	
- Temperature	25.00 degC
- Liquid Mass Fraction	1.00 fraction
- Droplet Diameter	742.39 um
- Expanded Radius	n/a m
- Velocity	0.82 m/s



Consequence Results

Pool Vaporization Results

Path: \Terminal Adonai - Efeitos físicos\Simulações\H141 (B)

N.B. Pool vaporization segments begin when the cloud has left the pool

		Dia	Noite
Liquid Rainout	fraction	0.999951	0.999953
Initial Vapor Cloud	kg	20.5259	19.5516
Time Pool Left Behind	s	21.4109	50.5351

Cloud Segment 1

Cloud Segment Duration	s	600	600
Pool Vaporization Rate	kg/s	2.19869	1.70406

Maximum Pool Radius	m	13.7389	13.7389
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Distance to Concentration Results

Path: \Terminal Adonai - Efeitos físicos\Simulações\H141 (B)

The height for user defined concentrations is the user defined height 0 m

All toxic results are reported at the toxic effect height 1 m

All flammable results are reported at the flammable effect height 0 m

Concentration(ppm)	Averaging Time		Dia	Noite	Distance (m)
UFL (79000)	18.75	s	6.65262	6.64328	
LFL (13000)	18.75	s	18.3308	17.2934	
LFL Frac (13000)	18.75	s	18.3308	17.2934	
Concentration(ppm)	Averaging Time		Dia	Noite	Heights (m) for above distances
UFL (79000)	18.75	s	0	0	
LFL (13000)	18.75	s	0	0	
LFL Frac (13000)	18.75	s	0	0	

Late Pool Fire Hazard

Path: \Terminal Adonai - Efeitos físicos\Simulações\H141 (B)

	Dia	Noite
Late Pool Fire Status	Hazard	Hazard

Radiation Effects: Late Pool Fire Ellipse

Path: \Terminal Adonai - Efeitos físicos\Simulações\H141 (B)

			Dia	Noite	Distance (m)
Radiation Level	9.83	kW/m2	23.5521	22.0942	
Radiation Level	19.46	kW/m2	14.7389	14.7389	
Radiation Level	35	kW/m2	Not Reached	Not Reached	

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Radiation Effects: Late Pool Fire Distance

Path: \Terminal Adonai - Efeitos físicos\Simulações\H141 (B)

	Dia	Noite
Radiation Level (kW/m2)		

Fireball Hazard

Path: \Terminal Adonai - Efeitos físicos\Simulações\H141 (B)

	Dia	Noite
Fireball Flame Status	No Hazard	No Hazard

Flash Fire Envelope

Path: \Terminal Adonai - Efeitos físicos\Simulações\H141 (B)

All flammable results are reported at the flammable effect height 0 m

			Dia	Noite
Furthest Extent	13000	ppm	18.3308	17.2934
Furthest Extent	13000	ppm	18.3308	17.2934

			Dia	Noite
Furthest Extent	13000	ppm	0	0
Furthest Extent	13000	ppm	0	0

Explosion Effects: Early Explosion

Path: \Terminal Adonai - Efeitos físicos\Simulações\H141 (B)

Early Explosions are assumed to be centered at the release location
Explosion Model Used : TNT

			Dia	Noite
Supplied Flammable Mass		kg	419044	419044

			Dia	Noite
Overpressure	0.05	bar	No Hazard	No Hazard
Overpressure	0.1	bar	No Hazard	No Hazard
Overpressure	0.3	bar	No Hazard	No Hazard

			Dia	Noite
Overpressure	0.05	bar	0	0
Overpressure	0.1	bar	0	0
Overpressure	0.3	bar	0	0

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Explosion Effects: Late Ignition

Path: \Terminal Adonai - Efeitos físicos\Simulações\H141 (B)

Explosion Model Used : TNT

Explosion Location Criterion: Cloud Center

All distances are measured from the Source

All flammable results are reported at the flammable effect height 0 m

			Maximum Distance (m) at Overpressure Level	
			Dia	Noite
Overpressure	0.05	bar	39.458	38.2972
Overpressure	0.1	bar	24.5753	23.8243
Overpressure	0.3	bar	12.3773	11.9622

Supplementary Data at 0.05 bar

			Dia	Noite
Supplied Flammable Mass		kg	14.181	13.0415
Used Flammable Mass		kg	14.181	13.0415
Overpressure Radius		m	39.2462	38.1656
Distance to:				
- Ignition Source		m	10	10
- Cloud Front/Centre		m	0.211778	0.131673
- Explosion Centre		m	0.211778	0.131673

Supplementary Data at 0.1 bar

			Dia	Noite
Supplied Flammable Mass		kg	14.181	13.0415
Used Flammable Mass		kg	14.181	13.0415
Overpressure Radius		m	24.3635	23.6926
Distance to:				
- Ignition Source		m	10	10
- Cloud Front/Centre		m	0.211778	0.131673
- Explosion Centre		m	0.211778	0.131673

Supplementary Data at 0.3 bar

			Dia	Noite
Supplied Flammable Mass		kg	14.181	13.0415
Used Flammable Mass		kg	14.181	13.0415
Overpressure Radius		m	12.1656	11.8306
Distance to:				
- Ignition Source		m	10	10
- Cloud Front/Centre		m	0.211778	0.131673
- Explosion Centre		m	0.211778	0.131673

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Weather Conditions

Path: \Terminal Adonai - Efeitos físicos\Simulações\H141 (B)

		Dia	Noite
Wind Speed	m/s	3	2
Pasquill Stability		C	E
Surface Roughness Length	mm	1000	1000
Surface Roughness Parameter		0.173718	0.173718
Atmospheric Temperature	degC	25	20
Surface Temperature	degC	30	20
Relative Humidity	fraction	0.8	0.8

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

H141 (E)

Base Case

CASE Name: Data

Path: \Terminal Adonai - Efeitos físicos\Simulações\H141 (E)

User-Defined Data

Material

Material Identifier	ETHANOL
Type of Vessel	Padded Liquid
Pressure Specification	Pressure specified
Storage Pressure - gauge	0.03 bar
Temperature	25 degC
Volume Inventory	480 m3

Scenario

Scenario Type	Catastrophic rupture
Phase to be Released	Liquid
Building Wake Effect	None

Location

Elevation	0 m
Use ERPG averaging time	ERPG not selected
Use IDLH averaging time	IDLH not selected
Use STEL averaging time	STEL not selected
Supply a user defined averaging time	Not supplied

Bund

Status of Bund	Bund present
Bund Area	593 m2
[Type of Bund Surface	User-Defined (Land)]
Bund Height	3 m
[Bund Failure Modeling	Bund cannot fail]

Indoor/Outdoor

Location of release	Open air release
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Flammable

Explosion Method	TNT
Jet Fire Method	Cone Model

Dispersion

Late Ignition Location	No ignition location
Mass Inventory of material to Disperse	3.772E5 kg
Use Burst Pressure	No - Use release pressure for fireball

Fireball Parameters

[Mass Modification Factor	3]
[Calculation method for fireball	DNV Recommended]
[TNO model flame temperature	1727 degC]

Toxic Parameters

[Indoor Calculations	Unselected]
[Wind Dependent Exchange Rate	Case Specified]

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

[Building Exchange Rate	4 /hr]
[Tail Time	1800 s]
[Set averaging time equal to exposure time	Use a fixed averaging time]
[Cut-off fraction of toxic load for exposure time calculation	0.05 fraction]
[Cut-off concentration for exposure time calculations	0 fraction]

Geometry

Shape	Point
Dimension	2D
System	Absolute
East(1)	0 m
North(1)	0 m

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Path: \Terminal Adonai - Efeitos físicos\Simulações\H141 (E)

DISCHARGE DATA for Weather: Global Weathers\Dia

Wind Speed: 3.00 m/s
Wind Speed at Height (Calculated) 1.78 m/s
Pasquill Stability: C

USER-DEFINED QUANTITIES

Material ETHANOL
Scenario Catastrophic rupture
Inventory 377,229.59 kg
Fixed Duration n/a s

Stagnation data (data at upstream end for long pipe):

- Pressure 1.04 bar
- Temperature 25.00 degC
- Fluid State Non-saturated liquid

CALCULATED QUANTITIES

Mass Flow of Air (Vent from Vapor Space only) n/a
Mass Flowrate n/a kg/s
Release Duration n/a s
Orifice or pipe exit data (before atmospheric expansion):
- Pressure n/a bar
- Temperature n/a degC
- Vena Contracta Velocity (exit velocity for pipe releases) n/a m/s
- Discharge Coefficient n/a
Final data (after atmospheric expansion):
- Temperature 25.00 degC
- Liquid Mass Fraction 1.00 fraction
- Droplet Diameter 734.68 um
- Expanded Radius n/a m
- Velocity 1.23 m/s

DISCHARGE DATA for Weather: Global Weathers\Noite

Wind Speed: 2.00 m/s
Wind Speed at Height (Calculated) 0.83 m/s
Pasquill Stability: E

USER-DEFINED QUANTITIES

Material ETHANOL
Scenario Catastrophic rupture
Inventory 377,229.59 kg
Fixed Duration n/a s

Stagnation data (data at upstream end for long pipe):

- Pressure 1.04 bar
- Temperature 25.00 degC
- Fluid State Non-saturated liquid

CALCULATED QUANTITIES

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Mass Flow of Air (Vent from Vapor Space only)	n/a
Mass Flowrate	n/a kg/s
Release Duration	n/a s
Orifice or pipe exit data (before atmospheric expansion):	
- Pressure	n/a bar
- Temperature	n/a degC
- Vena Contracta Velocity (exit velocity for pipe releases)	n/a m/s
- Discharge Coefficient	n/a
Final data (after atmospheric expansion):	
- Temperature	25.00 degC
- Liquid Mass Fraction	1.00 fraction
- Droplet Diameter	734.68 um
- Expanded Radius	n/a m
- Velocity	1.23 m/s



Consequence Results

Pool Vaporization Results

Path: \Terminal Adonai - Efeitos físicos\Simulações\H141 (E)

N.B. Pool vaporization segments begin when the cloud has left the pool

		Dia	Noite
Liquid Rainout	fraction	0.999822	0.999821
Initial Vapor Cloud	kg	67.2101	67.4384
Time Pool Left Behind	s	22.3228	44.516

Cloud Segment 1

Cloud Segment Duration	s	600	600
Pool Vaporization Rate	kg/s	0.910495	0.73362

Maximum Pool Radius	m	13.7389	13.7389
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Distance to Concentration Results

Path: \Terminal Adonai - Efeitos físicos\Simulações\H141 (E)

The height for user defined concentrations is the user defined height 0 m

All toxic results are reported at the toxic effect height 1 m

All flammable results are reported at the flammable effect height 0 m

Concentration(ppm)	Averaging Time		Dia	Noite	Distance (m)
UFL (190000)	18.75	s	8.09699	8.02157	
LFL (43000)	18.75	s	8.19199	8.11685	
LFL Frac (43000)	18.75	s	8.19199	8.11685	

Concentration(ppm)	Averaging Time		Dia	Noite	Heights (m) for above distances
UFL (190000)	18.75	s	0	0	
LFL (43000)	18.75	s	0	0	
LFL Frac (43000)	18.75	s	0	0	

Late Pool Fire Hazard

Path: \Terminal Adonai - Efeitos físicos\Simulações\H141 (E)

	Dia	Noite
Late Pool Fire Status	Hazard	Hazard

Radiation Effects: Late Pool Fire Ellipse

Path: \Terminal Adonai - Efeitos físicos\Simulações\H141 (E)

			Dia	Noite	Distance (m)
Radiation Level	9.83	kW/m2	39.8874	38.69	
Radiation Level	19.46	kW/m2	30.0482	28.1966	
Radiation Level	35	kW/m2	18.0227	17.2609	

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Radiation Effects: Late Pool Fire Distance

Path: \Terminal Adonai - Efeitos físicos\Simulações\H141 (E)

	Dia	Noite
Radiation Level (kW/m2)		

Fireball Hazard

Path: \Terminal Adonai - Efeitos físicos\Simulações\H141 (E)

	Dia	Noite
Fireball Flame Status	No Hazard	No Hazard

Flash Fire Envelope

Path: \Terminal Adonai - Efeitos físicos\Simulações\H141 (E)

All flammable results are reported at the flammable effect height 0 m

			Dia	Noite
Furthest Extent	43000	ppm	8.19199	8.11685
Furthest Extent	43000	ppm	8.19199	8.11685

			Dia	Noite
Furthest Extent	43000	ppm	0	0
Furthest Extent	43000	ppm	0	0

Explosion Effects: Early Explosion

Path: \Terminal Adonai - Efeitos físicos\Simulações\H141 (E)

Early Explosions are assumed to be centered at the release location
Explosion Model Used : TNT

			Dia	Noite
Supplied Flammable Mass		kg	377230	377230

			Dia	Noite
Overpressure	0.05	bar	No Hazard	No Hazard
Overpressure	0.1	bar	No Hazard	No Hazard
Overpressure	0.3	bar	No Hazard	No Hazard

			Dia	Noite
Overpressure	0.05	bar	0	0
Overpressure	0.1	bar	0	0
Overpressure	0.3	bar	0	0

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Weather Conditions

Path: \Terminal Adonai - Efeitos físicos\Simulações\H141 (E)

		Dia	Noite
Wind Speed	m/s	3	2
Pasquill Stability		C	E
Surface Roughness Length	mm	1000	1000
Surface Roughness Parameter		0.173718	0.173718
Atmospheric Temperature	degC	25	20
Surface Temperature	degC	30	20
Relative Humidity	fraction	0.8	0.8

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

H141 (H)

Base Case

CASE Name: Data

Path: \Terminal Adonai - Efeitos físicos\Simulações\H141 (H)

User-Defined Data

Material

Material Identifier	N-HEXANE
Type of Vessel	Padded Liquid
Pressure Specification	Pressure specified
Storage Pressure - gauge	0.03 bar
Temperature	25 degC
Volume Inventory	480 m3

Scenario

Scenario Type	Catastrophic rupture
Phase to be Released	Liquid
Building Wake Effect	None

Location

Elevation	0 m
Use ERPG averaging time	ERPG not selected
Use IDLH averaging time	IDLH not selected
Use STEL averaging time	STEL not selected
Supply a user defined averaging time	Not supplied

Bund

Status of Bund	Bund present
Bund Area	593 m2
[Type of Bund Surface	User-Defined (Land)]
Bund Height	3 m
[Bund Failure Modeling	Bund cannot fail]

Indoor/Outdoor

Location of release	Open air release
---------------------	------------------

Flammable

Explosion Method	TNT
Jet Fire Method	Cone Model

Dispersion

Late Ignition Location	No ignition location
Mass Inventory of material to Disperse	3.149E5 kg
Use Burst Pressure	No - Use release pressure for fireball

Fireball Parameters

[Mass Modification Factor	3]
[Calculation method for fireball	DNV Recommended]
[TNO model flame temperature	1727 degC]

Toxic Parameters

[Indoor Calculations	Unselected]
[Wind Dependent Exchange Rate	Case Specified]

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

[Building Exchange Rate	4 /hr]
[Tail Time	1800 s]
[Set averaging time equal to exposure time	Use a fixed averaging time]
[Cut-off fraction of toxic load for exposure time calculation	0.05 fraction]
[Cut-off concentration for exposure time calculations	0 fraction]

Geometry

Shape	Point
Dimension	2D
System	Absolute
East(1)	0 m
North(1)	0 m

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Path: \Terminal Adonai - Efeitos físicos\Simulações\H141 (H)

DISCHARGE DATA for Weather: Global Weathers\Dia

Wind Speed: 3.00 m/s
Wind Speed at Height (Calculated) 1.78 m/s
Pasquill Stability: C

USER-DEFINED QUANTITIES

Material N-HEXANE
Scenario Catastrophic rupture
Inventory 314,892.56 kg
Fixed Duration n/a s

Stagnation data (data at upstream end for long pipe):

- Pressure 1.04 bar
- Temperature 25.00 degC
- Fluid State Non-saturated liquid

CALCULATED QUANTITIES

Mass Flow of Air (Vent from Vapor Space only) n/a
Mass Flowrate n/a kg/s
Release Duration n/a s
Orifice or pipe exit data (before atmospheric expansion):
- Pressure n/a bar
- Temperature n/a degC
- Vena Contracta Velocity (exit velocity for pipe releases) n/a m/s
- Discharge Coefficient n/a
Final data (after atmospheric expansion):
- Temperature 25.00 degC
- Liquid Mass Fraction 1.00 fraction
- Droplet Diameter 721.42 um
- Expanded Radius n/a m
- Velocity 1.04 m/s

DISCHARGE DATA for Weather: Global Weathers\Noite

Wind Speed: 2.00 m/s
Wind Speed at Height (Calculated) 0.83 m/s
Pasquill Stability: E

USER-DEFINED QUANTITIES

Material N-HEXANE
Scenario Catastrophic rupture
Inventory 314,892.56 kg
Fixed Duration n/a s

Stagnation data (data at upstream end for long pipe):

- Pressure 1.04 bar
- Temperature 25.00 degC
- Fluid State Non-saturated liquid

CALCULATED QUANTITIES

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Mass Flow of Air (Vent from Vapor Space only)	n/a
Mass Flowrate	n/a kg/s
Release Duration	n/a s
Orifice or pipe exit data (before atmospheric expansion):	
- Pressure	n/a bar
- Temperature	n/a degC
- Vena Contracta Velocity (exit velocity for pipe releases)	n/a m/s
- Discharge Coefficient	n/a
Final data (after atmospheric expansion):	
- Temperature	25.00 degC
- Liquid Mass Fraction	1.00 fraction
- Droplet Diameter	721.42 um
- Expanded Radius	n/a m
- Velocity	1.04 m/s



Consequence Results

Pool Vaporization Results

Path: \Terminal Adonai - Efeitos físicos\Simulações\H141 (H)

N.B. Pool vaporization segments begin when the cloud has left the pool

		Dia	Noite
Liquid Rainout	fraction	0.999755	0.999758
Initial Vapor Cloud	kg	77.0309	76.1191
Time Pool Left Behind	s	26.8742	64.4886

Cloud Segment 1

Cloud Segment Duration	s	600	600
Pool Vaporization Rate	kg/s	3.54668	2.83569

Maximum Pool Radius	m	13.7389	13.7389
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Distance to Concentration Results

Path: \Terminal Adonai - Efeitos físicos\Simulações\H141 (H)

The height for user defined concentrations is the user defined height 0 m

All toxic results are reported at the toxic effect height 1 m

All flammable results are reported at the flammable effect height 0 m

Concentration(ppm)	Averaging Time		Dia	Noite	Distance (m)
UFL (76800)	18.75	s	8.44201	9.60363	
LFL (10500)	18.75	s	30.9624	30.6953	
LFL Frac (10500)	18.75	s	30.9624	30.6953	

Concentration(ppm)	Averaging Time		Dia	Noite	Heights (m) for above distances
UFL (76800)	18.75	s	0	0	
LFL (10500)	18.75	s	0	0	
LFL Frac (10500)	18.75	s	0	0	

Late Pool Fire Hazard

Path: \Terminal Adonai - Efeitos físicos\Simulações\H141 (H)

	Dia	Noite
Late Pool Fire Status	Hazard	Hazard

Radiation Effects: Late Pool Fire Ellipse

Path: \Terminal Adonai - Efeitos físicos\Simulações\H141 (H)

			Dia	Noite	Distance (m)
Radiation Level	9.83	kW/m2	23.569	22.0849	
Radiation Level	19.46	kW/m2	14.7389	14.7389	
Radiation Level	35	kW/m2	Not Reached	Not Reached	

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Radiation Effects: Late Pool Fire Distance

Path: \Terminal Adonai - Efeitos físicos\Simulações\H141 (H)

	Dia	Noite
Radiation Level (kW/m2)		

Fireball Hazard

Path: \Terminal Adonai - Efeitos físicos\Simulações\H141 (H)

	Dia	Noite
Fireball Flame Status	No Hazard	No Hazard

Flash Fire Envelope

Path: \Terminal Adonai - Efeitos físicos\Simulações\H141 (H)

All flammable results are reported at the flammable effect height 0 m

			Dia	Noite
Furthest Extent	10500	ppm	30.9624	30.6953
Furthest Extent	10500	ppm	30.9624	30.6953

			Dia	Noite
Furthest Extent	10500	ppm	0	0
Furthest Extent	10500	ppm	0	0

Explosion Effects: Early Explosion

Path: \Terminal Adonai - Efeitos físicos\Simulações\H141 (H)

Early Explosions are assumed to be centered at the release location
Explosion Model Used : TNT

			Dia	Noite
Supplied Flammable Mass		kg	314893	314893

			Distance (m) at Overpressure Levels	
			Dia	Noite
Overpressure	0.05	bar	No Hazard	No Hazard
Overpressure	0.1	bar	No Hazard	No Hazard
Overpressure	0.3	bar	No Hazard	No Hazard

			Used Mass (kg) at Overpressure Levels	
			Dia	Noite
Overpressure	0.05	bar	0	0
Overpressure	0.1	bar	0	0
Overpressure	0.3	bar	0	0

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Explosion Effects: Late Ignition

Path: \Terminal Adonai - Efeitos físicos\Simulações\H141 (H)

Explosion Model Used : TNT

Explosion Location Criterion: Cloud Center

All distances are measured from the Source

All flammable results are reported at the flammable effect height 0 m

			Maximum Distance (m) at Overpressure Level	
			Dia	Noite
Overpressure	0.05	bar	71.8851	71.32
Overpressure	0.1	bar	46.928	47.9077
Overpressure	0.3	bar	31.3078	28.7188

Supplementary Data at 0.05 bar

			Dia	Noite
Supplied Flammable Mass		kg	67.0844	49.545
Used Flammable Mass		kg	67.0844	49.545
Overpressure Radius		m	68.3021	61.7391
Distance to:				
- Ignition Source		m	20	30
- Cloud Front/Centre		m	3.58295	9.58088
- Explosion Centre		m	3.58295	9.58088

Supplementary Data at 0.1 bar

			Dia	Noite
Supplied Flammable Mass		kg	26.7245	49.545
Used Flammable Mass		kg	26.7245	49.545
Overpressure Radius		m	31.1989	38.3268
Distance to:				
- Ignition Source		m	30	30
- Cloud Front/Centre		m	15.7291	9.58088
- Explosion Centre		m	15.7291	9.58088

Supplementary Data at 0.3 bar

			Dia	Noite
Supplied Flammable Mass		kg	26.7245	49.545
Used Flammable Mass		kg	26.7245	49.545
Overpressure Radius		m	15.5787	19.1379
Distance to:				
- Ignition Source		m	30	30
- Cloud Front/Centre		m	15.7291	9.58088
- Explosion Centre		m	15.7291	9.58088

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Weather Conditions

Path: \Terminal Adonai - Efeitos físicos\Simulações\H141 (H)

		Dia	Noite
Wind Speed	m/s	3	2
Pasquill Stability		C	E
Surface Roughness Length	mm	1000	1000
Surface Roughness Parameter		0.173718	0.173718
Atmospheric Temperature	degC	25	20
Surface Temperature	degC	30	20
Relative Humidity	fraction	0.8	0.8

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

H141 (M)

Base Case

CASE Name: Data

Path: \Terminal Adonai - Efeitos físicos\Simulações\H141 (M)

User-Defined Data

Material

Material Identifier	METHANOL
Type of Vessel	Padded Liquid
Pressure Specification	Pressure specified
Storage Pressure - gauge	0.03 bar
Temperature	25 degC
Volume Inventory	480 m3

Scenario

Scenario Type	Catastrophic rupture
Phase to be Released	Liquid
Building Wake Effect	None

Location

Elevation	0 m
Use ERPG averaging time	ERPG not selected
Use IDLH averaging time	IDLH not selected
Use STEL averaging time	STEL not selected
Supply a user defined averaging time	Not supplied

Bund

Status of Bund	Bund present
Bund Area	593 m2
[Type of Bund Surface	User-Defined (Land)]
Bund Height	3 m
[Bund Failure Modeling	Bund cannot fail]

Indoor/Outdoor

Location of release	Open air release
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Flammable

Explosion Method	TNT
Jet Fire Method	Cone Model

Dispersion

Late Ignition Location	No ignition location
Mass Inventory of material to Disperse	3.79E5 kg
Use Burst Pressure	No - Use release pressure for fireball

Fireball Parameters

[Mass Modification Factor	3]
[Calculation method for fireball	DNV Recommended]
[TNO model flame temperature	1727 degC]

Toxic Parameters

[Indoor Calculations	Unselected]
[Wind Dependent Exchange Rate	Case Specified]

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

[Building Exchange Rate	4 /hr]
[Tail Time	1800 s]
[Set averaging time equal to exposure time	Use a fixed averaging time]
[Cut-off fraction of toxic load for exposure time calculation	0.05 fraction]
[Cut-off concentration for exposure time calculations	0 fraction]

Geometry

Shape	Point
Dimension	2D
System	Absolute
East(1)	0 m
North(1)	0 m

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Path: \Terminal Adonai - Efeitos físicos\Simulações\H141 (M)

DISCHARGE DATA for Weather: Global Weathers\Dia

Wind Speed: 3.00 m/s
Wind Speed at Height (Calculated) 1.78 m/s
Pasquill Stability: C

USER-DEFINED QUANTITIES

Material METHANOL
Scenario Catastrophic rupture
Inventory 379,016.31 kg
Fixed Duration n/a s

Stagnation data (data at upstream end for long pipe):

- Pressure 1.04 bar
- Temperature 25.00 degC
- Fluid State Non-saturated liquid

CALCULATED QUANTITIES

Mass Flow of Air (Vent from Vapor Space only) n/a
Mass Flowrate n/a kg/s
Release Duration n/a s
Orifice or pipe exit data (before atmospheric expansion):
- Pressure n/a bar
- Temperature n/a degC
- Vena Contracta Velocity (exit velocity for pipe releases) n/a m/s
- Discharge Coefficient n/a
Final data (after atmospheric expansion):
- Temperature 25.00 degC
- Liquid Mass Fraction 1.00 fraction
- Droplet Diameter 735.02 um
- Expanded Radius n/a m
- Velocity 1.54 m/s

DISCHARGE DATA for Weather: Global Weathers\Noite

Wind Speed: 2.00 m/s
Wind Speed at Height (Calculated) 0.83 m/s
Pasquill Stability: E

USER-DEFINED QUANTITIES

Material METHANOL
Scenario Catastrophic rupture
Inventory 379,016.31 kg
Fixed Duration n/a s

Stagnation data (data at upstream end for long pipe):

- Pressure 1.04 bar
- Temperature 25.00 degC
- Fluid State Non-saturated liquid

CALCULATED QUANTITIES

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Mass Flow of Air (Vent from Vapor Space only)	n/a
Mass Flowrate	n/a kg/s
Release Duration	n/a s
Orifice or pipe exit data (before atmospheric expansion):	
- Pressure	n/a bar
- Temperature	n/a degC
- Vena Contracta Velocity (exit velocity for pipe releases)	n/a m/s
- Discharge Coefficient	n/a
Final data (after atmospheric expansion):	
- Temperature	25.00 degC
- Liquid Mass Fraction	1.00 fraction
- Droplet Diameter	735.02 um
- Expanded Radius	n/a m
- Velocity	1.54 m/s



Consequence Results

Pool Vaporization Results

Path: \Terminal Adonai - Efeitos físicos\Simulações\H141 (M)

N.B. Pool vaporization segments begin when the cloud has left the pool

		Dia	Noite
Liquid Rainout	fraction	0.999395	0.999391
Initial Vapor Cloud	kg	229.273	230.872
Time Pool Left Behind	s	24.3183	44.2637

Cloud Segment 1

Cloud Segment Duration	s	600	600
Pool Vaporization Rate	kg/s	1.59236	1.29332

Maximum Pool Radius	m	13.7389	13.7389
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Distance to Concentration Results

Path: \Terminal Adonai - Efeitos físicos\Simulações\H141 (M)

The height for user defined concentrations is the user defined height 0 m

All toxic results are reported at the toxic effect height 1 m

All flammable results are reported at the flammable effect height 0 m

Concentration(ppm)	Averaging Time		Dia	Noite	Distance (m)
UFL (360000)	18.75	s	9.87363	9.74574	
LFL (73000)	18.75	s	14.3041	14.5382	
LFL Frac (73000)	18.75	s	14.3041	14.5382	
Concentration(ppm)	Averaging Time		Dia	Noite	Heights (m) for above distances
UFL (360000)	18.75	s	0	0	
LFL (73000)	18.75	s	0	0	
LFL Frac (73000)	18.75	s	0	0	

Late Pool Fire Hazard

Path: \Terminal Adonai - Efeitos físicos\Simulações\H141 (M)

	Dia	Noite
Late Pool Fire Status	Hazard	Hazard

Radiation Effects: Late Pool Fire Ellipse

Path: \Terminal Adonai - Efeitos físicos\Simulações\H141 (M)

			Dia	Noite	Distance (m)
Radiation Level	9.83	kW/m2	28.7596	27.5793	
Radiation Level	19.46	kW/m2	18.3082	17.5184	
Radiation Level	35	kW/m2	14.7389	14.7389	

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Radiation Effects: Late Pool Fire Distance

Path: \Terminal Adonai - Efeitos físicos\Simulações\H141 (M)

	Dia	Noite
Radiation Level (kW/m2)		

Fireball Hazard

Path: \Terminal Adonai - Efeitos físicos\Simulações\H141 (M)

	Dia	Noite
Fireball Flame Status	No Hazard	No Hazard

Flash Fire Envelope

Path: \Terminal Adonai - Efeitos físicos\Simulações\H141 (M)

All flammable results are reported at the flammable effect height 0 m

			Dia	Noite
Furthest Extent	73000	ppm	14.3041	14.5382
Furthest Extent	73000	ppm	14.3041	14.5382

			Dia	Noite
Furthest Extent	73000	ppm	0	0
Furthest Extent	73000	ppm	0	0

Explosion Effects: Early Explosion

Path: \Terminal Adonai - Efeitos físicos\Simulações\H141 (M)

Early Explosions are assumed to be centered at the release location
Explosion Model Used : TNT

			Dia	Noite
Supplied Flammable Mass		kg	379016	379016

			Distance (m) at Overpressure Levels	
			Dia	Noite
Overpressure	0.05	bar	No Hazard	No Hazard
Overpressure	0.1	bar	No Hazard	No Hazard
Overpressure	0.3	bar	No Hazard	No Hazard

			Used Mass (kg) at Overpressure Levels	
			Dia	Noite
Overpressure	0.05	bar	0	0
Overpressure	0.1	bar	0	0
Overpressure	0.3	bar	0	0

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Explosion Effects: Late Ignition

Path: \Terminal Adonai - Efeitos físicos\Simulações\H141 (M)

Explosion Model Used : TNT

Explosion Location Criterion: Cloud Center

All distances are measured from the Source

All flammable results are reported at the flammable effect height 0 m

			Maximum Distance (m) at Overpressure Level	
			Dia	Noite
Overpressure	0.05	bar	62.3371	55.2244
Overpressure	0.1	bar	39.1522	35.0121
Overpressure	0.3	bar	20.1496	18.4461

Supplementary Data at 0.05 bar

			Dia	Noite
Supplied Flammable Mass		kg	108.067	71.6006
Used Flammable Mass		kg	108.067	71.6006
Overpressure Radius		m	61.1396	53.3003
Distance to:				
- Ignition Source		m	10	10
- Cloud Front/Centre		m	1.19757	1.92406
- Explosion Centre		m	1.19757	1.92406

Supplementary Data at 0.1 bar

			Dia	Noite
Supplied Flammable Mass		kg	108.067	71.6006
Used Flammable Mass		kg	108.067	71.6006
Overpressure Radius		m	37.9546	33.0881
Distance to:				
- Ignition Source		m	10	10
- Cloud Front/Centre		m	1.19757	1.92406
- Explosion Centre		m	1.19757	1.92406

Supplementary Data at 0.3 bar

			Dia	Noite
Supplied Flammable Mass		kg	108.067	71.6006
Used Flammable Mass		kg	108.067	71.6006
Overpressure Radius		m	18.9521	16.522
Distance to:				
- Ignition Source		m	10	10
- Cloud Front/Centre		m	1.19757	1.92406
- Explosion Centre		m	1.19757	1.92406

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Weather Conditions

Path: \Terminal Adonai - Efeitos físicos\Simulações\H141 (M)

		Dia	Noite
Wind Speed	m/s	3	2
Pasquill Stability		C	E
Surface Roughness Length	mm	1000	1000
Surface Roughness Parameter		0.173718	0.173718
Atmospheric Temperature	degC	25	20
Surface Temperature	degC	30	20
Relative Humidity	fraction	0.8	0.8

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

H141 (N)

Base Case

CASE Name: Data

Path: \Terminal Adonai - Efeitos físicos\Simulações\H141 (N)

User-Defined Data

Material

Material Identifier	N-NONANE
Type of Vessel	Padded Liquid
Pressure Specification	Pressure specified
Storage Pressure - gauge	0.03 bar
Temperature	25 degC
Volume Inventory	480 m3

Scenario

Scenario Type	Catastrophic rupture
Phase to be Released	Liquid
Building Wake Effect	None

Location

Elevation	0 m
Use ERPG averaging time	ERPG not selected
Use IDLH averaging time	IDLH not selected
Use STEL averaging time	STEL not selected
Supply a user defined averaging time	Not supplied

Bund

Status of Bund	Bund present
Bund Area	593 m2
[Type of Bund Surface	User-Defined (Land)]
Bund Height	3 m
[Bund Failure Modeling	Bund cannot fail]

Indoor/Outdoor

Location of release	Open air release
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Flammable

Explosion Method	TNT
Jet Fire Method	Cone Model

Dispersion

Late Ignition Location	No ignition location
Mass Inventory of material to Disperse	3.429E5 kg
Use Burst Pressure	No - Use release pressure for fireball

Fireball Parameters

[Mass Modification Factor	3]
[Calculation method for fireball	DNV Recommended]
[TNO model flame temperature	1727 degC]

Toxic Parameters

[Indoor Calculations	Unselected]
[Wind Dependent Exchange Rate	Case Specified]

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

[Building Exchange Rate	4 /hr]
[Tail Time	1800 s]
[Set averaging time equal to exposure time	Use a fixed averaging time]
[Cut-off fraction of toxic load for exposure time calculation	0.05 fraction]
[Cut-off concentration for exposure time calculations	0 fraction]

Geometry

Shape	Point
Dimension	2D
System	Absolute
East(1)	0 m
North(1)	0 m

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Path: \Terminal Adonai - Efeitos físicos\Simulações\H141 (N)

DISCHARGE DATA for Weather: Global Weathers\Dia

Wind Speed: 3.00 m/s
Wind Speed at Height (Calculated) 1.78 m/s
Pasquill Stability: C

USER-DEFINED QUANTITIES

Material N-NONANE
Scenario Catastrophic rupture
Inventory 342,860.47 kg
Fixed Duration n/a s

Stagnation data (data at upstream end for long pipe):

- Pressure 1.04 bar
- Temperature 25.00 degC
- Fluid State Non-saturated liquid

CALCULATED QUANTITIES

Mass Flow of Air (Vent from Vapor Space only) n/a
Mass Flowrate n/a kg/s
Release Duration n/a s
Orifice or pipe exit data (before atmospheric expansion):
- Pressure n/a bar
- Temperature n/a degC
- Vena Contracta Velocity (exit velocity for pipe releases) n/a m/s
- Discharge Coefficient n/a
Final data (after atmospheric expansion):
- Temperature 25.00 degC
- Liquid Mass Fraction 1.00 fraction
- Droplet Diameter 727.67 um
- Expanded Radius n/a m
- Velocity 0.76 m/s

DISCHARGE DATA for Weather: Global Weathers\Noite

Wind Speed: 2.00 m/s
Wind Speed at Height (Calculated) 0.83 m/s
Pasquill Stability: E

USER-DEFINED QUANTITIES

Material N-NONANE
Scenario Catastrophic rupture
Inventory 342,860.47 kg
Fixed Duration n/a s

Stagnation data (data at upstream end for long pipe):

- Pressure 1.04 bar
- Temperature 25.00 degC
- Fluid State Non-saturated liquid

CALCULATED QUANTITIES

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Mass Flow of Air (Vent from Vapor Space only)	n/a
Mass Flowrate	n/a kg/s
Release Duration	n/a s
Orifice or pipe exit data (before atmospheric expansion):	
- Pressure	n/a bar
- Temperature	n/a degC
- Vena Contracta Velocity (exit velocity for pipe releases)	n/a m/s
- Discharge Coefficient	n/a
Final data (after atmospheric expansion):	
- Temperature	25.00 degC
- Liquid Mass Fraction	1.00 fraction
- Droplet Diameter	727.67 um
- Expanded Radius	n/a m
- Velocity	0.76 m/s



Consequence Results

Pool Vaporization Results

Path: \Terminal Adonai - Efeitos físicos\Simulações\H141 (N)

N.B. Pool vaporization segments begin when the cloud has left the pool

		Dia	Noite
Liquid Rainout	fraction	0.999996	0.999996
Initial Vapor Cloud	kg	1.31788	1.27478
Time Pool Left Behind	s	15.6936	

Cloud Segment 1

Cloud Segment Duration	s	600	
Pool Vaporization Rate	kg/s	0.118892	
Maximum Pool Radius	m	13.7389	13.7389

Distance to Concentration Results

Path: \Terminal Adonai - Efeitos físicos\Simulações\H141 (N)

The height for user defined concentrations is the user defined height 0 m

All toxic results are reported at the toxic effect height 1 m

All flammable results are reported at the flammable effect height 0 m

Concentration(ppm)	Averaging Time		Dia	Noite	Distance (m)
UFL (56000)	18.75	s	6.65274	6.64244	
LFL (7000)	18.75	s	6.72446	6.71416	
LFL Frac (7000)	18.75	s	6.72446	6.71416	

Concentration(ppm)	Averaging Time		Dia	Noite	Heights (m) for above distances
UFL (56000)	18.75	s	0	0	
LFL (7000)	18.75	s	0	0	
LFL Frac (7000)	18.75	s	0	0	

Late Pool Fire Hazard

Path: \Terminal Adonai - Efeitos físicos\Simulações\H141 (N)

	Dia	Noite
Late Pool Fire Status	Hazard	Hazard

Radiation Effects: Late Pool Fire Ellipse

Path: \Terminal Adonai - Efeitos físicos\Simulações\H141 (N)

			Dia	Noite	Distance (m)
Radiation Level	9.83	kW/m2	23.6156	22.0942	
Radiation Level	19.46	kW/m2	14.7389	14.7389	
Radiation Level	35	kW/m2	Not Reached	Not Reached	

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Radiation Effects: Late Pool Fire Distance

Path: \Terminal Adonai - Efeitos físicos\Simulações\H141 (N)

	Dia	Noite
Radiation Level (kW/m2)		

Fireball Hazard

Path: \Terminal Adonai - Efeitos físicos\Simulações\H141 (N)

	Dia	Noite
Fireball Flame Status	No Hazard	No Hazard

Flash Fire Envelope

Path: \Terminal Adonai - Efeitos físicos\Simulações\H141 (N)

All flammable results are reported at the flammable effect height 0 m

			Dia	Noite
Furthest Extent	7000	ppm	6.72446	6.71416
Furthest Extent	7000	ppm	6.72446	6.71416

			Dia	Noite
Furthest Extent	7000	ppm	0	0
Furthest Extent	7000	ppm	0	0

Explosion Effects: Early Explosion

Path: \Terminal Adonai - Efeitos físicos\Simulações\H141 (N)

Early Explosions are assumed to be centered at the release location
Explosion Model Used : TNT

			Dia	Noite
Supplied Flammable Mass		kg	342860	342860

			Distance (m) at Overpressure Levels	
			Dia	Noite
Overpressure	0.05	bar	No Hazard	No Hazard
Overpressure	0.1	bar	No Hazard	No Hazard
Overpressure	0.3	bar	No Hazard	No Hazard

			Used Mass (kg) at Overpressure Levels	
			Dia	Noite
Overpressure	0.05	bar	0	0
Overpressure	0.1	bar	0	0
Overpressure	0.3	bar	0	0

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Weather Conditions

Path: \Terminal Adonai - Efeitos físicos\Simulações\H141 (N)

		Dia	Noite
Wind Speed	m/s	3	2
Pasquill Stability		C	E
Surface Roughness Length	mm	1000	1000
Surface Roughness Parameter		0.173718	0.173718
Atmospheric Temperature	degC	25	20
Surface Temperature	degC	30	20
Relative Humidity	fraction	0.8	0.8

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

H141 (P)

Base Case

CASE Name: Data

Path: \Terminal Adonai - Efeitos físicos\Simulações\H141 (P)

User-Defined Data

Material

Material Identifier	N-PENTANE
Type of Vessel	Padded Liquid
Pressure Specification	Pressure specified
Storage Pressure - gauge	0.03 bar
Temperature	25 degC
Volume Inventory	480 m3

Scenario

Scenario Type	Catastrophic rupture
Phase to be Released	Liquid
Building Wake Effect	None

Location

Elevation	0 m
Use ERPG averaging time	ERPG not selected
Use IDLH averaging time	IDLH not selected
Use STEL averaging time	STEL not selected
Supply a user defined averaging time	Not supplied

Bund

Status of Bund	Bund present
Bund Area	593 m2
[Type of Bund Surface	User-Defined (Land)]
Bund Height	3 m
[Bund Failure Modeling	Bund cannot fail]

Indoor/Outdoor

Location of release	Open air release
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Flammable

Explosion Method	TNT
Jet Fire Method	Cone Model

Dispersion

Late Ignition Location	No ignition location
Mass Inventory of material to Disperse	2.984E5 kg
Use Burst Pressure	No - Use release pressure for fireball

Fireball Parameters

[Mass Modification Factor	3]
[Calculation method for fireball	DNV Recommended]
[TNO model flame temperature	1727 degC]

Toxic Parameters

[Indoor Calculations	Unselected]
[Wind Dependent Exchange Rate	Case Specified]

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

[Building Exchange Rate	4 /hr]
[Tail Time	1800 s]
[Set averaging time equal to exposure time	Use a fixed averaging time]
[Cut-off fraction of toxic load for exposure time calculation	0.05 fraction]
[Cut-off concentration for exposure time calculations	0 fraction]

Geometry

Shape	Point
Dimension	2D
System	Absolute
East(1)	0 m
North(1)	0 m

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Path: \Terminal Adonai - Efeitos físicos\Simulações\H141 (P)

DISCHARGE DATA for Weather: Global Weathers\Dia

Wind Speed: 3.00 m/s
Wind Speed at Height (Calculated) 1.78 m/s
Pasquill Stability: C

USER-DEFINED QUANTITIES

Material N-PENTANE
Scenario Catastrophic rupture
Inventory 298,436.81 kg
Fixed Duration n/a s

Stagnation data (data at upstream end for long pipe):

- Pressure 1.04 bar
- Temperature 25.00 degC
- Fluid State Non-saturated liquid

CALCULATED QUANTITIES

Mass Flow of Air (Vent from Vapor Space only) n/a
Mass Flowrate n/a kg/s
Release Duration n/a s
Orifice or pipe exit data (before atmospheric expansion):
- Pressure n/a bar
- Temperature n/a degC
- Vena Contracta Velocity (exit velocity for pipe releases) n/a m/s
- Discharge Coefficient n/a
Final data (after atmospheric expansion):
- Temperature 25.00 degC
- Liquid Mass Fraction 1.00 fraction
- Droplet Diameter 717.48 um
- Expanded Radius n/a m
- Velocity 0.86 m/s

DISCHARGE DATA for Weather: Global Weathers\Noite

Wind Speed: 2.00 m/s
Wind Speed at Height (Calculated) 0.83 m/s
Pasquill Stability: E

USER-DEFINED QUANTITIES

Material N-PENTANE
Scenario Catastrophic rupture
Inventory 298,436.81 kg
Fixed Duration n/a s

Stagnation data (data at upstream end for long pipe):

- Pressure 1.04 bar
- Temperature 25.00 degC
- Fluid State Non-saturated liquid

CALCULATED QUANTITIES

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Mass Flow of Air (Vent from Vapor Space only)	n/a
Mass Flowrate	n/a kg/s
Release Duration	n/a s
Orifice or pipe exit data (before atmospheric expansion):	
- Pressure	n/a bar
- Temperature	n/a degC
- Vena Contracta Velocity (exit velocity for pipe releases)	n/a m/s
- Discharge Coefficient	n/a
Final data (after atmospheric expansion):	
- Temperature	25.00 degC
- Liquid Mass Fraction	1.00 fraction
- Droplet Diameter	717.48 um
- Expanded Radius	n/a m
- Velocity	0.86 m/s



Consequence Results

Pool Vaporization Results

Path: \Terminal Adonai - Efeitos físicos\Simulações\H141 (P)

N.B. Pool vaporization segments begin when the cloud has left the pool

		Dia	Noite
Liquid Rainout	fraction	0.999227	0.999271
Initial Vapor Cloud	kg	230.613	217.565
Time Pool Left Behind	s	35.6763	95.0043

Cloud Segment 1

		Dia	Noite
Cloud Segment Duration	s	600	600
Pool Vaporization Rate	kg/s	14.4387	11.5494

		Dia	Noite
Maximum Pool Radius	m	13.7389	13.7389

Distance to Concentration Results

Path: \Terminal Adonai - Efeitos físicos\Simulações\H141 (P)

The height for user defined concentrations is the user defined height 0 m

All toxic results are reported at the toxic effect height 1 m

All flammable results are reported at the flammable effect height 0 m

Concentration(ppm)	Averaging Time		Dia	Noite	Distance (m)
UFL (80000)	18.75	s	21.7367	25.2546	
LFL (13000)	18.75	s	56.7208	56.5649	
LFL Frac (13000)	18.75	s	56.7208	56.5649	

Concentration(ppm)	Averaging Time		Dia	Noite	Heights (m) for above distances
UFL (80000)	18.75	s	0	0	
LFL (13000)	18.75	s	0	0	
LFL Frac (13000)	18.75	s	0	0	

Late Pool Fire Hazard

Path: \Terminal Adonai - Efeitos físicos\Simulações\H141 (P)

	Dia	Noite
Late Pool Fire Status	Hazard	Hazard

Radiation Effects: Late Pool Fire Ellipse

Path: \Terminal Adonai - Efeitos físicos\Simulações\H141 (P)

			Dia	Noite	Distance (m)
Radiation Level	9.83	kW/m2	23.5275	22.1075	
Radiation Level	19.46	kW/m2	14.7389	14.7389	
Radiation Level	35	kW/m2	Not Reached	Not Reached	

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Radiation Effects: Late Pool Fire Distance

Path: \Terminal Adonai - Efeitos físicos\Simulações\H141 (P)

	Dia	Noite
Radiation Level (kW/m2)		

Fireball Hazard

Path: \Terminal Adonai - Efeitos físicos\Simulações\H141 (P)

	Dia	Noite
Fireball Flame Status	No Hazard	No Hazard

Flash Fire Envelope

Path: \Terminal Adonai - Efeitos físicos\Simulações\H141 (P)

All flammable results are reported at the flammable effect height 0 m

			Dia	Noite
Furthest Extent	13000	ppm	56.7208	56.5649
Furthest Extent	13000	ppm	56.7208	56.5649

			Dia	Noite
Furthest Extent	13000	ppm	0	0
Furthest Extent	13000	ppm	0	0

Explosion Effects: Early Explosion

Path: \Terminal Adonai - Efeitos físicos\Simulações\H141 (P)

Early Explosions are assumed to be centered at the release location
Explosion Model Used : TNT

			Dia	Noite
Supplied Flammable Mass		kg	298437	298437

			Dia	Noite
Overpressure	0.05	bar	No Hazard	No Hazard
Overpressure	0.1	bar	No Hazard	No Hazard
Overpressure	0.3	bar	No Hazard	No Hazard

			Dia	Noite
Overpressure	0.05	bar	0	0
Overpressure	0.1	bar	0	0
Overpressure	0.3	bar	0	0

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Explosion Effects: Late Ignition

Path: \Terminal Adonai - Efeitos físicos\Simulações\H141 (P)

Explosion Model Used : TNT

Explosion Location Criterion: Cloud Center

All distances are measured from the Source

All flammable results are reported at the flammable effect height 0 m

			Maximum Distance (m) at Overpressure Level	
			Dia	Noite
Overpressure	0.05	bar	120.011	122.911
Overpressure	0.1	bar	82.5648	80.8585
Overpressure	0.3	bar	51.8741	46.3917

Supplementary Data at 0.05 bar

			Dia	Noite
Supplied Flammable Mass		kg	201.627	285.582
Used Flammable Mass		kg	201.627	285.582
Overpressure Radius		m	98.7457	110.895
Distance to:				
- Ignition Source		m	50	50
- Cloud Front/Centre		m	21.2649	12.0164
- Explosion Centre		m	21.2649	12.0164

Supplementary Data at 0.1 bar

			Dia	Noite
Supplied Flammable Mass		kg	201.627	285.582
Used Flammable Mass		kg	201.627	285.582
Overpressure Radius		m	61.3	68.8421
Distance to:				
- Ignition Source		m	50	50
- Cloud Front/Centre		m	21.2649	12.0164
- Explosion Centre		m	21.2649	12.0164

Supplementary Data at 0.3 bar

			Dia	Noite
Supplied Flammable Mass		kg	201.627	285.582
Used Flammable Mass		kg	201.627	285.582
Overpressure Radius		m	30.6092	34.3753
Distance to:				
- Ignition Source		m	50	50
- Cloud Front/Centre		m	21.2649	12.0164
- Explosion Centre		m	21.2649	12.0164

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Weather Conditions

Path: \Terminal Adonai - Efeitos físicos\Simulações\H141 (P)

		Dia	Noite
Wind Speed	m/s	3	2
Pasquill Stability		C	E
Surface Roughness Length	mm	1000	1000
Surface Roughness Parameter		0.173718	0.173718
Atmospheric Temperature	degC	25	20
Surface Temperature	degC	30	20
Relative Humidity	fraction	0.8	0.8

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

H142 (A)

Base Case

CASE Name: Data

Path: \Terminal Adonai - Efeitos físicos\Simulações\H142 (A)

User-Defined Data

Material

Material Identifier	ACETONE
Type of Vessel	Padded Liquid
Pressure Specification	Pressure specified
Storage Pressure - gauge	0.03 bar
Temperature	25 degC
Volume Inventory	640 m3

Scenario

Scenario Type	Catastrophic rupture
Phase to be Released	Liquid
Building Wake Effect	None

Location

Elevation	0 m
Use ERPG averaging time	ERPG not selected
Use IDLH averaging time	IDLH not selected
Use STEL averaging time	STEL not selected
Supply a user defined averaging time	Not supplied

Bund

Status of Bund	Bund present
Bund Area	593 m2
[Type of Bund Surface	User-Defined (Land)]
Bund Height	3 m
[Bund Failure Modeling	Bund cannot fail]

Indoor/Outdoor

Location of release	Open air release
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Flammable

Explosion Method	TNT
Jet Fire Method	Cone Model

Dispersion

Late Ignition Location	No ignition location
Mass Inventory of material to Disperse	5.034E5 kg
Use Burst Pressure	No - Use release pressure for fireball

Fireball Parameters

[Mass Modification Factor	3]
[Calculation method for fireball	DNV Recommended]
[TNO model flame temperature	1727 degC]

Toxic Parameters

[Indoor Calculations	Unselected]
[Wind Dependent Exchange Rate	Case Specified]

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

[Building Exchange Rate	4 /hr]
[Tail Time	1800 s]
[Set averaging time equal to exposure time	Use a fixed averaging time]
[Cut-off fraction of toxic load for exposure time calculation	0.05 fraction]
[Cut-off concentration for exposure time calculations	0 fraction]

Geometry

Shape	Point
Dimension	2D
System	Absolute
East(1)	0 m
North(1)	0 m

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Path: \Terminal Adonai - Efeitos físicos\Simulações\H142 (A)

DISCHARGE DATA for Weather: Global Weathers\Dia

Wind Speed: 3.00 m/s
Wind Speed at Height (Calculated) 1.78 m/s
Pasquill Stability: C

USER-DEFINED QUANTITIES

Material ACETONE
Scenario Catastrophic rupture
Inventory 503,411.56 kg
Fixed Duration n/a s

Stagnation data (data at upstream end for long pipe):

- Pressure 1.04 bar
- Temperature 25.00 degC
- Fluid State Non-saturated liquid

CALCULATED QUANTITIES

Mass Flow of Air (Vent from Vapor Space only) n/a
Mass Flowrate n/a kg/s
Release Duration n/a s
Orifice or pipe exit data (before atmospheric expansion):
- Pressure n/a bar
- Temperature n/a degC
- Vena Contracta Velocity (exit velocity for pipe releases) n/a m/s
- Discharge Coefficient n/a
Final data (after atmospheric expansion):
- Temperature 25.00 degC
- Liquid Mass Fraction 1.00 fraction
- Droplet Diameter 734.74 um
- Expanded Radius n/a m
- Velocity 1.11 m/s

DISCHARGE DATA for Weather: Global Weathers\Noite

Wind Speed: 2.00 m/s
Wind Speed at Height (Calculated) 0.83 m/s
Pasquill Stability: E

USER-DEFINED QUANTITIES

Material ACETONE
Scenario Catastrophic rupture
Inventory 503,411.56 kg
Fixed Duration n/a s

Stagnation data (data at upstream end for long pipe):

- Pressure 1.04 bar
- Temperature 25.00 degC
- Fluid State Non-saturated liquid

CALCULATED QUANTITIES

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Mass Flow of Air (Vent from Vapor Space only)	n/a
Mass Flowrate	n/a kg/s
Release Duration	n/a s
Orifice or pipe exit data (before atmospheric expansion):	
- Pressure	n/a bar
- Temperature	n/a degC
- Vena Contracta Velocity (exit velocity for pipe releases)	n/a m/s
- Discharge Coefficient	n/a
Final data (after atmospheric expansion):	
- Temperature	25.00 degC
- Liquid Mass Fraction	1.00 fraction
- Droplet Diameter	734.74 um
- Expanded Radius	n/a m
- Velocity	1.11 m/s



Consequence Results

Pool Vaporization Results

Path: \Terminal Adonai - Efeitos físicos\Simulações\H142 (A)

N.B. Pool vaporization segments begin when the cloud has left the pool

		Dia	Noite
Liquid Rainout	fraction	0.999253	0.999253
Initial Vapor Cloud	kg	375.864	375.834
Time Pool Left Behind	s	33.7962	79.6955

Cloud Segment 1

Cloud Segment Duration	s	600	600
Pool Vaporization Rate	kg/s	4.62569	3.75441

Maximum Pool Radius	m	13.7389	13.7389
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Distance to Concentration Results

Path: \Terminal Adonai - Efeitos físicos\Simulações\H142 (A)

The height for user defined concentrations is the user defined height 0 m

All toxic results are reported at the toxic effect height 1 m

All flammable results are reported at the flammable effect height 0 m

Concentration(ppm)	Averaging Time		Dia	Noite	Distance (m)
UFL (128000)	18.75	s	11.6637	12.5395	
LFL (26000)	18.75	s	36.5152	38.2935	
LFL Frac (26000)	18.75	s	36.5152	38.2935	

Concentration(ppm)	Averaging Time		Dia	Noite	Heights (m) for above distances
UFL (128000)	18.75	s	0	0	
LFL (26000)	18.75	s	0	0	
LFL Frac (26000)	18.75	s	0	0	

Late Pool Fire Hazard

Path: \Terminal Adonai - Efeitos físicos\Simulações\H142 (A)

	Dia	Noite
Late Pool Fire Status	Hazard	Hazard

Radiation Effects: Late Pool Fire Ellipse

Path: \Terminal Adonai - Efeitos físicos\Simulações\H142 (A)

			Dia	Noite	Distance (m)
Radiation Level	9.83	kW/m2	54.9122	53.201	
Radiation Level	19.46	kW/m2	41.3296	38.7409	
Radiation Level	35	kW/m2	27.4927	25.685	

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Radiation Effects: Late Pool Fire Distance

Path: \Terminal Adonai - Efeitos físicos\Simulações\H142 (A)

	Dia	Noite
Radiation Level (kW/m2)		

Fireball Hazard

Path: \Terminal Adonai - Efeitos físicos\Simulações\H142 (A)

	Dia	Noite
Fireball Flame Status	No Hazard	No Hazard

Flash Fire Envelope

Path: \Terminal Adonai - Efeitos físicos\Simulações\H142 (A)

All flammable results are reported at the flammable effect height 0 m

			Dia	Noite
Furthest Extent	26000	ppm	36.5152	38.2935
Furthest Extent	26000	ppm	36.5152	38.2935
			Heights (m) for above distances	
			Dia	Noite
Furthest Extent	26000	ppm	0	0
Furthest Extent	26000	ppm	0	0

Explosion Effects: Early Explosion

Path: \Terminal Adonai - Efeitos físicos\Simulações\H142 (A)

Early Explosions are assumed to be centered at the release location
Explosion Model Used : TNT

			Dia	Noite
Supplied Flammable Mass		kg	503412	503412
			Distance (m) at Overpressure Levels	
			Dia	Noite
Overpressure	0.05	bar	No Hazard	No Hazard
Overpressure	0.1	bar	No Hazard	No Hazard
Overpressure	0.3	bar	No Hazard	No Hazard
			Used Mass (kg) at Overpressure Levels	
			Dia	Noite
Overpressure	0.05	bar	0	0
Overpressure	0.1	bar	0	0
Overpressure	0.3	bar	0	0

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Explosion Effects: Late Ignition

Path: \Terminal Adonai - Efeitos físicos\Simulações\H142 (A)

Explosion Model Used : TNT

Explosion Location Criterion: Cloud Center

All distances are measured from the Source

All flammable results are reported at the flammable effect height 0 m

			Maximum Distance (m) at Overpressure Level	
			Dia	Noite
Overpressure	0.05	bar	96.6189	97.1724
Overpressure	0.1	bar	62.5675	61.7586
Overpressure	0.3	bar	34.6589	32.7332

			Supplementary Data at 0.05 bar	
			Dia	Noite
Supplied Flammable Mass		kg	238.723	268.54
Used Flammable Mass		kg	238.723	268.54
Overpressure Radius		m	89.7946	93.3876
Distance to:				
- Ignition Source		m	30	30
- Cloud Front/Centre		m	6.82429	3.78487
- Explosion Centre		m	6.82429	3.78487

			Supplementary Data at 0.1 bar	
			Dia	Noite
Supplied Flammable Mass		kg	238.723	268.54
Used Flammable Mass		kg	238.723	268.54
Overpressure Radius		m	55.7433	57.9737
Distance to:				
- Ignition Source		m	30	30
- Cloud Front/Centre		m	6.82429	3.78487
- Explosion Centre		m	6.82429	3.78487

			Supplementary Data at 0.3 bar	
			Dia	Noite
Supplied Flammable Mass		kg	238.723	268.54
Used Flammable Mass		kg	238.723	268.54
Overpressure Radius		m	27.8346	28.9483
Distance to:				
- Ignition Source		m	30	30
- Cloud Front/Centre		m	6.82429	3.78487
- Explosion Centre		m	6.82429	3.78487

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Weather Conditions

Path: \Terminal Adonai - Efeitos físicos\Simulações\H142 (A)

		Dia	Noite
Wind Speed	m/s	3	2
Pasquill Stability		C	E
Surface Roughness Length	mm	1000	1000
Surface Roughness Parameter		0.173718	0.173718
Atmospheric Temperature	degC	25	20
Surface Temperature	degC	30	20
Relative Humidity	fraction	0.8	0.8

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

H142 (B)

Base Case

CASE Name: Data

Path: \Terminal Adonai - Efeitos físicos\Simulações\H142 (B)

User-Defined Data

Material

Material Identifier	BENZENE
Type of Vessel	Padded Liquid
Pressure Specification	Pressure specified
Storage Pressure - gauge	0.03 bar
Temperature	25 degC
Volume Inventory	640 m3

Scenario

Scenario Type	Catastrophic rupture
Phase to be Released	Liquid
Building Wake Effect	None

Location

Elevation	0 m
Use ERPG averaging time	ERPG not selected
Use IDLH averaging time	IDLH not selected
Use STEL averaging time	STEL not selected
Supply a user defined averaging time	Not supplied

Bund

Status of Bund	Bund present
Bund Area	593 m2
[Type of Bund Surface	User-Defined (Land)]
Bund Height	3 m
[Bund Failure Modeling	Bund cannot fail]

Indoor/Outdoor

Location of release	Open air release
---------------------	------------------

Flammable

Explosion Method	TNT
Jet Fire Method	Cone Model

Dispersion

Late Ignition Location	No ignition location
Mass Inventory of material to Disperse	5.587E5 kg
Use Burst Pressure	No - Use release pressure for fireball

Fireball Parameters

[Mass Modification Factor	3]
[Calculation method for fireball	DNV Recommended]
[TNO model flame temperature	1727 degC]

Toxic Parameters

[Indoor Calculations	Unselected]
[Wind Dependent Exchange Rate	Case Specified]

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

[Building Exchange Rate	4 /hr]
[Tail Time	1800 s]
[Set averaging time equal to exposure time	Use a fixed averaging time]
[Cut-off fraction of toxic load for exposure time calculation	0.05 fraction]
[Cut-off concentration for exposure time calculations	0 fraction]

Geometry

Shape	Point
Dimension	2D
System	Absolute
East(1)	0 m
North(1)	0 m

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Path: \Terminal Adonai - Efeitos físicos\Simulações\H142 (B)

DISCHARGE DATA for Weather: Global Weathers\Dia

Wind Speed:	3.00 m/s
Wind Speed at Height (Calculated)	1.78 m/s
Pasquill Stability:	C

USER-DEFINED QUANTITIES

Material	BENZENE
Scenario	Catastrophic rupture
Inventory	558,724.75 kg
Fixed Duration	n/a s

Stagnation data (data at upstream end for long pipe):

- Pressure	1.04 bar
- Temperature	25.00 degC
- Fluid State	Non-saturated liquid

CALCULATED QUANTITIES

Mass Flow of Air (Vent from Vapor Space only)	n/a
Mass Flowrate	n/a kg/s
Release Duration	n/a s
Orifice or pipe exit data (before atmospheric expansion):	
- Pressure	n/a bar
- Temperature	n/a degC
- Vena Contracta Velocity (exit velocity for pipe releases)	n/a m/s
- Discharge Coefficient	n/a
Final data (after atmospheric expansion):	
- Temperature	25.00 degC
- Liquid Mass Fraction	1.00 fraction
- Droplet Diameter	742.39 um
- Expanded Radius	n/a m
- Velocity	0.82 m/s

DISCHARGE DATA for Weather: Global Weathers\Noite

Wind Speed:	2.00 m/s
Wind Speed at Height (Calculated)	0.83 m/s
Pasquill Stability:	E

USER-DEFINED QUANTITIES

Material	BENZENE
Scenario	Catastrophic rupture
Inventory	558,724.75 kg
Fixed Duration	n/a s

Stagnation data (data at upstream end for long pipe):

- Pressure	1.04 bar
- Temperature	25.00 degC
- Fluid State	Non-saturated liquid

CALCULATED QUANTITIES

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Mass Flow of Air (Vent from Vapor Space only)	n/a
Mass Flowrate	n/a kg/s
Release Duration	n/a s
Orifice or pipe exit data (before atmospheric expansion):	
- Pressure	n/a bar
- Temperature	n/a degC
- Vena Contracta Velocity (exit velocity for pipe releases)	n/a m/s
- Discharge Coefficient	n/a
Final data (after atmospheric expansion):	
- Temperature	25.00 degC
- Liquid Mass Fraction	1.00 fraction
- Droplet Diameter	742.39 um
- Expanded Radius	n/a m
- Velocity	0.82 m/s



Consequence Results

Pool Vaporization Results

Path: \Terminal Adonai - Efeitos físicos\Simulações\H142 (B)

N.B. Pool vaporization segments begin when the cloud has left the pool

		Dia	Noite
Liquid Rainout	fraction	0.999951	0.999953
Initial Vapor Cloud	kg	27.4976	26.2465
Time Pool Left Behind	s	22.1889	51.96

Cloud Segment 1

		Dia	Noite
Cloud Segment Duration	s	600	600
Pool Vaporization Rate	kg/s	2.20054	1.7137
Maximum Pool Radius	m	13.7389	13.7389

Distance to Concentration Results

Path: \Terminal Adonai - Efeitos físicos\Simulações\H142 (B)

The height for user defined concentrations is the user defined height 0 m

All toxic results are reported at the toxic effect height 1 m

All flammable results are reported at the flammable effect height 0 m

Concentration(ppm)	Averaging Time		Dia	Noite	Distance (m)
UFL (79000)	18.75	s	7.33092	7.3207	
LFL (13000)	18.75	s	18.887	18.2408	
LFL Frac (13000)	18.75	s	18.887	18.2408	
Concentration(ppm)	Averaging Time		Dia	Noite	Heights (m) for above distances
UFL (79000)	18.75	s	0	0	
LFL (13000)	18.75	s	0	0	
LFL Frac (13000)	18.75	s	0	0	

Late Pool Fire Hazard

Path: \Terminal Adonai - Efeitos físicos\Simulações\H142 (B)

	Dia	Noite
Late Pool Fire Status	Hazard	Hazard

Radiation Effects: Late Pool Fire Ellipse

Path: \Terminal Adonai - Efeitos físicos\Simulações\H142 (B)

			Dia	Noite	Distance (m)
Radiation Level	9.83	kW/m2	23.5521	22.0942	
Radiation Level	19.46	kW/m2	14.7389	14.7389	
Radiation Level	35	kW/m2	Not Reached	Not Reached	

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Radiation Effects: Late Pool Fire Distance

Path: \Terminal Adonai - Efeitos físicos\Simulações\H142 (B)

	Dia	Noite
Radiation Level (kW/m2)		

Fireball Hazard

Path: \Terminal Adonai - Efeitos físicos\Simulações\H142 (B)

	Dia	Noite
Fireball Flame Status	No Hazard	No Hazard

Flash Fire Envelope

Path: \Terminal Adonai - Efeitos físicos\Simulações\H142 (B)

All flammable results are reported at the flammable effect height 0 m

			Dia	Noite
Furthest Extent	13000	ppm	18.887	18.2408
Furthest Extent	13000	ppm	18.887	18.2408

			Dia	Noite
Furthest Extent	13000	ppm	0	0
Furthest Extent	13000	ppm	0	0

Explosion Effects: Early Explosion

Path: \Terminal Adonai - Efeitos físicos\Simulações\H142 (B)

Early Explosions are assumed to be centered at the release location
Explosion Model Used : TNT

			Dia	Noite
Supplied Flammable Mass		kg	558725	558725

			Dia	Noite
Overpressure	0.05	bar	No Hazard	No Hazard
Overpressure	0.1	bar	No Hazard	No Hazard
Overpressure	0.3	bar	No Hazard	No Hazard

			Dia	Noite
Overpressure	0.05	bar	0	0
Overpressure	0.1	bar	0	0
Overpressure	0.3	bar	0	0

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Explosion Effects: Late Ignition

Path: \Terminal Adonai - Efeitos físicos\Simulações\H142 (B)

Explosion Model Used : TNT

Explosion Location Criterion: Cloud Center

All distances are measured from the Source

All flammable results are reported at the flammable effect height 0 m

			Maximum Distance (m) at Overpressure Level	
			Dia	Noite
Overpressure	0.05	bar	39.4486	39.0045
Overpressure	0.1	bar	24.5232	24.2415
Overpressure	0.3	bar	12.2903	12.1417

Supplementary Data at 0.05 bar

			Dia	Noite
Supplied Flammable Mass		kg	14.3034	13.8415
Used Flammable Mass		kg	14.3034	13.8415
Overpressure Radius		m	39.3588	38.9305
Distance to:				
- Ignition Source		m	10	10
- Cloud Front/Centre		m	0.0898318	0.0740429
- Explosion Centre		m	0.0898318	0.0740429

Supplementary Data at 0.1 bar

			Dia	Noite
Supplied Flammable Mass		kg	14.3034	13.8415
Used Flammable Mass		kg	14.3034	13.8415
Overpressure Radius		m	24.4334	24.1675
Distance to:				
- Ignition Source		m	10	10
- Cloud Front/Centre		m	0.0898318	0.0740429
- Explosion Centre		m	0.0898318	0.0740429

Supplementary Data at 0.3 bar

			Dia	Noite
Supplied Flammable Mass		kg	14.3034	13.8415
Used Flammable Mass		kg	14.3034	13.8415
Overpressure Radius		m	12.2005	12.0677
Distance to:				
- Ignition Source		m	10	10
- Cloud Front/Centre		m	0.0898318	0.0740429
- Explosion Centre		m	0.0898318	0.0740429

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Weather Conditions

Path: \Terminal Adonai - Efeitos físicos\Simulações\H142 (B)

		Dia	Noite
Wind Speed	m/s	3	2
Pasquill Stability		C	E
Surface Roughness Length	mm	1000	1000
Surface Roughness Parameter		0.173718	0.173718
Atmospheric Temperature	degC	25	20
Surface Temperature	degC	30	20
Relative Humidity	fraction	0.8	0.8

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

H142 (E)

Base Case

CASE Name: Data

Path: \Terminal Adonai - Efeitos físicos\Simulações\H142 (E)

User-Defined Data

Material

Material Identifier	ETHANOL
Type of Vessel	Padded Liquid
Pressure Specification	Pressure specified
Storage Pressure - gauge	0.03 bar
Temperature	25 degC
Volume Inventory	640 m3

Scenario

Scenario Type	Catastrophic rupture
Phase to be Released	Liquid
Building Wake Effect	None

Location

Elevation	0 m
Use ERPG averaging time	ERPG not selected
Use IDLH averaging time	IDLH not selected
Use STEL averaging time	STEL not selected
Supply a user defined averaging time	Not supplied

Bund

Status of Bund	Bund present
Bund Area	593 m2
[Type of Bund Surface	User-Defined (Land)]
Bund Height	3 m
[Bund Failure Modeling	Bund cannot fail]

Indoor/Outdoor

Location of release	Open air release
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Flammable

Explosion Method	TNT
Jet Fire Method	Cone Model

Dispersion

Late Ignition Location	No ignition location
Mass Inventory of material to Disperse	5.03E5 kg
Use Burst Pressure	No - Use release pressure for fireball

Fireball Parameters

[Mass Modification Factor	3]
[Calculation method for fireball	DNV Recommended]
[TNO model flame temperature	1727 degC]

Toxic Parameters

[Indoor Calculations	Unselected]
[Wind Dependent Exchange Rate	Case Specified]

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

[Building Exchange Rate	4 /hr]
[Tail Time	1800 s]
[Set averaging time equal to exposure time	Use a fixed averaging time]
[Cut-off fraction of toxic load for exposure time calculation	0.05 fraction]
[Cut-off concentration for exposure time calculations	0 fraction]

Geometry

Shape	Point
Dimension	2D
System	Absolute
East(1)	0 m
North(1)	0 m

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Path: \Terminal Adonai - Efeitos físicos\Simulações\H142 (E)

DISCHARGE DATA for Weather: Global Weathers\Dia

Wind Speed: 3.00 m/s
Wind Speed at Height (Calculated) 1.78 m/s
Pasquill Stability: C

USER-DEFINED QUANTITIES

Material ETHANOL
Scenario Catastrophic rupture
Inventory 502,972.81 kg
Fixed Duration n/a s

Stagnation data (data at upstream end for long pipe):

- Pressure 1.04 bar
- Temperature 25.00 degC
- Fluid State Non-saturated liquid

CALCULATED QUANTITIES

Mass Flow of Air (Vent from Vapor Space only) n/a
Mass Flowrate n/a kg/s
Release Duration n/a s
Orifice or pipe exit data (before atmospheric expansion):
- Pressure n/a bar
- Temperature n/a degC
- Vena Contracta Velocity (exit velocity for pipe releases) n/a m/s
- Discharge Coefficient n/a
Final data (after atmospheric expansion):
- Temperature 25.00 degC
- Liquid Mass Fraction 1.00 fraction
- Droplet Diameter 734.68 um
- Expanded Radius n/a m
- Velocity 1.23 m/s

DISCHARGE DATA for Weather: Global Weathers\Noite

Wind Speed: 2.00 m/s
Wind Speed at Height (Calculated) 0.83 m/s
Pasquill Stability: E

USER-DEFINED QUANTITIES

Material ETHANOL
Scenario Catastrophic rupture
Inventory 502,972.81 kg
Fixed Duration n/a s

Stagnation data (data at upstream end for long pipe):

- Pressure 1.04 bar
- Temperature 25.00 degC
- Fluid State Non-saturated liquid

CALCULATED QUANTITIES

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Mass Flow of Air (Vent from Vapor Space only)	n/a
Mass Flowrate	n/a kg/s
Release Duration	n/a s
Orifice or pipe exit data (before atmospheric expansion):	
- Pressure	n/a bar
- Temperature	n/a degC
- Vena Contracta Velocity (exit velocity for pipe releases)	n/a m/s
- Discharge Coefficient	n/a
Final data (after atmospheric expansion):	
- Temperature	25.00 degC
- Liquid Mass Fraction	1.00 fraction
- Droplet Diameter	734.68 um
- Expanded Radius	n/a m
- Velocity	1.23 m/s



Consequence Results

Pool Vaporization Results

Path: \Terminal Adonai - Efeitos físicos\Simulações\H142 (E)

N.B. Pool vaporization segments begin when the cloud has left the pool

		Dia	Noite
Liquid Rainout	fraction	0.999822	0.999821
Initial Vapor Cloud	kg	89.6676	90.0134
Time Pool Left Behind	s	23.5412	46.5481

Cloud Segment 1

		Dia	Noite
Cloud Segment Duration	s	600	600
Pool Vaporization Rate	kg/s	0.911495	0.737188
Maximum Pool Radius	m	13.7389	13.7389

Distance to Concentration Results

Path: \Terminal Adonai - Efeitos físicos\Simulações\H142 (E)

The height for user defined concentrations is the user defined height 0 m

All toxic results are reported at the toxic effect height 1 m

All flammable results are reported at the flammable effect height 0 m

Concentration(ppm)	Averaging Time		Dia	Noite	Distance (m)
UFL (190000)	18.75	s	8.97175	8.88615	
LFL (43000)	18.75	s	9.07638	8.99109	
LFL Frac (43000)	18.75	s	9.07638	8.99109	
Concentration(ppm)	Averaging Time		Dia	Noite	Heights (m) for above distances
UFL (190000)	18.75	s	0	0	
LFL (43000)	18.75	s	0	0	
LFL Frac (43000)	18.75	s	0	0	

Late Pool Fire Hazard

Path: \Terminal Adonai - Efeitos físicos\Simulações\H142 (E)

	Dia	Noite
Late Pool Fire Status	Hazard	Hazard

Radiation Effects: Late Pool Fire Ellipse

Path: \Terminal Adonai - Efeitos físicos\Simulações\H142 (E)

			Dia	Noite	Distance (m)
Radiation Level	9.83	kW/m2	39.8874	38.69	
Radiation Level	19.46	kW/m2	30.0482	28.1966	
Radiation Level	35	kW/m2	18.0227	17.2609	

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Radiation Effects: Late Pool Fire Distance

Path: \Terminal Adonai - Efeitos físicos\Simulações\H142 (E)

	Dia	Noite
Radiation Level (kW/m2)		

Fireball Hazard

Path: \Terminal Adonai - Efeitos físicos\Simulações\H142 (E)

	Dia	Noite
Fireball Flame Status	No Hazard	No Hazard

Flash Fire Envelope

Path: \Terminal Adonai - Efeitos físicos\Simulações\H142 (E)

All flammable results are reported at the flammable effect height 0 m

			Dia	Noite
Furthest Extent	43000	ppm	9.07638	8.99109
Furthest Extent	43000	ppm	9.07638	8.99109

			Dia	Noite
Furthest Extent	43000	ppm	0	0
Furthest Extent	43000	ppm	0	0

Explosion Effects: Early Explosion

Path: \Terminal Adonai - Efeitos físicos\Simulações\H142 (E)

Early Explosions are assumed to be centered at the release location
Explosion Model Used : TNT

			Dia	Noite
Supplied Flammable Mass		kg	502973	502973

			Distance (m) at Overpressure Levels	
			Dia	Noite
Overpressure	0.05	bar	No Hazard	No Hazard
Overpressure	0.1	bar	No Hazard	No Hazard
Overpressure	0.3	bar	No Hazard	No Hazard

			Used Mass (kg) at Overpressure Levels	
			Dia	Noite
Overpressure	0.05	bar	0	0
Overpressure	0.1	bar	0	0
Overpressure	0.3	bar	0	0

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Weather Conditions

Path: \Terminal Adonai - Efeitos físicos\Simulações\H142 (E)

		Dia	Noite
Wind Speed	m/s	3	2
Pasquill Stability		C	E
Surface Roughness Length	mm	1000	1000
Surface Roughness Parameter		0.173718	0.173718
Atmospheric Temperature	degC	25	20
Surface Temperature	degC	30	20
Relative Humidity	fraction	0.8	0.8

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

H142 (H)

Base Case

CASE Name: Data

Path: \Terminal Adonai - Efeitos físicos\Simulações\H142 (H)

User-Defined Data

Material

Material Identifier	N-HEXANE
Type of Vessel	Padded Liquid
Pressure Specification	Pressure specified
Storage Pressure - gauge	0.03 bar
Temperature	25 degC
Volume Inventory	640 m3

Scenario

Scenario Type	Catastrophic rupture
Phase to be Released	Liquid
Building Wake Effect	None

Location

Elevation	0 m
Use ERPG averaging time	ERPG not selected
Use IDLH averaging time	IDLH not selected
Use STEL averaging time	STEL not selected
Supply a user defined averaging time	Not supplied

Bund

Status of Bund	Bund present
Bund Area	593 m2
[Type of Bund Surface	User-Defined (Land)]
Bund Height	3 m
[Bund Failure Modeling	Bund cannot fail]

Indoor/Outdoor

Location of release	Open air release
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Flammable

Explosion Method	TNT
Jet Fire Method	Cone Model

Dispersion

Late Ignition Location	No ignition location
Mass Inventory of material to Disperse	4.199E5 kg
Use Burst Pressure	No - Use release pressure for fireball

Fireball Parameters

[Mass Modification Factor	3]
[Calculation method for fireball	DNV Recommended]
[TNO model flame temperature	1727 degC]

Toxic Parameters

[Indoor Calculations	Unselected]
[Wind Dependent Exchange Rate	Case Specified]

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

[Building Exchange Rate	4 /hr]
[Tail Time	1800 s]
[Set averaging time equal to exposure time	Use a fixed averaging time]
[Cut-off fraction of toxic load for exposure time calculation	0.05 fraction]
[Cut-off concentration for exposure time calculations	0 fraction]

Geometry

Shape	Point
Dimension	2D
System	Absolute
East(1)	0 m
North(1)	0 m

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Path: \Terminal Adonai - Efeitos físicos\Simulações\H142 (H)

DISCHARGE DATA for Weather: Global Weathers\Dia

Wind Speed: 3.00 m/s
Wind Speed at Height (Calculated) 1.78 m/s
Pasquill Stability: C

USER-DEFINED QUANTITIES

Material N-HEXANE
Scenario Catastrophic rupture
Inventory 419,856.78 kg
Fixed Duration n/a s

Stagnation data (data at upstream end for long pipe):

- Pressure 1.04 bar
- Temperature 25.00 degC
- Fluid State Non-saturated liquid

CALCULATED QUANTITIES

Mass Flow of Air (Vent from Vapor Space only) n/a
Mass Flowrate n/a kg/s
Release Duration n/a s

Orifice or pipe exit data (before atmospheric expansion):

- Pressure n/a bar
- Temperature n/a degC
- Vena Contracta Velocity (exit velocity for pipe releases) n/a m/s
- Discharge Coefficient n/a

Final data (after atmospheric expansion):

- Temperature 25.00 degC
- Liquid Mass Fraction 1.00 fraction
- Droplet Diameter 721.42 um
- Expanded Radius n/a m
- Velocity 1.04 m/s

DISCHARGE DATA for Weather: Global Weathers\Noite

Wind Speed: 2.00 m/s
Wind Speed at Height (Calculated) 0.83 m/s
Pasquill Stability: E

USER-DEFINED QUANTITIES

Material N-HEXANE
Scenario Catastrophic rupture
Inventory 419,856.78 kg
Fixed Duration n/a s

Stagnation data (data at upstream end for long pipe):

- Pressure 1.04 bar
- Temperature 25.00 degC
- Fluid State Non-saturated liquid

CALCULATED QUANTITIES

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Mass Flow of Air (Vent from Vapor Space only)	n/a
Mass Flowrate	n/a kg/s
Release Duration	n/a s
Orifice or pipe exit data (before atmospheric expansion):	
- Pressure	n/a bar
- Temperature	n/a degC
- Vena Contracta Velocity (exit velocity for pipe releases)	n/a m/s
- Discharge Coefficient	n/a
Final data (after atmospheric expansion):	
- Temperature	25.00 degC
- Liquid Mass Fraction	1.00 fraction
- Droplet Diameter	721.42 um
- Expanded Radius	n/a m
- Velocity	1.04 m/s



Consequence Results

Pool Vaporization Results

Path: \Terminal Adonai - Efeitos físicos\Simulações\H142 (H)

N.B. Pool vaporization segments begin when the cloud has left the pool

		Dia	Noite
Liquid Rainout	fraction	0.999754	0.999757
Initial Vapor Cloud	kg	103.15	102.048
Time Pool Left Behind	s	28.1765	67.3498

Cloud Segment 1

Cloud Segment Duration	s	600	600
Pool Vaporization Rate	kg/s	3.55779	2.85467

Maximum Pool Radius	m	13.7389	13.7389
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Distance to Concentration Results

Path: \Terminal Adonai - Efeitos físicos\Simulações\H142 (H)

The height for user defined concentrations is the user defined height 0 m

All toxic results are reported at the toxic effect height 1 m

All flammable results are reported at the flammable effect height 0 m

Concentration(ppm)	Averaging Time		Dia	Noite	Distance (m)
UFL (76800)	18.75	s	9.27606	10.5432	
LFL (10500)	18.75	s	32.686	32.9442	
LFL Frac (10500)	18.75	s	32.686	32.9442	

Concentration(ppm)	Averaging Time		Dia	Noite	Heights (m) for above distances
UFL (76800)	18.75	s	0	0	
LFL (10500)	18.75	s	0	0	
LFL Frac (10500)	18.75	s	0	0	

Late Pool Fire Hazard

Path: \Terminal Adonai - Efeitos físicos\Simulações\H142 (H)

	Dia	Noite
Late Pool Fire Status	Hazard	Hazard

Radiation Effects: Late Pool Fire Ellipse

Path: \Terminal Adonai - Efeitos físicos\Simulações\H142 (H)

			Dia	Noite	Distance (m)
Radiation Level	9.83	kW/m2	23.569	22.0849	
Radiation Level	19.46	kW/m2	14.7389	14.7389	
Radiation Level	35	kW/m2	Not Reached	Not Reached	

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Radiation Effects: Late Pool Fire Distance

Path: \Terminal Adonai - Efeitos físicos\Simulações\H142 (H)

	Dia	Noite
Radiation Level (kW/m2)		

Fireball Hazard

Path: \Terminal Adonai - Efeitos físicos\Simulações\H142 (H)

	Dia	Noite
Fireball Flame Status	No Hazard	No Hazard

Flash Fire Envelope

Path: \Terminal Adonai - Efeitos físicos\Simulações\H142 (H)

All flammable results are reported at the flammable effect height 0 m

			Dia	Noite
Furthest Extent	10500	ppm	32.686	32.9442
Furthest Extent	10500	ppm	32.686	32.9442

			Dia	Noite
Furthest Extent	10500	ppm	0	0
Furthest Extent	10500	ppm	0	0

Explosion Effects: Early Explosion

Path: \Terminal Adonai - Efeitos físicos\Simulações\H142 (H)

Early Explosions are assumed to be centered at the release location
Explosion Model Used : TNT

			Dia	Noite
Supplied Flammable Mass		kg	419857	419857

			Distance (m) at Overpressure Levels	
			Dia	Noite
Overpressure	0.05	bar	No Hazard	No Hazard
Overpressure	0.1	bar	No Hazard	No Hazard
Overpressure	0.3	bar	No Hazard	No Hazard

			Used Mass (kg) at Overpressure Levels	
			Dia	Noite
Overpressure	0.05	bar	0	0
Overpressure	0.1	bar	0	0
Overpressure	0.3	bar	0	0

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Explosion Effects: Late Ignition

Path: \Terminal Adonai - Efeitos físicos\Simulações\H142 (H)

Explosion Model Used : TNT

Explosion Location Criterion: Cloud Center

All distances are measured from the Source

All flammable results are reported at the flammable effect height 0 m

			Maximum Distance (m) at Overpressure Level	
			Dia	Noite
Overpressure	0.05	bar	75.8567	79.5322
Overpressure	0.1	bar	51.6257	51.905
Overpressure	0.3	bar	31.9127	29.2615

Supplementary Data at 0.05 bar

			Dia	Noite
Supplied Flammable Mass		kg	82.4168	81.4104
Used Flammable Mass		kg	82.4168	81.4104
Overpressure Radius		m	73.153	72.854
Distance to:				
- Ignition Source		m	20	30
- Cloud Front/Centre		m	2.70366	6.67819
- Explosion Centre		m	2.70366	6.67819

Supplementary Data at 0.1 bar

			Dia	Noite
Supplied Flammable Mass		kg	53.7171	81.4104
Used Flammable Mass		kg	53.7171	81.4104
Overpressure Radius		m	39.3737	45.2268
Distance to:				
- Ignition Source		m	30	30
- Cloud Front/Centre		m	12.252	6.67819
- Explosion Centre		m	12.252	6.67819

Supplementary Data at 0.3 bar

			Dia	Noite
Supplied Flammable Mass		kg	53.7171	81.4104
Used Flammable Mass		kg	53.7171	81.4104
Overpressure Radius		m	19.6607	22.5833
Distance to:				
- Ignition Source		m	30	30
- Cloud Front/Centre		m	12.252	6.67819
- Explosion Centre		m	12.252	6.67819

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Weather Conditions

Path: \Terminal Adonai - Efeitos físicos\Simulações\H142 (H)

		Dia	Noite
Wind Speed	m/s	3	2
Pasquill Stability		C	E
Surface Roughness Length	mm	1000	1000
Surface Roughness Parameter		0.173718	0.173718
Atmospheric Temperature	degC	25	20
Surface Temperature	degC	30	20
Relative Humidity	fraction	0.8	0.8

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

H142 (M)

Base Case

CASE Name: Data

Path: \Terminal Adonai - Efeitos físicos\Simulações\H142 (M)

User-Defined Data

Material

Material Identifier	METHANOL
Type of Vessel	Padded Liquid
Pressure Specification	Pressure specified
Storage Pressure - gauge	0.03 bar
Temperature	25 degC
Volume Inventory	640 m3

Scenario

Scenario Type	Catastrophic rupture
Phase to be Released	Liquid
Building Wake Effect	None

Location

Elevation	0 m
Use ERPG averaging time	ERPG not selected
Use IDLH averaging time	IDLH not selected
Use STEL averaging time	STEL not selected
Supply a user defined averaging time	Not supplied

Bund

Status of Bund	Bund present
Bund Area	593 m2
[Type of Bund Surface	User-Defined (Land)]
Bund Height	3 m
[Bund Failure Modeling	Bund cannot fail]

Indoor/Outdoor

Location of release	Open air release
---------------------	------------------

Flammable

Explosion Method	TNT
Jet Fire Method	Cone Model

Dispersion

Late Ignition Location	No ignition location
Mass Inventory of material to Disperse	5.054E5 kg
Use Burst Pressure	No - Use release pressure for fireball

Fireball Parameters

[Mass Modification Factor	3]
[Calculation method for fireball	DNV Recommended]
[TNO model flame temperature	1727 degC]

Toxic Parameters

[Indoor Calculations	Unselected]
[Wind Dependent Exchange Rate	Case Specified]

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

[Building Exchange Rate	4 /hr]
[Tail Time	1800 s]
[Set averaging time equal to exposure time	Use a fixed averaging time]
[Cut-off fraction of toxic load for exposure time calculation	0.05 fraction]
[Cut-off concentration for exposure time calculations	0 fraction]

Geometry

Shape	Point
Dimension	2D
System	Absolute
East(1)	0 m
North(1)	0 m

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Path: \Terminal Adonai - Efeitos físicos\Simulações\H142 (M)

DISCHARGE DATA for Weather: Global Weathers\Dia

Wind Speed: 3.00 m/s
Wind Speed at Height (Calculated) 1.78 m/s
Pasquill Stability: C

USER-DEFINED QUANTITIES

Material METHANOL
Scenario Catastrophic rupture
Inventory 505,355.09 kg
Fixed Duration n/a s

Stagnation data (data at upstream end for long pipe):

- Pressure 1.04 bar
- Temperature 25.00 degC
- Fluid State Non-saturated liquid

CALCULATED QUANTITIES

Mass Flow of Air (Vent from Vapor Space only) n/a
Mass Flowrate n/a kg/s
Release Duration n/a s
Orifice or pipe exit data (before atmospheric expansion):
- Pressure n/a bar
- Temperature n/a degC
- Vena Contracta Velocity (exit velocity for pipe releases) n/a m/s
- Discharge Coefficient n/a
Final data (after atmospheric expansion):
- Temperature 25.00 degC
- Liquid Mass Fraction 1.00 fraction
- Droplet Diameter 735.02 um
- Expanded Radius n/a m
- Velocity 1.54 m/s

DISCHARGE DATA for Weather: Global Weathers\Noite

Wind Speed: 2.00 m/s
Wind Speed at Height (Calculated) 0.83 m/s
Pasquill Stability: E

USER-DEFINED QUANTITIES

Material METHANOL
Scenario Catastrophic rupture
Inventory 505,355.09 kg
Fixed Duration n/a s

Stagnation data (data at upstream end for long pipe):

- Pressure 1.04 bar
- Temperature 25.00 degC
- Fluid State Non-saturated liquid

CALCULATED QUANTITIES

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Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Mass Flow of Air (Vent from Vapor Space only)	n/a
Mass Flowrate	n/a kg/s
Release Duration	n/a s
Orifice or pipe exit data (before atmospheric expansion):	
- Pressure	n/a bar
- Temperature	n/a degC
- Vena Contracta Velocity (exit velocity for pipe releases)	n/a m/s
- Discharge Coefficient	n/a
Final data (after atmospheric expansion):	
- Temperature	25.00 degC
- Liquid Mass Fraction	1.00 fraction
- Droplet Diameter	735.02 um
- Expanded Radius	n/a m
- Velocity	1.54 m/s



Consequence Results

Pool Vaporization Results

Path: \Terminal Adonai - Efeitos físicos\Simulações\H142 (M)

N.B. Pool vaporization segments begin when the cloud has left the pool

		Dia	Noite
Liquid Rainout	fraction	0.999395	0.99939
Initial Vapor Cloud	kg	305.896	308.179
Time Pool Left Behind	s	25.6586	46.187

Cloud Segment 1

		Dia	Noite
Cloud Segment Duration	s	600	600
Pool Vaporization Rate	kg/s	1.60105	1.30363
Maximum Pool Radius	m	13.7389	13.7389

Distance to Concentration Results

Path: \Terminal Adonai - Efeitos físicos\Simulações\H142 (M)

The height for user defined concentrations is the user defined height 0 m

All toxic results are reported at the toxic effect height 1 m

All flammable results are reported at the flammable effect height 0 m

Concentration(ppm)	Averaging Time		Dia	Noite	Distance (m)
UFL (360000)	18.75	s	10.9674		10.8252
LFL (73000)	18.75	s	15.779		16.3237
LFL Frac (73000)	18.75	s	15.779		16.3237

Concentration(ppm)	Averaging Time		Dia	Noite	Heights (m) for above distances
UFL (360000)	18.75	s	0		0
LFL (73000)	18.75	s	0		0
LFL Frac (73000)	18.75	s	0		0

Late Pool Fire Hazard

Path: \Terminal Adonai - Efeitos físicos\Simulações\H142 (M)

	Dia	Noite
Late Pool Fire Status	Hazard	Hazard

Radiation Effects: Late Pool Fire Ellipse

Path: \Terminal Adonai - Efeitos físicos\Simulações\H142 (M)

			Dia	Noite	Distance (m)
Radiation Level	9.83	kW/m2	28.7596		27.5793
Radiation Level	19.46	kW/m2	18.3082		17.5184
Radiation Level	35	kW/m2	14.7389		14.7389

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Radiation Effects: Late Pool Fire Distance

Path: \Terminal Adonai - Efeitos físicos\Simulações\H142 (M)

	Dia	Noite
Radiation Level (kW/m2)		

Fireball Hazard

Path: \Terminal Adonai - Efeitos físicos\Simulações\H142 (M)

	Dia	Noite
Fireball Flame Status	No Hazard	No Hazard

Flash Fire Envelope

Path: \Terminal Adonai - Efeitos físicos\Simulações\H142 (M)

All flammable results are reported at the flammable effect height 0 m

			Dia	Noite
Furthest Extent	73000	ppm	15.779	16.3237
Furthest Extent	73000	ppm	15.779	16.3237

			Dia	Noite
Furthest Extent	73000	ppm	0	0
Furthest Extent	73000	ppm	0	0

Explosion Effects: Early Explosion

Path: \Terminal Adonai - Efeitos físicos\Simulações\H142 (M)

Early Explosions are assumed to be centered at the release location
Explosion Model Used : TNT

			Dia	Noite
Supplied Flammable Mass		kg	505355	505355

			Distance (m) at Overpressure Levels	
			Dia	Noite
Overpressure	0.05	bar	No Hazard	No Hazard
Overpressure	0.1	bar	No Hazard	No Hazard
Overpressure	0.3	bar	No Hazard	No Hazard

			Used Mass (kg) at Overpressure Levels	
			Dia	Noite
Overpressure	0.05	bar	0	0
Overpressure	0.1	bar	0	0
Overpressure	0.3	bar	0	0

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Explosion Effects: Late Ignition

Path: \Terminal Adonai - Efeitos físicos\Simulações\H142 (M)

Explosion Model Used : TNT

Explosion Location Criterion: Cloud Center

All distances are measured from the Source

All flammable results are reported at the flammable effect height 0 m

			Maximum Distance (m) at Overpressure Level	
			Dia	Noite
Overpressure	0.05	bar	64.0823	62.1765
Overpressure	0.1	bar	40.2249	38.9985
Overpressure	0.3	bar	20.6713	20.0018

Supplementary Data at 0.05 bar

			Dia	Noite
Supplied Flammable Mass		kg	117.745	107.969
Used Flammable Mass		kg	117.745	107.969
Overpressure Radius		m	62.9127	61.121
Distance to:				
- Ignition Source		m	10	10
- Cloud Front/Centre		m	1.16956	1.05546
- Explosion Centre		m	1.16956	1.05546

Supplementary Data at 0.1 bar

			Dia	Noite
Supplied Flammable Mass		kg	117.745	107.969
Used Flammable Mass		kg	117.745	107.969
Overpressure Radius		m	39.0553	37.9431
Distance to:				
- Ignition Source		m	10	10
- Cloud Front/Centre		m	1.16956	1.05546
- Explosion Centre		m	1.16956	1.05546

Supplementary Data at 0.3 bar

			Dia	Noite
Supplied Flammable Mass		kg	117.745	107.969
Used Flammable Mass		kg	117.745	107.969
Overpressure Radius		m	19.5017	18.9463
Distance to:				
- Ignition Source		m	10	10
- Cloud Front/Centre		m	1.16956	1.05546
- Explosion Centre		m	1.16956	1.05546

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Weather Conditions

Path: \Terminal Adonai - Efeitos físicos\Simulações\H142 (M)

		Dia	Noite
Wind Speed	m/s	3	2
Pasquill Stability		C	E
Surface Roughness Length	mm	1000	1000
Surface Roughness Parameter		0.173718	0.173718
Atmospheric Temperature	degC	25	20
Surface Temperature	degC	30	20
Relative Humidity	fraction	0.8	0.8

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

H142 (N)

Base Case

CASE Name: Data

Path: \Terminal Adonai - Efeitos físicos\Simulações\H142 (N)

User-Defined Data

Material

Material Identifier	N-NONANE
Type of Vessel	Padded Liquid
Pressure Specification	Pressure specified
Storage Pressure - gauge	0.03 bar
Temperature	25 degC
Volume Inventory	640 m3

Scenario

Scenario Type	Catastrophic rupture
Phase to be Released	Liquid
Building Wake Effect	None

Location

Elevation	0 m
Use ERPG averaging time	ERPG not selected
Use IDLH averaging time	IDLH not selected
Use STEL averaging time	STEL not selected
Supply a user defined averaging time	Not supplied

Bund

Status of Bund	Bund present
Bund Area	593 m2
[Type of Bund Surface	User-Defined (Land)]
Bund Height	3 m
[Bund Failure Modeling	Bund cannot fail]

Indoor/Outdoor

Location of release	Open air release
---------------------	------------------

Flammable

Explosion Method	TNT
Jet Fire Method	Cone Model

Dispersion

Late Ignition Location	No ignition location
Mass Inventory of material to Disperse	4.571E5 kg
Use Burst Pressure	No - Use release pressure for fireball

Fireball Parameters

[Mass Modification Factor	3]
[Calculation method for fireball	DNV Recommended]
[TNO model flame temperature	1727 degC]

Toxic Parameters

[Indoor Calculations	Unselected]
[Wind Dependent Exchange Rate	Case Specified]

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

[Building Exchange Rate	4 /hr]
[Tail Time	1800 s]
[Set averaging time equal to exposure time	Use a fixed averaging time]
[Cut-off fraction of toxic load for exposure time calculation	0.05 fraction]
[Cut-off concentration for exposure time calculations	0 fraction]

Geometry

Shape	Point
Dimension	2D
System	Absolute
East(1)	0 m
North(1)	0 m

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Path: \Terminal Adonai - Efeitos físicos\Simulações\H142 (N)

DISCHARGE DATA for Weather: Global Weathers\Dia

Wind Speed: 3.00 m/s
Wind Speed at Height (Calculated) 1.78 m/s
Pasquill Stability: C

USER-DEFINED QUANTITIES

Material N-NONANE
Scenario Catastrophic rupture
Inventory 457,147.28 kg
Fixed Duration n/a s

Stagnation data (data at upstream end for long pipe):

- Pressure 1.04 bar
- Temperature 25.00 degC
- Fluid State Non-saturated liquid

CALCULATED QUANTITIES

Mass Flow of Air (Vent from Vapor Space only) n/a
Mass Flowrate n/a kg/s
Release Duration n/a s
Orifice or pipe exit data (before atmospheric expansion):
- Pressure n/a bar
- Temperature n/a degC
- Vena Contracta Velocity (exit velocity for pipe releases) n/a m/s
- Discharge Coefficient n/a
Final data (after atmospheric expansion):
- Temperature 25.00 degC
- Liquid Mass Fraction 1.00 fraction
- Droplet Diameter 727.67 um
- Expanded Radius n/a m
- Velocity 0.76 m/s

DISCHARGE DATA for Weather: Global Weathers\Noite

Wind Speed: 2.00 m/s
Wind Speed at Height (Calculated) 0.83 m/s
Pasquill Stability: E

USER-DEFINED QUANTITIES

Material N-NONANE
Scenario Catastrophic rupture
Inventory 457,147.28 kg
Fixed Duration n/a s

Stagnation data (data at upstream end for long pipe):

- Pressure 1.04 bar
- Temperature 25.00 degC
- Fluid State Non-saturated liquid

CALCULATED QUANTITIES

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Mass Flow of Air (Vent from Vapor Space only)	n/a
Mass Flowrate	n/a kg/s
Release Duration	n/a s
Orifice or pipe exit data (before atmospheric expansion):	
- Pressure	n/a bar
- Temperature	n/a degC
- Vena Contracta Velocity (exit velocity for pipe releases)	n/a m/s
- Discharge Coefficient	n/a
Final data (after atmospheric expansion):	
- Temperature	25.00 degC
- Liquid Mass Fraction	1.00 fraction
- Droplet Diameter	727.67 um
- Expanded Radius	n/a m
- Velocity	0.76 m/s



Consequence Results

Pool Vaporization Results

Path: \Terminal Adonai - Efeitos físicos\Simulações\H142 (N)

N.B. Pool vaporization segments begin when the cloud has left the pool

		Dia	Noite
Liquid Rainout	fraction	0.999996	0.999996
Initial Vapor Cloud	kg	1.76521	1.71007
Time Pool Left Behind	s	16.3739	

Cloud Segment 1

Cloud Segment Duration	s	600	
Pool Vaporization Rate	kg/s	0.118439	
Maximum Pool Radius	m	13.7389	13.7389

Distance to Concentration Results

Path: \Terminal Adonai - Efeitos físicos\Simulações\H142 (N)

The height for user defined concentrations is the user defined height 0 m

All toxic results are reported at the toxic effect height 1 m

All flammable results are reported at the flammable effect height 0 m

Concentration(ppm)	Averaging Time		Dia	Noite	Distance (m)
UFL (56000)	18.75	s	7.3304	7.31912	
LFL (7000)	18.75	s	7.40939	7.39811	
LFL Frac (7000)	18.75	s	7.40939	7.39811	

Concentration(ppm)	Averaging Time		Dia	Noite	Heights (m) for above distances
UFL (56000)	18.75	s	0	0	
LFL (7000)	18.75	s	0	0	
LFL Frac (7000)	18.75	s	0	0	

Late Pool Fire Hazard

Path: \Terminal Adonai - Efeitos físicos\Simulações\H142 (N)

	Dia	Noite
Late Pool Fire Status	Hazard	Hazard

Radiation Effects: Late Pool Fire Ellipse

Path: \Terminal Adonai - Efeitos físicos\Simulações\H142 (N)

			Dia	Noite	Distance (m)
Radiation Level	9.83	kW/m2	23.6156	22.0942	
Radiation Level	19.46	kW/m2	14.7389	14.7389	
Radiation Level	35	kW/m2	Not Reached	Not Reached	

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Radiation Effects: Late Pool Fire Distance

Path: \Terminal Adonai - Efeitos físicos\Simulações\H142 (N)

	Dia	Noite
Radiation Level (kW/m2)		

Fireball Hazard

Path: \Terminal Adonai - Efeitos físicos\Simulações\H142 (N)

	Dia	Noite
Fireball Flame Status	No Hazard	No Hazard

Flash Fire Envelope

Path: \Terminal Adonai - Efeitos físicos\Simulações\H142 (N)

All flammable results are reported at the flammable effect height 0 m

			Dia	Noite
Furthest Extent	7000	ppm	7.40939	7.39811
Furthest Extent	7000	ppm	7.40939	7.39811

			Dia	Noite
Furthest Extent	7000	ppm	0	0
Furthest Extent	7000	ppm	0	0

Explosion Effects: Early Explosion

Path: \Terminal Adonai - Efeitos físicos\Simulações\H142 (N)

Early Explosions are assumed to be centered at the release location
Explosion Model Used : TNT

			Dia	Noite
Supplied Flammable Mass		kg	457147	457147

			Distance (m) at Overpressure Levels	
			Dia	Noite
Overpressure	0.05	bar	No Hazard	No Hazard
Overpressure	0.1	bar	No Hazard	No Hazard
Overpressure	0.3	bar	No Hazard	No Hazard

			Used Mass (kg) at Overpressure Levels	
			Dia	Noite
Overpressure	0.05	bar	0	0
Overpressure	0.1	bar	0	0
Overpressure	0.3	bar	0	0

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Weather Conditions

Path: \Terminal Adonai - Efeitos físicos\Simulações\H142 (N)

		Dia	Noite
Wind Speed	m/s	3	2
Pasquill Stability		C	E
Surface Roughness Length	mm	1000	1000
Surface Roughness Parameter		0.173718	0.173718
Atmospheric Temperature	degC	25	20
Surface Temperature	degC	30	20
Relative Humidity	fraction	0.8	0.8

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

H142 (P)

Base Case

CASE Name: Data

Path: \Terminal Adonai - Efeitos físicos\Simulações\H142 (P)

User-Defined Data

Material

Material Identifier	N-PENTANE
Type of Vessel	Padded Liquid
Pressure Specification	Pressure specified
Storage Pressure - gauge	0.03 bar
Temperature	25 degC
Volume Inventory	640 m3

Scenario

Scenario Type	Catastrophic rupture
Phase to be Released	Liquid
Building Wake Effect	None

Location

Elevation	0 m
Use ERPG averaging time	ERPG not selected
Use IDLH averaging time	IDLH not selected
Use STEL averaging time	STEL not selected
Supply a user defined averaging time	Not supplied

Bund

Status of Bund	Bund present
Bund Area	593 m2
[Type of Bund Surface	User-Defined (Land)]
Bund Height	3 m
[Bund Failure Modeling	Bund cannot fail]

Indoor/Outdoor

Location of release	Open air release
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Flammable

Explosion Method	TNT
Jet Fire Method	Cone Model

Dispersion

Late Ignition Location	No ignition location
Mass Inventory of material to Disperse	3.979E5 kg
Use Burst Pressure	No - Use release pressure for fireball

Fireball Parameters

[Mass Modification Factor	3]
[Calculation method for fireball	DNV Recommended]
[TNO model flame temperature	1727 degC]

Toxic Parameters

[Indoor Calculations	Unselected]
[Wind Dependent Exchange Rate	Case Specified]

SUMMARY REPORT

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Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

[Building Exchange Rate	4 /hr]
[Tail Time	1800 s]
[Set averaging time equal to exposure time	Use a fixed averaging time]
[Cut-off fraction of toxic load for exposure time calculation	0.05 fraction]
[Cut-off concentration for exposure time calculations	0 fraction]

Geometry

Shape	Point
Dimension	2D
System	Absolute
East(1)	0 m
North(1)	0 m

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Path: \Terminal Adonai - Efeitos físicos\Simulações\H142 (P)

DISCHARGE DATA for Weather: Global Weathers\Dia

Wind Speed:	3.00 m/s
Wind Speed at Height (Calculated)	1.78 m/s
Pasquill Stability:	C

USER-DEFINED QUANTITIES

Material	N-PENTANE
Scenario	Catastrophic rupture
Inventory	397,915.78 kg
Fixed Duration	n/a s

Stagnation data (data at upstream end for long pipe):

- Pressure	1.04 bar
- Temperature	25.00 degC
- Fluid State	Non-saturated liquid

CALCULATED QUANTITIES

Mass Flow of Air (Vent from Vapor Space only)	n/a
Mass Flowrate	n/a kg/s
Release Duration	n/a s
Orifice or pipe exit data (before atmospheric expansion):	
- Pressure	n/a bar
- Temperature	n/a degC
- Vena Contracta Velocity (exit velocity for pipe releases)	n/a m/s
- Discharge Coefficient	n/a
Final data (after atmospheric expansion):	
- Temperature	25.00 degC
- Liquid Mass Fraction	1.00 fraction
- Droplet Diameter	717.48 um
- Expanded Radius	n/a m
- Velocity	0.86 m/s

DISCHARGE DATA for Weather: Global Weathers\Noite

Wind Speed:	2.00 m/s
Wind Speed at Height (Calculated)	0.83 m/s
Pasquill Stability:	E

USER-DEFINED QUANTITIES

Material	N-PENTANE
Scenario	Catastrophic rupture
Inventory	397,915.78 kg
Fixed Duration	n/a s

Stagnation data (data at upstream end for long pipe):

- Pressure	1.04 bar
- Temperature	25.00 degC
- Fluid State	Non-saturated liquid

CALCULATED QUANTITIES

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Mass Flow of Air (Vent from Vapor Space only)	n/a
Mass Flowrate	n/a kg/s
Release Duration	n/a s
Orifice or pipe exit data (before atmospheric expansion):	
- Pressure	n/a bar
- Temperature	n/a degC
- Vena Contracta Velocity (exit velocity for pipe releases)	n/a m/s
- Discharge Coefficient	n/a
Final data (after atmospheric expansion):	
- Temperature	25.00 degC
- Liquid Mass Fraction	1.00 fraction
- Droplet Diameter	717.48 um
- Expanded Radius	n/a m
- Velocity	0.86 m/s



Consequence Results

Pool Vaporization Results

Path: \Terminal Adonai - Efeitos físicos\Simulações\H142 (P)

N.B. Pool vaporization segments begin when the cloud has left the pool

		Dia	Noite
Liquid Rainout	fraction	0.999223	0.999265
Initial Vapor Cloud	kg	309.238	292.422
Time Pool Left Behind	s	37.4577	98.163

Cloud Segment 1

		Dia	Noite
Cloud Segment Duration	s	600	600
Pool Vaporization Rate	kg/s	14.8588	11.8845

		Dia	Noite
Maximum Pool Radius	m	13.7389	13.7389

Distance to Concentration Results

Path: \Terminal Adonai - Efeitos físicos\Simulações\H142 (P)

The height for user defined concentrations is the user defined height 0 m

All toxic results are reported at the toxic effect height 1 m

All flammable results are reported at the flammable effect height 0 m

Concentration(ppm)	Averaging Time		Dia	Noite	Distance (m)
UFL (80000)	18.75	s	23.661	27.5231	
LFL (13000)	18.75	s	59.4458	59.6708	
LFL Frac (13000)	18.75	s	59.4458	59.6708	

Concentration(ppm)	Averaging Time		Dia	Noite	Heights (m) for above distances
UFL (80000)	18.75	s	0	0	
LFL (13000)	18.75	s	0	0	
LFL Frac (13000)	18.75	s	0	0	

Late Pool Fire Hazard

Path: \Terminal Adonai - Efeitos físicos\Simulações\H142 (P)

	Dia	Noite
Late Pool Fire Status	Hazard	Hazard

Radiation Effects: Late Pool Fire Ellipse

Path: \Terminal Adonai - Efeitos físicos\Simulações\H142 (P)

			Dia	Noite	Distance (m)
Radiation Level	9.83	kW/m2	23.5275	22.1075	
Radiation Level	19.46	kW/m2	14.7389	14.7389	
Radiation Level	35	kW/m2	Not Reached	Not Reached	

SUMMARY REPORT

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Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Radiation Effects: Late Pool Fire Distance

Path: \Terminal Adonai - Efeitos físicos\Simulações\H142 (P)

	Dia	Noite
Radiation Level (kW/m2)		

Fireball Hazard

Path: \Terminal Adonai - Efeitos físicos\Simulações\H142 (P)

	Dia	Noite
Fireball Flame Status	No Hazard	No Hazard

Flash Fire Envelope

Path: \Terminal Adonai - Efeitos físicos\Simulações\H142 (P)

All flammable results are reported at the flammable effect height 0 m

			Dia	Noite
Furthest Extent	13000	ppm	59.4458	59.6708
Furthest Extent	13000	ppm	59.4458	59.6708

			Dia	Noite
Furthest Extent	13000	ppm	0	0
Furthest Extent	13000	ppm	0	0

Explosion Effects: Early Explosion

Path: \Terminal Adonai - Efeitos físicos\Simulações\H142 (P)

Early Explosions are assumed to be centered at the release location
Explosion Model Used : TNT

			Dia	Noite
Supplied Flammable Mass		kg	397916	397916

			Distance (m) at Overpressure Levels	
			Dia	Noite
Overpressure	0.05	bar	No Hazard	No Hazard
Overpressure	0.1	bar	No Hazard	No Hazard
Overpressure	0.3	bar	No Hazard	No Hazard

			Used Mass (kg) at Overpressure Levels	
			Dia	Noite
Overpressure	0.05	bar	0	0
Overpressure	0.1	bar	0	0
Overpressure	0.3	bar	0	0

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Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Explosion Effects: Late Ignition

Path: \Terminal Adonai - Efeitos físicos\Simulações\H142 (P)

Explosion Model Used : TNT

Explosion Location Criterion: Cloud Center

All distances are measured from the Source

All flammable results are reported at the flammable effect height 0 m

			Maximum Distance (m) at Overpressure Level	
			Dia	Noite
Overpressure	0.05	bar	129.133	125.901
Overpressure	0.1	bar	86.9349	81.9345
Overpressure	0.3	bar	52.3493	45.8995

Supplementary Data at 0.05 bar

			Dia	Noite
Supplied Flammable Mass		kg	288.543	326.362
Used Flammable Mass		kg	288.543	326.362
Overpressure Radius		m	111.277	115.941
Distance to:				
- Ignition Source		m	50	50
- Cloud Front/Centre		m	17.8556	9.96022
- Explosion Centre		m	17.8556	9.96022

Supplementary Data at 0.1 bar

			Dia	Noite
Supplied Flammable Mass		kg	288.543	326.362
Used Flammable Mass		kg	288.543	326.362
Overpressure Radius		m	69.0793	71.9743
Distance to:				
- Ignition Source		m	50	50
- Cloud Front/Centre		m	17.8556	9.96022
- Explosion Centre		m	17.8556	9.96022

Supplementary Data at 0.3 bar

			Dia	Noite
Supplied Flammable Mass		kg	288.543	326.362
Used Flammable Mass		kg	288.543	326.362
Overpressure Radius		m	34.4937	35.9393
Distance to:				
- Ignition Source		m	50	50
- Cloud Front/Centre		m	17.8556	9.96022
- Explosion Centre		m	17.8556	9.96022

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Weather Conditions

Path: \Terminal Adonai - Efeitos físicos\Simulações\H142 (P)

		Dia	Noite
Wind Speed	m/s	3	2
Pasquill Stability		C	E
Surface Roughness Length	mm	1000	1000
Surface Roughness Parameter		0.173718	0.173718
Atmospheric Temperature	degC	25	20
Surface Temperature	degC	30	20
Relative Humidity	fraction	0.8	0.8

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

H143 (A)

Base Case

CASE Name: Data

Path: \Terminal Adonai - Efeitos físicos\Simulações\H143 (A)

User-Defined Data

Material

Material Identifier	ACETONE
Type of Vessel	Padded Liquid
Pressure Specification	Pressure specified
Storage Pressure - gauge	0.03 bar
Temperature	25 degC
Volume Inventory	960 m3

Scenario

Scenario Type	Catastrophic rupture
Phase to be Released	Liquid
Building Wake Effect	None

Location

Elevation	0 m
Use ERPG averaging time	ERPG not selected
Use IDLH averaging time	IDLH not selected
Use STEL averaging time	STEL not selected
Supply a user defined averaging time	Not supplied

Bund

Status of Bund	Bund present
Bund Area	593 m2
[Type of Bund Surface	User-Defined (Land)]
Bund Height	3 m
[Bund Failure Modeling	Bund cannot fail]

Indoor/Outdoor

Location of release	Open air release
---------------------	------------------

Flammable

Explosion Method	TNT
Jet Fire Method	Cone Model

Dispersion

Late Ignition Location	No ignition location
Mass Inventory of material to Disperse	7.551E5 kg
Use Burst Pressure	No - Use release pressure for fireball

Fireball Parameters

[Mass Modification Factor	3]
[Calculation method for fireball	DNV Recommended]
[TNO model flame temperature	1727 degC]

Toxic Parameters

[Indoor Calculations	Unselected]
[Wind Dependent Exchange Rate	Case Specified]

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

[Building Exchange Rate	4 /hr]
[Tail Time	1800 s]
[Set averaging time equal to exposure time	Use a fixed averaging time]
[Cut-off fraction of toxic load for exposure time calculation	0.05 fraction]
[Cut-off concentration for exposure time calculations	0 fraction]

Geometry

Shape	Point
Dimension	2D
System	Absolute
East(1)	0 m
North(1)	0 m

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Path: \Terminal Adonai - Efeitos físicos\Simulações\H143 (A)

DISCHARGE DATA for Weather: Global Weathers\Dia

Wind Speed: 3.00 m/s
Wind Speed at Height (Calculated) 1.78 m/s
Pasquill Stability: C

USER-DEFINED QUANTITIES

Material ACETONE
Scenario Catastrophic rupture
Inventory 755,117.31 kg
Fixed Duration n/a s

Stagnation data (data at upstream end for long pipe):

- Pressure 1.04 bar
- Temperature 25.00 degC
- Fluid State Non-saturated liquid

CALCULATED QUANTITIES

Mass Flow of Air (Vent from Vapor Space only) n/a
Mass Flowrate n/a kg/s
Release Duration n/a s
Orifice or pipe exit data (before atmospheric expansion):
- Pressure n/a bar
- Temperature n/a degC
- Vena Contracta Velocity (exit velocity for pipe releases) n/a m/s
- Discharge Coefficient n/a
Final data (after atmospheric expansion):
- Temperature 25.00 degC
- Liquid Mass Fraction 1.00 fraction
- Droplet Diameter 734.74 um
- Expanded Radius n/a m
- Velocity 1.11 m/s

DISCHARGE DATA for Weather: Global Weathers\Noite

Wind Speed: 2.00 m/s
Wind Speed at Height (Calculated) 0.83 m/s
Pasquill Stability: E

USER-DEFINED QUANTITIES

Material ACETONE
Scenario Catastrophic rupture
Inventory 755,117.31 kg
Fixed Duration n/a s

Stagnation data (data at upstream end for long pipe):

- Pressure 1.04 bar
- Temperature 25.00 degC
- Fluid State Non-saturated liquid

CALCULATED QUANTITIES

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Mass Flow of Air (Vent from Vapor Space only)	n/a
Mass Flowrate	n/a kg/s
Release Duration	n/a s
Orifice or pipe exit data (before atmospheric expansion):	
- Pressure	n/a bar
- Temperature	n/a degC
- Vena Contracta Velocity (exit velocity for pipe releases)	n/a m/s
- Discharge Coefficient	n/a
Final data (after atmospheric expansion):	
- Temperature	25.00 degC
- Liquid Mass Fraction	1.00 fraction
- Droplet Diameter	734.74 um
- Expanded Radius	n/a m
- Velocity	1.11 m/s



Consequence Results

Pool Vaporization Results

Path: \Terminal Adonai - Efeitos físicos\Simulações\H143 (A)

N.B. Pool vaporization segments begin when the cloud has left the pool

		Dia	Noite
Liquid Rainout	fraction	0.999252	0.999252
Initial Vapor Cloud	kg	564.764	565.102
Time Pool Left Behind	s	36.9311	86.8438

Cloud Segment 1

		Dia	Noite
Cloud Segment Duration	s	600	600
Pool Vaporization Rate	kg/s	4.66303	3.79375

		Dia	Noite
Maximum Pool Radius	m	13.7389	13.7389

Distance to Concentration Results

Path: \Terminal Adonai - Efeitos físicos\Simulações\H143 (A)

The height for user defined concentrations is the user defined height 0 m

All toxic results are reported at the toxic effect height 1 m

All flammable results are reported at the flammable effect height 0 m

Concentration(ppm)	Averaging Time		Dia	Noite
UFL (128000)	18.75	s	13.5786	14.514
LFL (26000)	18.75	s	41.6282	43.6674
LFL Frac (26000)	18.75	s	41.6282	43.6674

Concentration(ppm)	Averaging Time		Dia	Noite
UFL (128000)	18.75	s	0	0
LFL (26000)	18.75	s	0	0
LFL Frac (26000)	18.75	s	0	0

Late Pool Fire Hazard

Path: \Terminal Adonai - Efeitos físicos\Simulações\H143 (A)

	Dia	Noite
Late Pool Fire Status	Hazard	Hazard

Radiation Effects: Late Pool Fire Ellipse

Path: \Terminal Adonai - Efeitos físicos\Simulações\H143 (A)

			Dia	Noite
Radiation Level	9.83	kW/m2	54.9122	53.201
Radiation Level	19.46	kW/m2	41.3296	38.7409
Radiation Level	35	kW/m2	27.4927	25.685

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Radiation Effects: Late Pool Fire Distance

Path: \Terminal Adonai - Efeitos físicos\Simulações\H143 (A)

	Dia	Noite
Radiation Level (kW/m ²)		

Fireball Hazard

Path: \Terminal Adonai - Efeitos físicos\Simulações\H143 (A)

	Dia	Noite
Fireball Flame Status	No Hazard	No Hazard

Flash Fire Envelope

Path: \Terminal Adonai - Efeitos físicos\Simulações\H143 (A)

All flammable results are reported at the flammable effect height 0 m

			Dia	Noite
Furthest Extent	26000	ppm	41.6282	43.6674
Furthest Extent	26000	ppm	41.6282	43.6674
				Heights (m) for above distances
			Dia	Noite
Furthest Extent	26000	ppm	0	0
Furthest Extent	26000	ppm	0	0

Explosion Effects: Early Explosion

Path: \Terminal Adonai - Efeitos físicos\Simulações\H143 (A)

Early Explosions are assumed to be centered at the release location
Explosion Model Used : TNT

			Dia	Noite
Supplied Flammable Mass		kg	755117	755117
				Distance (m) at Overpressure Levels
			Dia	Noite
Overpressure	0.05	bar	No Hazard	No Hazard
Overpressure	0.1	bar	No Hazard	No Hazard
Overpressure	0.3	bar	No Hazard	No Hazard
				Used Mass (kg) at Overpressure Levels
			Dia	Noite
Overpressure	0.05	bar	0	0
Overpressure	0.1	bar	0	0
Overpressure	0.3	bar	0	0

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Explosion Effects: Late Ignition

Path: \Terminal Adonai - Efeitos físicos\Simulações\H143 (A)

Explosion Model Used : TNT

Explosion Location Criterion: Cloud Center

All distances are measured from the Source

All flammable results are reported at the flammable effect height 0 m

			Maximum Distance (m) at Overpressure Level	
			Dia	Noite
Overpressure	0.05	bar	109.736	110.03
Overpressure	0.1	bar	69.9122	71.0376
Overpressure	0.3	bar	41.6438	39.0791

Supplementary Data at 0.05 bar

			Dia	Noite
Supplied Flammable Mass		kg	381.882	358.454
Used Flammable Mass		kg	381.882	358.454
Overpressure Radius		m	105.018	102.825
Distance to:				
- Ignition Source		m	30	40
- Cloud Front/Centre		m	4.71869	7.20549
- Explosion Centre		m	4.71869	7.20549

Supplementary Data at 0.1 bar

			Dia	Noite
Supplied Flammable Mass		kg	381.882	358.454
Used Flammable Mass		kg	381.882	358.454
Overpressure Radius		m	65.1935	63.8321
Distance to:				
- Ignition Source		m	30	40
- Cloud Front/Centre		m	4.71869	7.20549
- Explosion Centre		m	4.71869	7.20549

Supplementary Data at 0.3 bar

			Dia	Noite
Supplied Flammable Mass		kg	234.772	358.454
Used Flammable Mass		kg	234.772	358.454
Overpressure Radius		m	27.6802	31.8736
Distance to:				
- Ignition Source		m	40	40
- Cloud Front/Centre		m	13.9636	7.20549
- Explosion Centre		m	13.9636	7.20549

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Weather Conditions

Path: \Terminal Adonai - Efeitos físicos\Simulações\H143 (A)

		Dia	Noite
Wind Speed	m/s	3	2
Pasquill Stability		C	E
Surface Roughness Length	mm	1000	1000
Surface Roughness Parameter		0.173718	0.173718
Atmospheric Temperature	degC	25	20
Surface Temperature	degC	30	20
Relative Humidity	fraction	0.8	0.8

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

H143 (B)

Base Case

CASE Name: Data

Path: \Terminal Adonai - Efeitos físicos\Simulações\H143 (B)

User-Defined Data

Material

Material Identifier	BENZENE
Type of Vessel	Padded Liquid
Pressure Specification	Pressure specified
Storage Pressure - gauge	0.03 bar
Temperature	25 degC
Volume Inventory	960 m3

Scenario

Scenario Type	Catastrophic rupture
Phase to be Released	Liquid
Building Wake Effect	None

Location

Elevation	0 m
Use ERPG averaging time	ERPG not selected
Use IDLH averaging time	IDLH not selected
Use STEL averaging time	STEL not selected
Supply a user defined averaging time	Not supplied

Bund

Status of Bund	Bund present
Bund Area	593 m2
[Type of Bund Surface	User-Defined (Land)]
Bund Height	3 m
[Bund Failure Modeling	Bund cannot fail]

Indoor/Outdoor

Location of release	Open air release
---------------------	------------------

Flammable

Explosion Method	TNT
Jet Fire Method	Cone Model

Dispersion

Late Ignition Location	No ignition location
Mass Inventory of material to Disperse	8.381E5 kg
Use Burst Pressure	No - Use release pressure for fireball

Fireball Parameters

[Mass Modification Factor	3]
[Calculation method for fireball	DNV Recommended]
[TNO model flame temperature	1727 degC]

Toxic Parameters

[Indoor Calculations	Unselected]
[Wind Dependent Exchange Rate	Case Specified]

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

[Building Exchange Rate	4 /hr]
[Tail Time	1800 s]
[Set averaging time equal to exposure time	Use a fixed averaging time]
[Cut-off fraction of toxic load for exposure time calculation	0.05 fraction]
[Cut-off concentration for exposure time calculations	0 fraction]

Geometry

Shape	Point
Dimension	2D
System	Absolute
East(1)	0 m
North(1)	0 m

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Path: \Terminal Adonai - Efeitos físicos\Simulações\H143 (B)

DISCHARGE DATA for Weather: Global Weathers\Dia

Wind Speed:	3.00 m/s
Wind Speed at Height (Calculated)	1.78 m/s
Pasquill Stability:	C

USER-DEFINED QUANTITIES

Material	BENZENE
Scenario	Catastrophic rupture
Inventory	838,087.13 kg
Fixed Duration	n/a s

Stagnation data (data at upstream end for long pipe):

- Pressure	1.04 bar
- Temperature	25.00 degC
- Fluid State	Non-saturated liquid

CALCULATED QUANTITIES

Mass Flow of Air (Vent from Vapor Space only)	n/a
Mass Flowrate	n/a kg/s
Release Duration	n/a s
Orifice or pipe exit data (before atmospheric expansion):	
- Pressure	n/a bar
- Temperature	n/a degC
- Vena Contracta Velocity (exit velocity for pipe releases)	n/a m/s
- Discharge Coefficient	n/a
Final data (after atmospheric expansion):	
- Temperature	25.00 degC
- Liquid Mass Fraction	1.00 fraction
- Droplet Diameter	742.39 um
- Expanded Radius	n/a m
- Velocity	0.82 m/s

DISCHARGE DATA for Weather: Global Weathers\Noite

Wind Speed:	2.00 m/s
Wind Speed at Height (Calculated)	0.83 m/s
Pasquill Stability:	E

USER-DEFINED QUANTITIES

Material	BENZENE
Scenario	Catastrophic rupture
Inventory	838,087.13 kg
Fixed Duration	n/a s

Stagnation data (data at upstream end for long pipe):

- Pressure	1.04 bar
- Temperature	25.00 degC
- Fluid State	Non-saturated liquid

CALCULATED QUANTITIES

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Mass Flow of Air (Vent from Vapor Space only)	n/a
Mass Flowrate	n/a kg/s
Release Duration	n/a s
Orifice or pipe exit data (before atmospheric expansion):	
- Pressure	n/a bar
- Temperature	n/a degC
- Vena Contracta Velocity (exit velocity for pipe releases)	n/a m/s
- Discharge Coefficient	n/a
Final data (after atmospheric expansion):	
- Temperature	25.00 degC
- Liquid Mass Fraction	1.00 fraction
- Droplet Diameter	742.39 um
- Expanded Radius	n/a m
- Velocity	0.82 m/s



Consequence Results

Pool Vaporization Results

Path: \Terminal Adonai - Efeitos físicos\Simulações\H143 (B)

N.B. Pool vaporization segments begin when the cloud has left the pool

		Dia	Noite
Liquid Rainout	fraction	0.99995	0.999953
Initial Vapor Cloud	kg	41.5676	39.7943
Time Pool Left Behind	s	23.5128	54.7956

Cloud Segment 1

		Dia	Noite
Cloud Segment Duration	s	600	600
Pool Vaporization Rate	kg/s	2.2015	1.72393

		Dia	Noite
Maximum Pool Radius	m	13.7389	13.7389

Distance to Concentration Results

Path: \Terminal Adonai - Efeitos físicos\Simulações\H143 (B)

The height for user defined concentrations is the user defined height 0 m

All toxic results are reported at the toxic effect height 1 m

All flammable results are reported at the flammable effect height 0 m

Concentration(ppm)	Averaging Time		Dia	Noite	Distance (m)
UFL (79000)	18.75	s	8.4067	8.3956	
LFL (13000)	18.75	s	20.0765	19.9809	
LFL Frac (13000)	18.75	s	20.0765	19.9809	

Concentration(ppm)	Averaging Time		Dia	Noite	Heights (m) for above distances
UFL (79000)	18.75	s	0	0	
LFL (13000)	18.75	s	0	0	
LFL Frac (13000)	18.75	s	0	0	

Late Pool Fire Hazard

Path: \Terminal Adonai - Efeitos físicos\Simulações\H143 (B)

	Dia	Noite
Late Pool Fire Status	Hazard	Hazard

Radiation Effects: Late Pool Fire Ellipse

Path: \Terminal Adonai - Efeitos físicos\Simulações\H143 (B)

			Dia	Noite	Distance (m)
Radiation Level	9.83	kW/m2	23.5521	22.0942	
Radiation Level	19.46	kW/m2	14.7389	14.7389	
Radiation Level	35	kW/m2	Not Reached	Not Reached	

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Radiation Effects: Late Pool Fire Distance

Path: \Terminal Adonai - Efeitos físicos\Simulações\H143 (B)

	Dia	Noite
Radiation Level (kW/m2)		

Fireball Hazard

Path: \Terminal Adonai - Efeitos físicos\Simulações\H143 (B)

	Dia	Noite
Fireball Flame Status	No Hazard	No Hazard

Flash Fire Envelope

Path: \Terminal Adonai - Efeitos físicos\Simulações\H143 (B)

All flammable results are reported at the flammable effect height 0 m

			Dia	Noite
Furthest Extent	13000	ppm	20.0765	19.9809
Furthest Extent	13000	ppm	20.0765	19.9809

			Dia	Noite
Furthest Extent	13000	ppm	0	0
Furthest Extent	13000	ppm	0	0

Explosion Effects: Early Explosion

Path: \Terminal Adonai - Efeitos físicos\Simulações\H143 (B)

Early Explosions are assumed to be centered at the release location
Explosion Model Used : TNT

			Dia	Noite
Supplied Flammable Mass		kg	838087	838087

			Distance (m) at Overpressure Levels	
			Dia	Noite
Overpressure	0.05	bar	No Hazard	No Hazard
Overpressure	0.1	bar	No Hazard	No Hazard
Overpressure	0.3	bar	No Hazard	No Hazard

			Used Mass (kg) at Overpressure Levels	
			Dia	Noite
Overpressure	0.05	bar	0	0
Overpressure	0.1	bar	0	0
Overpressure	0.3	bar	0	0

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Explosion Effects: Late Ignition

Path: \Terminal Adonai - Efeitos físicos\Simulações\H143 (B)

Explosion Model Used : TNT

Explosion Location Criterion: Cloud Center

All distances are measured from the Source

All flammable results are reported at the flammable effect height 0 m

			Maximum Distance (m) at Overpressure Level	
			Dia	Noite
Overpressure	0.05	bar	42.3627	37.1555
Overpressure	0.1	bar	30.5804	23.0971
Overpressure	0.3	bar	20.9236	11.5748

Supplementary Data at 0.05 bar

			Dia	Noite
Supplied Flammable Mass		kg	7.03642	11.9528
Used Flammable Mass		kg	7.03642	11.9528
Overpressure Radius		m	31.0704	37.0725
Distance to:				
- Ignition Source		m	20	10
- Cloud Front/Centre		m	11.2924	0.083013
- Explosion Centre		m	11.2924	0.083013

Supplementary Data at 0.1 bar

			Dia	Noite
Supplied Flammable Mass		kg	7.03642	11.9528
Used Flammable Mass		kg	7.03642	11.9528
Overpressure Radius		m	19.288	23.0141
Distance to:				
- Ignition Source		m	20	10
- Cloud Front/Centre		m	11.2924	0.083013
- Explosion Centre		m	11.2924	0.083013

Supplementary Data at 0.3 bar

			Dia	Noite
Supplied Flammable Mass		kg	7.03642	11.9528
Used Flammable Mass		kg	7.03642	11.9528
Overpressure Radius		m	9.6312	11.4918
Distance to:				
- Ignition Source		m	20	10
- Cloud Front/Centre		m	11.2924	0.083013
- Explosion Centre		m	11.2924	0.083013

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Weather Conditions

Path: \Terminal Adonai - Efeitos físicos\Simulações\H143 (B)

		Dia	Noite
Wind Speed	m/s	3	2
Pasquill Stability		C	E
Surface Roughness Length	mm	1000	1000
Surface Roughness Parameter		0.173718	0.173718
Atmospheric Temperature	degC	25	20
Surface Temperature	degC	30	20
Relative Humidity	fraction	0.8	0.8

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

H143 (E)

Base Case

CASE Name: Data

Path: \Terminal Adonai - Efeitos físicos\Simulações\H143 (E)

User-Defined Data

Material

Material Identifier	ETHANOL
Type of Vessel	Padded Liquid
Pressure Specification	Pressure specified
Storage Pressure - gauge	0.03 bar
Temperature	25 degC
Volume Inventory	960 m3

Scenario

Scenario Type	Catastrophic rupture
Phase to be Released	Liquid
Building Wake Effect	None

Location

Elevation	0 m
Use ERPG averaging time	ERPG not selected
Use IDLH averaging time	IDLH not selected
Use STEL averaging time	STEL not selected
Supply a user defined averaging time	Not supplied

Bund

Status of Bund	Bund present
Bund Area	593 m2
[Type of Bund Surface	User-Defined (Land)]
Bund Height	3 m
[Bund Failure Modeling	Bund cannot fail]

Indoor/Outdoor

Location of release	Open air release
---------------------	------------------

Flammable

Explosion Method	TNT
Jet Fire Method	Cone Model

Dispersion

Late Ignition Location	No ignition location
Mass Inventory of material to Disperse	7.545E5 kg
Use Burst Pressure	No - Use release pressure for fireball

Fireball Parameters

[Mass Modification Factor	3]
[Calculation method for fireball	DNV Recommended]
[TNO model flame temperature	1727 degC]

Toxic Parameters

[Indoor Calculations	Unselected]
[Wind Dependent Exchange Rate	Case Specified]

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

[Building Exchange Rate	4 /hr]
[Tail Time	1800 s]
[Set averaging time equal to exposure time	Use a fixed averaging time]
[Cut-off fraction of toxic load for exposure time calculation	0.05 fraction]
[Cut-off concentration for exposure time calculations	0 fraction]

Geometry

Shape	Point
Dimension	2D
System	Absolute
East(1)	0 m
North(1)	0 m

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Path: \Terminal Adonai - Efeitos físicos\Simulações\H143 (E)

DISCHARGE DATA for Weather: Global Weathers\Dia

Wind Speed: 3.00 m/s
Wind Speed at Height (Calculated) 1.78 m/s
Pasquill Stability: C

USER-DEFINED QUANTITIES

Material ETHANOL
Scenario Catastrophic rupture
Inventory 754,459.19 kg
Fixed Duration n/a s

Stagnation data (data at upstream end for long pipe):

- Pressure 1.04 bar
- Temperature 25.00 degC
- Fluid State Non-saturated liquid

CALCULATED QUANTITIES

Mass Flow of Air (Vent from Vapor Space only) n/a
Mass Flowrate n/a kg/s
Release Duration n/a s
Orifice or pipe exit data (before atmospheric expansion):
- Pressure n/a bar
- Temperature n/a degC
- Vena Contracta Velocity (exit velocity for pipe releases) n/a m/s
- Discharge Coefficient n/a
Final data (after atmospheric expansion):
- Temperature 25.00 degC
- Liquid Mass Fraction 1.00 fraction
- Droplet Diameter 734.68 um
- Expanded Radius n/a m
- Velocity 1.23 m/s

DISCHARGE DATA for Weather: Global Weathers\Noite

Wind Speed: 2.00 m/s
Wind Speed at Height (Calculated) 0.83 m/s
Pasquill Stability: E

USER-DEFINED QUANTITIES

Material ETHANOL
Scenario Catastrophic rupture
Inventory 754,459.19 kg
Fixed Duration n/a s

Stagnation data (data at upstream end for long pipe):

- Pressure 1.04 bar
- Temperature 25.00 degC
- Fluid State Non-saturated liquid

CALCULATED QUANTITIES

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Mass Flow of Air (Vent from Vapor Space only)	n/a
Mass Flowrate	n/a kg/s
Release Duration	n/a s
Orifice or pipe exit data (before atmospheric expansion):	
- Pressure	n/a bar
- Temperature	n/a degC
- Vena Contracta Velocity (exit velocity for pipe releases)	n/a m/s
- Discharge Coefficient	n/a
Final data (after atmospheric expansion):	
- Temperature	25.00 degC
- Liquid Mass Fraction	1.00 fraction
- Droplet Diameter	734.68 um
- Expanded Radius	n/a m
- Velocity	1.23 m/s



Consequence Results

Pool Vaporization Results

Path: \Terminal Adonai - Efeitos físicos\Simulações\H143 (E)

N.B. Pool vaporization segments begin when the cloud has left the pool

		Dia	Noite
Liquid Rainout	fraction	0.999821	0.999821
Initial Vapor Cloud	kg	134.71	135.299
Time Pool Left Behind	s	25.4366	49.8556

Cloud Segment 1

Cloud Segment Duration	s	600	600
Pool Vaporization Rate	kg/s	0.912482	0.740843
Maximum Pool Radius	m	13.7389	13.7389

Distance to Concentration Results

Path: \Terminal Adonai - Efeitos físicos\Simulações\H143 (E)

The height for user defined concentrations is the user defined height 0 m

All toxic results are reported at the toxic effect height 1 m

All flammable results are reported at the flammable effect height 0 m

Concentration(ppm)	Averaging Time		Dia	Noite	Distance (m)
UFL (190000)	18.75	s	10.3737	10.2727	
LFL (43000)	18.75	s	10.4936	10.393	
LFL Frac (43000)	18.75	s	10.4936	10.393	

Concentration(ppm)	Averaging Time		Dia	Noite	Heights (m) for above distances
UFL (190000)	18.75	s	0	0	
LFL (43000)	18.75	s	0	0	
LFL Frac (43000)	18.75	s	0	0	

Late Pool Fire Hazard

Path: \Terminal Adonai - Efeitos físicos\Simulações\H143 (E)

	Dia	Noite
Late Pool Fire Status	Hazard	Hazard

Radiation Effects: Late Pool Fire Ellipse

Path: \Terminal Adonai - Efeitos físicos\Simulações\H143 (E)

			Dia	Noite	Distance (m)
Radiation Level	9.83	kW/m2	39.8874	38.69	
Radiation Level	19.46	kW/m2	30.0482	28.1966	
Radiation Level	35	kW/m2	18.0227	17.2609	

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Radiation Effects: Late Pool Fire Distance

Path: \Terminal Adonai - Efeitos físicos\Simulações\H143 (E)

	Dia	Noite
Radiation Level (kW/m2)		

Fireball Hazard

Path: \Terminal Adonai - Efeitos físicos\Simulações\H143 (E)

	Dia	Noite
Fireball Flame Status	No Hazard	No Hazard

Flash Fire Envelope

Path: \Terminal Adonai - Efeitos físicos\Simulações\H143 (E)

All flammable results are reported at the flammable effect height 0 m

			Dia	Noite
Furthest Extent	43000	ppm	10.4936	10.393
Furthest Extent	43000	ppm	10.4936	10.393

			Dia	Noite
Furthest Extent	43000	ppm	0	0
Furthest Extent	43000	ppm	0	0

Explosion Effects: Early Explosion

Path: \Terminal Adonai - Efeitos físicos\Simulações\H143 (E)

Early Explosions are assumed to be centered at the release location
Explosion Model Used : TNT

			Dia	Noite
Supplied Flammable Mass		kg	754459	754459

			Dia	Noite
Overpressure	0.05	bar	No Hazard	No Hazard
Overpressure	0.1	bar	No Hazard	No Hazard
Overpressure	0.3	bar	No Hazard	No Hazard

			Dia	Noite
Overpressure	0.05	bar	0	0
Overpressure	0.1	bar	0	0
Overpressure	0.3	bar	0	0

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Explosion Effects: Late Ignition

Path: \Terminal Adonai - Efeitos físicos\Simulações\H143 (E)

Explosion Model Used : TNT

Explosion Location Criterion: Cloud Center

All distances are measured from the Source

All flammable results are reported at the flammable effect height 0 m

			Maximum Distance (m) at Overpressure Level	
			Dia	Noite
Overpressure	0.05	bar	43.2276	41.1882
Overpressure	0.1	bar	27.2022	25.8909
Overpressure	0.3	bar	14.0676	13.3533

Supplementary Data at 0.05 bar

			Dia	Noite
Supplied Flammable Mass		kg	26.5144	23.0616
Used Flammable Mass		kg	26.5144	23.0616
Overpressure Radius		m	42.2597	40.3393
Distance to:				
- Ignition Source		m	10	10
- Cloud Front/Centre		m	0.967949	0.848855
- Explosion Centre		m	0.967949	0.848855

Supplementary Data at 0.1 bar

			Dia	Noite
Supplied Flammable Mass		kg	26.5144	23.0616
Used Flammable Mass		kg	26.5144	23.0616
Overpressure Radius		m	26.2342	25.0421
Distance to:				
- Ignition Source		m	10	10
- Cloud Front/Centre		m	0.967949	0.848855
- Explosion Centre		m	0.967949	0.848855

Supplementary Data at 0.3 bar

			Dia	Noite
Supplied Flammable Mass		kg	26.5144	23.0616
Used Flammable Mass		kg	26.5144	23.0616
Overpressure Radius		m	13.0997	12.5044
Distance to:				
- Ignition Source		m	10	10
- Cloud Front/Centre		m	0.967949	0.848855
- Explosion Centre		m	0.967949	0.848855

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Weather Conditions

Path: \Terminal Adonai - Efeitos físicos\Simulações\H143 (E)

		Dia	Noite
Wind Speed	m/s	3	2
Pasquill Stability		C	E
Surface Roughness Length	mm	1000	1000
Surface Roughness Parameter		0.173718	0.173718
Atmospheric Temperature	degC	25	20
Surface Temperature	degC	30	20
Relative Humidity	fraction	0.8	0.8

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

H143 (H)

Base Case

CASE Name: Data

Path: \Terminal Adonai - Efeitos físicos\Simulações\H143 (H)

User-Defined Data

Material

Material Identifier	N-HEXANE
Type of Vessel	Padded Liquid
Pressure Specification	Pressure specified
Storage Pressure - gauge	0.03 bar
Temperature	25 degC
Volume Inventory	960 m3

Scenario

Scenario Type	Catastrophic rupture
Phase to be Released	Liquid
Building Wake Effect	None

Location

Elevation	0 m
Use ERPG averaging time	ERPG not selected
Use IDLH averaging time	IDLH not selected
Use STEL averaging time	STEL not selected
Supply a user defined averaging time	Not supplied

Bund

Status of Bund	Bund present
Bund Area	593 m2
[Type of Bund Surface	User-Defined (Land)]
Bund Height	3 m
[Bund Failure Modeling	Bund cannot fail]

Indoor/Outdoor

Location of release	Open air release
---------------------	------------------

Flammable

Explosion Method	TNT
Jet Fire Method	Cone Model

Dispersion

Late Ignition Location	No ignition location
Mass Inventory of material to Disperse	6.298E5 kg
Use Burst Pressure	No - Use release pressure for fireball

Fireball Parameters

[Mass Modification Factor	3]
[Calculation method for fireball	DNV Recommended]
[TNO model flame temperature	1727 degC]

Toxic Parameters

[Indoor Calculations	Unselected]
[Wind Dependent Exchange Rate	Case Specified]

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

[Building Exchange Rate	4 /hr]
[Tail Time	1800 s]
[Set averaging time equal to exposure time	Use a fixed averaging time]
[Cut-off fraction of toxic load for exposure time calculation	0.05 fraction]
[Cut-off concentration for exposure time calculations	0 fraction]

Geometry

Shape	Point
Dimension	2D
System	Absolute
East(1)	0 m
North(1)	0 m

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Path: \Terminal Adonai - Efeitos físicos\Simulações\H143 (H)

DISCHARGE DATA for Weather: Global Weathers\Noite

Wind Speed: 2.00 m/s
Wind Speed at Height (Calculated) 0.83 m/s
Pasquill Stability: E

USER-DEFINED QUANTITIES

Material N-HEXANE
Scenario Catastrophic rupture
Inventory 629,785.13 kg
Fixed Duration n/a s

Stagnation data (data at upstream end for long pipe):

- Pressure 1.04 bar
- Temperature 25.00 degC
- Fluid State Non-saturated liquid

CALCULATED QUANTITIES

Mass Flow of Air (Vent from Vapor Space only) n/a
Mass Flowrate n/a kg/s
Release Duration n/a s
Orifice or pipe exit data (before atmospheric expansion):
- Pressure n/a bar
- Temperature n/a degC
- Vena Contracta Velocity (exit velocity for pipe releases) n/a m/s
- Discharge Coefficient n/a
Final data (after atmospheric expansion):
- Temperature 25.00 degC
- Liquid Mass Fraction 1.00 fraction
- Droplet Diameter 721.42 um
- Expanded Radius n/a m
- Velocity 1.04 m/s

DISCHARGE DATA for Weather: Global Weathers\Dia

Wind Speed: 3.00 m/s
Wind Speed at Height (Calculated) 1.78 m/s
Pasquill Stability: C

USER-DEFINED QUANTITIES

Material N-HEXANE
Scenario Catastrophic rupture
Inventory 629,785.13 kg
Fixed Duration n/a s

Stagnation data (data at upstream end for long pipe):

- Pressure 1.04 bar
- Temperature 25.00 degC
- Fluid State Non-saturated liquid

CALCULATED QUANTITIES

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Mass Flow of Air (Vent from Vapor Space only)	n/a
Mass Flowrate	n/a kg/s
Release Duration	n/a s
Orifice or pipe exit data (before atmospheric expansion):	
- Pressure	n/a bar
- Temperature	n/a degC
- Vena Contracta Velocity (exit velocity for pipe releases)	n/a m/s
- Discharge Coefficient	n/a
Final data (after atmospheric expansion):	
- Temperature	25.00 degC
- Liquid Mass Fraction	1.00 fraction
- Droplet Diameter	721.42 um
- Expanded Radius	n/a m
- Velocity	1.04 m/s



Consequence Results

Pool Vaporization Results

Path: \Terminal Adonai - Efeitos físicos\Simulações\H143 (H)

N.B. Pool vaporization segments begin when the cloud has left the pool

		Dia	Noite
Liquid Rainout	fraction	0.999753	0.999755
Initial Vapor Cloud	kg	155.849	154.33
Time Pool Left Behind	s	30.4385	72.092

Cloud Segment 1

		Dia	Noite
Cloud Segment Duration	s	600	600
Pool Vaporization Rate	kg/s	3.56866	2.8743
Maximum Pool Radius	m	13.7389	13.7389

Distance to Concentration Results

Path: \Terminal Adonai - Efeitos físicos\Simulações\H143 (H)

The height for user defined concentrations is the user defined height 0 m

All toxic results are reported at the toxic effect height 1 m

All flammable results are reported at the flammable effect height 0 m

Concentration(ppm)	Averaging Time		Dia	Noite	Distance (m)
UFL (76800)	18.75	s	10.651	12.1203	
LFL (10500)	18.75	s	35.9109	36.7794	
LFL Frac (10500)	18.75	s	35.9109	36.7794	
Concentration(ppm)	Averaging Time		Dia	Noite	Heights (m) for above distances
UFL (76800)	18.75	s	0	0	
LFL (10500)	18.75	s	0	0	
LFL Frac (10500)	18.75	s	0	0	

Late Pool Fire Hazard

Path: \Terminal Adonai - Efeitos físicos\Simulações\H143 (H)

	Dia	Noite
Late Pool Fire Status	Hazard	Hazard

Radiation Effects: Late Pool Fire Ellipse

Path: \Terminal Adonai - Efeitos físicos\Simulações\H143 (H)

			Dia	Noite	Distance (m)
Radiation Level	9.83	kW/m2	23.569	22.0849	
Radiation Level	19.46	kW/m2	14.7389	14.7389	
Radiation Level	35	kW/m2	Not Reached	Not Reached	

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Radiation Effects: Late Pool Fire Distance

Path: \Terminal Adonai - Efeitos físicos\Simulações\H143 (H)

	Dia	Noite
Radiation Level (kW/m2)		

Fireball Hazard

Path: \Terminal Adonai - Efeitos físicos\Simulações\H143 (H)

	Dia	Noite
Fireball Flame Status	No Hazard	No Hazard

Flash Fire Envelope

Path: \Terminal Adonai - Efeitos físicos\Simulações\H143 (H)

All flammable results are reported at the flammable effect height 0 m

			Dia	Noite
Furthest Extent	10500	ppm	35.9109	36.7794
Furthest Extent	10500	ppm	35.9109	36.7794
				Heights (m) for above distances
			Dia	Noite
Furthest Extent	10500	ppm	0	0
Furthest Extent	10500	ppm	0	0

Explosion Effects: Early Explosion

Path: \Terminal Adonai - Efeitos físicos\Simulações\H143 (H)

Early Explosions are assumed to be centered at the release location
Explosion Model Used : TNT

			Dia	Noite
Supplied Flammable Mass		kg	629785	629785
				Distance (m) at Overpressure Levels
			Dia	Noite
Overpressure	0.05	bar	No Hazard	No Hazard
Overpressure	0.1	bar	No Hazard	No Hazard
Overpressure	0.3	bar	No Hazard	No Hazard
				Used Mass (kg) at Overpressure Levels
			Dia	Noite
Overpressure	0.05	bar	0	0
Overpressure	0.1	bar	0	0
Overpressure	0.3	bar	0	0

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Explosion Effects: Late Ignition

Path: \Terminal Adonai - Efeitos físicos\Simulações\H143 (H)

Explosion Model Used : TNT

Explosion Location Criterion: Cloud Center

All distances are measured from the Source

All flammable results are reported at the flammable effect height 0 m

			Maximum Distance (m) at Overpressure Level	
			Dia	Noite
Overpressure	0.05	bar	88.3841	90.0396
Overpressure	0.1	bar	58.0006	57.5469
Overpressure	0.3	bar	33.098	30.9157

Supplementary Data at 0.05 bar

			Dia	Noite
Supplied Flammable Mass		kg	108.288	132.441
Used Flammable Mass		kg	108.288	132.441
Overpressure Radius		m	80.1224	85.6844
Distance to:				
- Ignition Source		m	30	30
- Cloud Front/Centre		m	8.26165	4.35524
- Explosion Centre		m	8.26165	4.35524

Supplementary Data at 0.1 bar

			Dia	Noite
Supplied Flammable Mass		kg	108.288	132.441
Used Flammable Mass		kg	108.288	132.441
Overpressure Radius		m	49.7389	53.1917
Distance to:				
- Ignition Source		m	30	30
- Cloud Front/Centre		m	8.26165	4.35524
- Explosion Centre		m	8.26165	4.35524

Supplementary Data at 0.3 bar

			Dia	Noite
Supplied Flammable Mass		kg	108.288	132.441
Used Flammable Mass		kg	108.288	132.441
Overpressure Radius		m	24.8364	26.5605
Distance to:				
- Ignition Source		m	30	30
- Cloud Front/Centre		m	8.26165	4.35524
- Explosion Centre		m	8.26165	4.35524

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Weather Conditions

Path: \Terminal Adonai - Efeitos físicos\Simulações\H143 (H)

		Dia	Noite
Wind Speed	m/s	3	2
Pasquill Stability		C	E
Surface Roughness Length	mm	1000	1000
Surface Roughness Parameter		0.173718	0.173718
Atmospheric Temperature	degC	25	20
Surface Temperature	degC	30	20
Relative Humidity	fraction	0.8	0.8

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

H143 (M)

Base Case

CASE Name: Data

Path: \Terminal Adonai - Efeitos físicos\Simulações\H143 (M)

User-Defined Data

Material

Material Identifier	METHANOL
Type of Vessel	Padded Liquid
Pressure Specification	Pressure specified
Storage Pressure - gauge	0.03 bar
Temperature	25 degC
Volume Inventory	960 m3

Scenario

Scenario Type	Catastrophic rupture
Phase to be Released	Liquid
Building Wake Effect	None

Location

Elevation	0 m
Use ERPG averaging time	ERPG not selected
Use IDLH averaging time	IDLH not selected
Use STEL averaging time	STEL not selected
Supply a user defined averaging time	Not supplied

Bund

Status of Bund	Bund present
Bund Area	593 m2
[Type of Bund Surface	User-Defined (Land)]
Bund Height	3 m
[Bund Failure Modeling	Bund cannot fail]

Indoor/Outdoor

Location of release	Open air release
---------------------	------------------

Flammable

Explosion Method	TNT
Jet Fire Method	Cone Model

Dispersion

Late Ignition Location	No ignition location
Mass Inventory of material to Disperse	7.58E5 kg
Use Burst Pressure	No - Use release pressure for fireball

Fireball Parameters

[Mass Modification Factor	3]
[Calculation method for fireball	DNV Recommended]
[TNO model flame temperature	1727 degC]

Toxic Parameters

[Indoor Calculations	Unselected]
[Wind Dependent Exchange Rate	Case Specified]

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

[Building Exchange Rate	4 /hr]
[Tail Time	1800 s]
[Set averaging time equal to exposure time	Use a fixed averaging time]
[Cut-off fraction of toxic load for exposure time calculation	0.05 fraction]
[Cut-off concentration for exposure time calculations	0 fraction]

Geometry

Shape	Point
Dimension	2D
System	Absolute
East(1)	0 m
North(1)	0 m

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Path: \Terminal Adonai - Efeitos físicos\Simulações\H143 (M)

DISCHARGE DATA for Weather: Global Weathers\Dia

Wind Speed: 3.00 m/s
Wind Speed at Height (Calculated) 1.78 m/s
Pasquill Stability: C

USER-DEFINED QUANTITIES

Material METHANOL
Scenario Catastrophic rupture
Inventory 758,032.63 kg
Fixed Duration n/a s

Stagnation data (data at upstream end for long pipe):

- Pressure 1.04 bar
- Temperature 25.00 degC
- Fluid State Non-saturated liquid

CALCULATED QUANTITIES

Mass Flow of Air (Vent from Vapor Space only) n/a
Mass Flowrate n/a kg/s
Release Duration n/a s
Orifice or pipe exit data (before atmospheric expansion):
- Pressure n/a bar
- Temperature n/a degC
- Vena Contracta Velocity (exit velocity for pipe releases) n/a m/s
- Discharge Coefficient n/a
Final data (after atmospheric expansion):
- Temperature 25.00 degC
- Liquid Mass Fraction 1.00 fraction
- Droplet Diameter 735.02 um
- Expanded Radius n/a m
- Velocity 1.54 m/s

DISCHARGE DATA for Weather: Global Weathers\Noite

Wind Speed: 2.00 m/s
Wind Speed at Height (Calculated) 0.83 m/s
Pasquill Stability: E

USER-DEFINED QUANTITIES

Material METHANOL
Scenario Catastrophic rupture
Inventory 758,032.63 kg
Fixed Duration n/a s

Stagnation data (data at upstream end for long pipe):

- Pressure 1.04 bar
- Temperature 25.00 degC
- Fluid State Non-saturated liquid

CALCULATED QUANTITIES

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Mass Flow of Air (Vent from Vapor Space only)	n/a
Mass Flowrate	n/a kg/s
Release Duration	n/a s
Orifice or pipe exit data (before atmospheric expansion):	
- Pressure	n/a bar
- Temperature	n/a degC
- Vena Contracta Velocity (exit velocity for pipe releases)	n/a m/s
- Discharge Coefficient	n/a
Final data (after atmospheric expansion):	
- Temperature	25.00 degC
- Liquid Mass Fraction	1.00 fraction
- Droplet Diameter	735.02 um
- Expanded Radius	n/a m
- Velocity	1.54 m/s



Consequence Results

Pool Vaporization Results

Path: \Terminal Adonai - Efeitos físicos\Simulações\H143 (M)

N.B. Pool vaporization segments begin when the cloud has left the pool

		Dia	Noite
Liquid Rainout	fraction	0.999394	0.999389
Initial Vapor Cloud	kg	459.482	463.001
Time Pool Left Behind	s	27.7363	49.0918

Cloud Segment 1

		Dia	Noite
Cloud Segment Duration	s	600	600
Pool Vaporization Rate	kg/s	1.6099	1.31424
Maximum Pool Radius	m	13.7389	13.7389

Distance to Concentration Results

Path: \Terminal Adonai - Efeitos físicos\Simulações\H143 (M)

The height for user defined concentrations is the user defined height 0 m

All toxic results are reported at the toxic effect height 1 m

All flammable results are reported at the flammable effect height 0 m

Concentration(ppm)	Averaging Time		Dia	Noite	Distance (m)
UFL (360000)	18.75	s	12.7249	12.5573	
LFL (73000)	18.75	s	18.3591	19.0356	
LFL Frac (73000)	18.75	s	18.3591	19.0356	
Concentration(ppm)	Averaging Time		Dia	Noite	Heights (m) for above distances
UFL (360000)	18.75	s	0	0	
LFL (73000)	18.75	s	0	0	
LFL Frac (73000)	18.75	s	0	0	

Late Pool Fire Hazard

Path: \Terminal Adonai - Efeitos físicos\Simulações\H143 (M)

	Dia	Noite
Late Pool Fire Status	Hazard	Hazard

Radiation Effects: Late Pool Fire Ellipse

Path: \Terminal Adonai - Efeitos físicos\Simulações\H143 (M)

			Dia	Noite	Distance (m)
Radiation Level	9.83	kW/m2	28.7596	27.5793	
Radiation Level	19.46	kW/m2	18.3082	17.5184	
Radiation Level	35	kW/m2	14.7389	14.7389	

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Radiation Effects: Late Pool Fire Distance

Path: \Terminal Adonai - Efeitos físicos\Simulações\H143 (M)

	Dia	Noite
Radiation Level (kW/m2)		

Fireball Hazard

Path: \Terminal Adonai - Efeitos físicos\Simulações\H143 (M)

	Dia	Noite
Fireball Flame Status	No Hazard	No Hazard

Flash Fire Envelope

Path: \Terminal Adonai - Efeitos físicos\Simulações\H143 (M)

All flammable results are reported at the flammable effect height 0 m

			Dia	Noite
Furthest Extent	73000	ppm	18.3591	19.0356
Furthest Extent	73000	ppm	18.3591	19.0356
				Heights (m) for above distances
			Dia	Noite
Furthest Extent	73000	ppm	0	0
Furthest Extent	73000	ppm	0	0

Explosion Effects: Early Explosion

Path: \Terminal Adonai - Efeitos físicos\Simulações\H143 (M)

Early Explosions are assumed to be centered at the release location
Explosion Model Used : TNT

			Dia	Noite
Supplied Flammable Mass		kg	758033	758033
				Distance (m) at Overpressure Levels
			Dia	Noite
Overpressure	0.05	bar	No Hazard	No Hazard
Overpressure	0.1	bar	No Hazard	No Hazard
Overpressure	0.3	bar	No Hazard	No Hazard
				Used Mass (kg) at Overpressure Levels
			Dia	Noite
Overpressure	0.05	bar	0	0
Overpressure	0.1	bar	0	0
Overpressure	0.3	bar	0	0

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Explosion Effects: Late Ignition

Path: \Terminal Adonai - Efeitos físicos\Simulações\H143 (M)

Explosion Model Used : TNT

Explosion Location Criterion: Cloud Center

All distances are measured from the Source

All flammable results are reported at the flammable effect height 0 m

			Maximum Distance (m) at Overpressure Level	
			Dia	Noite
Overpressure	0.05	bar	61.5346	59.5686
Overpressure	0.1	bar	38.5232	37.2704
Overpressure	0.3	bar	19.6631	18.9946
			Supplementary Data at 0.05 bar	
			Dia	Noite
Supplied Flammable Mass		kg	105.657	96.1363
Used Flammable Mass		kg	105.657	96.1363
Overpressure Radius		m	60.6816	58.8013
Distance to:				
- Ignition Source		m	10	10
- Cloud Front/Centre		m	0.852957	0.767368
- Explosion Centre		m	0.852957	0.767368
			Supplementary Data at 0.1 bar	
			Dia	Noite
Supplied Flammable Mass		kg	105.657	96.1363
Used Flammable Mass		kg	105.657	96.1363
Overpressure Radius		m	37.6703	36.503
Distance to:				
- Ignition Source		m	10	10
- Cloud Front/Centre		m	0.852957	0.767368
- Explosion Centre		m	0.852957	0.767368
			Supplementary Data at 0.3 bar	
			Dia	Noite
Supplied Flammable Mass		kg	105.657	96.1363
Used Flammable Mass		kg	105.657	96.1363
Overpressure Radius		m	18.8101	18.2272
Distance to:				
- Ignition Source		m	10	10
- Cloud Front/Centre		m	0.852957	0.767368
- Explosion Centre		m	0.852957	0.767368

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Weather Conditions

Path: \Terminal Adonai - Efeitos físicos\Simulações\H143 (M)

		Dia	Noite
Wind Speed	m/s	3	2
Pasquill Stability		C	E
Surface Roughness Length	mm	1000	1000
Surface Roughness Parameter		0.173718	0.173718
Atmospheric Temperature	degC	25	20
Surface Temperature	degC	30	20
Relative Humidity	fraction	0.8	0.8

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

H143 (N)

Base Case

CASE Name: Data

Path: \Terminal Adonai - Efeitos físicos\Simulações\H143 (N)

User-Defined Data

Material

Material Identifier	N-NONANE
Type of Vessel	Padded Liquid
Pressure Specification	Pressure specified
Storage Pressure - gauge	0.03 bar
Temperature	25 degC
Volume Inventory	960 m3

Scenario

Scenario Type	Catastrophic rupture
Phase to be Released	Liquid
Building Wake Effect	None

Location

Elevation	0 m
Use ERPG averaging time	ERPG not selected
Use IDLH averaging time	IDLH not selected
Use STEL averaging time	STEL not selected
Supply a user defined averaging time	Not supplied

Bund

Status of Bund	Bund present
Bund Area	593 m2
[Type of Bund Surface	User-Defined (Land)]
Bund Height	3 m
[Bund Failure Modeling	Bund cannot fail]

Indoor/Outdoor

Location of release	Open air release
---------------------	------------------

Flammable

Explosion Method	TNT
Jet Fire Method	Cone Model

Dispersion

Late Ignition Location	No ignition location
Mass Inventory of material to Disperse	6.857E5 kg
Use Burst Pressure	No - Use release pressure for fireball

Fireball Parameters

[Mass Modification Factor	3]
[Calculation method for fireball	DNV Recommended]
[TNO model flame temperature	1727 degC]

Toxic Parameters

[Indoor Calculations	Unselected]
[Wind Dependent Exchange Rate	Case Specified]

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

[Building Exchange Rate	4 /hr]
[Tail Time	1800 s]
[Set averaging time equal to exposure time	Use a fixed averaging time]
[Cut-off fraction of toxic load for exposure time calculation	0.05 fraction]
[Cut-off concentration for exposure time calculations	0 fraction]

Geometry

Shape	Point
Dimension	2D
System	Absolute
East(1)	0 m
North(1)	0 m

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Path: \Terminal Adonai - Efeitos físicos\Simulações\H143 (N)

DISCHARGE DATA for Weather: Global Weathers\Dia

Wind Speed:	3.00 m/s
Wind Speed at Height (Calculated)	1.78 m/s
Pasquill Stability:	C

USER-DEFINED QUANTITIES

Material	N-NONANE
Scenario	Catastrophic rupture
Inventory	685,720.94 kg
Fixed Duration	n/a s

Stagnation data (data at upstream end for long pipe):

- Pressure	1.04 bar
- Temperature	25.00 degC
- Fluid State	Non-saturated liquid

CALCULATED QUANTITIES

Mass Flow of Air (Vent from Vapor Space only)	n/a
Mass Flowrate	n/a kg/s
Release Duration	n/a s

Orifice or pipe exit data (before atmospheric expansion):

- Pressure	n/a bar
- Temperature	n/a degC
- Vena Contracta Velocity (exit velocity for pipe releases)	n/a m/s
- Discharge Coefficient	n/a

Final data (after atmospheric expansion):

- Temperature	25.00 degC
- Liquid Mass Fraction	1.00 fraction
- Droplet Diameter	727.67 um
- Expanded Radius	n/a m
- Velocity	0.76 m/s

DISCHARGE DATA for Weather: Global Weathers\Noite

Wind Speed:	2.00 m/s
Wind Speed at Height (Calculated)	0.83 m/s
Pasquill Stability:	E

USER-DEFINED QUANTITIES

Material	N-NONANE
Scenario	Catastrophic rupture
Inventory	685,720.94 kg
Fixed Duration	n/a s

Stagnation data (data at upstream end for long pipe):

- Pressure	1.04 bar
- Temperature	25.00 degC
- Fluid State	Non-saturated liquid

CALCULATED QUANTITIES

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Mass Flow of Air (Vent from Vapor Space only)	n/a
Mass Flowrate	n/a kg/s
Release Duration	n/a s
Orifice or pipe exit data (before atmospheric expansion):	
- Pressure	n/a bar
- Temperature	n/a degC
- Vena Contracta Velocity (exit velocity for pipe releases)	n/a m/s
- Discharge Coefficient	n/a
Final data (after atmospheric expansion):	
- Temperature	25.00 degC
- Liquid Mass Fraction	1.00 fraction
- Droplet Diameter	727.67 um
- Expanded Radius	n/a m
- Velocity	0.76 m/s



Consequence Results

Pool Vaporization Results

Path: \Terminal Adonai - Efeitos físicos\Simulações\H143 (N)

N.B. Pool vaporization segments begin when the cloud has left the pool

		Dia	Noite
Liquid Rainout	fraction	0.999996	0.999996
Initial Vapor Cloud	kg	2.6661	2.58942
Time Pool Left Behind	s	17.4451	

Cloud Segment 1

Cloud Segment Duration	s	600	
Pool Vaporization Rate	kg/s	0.117943	
Maximum Pool Radius	m	13.7389	13.7389

Distance to Concentration Results

Path: \Terminal Adonai - Efeitos físicos\Simulações\H143 (N)

The height for user defined concentrations is the user defined height 0 m

All toxic results are reported at the toxic effect height 1 m

All flammable results are reported at the flammable effect height 0 m

Concentration(ppm)	Averaging Time		Dia	Noite	Distance (m)
UFL (56000)	18.75	s	8.40428	8.39235	
LFL (7000)	18.75	s	8.4948	8.48287	
LFL Frac (7000)	18.75	s	8.4948	8.48287	

Concentration(ppm)	Averaging Time		Dia	Noite	Heights (m) for above distances
UFL (56000)	18.75	s	0	0	
LFL (7000)	18.75	s	0	0	
LFL Frac (7000)	18.75	s	0	0	

Late Pool Fire Hazard

Path: \Terminal Adonai - Efeitos físicos\Simulações\H143 (N)

	Dia	Noite
Late Pool Fire Status	Hazard	Hazard

Radiation Effects: Late Pool Fire Ellipse

Path: \Terminal Adonai - Efeitos físicos\Simulações\H143 (N)

			Dia	Noite	Distance (m)
Radiation Level	9.83	kW/m2	23.6156	22.0942	
Radiation Level	19.46	kW/m2	14.7389	14.7389	
Radiation Level	35	kW/m2	Not Reached	Not Reached	

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Radiation Effects: Late Pool Fire Distance

Path: \Terminal Adonai - Efeitos físicos\Simulações\H143 (N)

	Dia	Noite
Radiation Level (kW/m2)		

Fireball Hazard

Path: \Terminal Adonai - Efeitos físicos\Simulações\H143 (N)

	Dia	Noite
Fireball Flame Status	No Hazard	No Hazard

Flash Fire Envelope

Path: \Terminal Adonai - Efeitos físicos\Simulações\H143 (N)

All flammable results are reported at the flammable effect height 0 m

			Distance (m)	
			Dia	Noite
Furthest Extent	7000	ppm	8.4948	8.48287
Furthest Extent	7000	ppm	8.4948	8.48287

			Heights (m) for above distances	
			Dia	Noite
Furthest Extent	7000	ppm	0	0
Furthest Extent	7000	ppm	0	0

Explosion Effects: Early Explosion

Path: \Terminal Adonai - Efeitos físicos\Simulações\H143 (N)

Early Explosions are assumed to be centered at the release location
Explosion Model Used : TNT

			Dia	Noite
Supplied Flammable Mass		kg	685721	685721

			Distance (m) at Overpressure Levels	
			Dia	Noite
Overpressure	0.05	bar	No Hazard	No Hazard
Overpressure	0.1	bar	No Hazard	No Hazard
Overpressure	0.3	bar	No Hazard	No Hazard

			Used Mass (kg) at Overpressure Levels	
			Dia	Noite
Overpressure	0.05	bar	0	0
Overpressure	0.1	bar	0	0
Overpressure	0.3	bar	0	0

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Weather Conditions

Path: \Terminal Adonai - Efeitos físicos\Simulações\H143 (N)

		Dia	Noite
Wind Speed	m/s	3	2
Pasquill Stability		C	E
Surface Roughness Length	mm	1000	1000
Surface Roughness Parameter		0.173718	0.173718
Atmospheric Temperature	degC	25	20
Surface Temperature	degC	30	20
Relative Humidity	fraction	0.8	0.8

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

H143 (P)

Base Case

CASE Name: Data

Path: \Terminal Adonai - Efeitos físicos\Simulações\H143 (P)

User-Defined Data

Material

Material Identifier	N-PENTANE
Type of Vessel	Padded Liquid
Pressure Specification	Pressure specified
Storage Pressure - gauge	0.03 bar
Temperature	25 degC
Volume Inventory	960 m3

Scenario

Scenario Type	Catastrophic rupture
Phase to be Released	Liquid
Building Wake Effect	None

Location

Elevation	0 m
Use ERPG averaging time	ERPG not selected
Use IDLH averaging time	IDLH not selected
Use STEL averaging time	STEL not selected
Supply a user defined averaging time	Not supplied

Bund

Status of Bund	Bund present
Bund Area	593 m2
[Type of Bund Surface	User-Defined (Land)]
Bund Height	3 m
[Bund Failure Modeling	Bund cannot fail]

Indoor/Outdoor

Location of release	Open air release
---------------------	------------------

Flammable

Explosion Method	TNT
Jet Fire Method	Cone Model

Dispersion

Late Ignition Location	No ignition location
Mass Inventory of material to Disperse	5.969E5 kg
Use Burst Pressure	No - Use release pressure for fireball

Fireball Parameters

[Mass Modification Factor	3]
[Calculation method for fireball	DNV Recommended]
[TNO model flame temperature	1727 degC]

Toxic Parameters

[Indoor Calculations	Unselected]
[Wind Dependent Exchange Rate	Case Specified]

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

[Building Exchange Rate	4 /hr]
[Tail Time	1800 s]
[Set averaging time equal to exposure time	Use a fixed averaging time]
[Cut-off fraction of toxic load for exposure time calculation	0.05 fraction]
[Cut-off concentration for exposure time calculations	0 fraction]

Geometry

Shape	Point
Dimension	2D
System	Absolute
East(1)	0 m
North(1)	0 m

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Path: \Terminal Adonai - Efeitos físicos\Simulações\H143 (P)

DISCHARGE DATA for Weather: Global Weathers\Dia

Wind Speed:	3.00 m/s
Wind Speed at Height (Calculated)	1.78 m/s
Pasquill Stability:	C

USER-DEFINED QUANTITIES

Material	N-PENTANE
Scenario	Catastrophic rupture
Inventory	596,873.63 kg
Fixed Duration	n/a s

Stagnation data (data at upstream end for long pipe):

- Pressure	1.04 bar
- Temperature	25.00 degC
- Fluid State	Non-saturated liquid

CALCULATED QUANTITIES

Mass Flow of Air (Vent from Vapor Space only)	n/a
Mass Flowrate	n/a kg/s
Release Duration	n/a s

Orifice or pipe exit data (before atmospheric expansion):

- Pressure	n/a bar
- Temperature	n/a degC
- Vena Contracta Velocity (exit velocity for pipe releases)	n/a m/s
- Discharge Coefficient	n/a

Final data (after atmospheric expansion):

- Temperature	25.00 degC
- Liquid Mass Fraction	1.00 fraction
- Droplet Diameter	717.48 um
- Expanded Radius	n/a m
- Velocity	0.86 m/s

DISCHARGE DATA for Weather: Global Weathers\Noite

Wind Speed:	2.00 m/s
Wind Speed at Height (Calculated)	0.83 m/s
Pasquill Stability:	E

USER-DEFINED QUANTITIES

Material	N-PENTANE
Scenario	Catastrophic rupture
Inventory	596,873.63 kg
Fixed Duration	n/a s

Stagnation data (data at upstream end for long pipe):

- Pressure	1.04 bar
- Temperature	25.00 degC
- Fluid State	Non-saturated liquid

CALCULATED QUANTITIES

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Mass Flow of Air (Vent from Vapor Space only)	n/a
Mass Flowrate	n/a kg/s
Release Duration	n/a s
Orifice or pipe exit data (before atmospheric expansion):	
- Pressure	n/a bar
- Temperature	n/a degC
- Vena Contracta Velocity (exit velocity for pipe releases)	n/a m/s
- Discharge Coefficient	n/a
Final data (after atmospheric expansion):	
- Temperature	25.00 degC
- Liquid Mass Fraction	1.00 fraction
- Droplet Diameter	717.48 um
- Expanded Radius	n/a m
- Velocity	0.86 m/s



Consequence Results

Pool Vaporization Results

Path: \Terminal Adonai - Efeitos físicos\Simulações\H143 (P)

N.B. Pool vaporization segments begin when the cloud has left the pool

		Dia	Noite
Liquid Rainout	fraction	0.999216	0.999256
Initial Vapor Cloud	kg	467.769	444.043
Time Pool Left Behind	s	40.3042	103.56

Cloud Segment 1

		Dia	Noite
Cloud Segment Duration	s	600	600
Pool Vaporization Rate	kg/s	15.3186	12.254
Maximum Pool Radius	m	13.7389	13.7389

Distance to Concentration Results

Path: \Terminal Adonai - Efeitos físicos\Simulações\H143 (P)

The height for user defined concentrations is the user defined height 0 m

All toxic results are reported at the toxic effect height 1 m

All flammable results are reported at the flammable effect height 0 m

Concentration(ppm)	Averaging Time		Dia	Noite	Distance (m)
UFL (80000)	18.75	s	26.8343	31.1621	
LFL (13000)	18.75	s	64.0528	65.022	
LFL Frac (13000)	18.75	s	64.0528	65.022	
Concentration(ppm)	Averaging Time		Dia	Noite	Heights (m) for above distances
UFL (80000)	18.75	s	0	0	
LFL (13000)	18.75	s	0	0	
LFL Frac (13000)	18.75	s	0	0	

Late Pool Fire Hazard

Path: \Terminal Adonai - Efeitos físicos\Simulações\H143 (P)

	Dia	Noite
Late Pool Fire Status	Hazard	Hazard

Radiation Effects: Late Pool Fire Ellipse

Path: \Terminal Adonai - Efeitos físicos\Simulações\H143 (P)

			Dia	Noite	Distance (m)
Radiation Level	9.83	kW/m2	23.5275	22.1075	
Radiation Level	19.46	kW/m2	14.7389	14.7389	
Radiation Level	35	kW/m2	Not Reached	Not Reached	

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Radiation Effects: Late Pool Fire Distance

Path: \Terminal Adonai - Efeitos físicos\Simulações\H143 (P)

	Dia	Noite
Radiation Level (kW/m2)		

Fireball Hazard

Path: \Terminal Adonai - Efeitos físicos\Simulações\H143 (P)

	Dia	Noite
Fireball Flame Status	No Hazard	No Hazard

Flash Fire Envelope

Path: \Terminal Adonai - Efeitos físicos\Simulações\H143 (P)

All flammable results are reported at the flammable effect height 0 m

			Dia	Noite
Furthest Extent	13000	ppm	64.0528	65.022
Furthest Extent	13000	ppm	64.0528	65.022
			Distances (m)	
			Dia	Noite
Furthest Extent	13000	ppm	0	0
Furthest Extent	13000	ppm	0	0

Explosion Effects: Early Explosion

Path: \Terminal Adonai - Efeitos físicos\Simulações\H143 (P)

Early Explosions are assumed to be centered at the release location
Explosion Model Used : TNT

			Dia	Noite
Supplied Flammable Mass		kg	596874	596874
			Distance (m) at Overpressure Levels	
			Dia	Noite
Overpressure	0.05	bar	No Hazard	No Hazard
Overpressure	0.1	bar	No Hazard	No Hazard
Overpressure	0.3	bar	No Hazard	No Hazard
			Used Mass (kg) at Overpressure Levels	
			Dia	Noite
Overpressure	0.05	bar	0	0
Overpressure	0.1	bar	0	0
Overpressure	0.3	bar	0	0

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Explosion Effects: Late Ignition

Path: \Terminal Adonai - Efeitos físicos\Simulações\H143 (P)

Explosion Model Used : TNT

Explosion Location Criterion: Cloud Center

All distances are measured from the Source

All flammable results are reported at the flammable effect height 0 m

			Maximum Distance (m) at Overpressure Level	
			Dia	Noite
Overpressure	0.05	bar	142.026	143.889
Overpressure	0.1	bar	96.0865	94.4454
Overpressure	0.3	bar	60.7073	53.9209

Supplementary Data at 0.05 bar

			Dia	Noite
Supplied Flammable Mass		kg	443.31	464.173
Used Flammable Mass		kg	443.31	464.173
Overpressure Radius		m	128.402	130.385
Distance to:				
- Ignition Source		m	50	60
- Cloud Front/Centre		m	13.6241	13.504
- Explosion Centre		m	13.6241	13.504

Supplementary Data at 0.1 bar

			Dia	Noite
Supplied Flammable Mass		kg	308.866	464.173
Used Flammable Mass		kg	308.866	464.173
Overpressure Radius		m	70.6644	80.9414
Distance to:				
- Ignition Source		m	60	60
- Cloud Front/Centre		m	25.422	13.504
- Explosion Centre		m	25.422	13.504

Supplementary Data at 0.3 bar

			Dia	Noite
Supplied Flammable Mass		kg	308.866	464.173
Used Flammable Mass		kg	308.866	464.173
Overpressure Radius		m	35.2852	40.4169
Distance to:				
- Ignition Source		m	60	60
- Cloud Front/Centre		m	25.422	13.504
- Explosion Centre		m	25.422	13.504

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Weather Conditions

Path: \Terminal Adonai - Efeitos físicos\Simulações\H143 (P)

		Dia	Noite
Wind Speed	m/s	3	2
Pasquill Stability		C	E
Surface Roughness Length	mm	1000	1000
Surface Roughness Parameter		0.173718	0.173718
Atmospheric Temperature	degC	25	20
Surface Temperature	degC	30	20
Relative Humidity	fraction	0.8	0.8

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

H144 (A)

Base Case

CASE Name: Data

Path: \Terminal Adonai - Efeitos físicos\Simulações\H144 (A)

User-Defined Data

Material

Material Identifier	ACETONE
Type of Vessel	Padded Liquid
Pressure Specification	Pressure specified
Storage Pressure - gauge	0.03 bar
Temperature	25 degC
Volume Inventory	960 m3

Scenario

Scenario Type	Catastrophic rupture
Phase to be Released	Liquid
Building Wake Effect	None

Location

Elevation	0 m
Use ERPG averaging time	ERPG not selected
Use IDLH averaging time	IDLH not selected
Use STEL averaging time	STEL not selected
Supply a user defined averaging time	Not supplied

Bund

Status of Bund	Bund present
Bund Area	1050 m2
[Type of Bund Surface	User-Defined (Land)]
Bund Height	3 m
[Bund Failure Modeling	Bund cannot fail]

Indoor/Outdoor

Location of release	Open air release
---------------------	------------------

Flammable

Explosion Method	TNT
Jet Fire Method	Cone Model

Dispersion

Late Ignition Location	No ignition location
Mass Inventory of material to Disperse	7.551E5 kg
Use Burst Pressure	No - Use release pressure for fireball

Fireball Parameters

[Mass Modification Factor	3]
[Calculation method for fireball	DNV Recommended]
[TNO model flame temperature	1727 degC]

Toxic Parameters

[Indoor Calculations	Unselected]
[Wind Dependent Exchange Rate	Case Specified]

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

[Building Exchange Rate	4 /hr]
[Tail Time	1800 s]
[Set averaging time equal to exposure time	Use a fixed averaging time]
[Cut-off fraction of toxic load for exposure time calculation	0.05 fraction]
[Cut-off concentration for exposure time calculations	0 fraction]

Geometry

Shape	Point
Dimension	2D
System	Absolute
East(1)	0 m
North(1)	0 m

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Path: \Terminal Adonai - Efeitos físicos\Simulações\H144 (A)

DISCHARGE DATA for Weather: Global Weathers\Dia

Wind Speed: 3.00 m/s
Wind Speed at Height (Calculated) 1.78 m/s
Pasquill Stability: C

USER-DEFINED QUANTITIES

Material ACETONE
Scenario Catastrophic rupture
Inventory 755,117.31 kg
Fixed Duration n/a s

Stagnation data (data at upstream end for long pipe):

- Pressure 1.04 bar
- Temperature 25.00 degC
- Fluid State Non-saturated liquid

CALCULATED QUANTITIES

Mass Flow of Air (Vent from Vapor Space only) n/a
Mass Flowrate n/a kg/s
Release Duration n/a s
Orifice or pipe exit data (before atmospheric expansion):
- Pressure n/a bar
- Temperature n/a degC
- Vena Contracta Velocity (exit velocity for pipe releases) n/a m/s
- Discharge Coefficient n/a
Final data (after atmospheric expansion):
- Temperature 25.00 degC
- Liquid Mass Fraction 1.00 fraction
- Droplet Diameter 734.74 um
- Expanded Radius n/a m
- Velocity 1.11 m/s

DISCHARGE DATA for Weather: Global Weathers\Noite

Wind Speed: 2.00 m/s
Wind Speed at Height (Calculated) 0.83 m/s
Pasquill Stability: E

USER-DEFINED QUANTITIES

Material ACETONE
Scenario Catastrophic rupture
Inventory 755,117.31 kg
Fixed Duration n/a s

Stagnation data (data at upstream end for long pipe):

- Pressure 1.04 bar
- Temperature 25.00 degC
- Fluid State Non-saturated liquid

CALCULATED QUANTITIES

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Mass Flow of Air (Vent from Vapor Space only)	n/a
Mass Flowrate	n/a kg/s
Release Duration	n/a s
Orifice or pipe exit data (before atmospheric expansion):	
- Pressure	n/a bar
- Temperature	n/a degC
- Vena Contracta Velocity (exit velocity for pipe releases)	n/a m/s
- Discharge Coefficient	n/a
Final data (after atmospheric expansion):	
- Temperature	25.00 degC
- Liquid Mass Fraction	1.00 fraction
- Droplet Diameter	734.74 um
- Expanded Radius	n/a m
- Velocity	1.11 m/s



Consequence Results

Pool Vaporization Results

Path: \Terminal Adonai - Efeitos físicos\Simulações\H144 (A)

N.B. Pool vaporization segments begin when the cloud has left the pool

		Dia	Noite
Liquid Rainout	fraction	0.999252	0.999252
Initial Vapor Cloud	kg	564.764	565.102
Time Pool Left Behind	s	40.0166	93.989

Cloud Segment 1

		Dia	Noite
Cloud Segment Duration	s	600	600
Pool Vaporization Rate	kg/s	7.90446	6.41152
Maximum Pool Radius	m	18.2818	18.2818

Distance to Concentration Results

Path: \Terminal Adonai - Efeitos físicos\Simulações\H144 (A)

The height for user defined concentrations is the user defined height 0 m

All toxic results are reported at the toxic effect height 1 m

All flammable results are reported at the flammable effect height 0 m

Concentration(ppm)	Averaging Time		Dia	Noite	Distance (m)
UFL (128000)	18.75	s	13.8573	14.9261	
LFL (26000)	18.75	s	43.369	45.6867	
LFL Frac (26000)	18.75	s	43.369	45.6867	
Concentration(ppm)	Averaging Time		Dia	Noite	Heights (m) for above distances
UFL (128000)	18.75	s	0	0	
LFL (26000)	18.75	s	0	0	
LFL Frac (26000)	18.75	s	0	0	

Late Pool Fire Hazard

Path: \Terminal Adonai - Efeitos físicos\Simulações\H144 (A)

	Dia	Noite
Late Pool Fire Status	Hazard	Hazard

Radiation Effects: Late Pool Fire Ellipse

Path: \Terminal Adonai - Efeitos físicos\Simulações\H144 (A)

			Dia	Noite	Distance (m)
Radiation Level	9.83	kW/m2	70.9043	68.9186	
Radiation Level	19.46	kW/m2	53.6155	50.5672	
Radiation Level	35	kW/m2	37.7123	34.8775	

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Radiation Effects: Late Pool Fire Distance

Path: \Terminal Adonai - Efeitos físicos\Simulações\H144 (A)

	Dia	Noite
Radiation Level (kW/m2)		

Fireball Hazard

Path: \Terminal Adonai - Efeitos físicos\Simulações\H144 (A)

	Dia	Noite
Fireball Flame Status	No Hazard	No Hazard

Flash Fire Envelope

Path: \Terminal Adonai - Efeitos físicos\Simulações\H144 (A)

All flammable results are reported at the flammable effect height 0 m

			Dia	Noite
Furthest Extent	26000	ppm	43.369	45.6867
Furthest Extent	26000	ppm	43.369	45.6867

			Dia	Noite
Furthest Extent	26000	ppm	0	0
Furthest Extent	26000	ppm	0	0

Explosion Effects: Early Explosion

Path: \Terminal Adonai - Efeitos físicos\Simulações\H144 (A)

Early Explosions are assumed to be centered at the release location
Explosion Model Used : TNT

			Dia	Noite
Supplied Flammable Mass		kg	755117	755117

			Distance (m) at Overpressure Levels	
			Dia	Noite
Overpressure	0.05	bar	No Hazard	No Hazard
Overpressure	0.1	bar	No Hazard	No Hazard
Overpressure	0.3	bar	No Hazard	No Hazard

			Used Mass (kg) at Overpressure Levels	
			Dia	Noite
Overpressure	0.05	bar	0	0
Overpressure	0.1	bar	0	0
Overpressure	0.3	bar	0	0

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Explosion Effects: Late Ignition

Path: \Terminal Adonai - Efeitos físicos\Simulações\H144 (A)

Explosion Model Used : TNT

Explosion Location Criterion: Cloud Center

All distances are measured from the Source

All flammable results are reported at the flammable effect height 0 m

			Maximum Distance (m) at Overpressure Level	
			Dia	Noite
Overpressure	0.05	bar	110.254	112.947
Overpressure	0.1	bar	71.8193	72.6657
Overpressure	0.3	bar	42.2312	39.6507

Supplementary Data at 0.05 bar

			Dia	Noite
Supplied Flammable Mass		kg	389.012	395.192
Used Flammable Mass		kg	389.012	395.192
Overpressure Radius		m	105.667	106.224
Distance to:				
- Ignition Source		m	30	40
- Cloud Front/Centre		m	4.58629	6.72345
- Explosion Centre		m	4.58629	6.72345

Supplementary Data at 0.1 bar

			Dia	Noite
Supplied Flammable Mass		kg	284.464	395.192
Used Flammable Mass		kg	284.464	395.192
Overpressure Radius		m	59.0977	65.9423
Distance to:				
- Ignition Source		m	40	40
- Cloud Front/Centre		m	12.7217	6.72345
- Explosion Centre		m	12.7217	6.72345

Supplementary Data at 0.3 bar

			Dia	Noite
Supplied Flammable Mass		kg	284.464	395.192
Used Flammable Mass		kg	284.464	395.192
Overpressure Radius		m	29.5095	32.9273
Distance to:				
- Ignition Source		m	40	40
- Cloud Front/Centre		m	12.7217	6.72345
- Explosion Centre		m	12.7217	6.72345

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Weather Conditions

Path: \Terminal Adonai - Efeitos físicos\Simulações\H144 (A)

		Dia	Noite
Wind Speed	m/s	3	2
Pasquill Stability		C	E
Surface Roughness Length	mm	1000	1000
Surface Roughness Parameter		0.173718	0.173718
Atmospheric Temperature	degC	25	20
Surface Temperature	degC	30	20
Relative Humidity	fraction	0.8	0.8

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

H144 (B)

Base Case

CASE Name: Data

Path: \Terminal Adonai - Efeitos físicos\Simulações\H144 (B)

User-Defined Data

Material

Material Identifier	BENZENE
Type of Vessel	Padded Liquid
Pressure Specification	Pressure specified
Storage Pressure - gauge	0.03 bar
Temperature	25 degC
Volume Inventory	960 m3

Scenario

Scenario Type	Catastrophic rupture
Phase to be Released	Liquid
Building Wake Effect	None

Location

Elevation	0 m
Use ERPG averaging time	ERPG not selected
Use IDLH averaging time	IDLH not selected
Use STEL averaging time	STEL not selected
Supply a user defined averaging time	Not supplied

Bund

Status of Bund	Bund present
Bund Area	1050 m2
[Type of Bund Surface	User-Defined (Land)]
Bund Height	3 m
[Bund Failure Modeling	Bund cannot fail]

Indoor/Outdoor

Location of release	Open air release
---------------------	------------------

Flammable

Explosion Method	TNT
Jet Fire Method	Cone Model

Dispersion

Late Ignition Location	No ignition location
Mass Inventory of material to Disperse	8.381E5 kg
Use Burst Pressure	No - Use release pressure for fireball

Fireball Parameters

[Mass Modification Factor	3]
[Calculation method for fireball	DNV Recommended]
[TNO model flame temperature	1727 degC]

Toxic Parameters

[Indoor Calculations	Unselected]
[Wind Dependent Exchange Rate	Case Specified]

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

[Building Exchange Rate	4 /hr]
[Tail Time	1800 s]
[Set averaging time equal to exposure time	Use a fixed averaging time]
[Cut-off fraction of toxic load for exposure time calculation	0.05 fraction]
[Cut-off concentration for exposure time calculations	0 fraction]

Geometry

Shape	Point
Dimension	2D
System	Absolute
East(1)	0 m
North(1)	0 m

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Path: \Terminal Adonai - Efeitos físicos\Simulações\H144 (B)

DISCHARGE DATA for Weather: Global Weathers\Dia

Wind Speed: 3.00 m/s
Wind Speed at Height (Calculated) 1.78 m/s
Pasquill Stability: C

USER-DEFINED QUANTITIES

Material BENZENE
Scenario Catastrophic rupture
Inventory 838,087.13 kg
Fixed Duration n/a s

Stagnation data (data at upstream end for long pipe):

- Pressure 1.04 bar
- Temperature 25.00 degC
- Fluid State Non-saturated liquid

CALCULATED QUANTITIES

Mass Flow of Air (Vent from Vapor Space only) n/a
Mass Flowrate n/a kg/s
Release Duration n/a s
Orifice or pipe exit data (before atmospheric expansion):
- Pressure n/a bar
- Temperature n/a degC
- Vena Contracta Velocity (exit velocity for pipe releases) n/a m/s
- Discharge Coefficient n/a
Final data (after atmospheric expansion):
- Temperature 25.00 degC
- Liquid Mass Fraction 1.00 fraction
- Droplet Diameter 742.39 um
- Expanded Radius n/a m
- Velocity 0.82 m/s

DISCHARGE DATA for Weather: Global Weathers\Noite

Wind Speed: 2.00 m/s
Wind Speed at Height (Calculated) 0.83 m/s
Pasquill Stability: E

USER-DEFINED QUANTITIES

Material BENZENE
Scenario Catastrophic rupture
Inventory 838,087.13 kg
Fixed Duration n/a s

Stagnation data (data at upstream end for long pipe):

- Pressure 1.04 bar
- Temperature 25.00 degC
- Fluid State Non-saturated liquid

CALCULATED QUANTITIES

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Mass Flow of Air (Vent from Vapor Space only)	n/a
Mass Flowrate	n/a kg/s
Release Duration	n/a s
Orifice or pipe exit data (before atmospheric expansion):	
- Pressure	n/a bar
- Temperature	n/a degC
- Vena Contracta Velocity (exit velocity for pipe releases)	n/a m/s
- Discharge Coefficient	n/a
Final data (after atmospheric expansion):	
- Temperature	25.00 degC
- Liquid Mass Fraction	1.00 fraction
- Droplet Diameter	742.39 um
- Expanded Radius	n/a m
- Velocity	0.82 m/s



Consequence Results

Pool Vaporization Results

Path: \Terminal Adonai - Efeitos físicos\Simulações\H144 (B)

N.B. Pool vaporization segments begin when the cloud has left the pool

		Dia	Noite
Liquid Rainout	fraction	0.99995	0.999953
Initial Vapor Cloud	kg	41.5676	39.7943
Time Pool Left Behind	s	27.0424	63.5287

Cloud Segment 1

		Dia	Noite
Cloud Segment Duration	s	600	600
Pool Vaporization Rate	kg/s	3.76549	2.93501

		Dia	Noite
Maximum Pool Radius	m	18.2818	18.2818

Distance to Concentration Results

Path: \Terminal Adonai - Efeitos físicos\Simulações\H144 (B)

The height for user defined concentrations is the user defined height 0 m

All toxic results are reported at the toxic effect height 1 m

All flammable results are reported at the flammable effect height 0 m

Concentration(ppm)	Averaging Time		Dia	Noite	Distance (m)
UFL (79000)	18.75	s	8.4067	8.3956	
LFL (13000)	18.75	s	22.7953	22.7246	
LFL Frac (13000)	18.75	s	22.7953	22.7246	
Concentration(ppm)	Averaging Time		Dia	Noite	Heights (m) for above distances
UFL (79000)	18.75	s	0	0	
LFL (13000)	18.75	s	0	0	
LFL Frac (13000)	18.75	s	0	0	

Late Pool Fire Hazard

Path: \Terminal Adonai - Efeitos físicos\Simulações\H144 (B)

	Dia	Noite
Late Pool Fire Status	Hazard	Hazard

Radiation Effects: Late Pool Fire Ellipse

Path: \Terminal Adonai - Efeitos físicos\Simulações\H144 (B)

			Dia	Noite	Distance (m)
Radiation Level	9.83	kW/m2	26.3088	24.9046	
Radiation Level	19.46	kW/m2	19.2818	19.2818	
Radiation Level	35	kW/m2	Not Reached	Not Reached	

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Radiation Effects: Late Pool Fire Distance

Path: \Terminal Adonai - Efeitos físicos\Simulações\H144 (B)

	Dia	Noite
Radiation Level (kW/m2)		

Fireball Hazard

Path: \Terminal Adonai - Efeitos físicos\Simulações\H144 (B)

	Dia	Noite
Fireball Flame Status	No Hazard	No Hazard

Flash Fire Envelope

Path: \Terminal Adonai - Efeitos físicos\Simulações\H144 (B)

All flammable results are reported at the flammable effect height 0 m

			Dia	Noite
Furthest Extent	13000	ppm	22.7953	22.7246
Furthest Extent	13000	ppm	22.7953	22.7246

			Dia	Noite
Furthest Extent	13000	ppm	0	0
Furthest Extent	13000	ppm	0	0

Explosion Effects: Early Explosion

Path: \Terminal Adonai - Efeitos físicos\Simulações\H144 (B)

Early Explosions are assumed to be centered at the release location
Explosion Model Used : TNT

			Dia	Noite
Supplied Flammable Mass		kg	838087	838087

			Dia	Noite
Overpressure	0.05	bar	No Hazard	No Hazard
Overpressure	0.1	bar	No Hazard	No Hazard
Overpressure	0.3	bar	No Hazard	No Hazard

			Dia	Noite
Overpressure	0.05	bar	0	0
Overpressure	0.1	bar	0	0
Overpressure	0.3	bar	0	0

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Explosion Effects: Late Ignition

Path: \Terminal Adonai - Efeitos físicos\Simulações\H144 (B)

Explosion Model Used : TNT

Explosion Location Criterion: Cloud Center

All distances are measured from the Source

All flammable results are reported at the flammable effect height 0 m

			Maximum Distance (m) at Overpressure Level	
			Dia	Noite
Overpressure	0.05	bar	52.3562	55.4352
Overpressure	0.1	bar	35.4119	35.987
Overpressure	0.3	bar	21.5242	20.0471
			Supplementary Data at 0.05 bar	
			Dia	Noite
Supplied Flammable Mass		kg	20.9283	31.6446
Used Flammable Mass		kg	20.9283	31.6446
Overpressure Radius		m	44.6828	51.2856
Distance to:				
- Ignition Source		m	20	20
- Cloud Front/Centre		m	7.67341	4.14956
- Explosion Centre		m	7.67341	4.14956
			Supplementary Data at 0.1 bar	
			Dia	Noite
Supplied Flammable Mass		kg	20.9283	31.6446
Used Flammable Mass		kg	20.9283	31.6446
Overpressure Radius		m	27.7385	31.8374
Distance to:				
- Ignition Source		m	20	20
- Cloud Front/Centre		m	7.67341	4.14956
- Explosion Centre		m	7.67341	4.14956
			Supplementary Data at 0.3 bar	
			Dia	Noite
Supplied Flammable Mass		kg	20.9283	31.6446
Used Flammable Mass		kg	20.9283	31.6446
Overpressure Radius		m	13.8508	15.8975
Distance to:				
- Ignition Source		m	20	20
- Cloud Front/Centre		m	7.67341	4.14956
- Explosion Centre		m	7.67341	4.14956

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Weather Conditions

Path: \Terminal Adonai - Efeitos físicos\Simulações\H144 (B)

		Dia	Noite
Wind Speed	m/s	3	2
Pasquill Stability		C	E
Surface Roughness Length	mm	1000	1000
Surface Roughness Parameter		0.173718	0.173718
Atmospheric Temperature	degC	25	20
Surface Temperature	degC	30	20
Relative Humidity	fraction	0.8	0.8

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

H144 (E)

Base Case

CASE Name: Data

Path: \Terminal Adonai - Efeitos físicos\Simulações\H144 (E)

User-Defined Data

Material

Material Identifier	ETHANOL
Type of Vessel	Padded Liquid
Pressure Specification	Pressure specified
Storage Pressure - gauge	0.03 bar
Temperature	25 degC
Volume Inventory	960 m3

Scenario

Scenario Type	Catastrophic rupture
Phase to be Released	Liquid
Building Wake Effect	None

Location

Elevation	0 m
Use ERPG averaging time	ERPG not selected
Use IDLH averaging time	IDLH not selected
Use STEL averaging time	STEL not selected
Supply a user defined averaging time	Not supplied

Bund

Status of Bund	Bund present
Bund Area	1050 m2
[Type of Bund Surface	User-Defined (Land)]
Bund Height	3 m
[Bund Failure Modeling	Bund cannot fail]

Indoor/Outdoor

Location of release	Open air release
---------------------	------------------

Flammable

Explosion Method	TNT
Jet Fire Method	Cone Model

Dispersion

Late Ignition Location	No ignition location
Mass Inventory of material to Disperse	7.545E5 kg
Use Burst Pressure	No - Use release pressure for fireball

Fireball Parameters

[Mass Modification Factor	3]
[Calculation method for fireball	DNV Recommended]
[TNO model flame temperature	1727 degC]

Toxic Parameters

[Indoor Calculations	Unselected]
[Wind Dependent Exchange Rate	Case Specified]

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

[Building Exchange Rate	4 /hr]
[Tail Time	1800 s]
[Set averaging time equal to exposure time	Use a fixed averaging time]
[Cut-off fraction of toxic load for exposure time calculation	0.05 fraction]
[Cut-off concentration for exposure time calculations	0 fraction]

Geometry

Shape	Point
Dimension	2D
System	Absolute
East(1)	0 m
North(1)	0 m

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Path: \Terminal Adonai - Efeitos físicos\Simulações\H144 (E)

DISCHARGE DATA for Weather: Global Weathers\Dia

Wind Speed: 3.00 m/s
Wind Speed at Height (Calculated) 1.78 m/s
Pasquill Stability: C

USER-DEFINED QUANTITIES

Material ETHANOL
Scenario Catastrophic rupture
Inventory 754,459.19 kg
Fixed Duration n/a s

Stagnation data (data at upstream end for long pipe):

- Pressure 1.04 bar
- Temperature 25.00 degC
- Fluid State Non-saturated liquid

CALCULATED QUANTITIES

Mass Flow of Air (Vent from Vapor Space only) n/a
Mass Flowrate n/a kg/s
Release Duration n/a s
Orifice or pipe exit data (before atmospheric expansion):
- Pressure n/a bar
- Temperature n/a degC
- Vena Contracta Velocity (exit velocity for pipe releases) n/a m/s
- Discharge Coefficient n/a
Final data (after atmospheric expansion):
- Temperature 25.00 degC
- Liquid Mass Fraction 1.00 fraction
- Droplet Diameter 734.68 um
- Expanded Radius n/a m
- Velocity 1.23 m/s

DISCHARGE DATA for Weather: Global Weathers\Noite

Wind Speed: 2.00 m/s
Wind Speed at Height (Calculated) 0.83 m/s
Pasquill Stability: E

USER-DEFINED QUANTITIES

Material ETHANOL
Scenario Catastrophic rupture
Inventory 754,459.19 kg
Fixed Duration n/a s

Stagnation data (data at upstream end for long pipe):

- Pressure 1.04 bar
- Temperature 25.00 degC
- Fluid State Non-saturated liquid

CALCULATED QUANTITIES

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Mass Flow of Air (Vent from Vapor Space only)	n/a
Mass Flowrate	n/a kg/s
Release Duration	n/a s
Orifice or pipe exit data (before atmospheric expansion):	
- Pressure	n/a bar
- Temperature	n/a degC
- Vena Contracta Velocity (exit velocity for pipe releases)	n/a m/s
- Discharge Coefficient	n/a
Final data (after atmospheric expansion):	
- Temperature	25.00 degC
- Liquid Mass Fraction	1.00 fraction
- Droplet Diameter	734.68 um
- Expanded Radius	n/a m
- Velocity	1.23 m/s



Consequence Results

Pool Vaporization Results

Path: \Terminal Adonai - Efeitos físicos\Simulações\H144 (E)

N.B. Pool vaporization segments begin when the cloud has left the pool

		Dia	Noite
Liquid Rainout	fraction	0.999821	0.999821
Initial Vapor Cloud	kg	134.71	135.299
Time Pool Left Behind	s	27.5106	54.0537

Cloud Segment 1

		Dia	Noite
Cloud Segment Duration	s	600	600
Pool Vaporization Rate	kg/s	1.56234	1.2618
Maximum Pool Radius	m	18.2818	18.2818

Distance to Concentration Results

Path: \Terminal Adonai - Efeitos físicos\Simulações\H144 (E)

The height for user defined concentrations is the user defined height 0 m

All toxic results are reported at the toxic effect height 1 m

All flammable results are reported at the flammable effect height 0 m

Concentration(ppm)	Averaging Time		Dia	Noite	Distance (m)
UFL (190000)	18.75	s	10.3737	10.2727	
LFL (43000)	18.75	s	10.4936	10.393	
LFL Frac (43000)	18.75	s	10.4936	10.393	

Concentration(ppm)	Averaging Time		Dia	Noite	Heights (m) for above distances
UFL (190000)	18.75	s	0	0	
LFL (43000)	18.75	s	0	0	
LFL Frac (43000)	18.75	s	0	0	

Late Pool Fire Hazard

Path: \Terminal Adonai - Efeitos físicos\Simulações\H144 (E)

	Dia	Noite
Late Pool Fire Status	Hazard	Hazard

Radiation Effects: Late Pool Fire Ellipse

Path: \Terminal Adonai - Efeitos físicos\Simulações\H144 (E)

			Dia	Noite	Distance (m)
Radiation Level	9.83	kW/m2	51.5779	50.1777	
Radiation Level	19.46	kW/m2	39.1757	36.9808	
Radiation Level	35	kW/m2	24.8167	23.632	

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Radiation Effects: Late Pool Fire Distance

Path: \Terminal Adonai - Efeitos físicos\Simulações\H144 (E)

	Radiation Level (kW/m2)
Dia	Noite

Fireball Hazard

Path: \Terminal Adonai - Efeitos físicos\Simulações\H144 (E)

	Dia	Noite
Fireball Flame Status	No Hazard	No Hazard

Flash Fire Envelope

Path: \Terminal Adonai - Efeitos físicos\Simulações\H144 (E)

All flammable results are reported at the flammable effect height 0 m

			Dia	Noite
			Distance (m)	
Furthest Extent	43000	ppm	10.4936	10.393
Furthest Extent	43000	ppm	10.4936	10.393
			Dia	Noite
			Heights (m) for above distances	
Furthest Extent	43000	ppm	0	0
Furthest Extent	43000	ppm	0	0

Explosion Effects: Early Explosion

Path: \Terminal Adonai - Efeitos físicos\Simulações\H144 (E)

Early Explosions are assumed to be centered at the release location
Explosion Model Used : TNT

			Dia	Noite
Supplied Flammable Mass		kg	754459	754459
			Distance (m) at Overpressure Levels	
			Dia	Noite
Overpressure	0.05	bar	No Hazard	No Hazard
Overpressure	0.1	bar	No Hazard	No Hazard
Overpressure	0.3	bar	No Hazard	No Hazard
			Used Mass (kg) at Overpressure Levels	
			Dia	Noite
Overpressure	0.05	bar	0	0
Overpressure	0.1	bar	0	0
Overpressure	0.3	bar	0	0

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Explosion Effects: Late Ignition

Path: \Terminal Adonai - Efeitos físicos\Simulações\H144 (E)

Explosion Model Used : TNT

Explosion Location Criterion: Cloud Center

All distances are measured from the Source

All flammable results are reported at the flammable effect height 0 m

			Maximum Distance (m) at Overpressure Level	
			Dia	Noite
Overpressure	0.05	bar	43.2276	41.1882
Overpressure	0.1	bar	27.2022	25.8909
Overpressure	0.3	bar	14.0676	13.3533

Supplementary Data at 0.05 bar

			Dia	Noite
Supplied Flammable Mass		kg	26.5144	23.0616
Used Flammable Mass		kg	26.5144	23.0616
Overpressure Radius		m	42.2597	40.3393
Distance to:				
- Ignition Source		m	10	10
- Cloud Front/Centre		m	0.967949	0.848855
- Explosion Centre		m	0.967949	0.848855

Supplementary Data at 0.1 bar

			Dia	Noite
Supplied Flammable Mass		kg	26.5144	23.0616
Used Flammable Mass		kg	26.5144	23.0616
Overpressure Radius		m	26.2342	25.0421
Distance to:				
- Ignition Source		m	10	10
- Cloud Front/Centre		m	0.967949	0.848855
- Explosion Centre		m	0.967949	0.848855

Supplementary Data at 0.3 bar

			Dia	Noite
Supplied Flammable Mass		kg	26.5144	23.0616
Used Flammable Mass		kg	26.5144	23.0616
Overpressure Radius		m	13.0997	12.5044
Distance to:				
- Ignition Source		m	10	10
- Cloud Front/Centre		m	0.967949	0.848855
- Explosion Centre		m	0.967949	0.848855

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Weather Conditions

Path: \Terminal Adonai - Efeitos físicos\Simulações\H144 (E)

		Dia	Noite
Wind Speed	m/s	3	2
Pasquill Stability		C	E
Surface Roughness Length	mm	1000	1000
Surface Roughness Parameter		0.173718	0.173718
Atmospheric Temperature	degC	25	20
Surface Temperature	degC	30	20
Relative Humidity	fraction	0.8	0.8

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

H144 (H)

Base Case

CASE Name: Data

Path: \Terminal Adonai - Efeitos físicos\Simulações\H144 (H)

User-Defined Data

Material

Material Identifier	N-HEXANE
Type of Vessel	Padded Liquid
Pressure Specification	Pressure specified
Storage Pressure - gauge	0.03 bar
Temperature	25 degC
Volume Inventory	960 m3

Scenario

Scenario Type	Catastrophic rupture
Phase to be Released	Liquid
Building Wake Effect	None

Location

Elevation	0 m
Use ERPG averaging time	ERPG not selected
Use IDLH averaging time	IDLH not selected
Use STEL averaging time	STEL not selected
Supply a user defined averaging time	Not supplied

Bund

Status of Bund	Bund present
Bund Area	1050 m2
[Type of Bund Surface	User-Defined (Land)]
Bund Height	3 m
[Bund Failure Modeling	Bund cannot fail]

Indoor/Outdoor

Location of release	Open air release
---------------------	------------------

Flammable

Explosion Method	TNT
Jet Fire Method	Cone Model

Dispersion

Late Ignition Location	No ignition location
Mass Inventory of material to Disperse	6.298E5 kg
Use Burst Pressure	No - Use release pressure for fireball

Fireball Parameters

[Mass Modification Factor	3]
[Calculation method for fireball	DNV Recommended]
[TNO model flame temperature	1727 degC]

Toxic Parameters

[Indoor Calculations	Unselected]
[Wind Dependent Exchange Rate	Case Specified]

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

[Building Exchange Rate	4 /hr]
[Tail Time	1800 s]
[Set averaging time equal to exposure time	Use a fixed averaging time]
[Cut-off fraction of toxic load for exposure time calculation	0.05 fraction]
[Cut-off concentration for exposure time calculations	0 fraction]

Geometry

Shape	Point
Dimension	2D
System	Absolute
East(1)	0 m
North(1)	0 m

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Path: \Terminal Adonai - Efeitos físicos\Simulações\H144 (H)

DISCHARGE DATA for Weather: Global Weathers\Dia

Wind Speed: 3.00 m/s
Wind Speed at Height (Calculated) 1.78 m/s
Pasquill Stability: C

USER-DEFINED QUANTITIES

Material N-HEXANE
Scenario Catastrophic rupture
Inventory 629,785.13 kg
Fixed Duration n/a s

Stagnation data (data at upstream end for long pipe):

- Pressure 1.04 bar
- Temperature 25.00 degC
- Fluid State Non-saturated liquid

CALCULATED QUANTITIES

Mass Flow of Air (Vent from Vapor Space only) n/a
Mass Flowrate n/a kg/s
Release Duration n/a s
Orifice or pipe exit data (before atmospheric expansion):
- Pressure n/a bar
- Temperature n/a degC
- Vena Contracta Velocity (exit velocity for pipe releases) n/a m/s
- Discharge Coefficient n/a
Final data (after atmospheric expansion):
- Temperature 25.00 degC
- Liquid Mass Fraction 1.00 fraction
- Droplet Diameter 721.42 um
- Expanded Radius n/a m
- Velocity 1.04 m/s

DISCHARGE DATA for Weather: Global Weathers\Noite

Wind Speed: 2.00 m/s
Wind Speed at Height (Calculated) 0.83 m/s
Pasquill Stability: E

USER-DEFINED QUANTITIES

Material N-HEXANE
Scenario Catastrophic rupture
Inventory 629,785.13 kg
Fixed Duration n/a s

Stagnation data (data at upstream end for long pipe):

- Pressure 1.04 bar
- Temperature 25.00 degC
- Fluid State Non-saturated liquid

CALCULATED QUANTITIES

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Mass Flow of Air (Vent from Vapor Space only)	n/a
Mass Flowrate	n/a kg/s
Release Duration	n/a s
Orifice or pipe exit data (before atmospheric expansion):	
- Pressure	n/a bar
- Temperature	n/a degC
- Vena Contracta Velocity (exit velocity for pipe releases)	n/a m/s
- Discharge Coefficient	n/a
Final data (after atmospheric expansion):	
- Temperature	25.00 degC
- Liquid Mass Fraction	1.00 fraction
- Droplet Diameter	721.42 um
- Expanded Radius	n/a m
- Velocity	1.04 m/s



Consequence Results

Pool Vaporization Results

Path: \Terminal Adonai - Efeitos físicos\Simulações\H144 (H)

N.B. Pool vaporization segments begin when the cloud has left the pool

		Dia	Noite
Liquid Rainout	fraction	0.999753	0.999755
Initial Vapor Cloud	kg	155.849	154.33
Time Pool Left Behind	s	33.9994	81.4264

Cloud Segment 1

		Dia	Noite
Cloud Segment Duration	s	600	600
Pool Vaporization Rate	kg/s	6.09068	4.88311

		Dia	Noite
Maximum Pool Radius	m	18.2818	18.2818

Distance to Concentration Results

Path: \Terminal Adonai - Efeitos físicos\Simulações\H144 (H)

The height for user defined concentrations is the user defined height 0 m

All toxic results are reported at the toxic effect height 1 m

All flammable results are reported at the flammable effect height 0 m

Concentration(ppm)	Averaging Time		Dia	Noite	Distance (m)
UFL (76800)	18.75	s	11.0445	12.761	
LFL (10500)	18.75	s	39.1569	40.1251	
LFL Frac (10500)	18.75	s	39.1569	40.1251	

Concentration(ppm)	Averaging Time		Dia	Noite	Heights (m) for above distances
UFL (76800)	18.75	s	0	0	
LFL (10500)	18.75	s	0	0	
LFL Frac (10500)	18.75	s	0	0	

Late Pool Fire Hazard

Path: \Terminal Adonai - Efeitos físicos\Simulações\H144 (H)

	Dia	Noite
Late Pool Fire Status	Hazard	Hazard

Radiation Effects: Late Pool Fire Ellipse

Path: \Terminal Adonai - Efeitos físicos\Simulações\H144 (H)

			Dia	Noite	Distance (m)
Radiation Level	9.83	kW/m2	26.2347	24.9207	
Radiation Level	19.46	kW/m2	19.2818	19.2818	
Radiation Level	35	kW/m2	Not Reached	Not Reached	

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Radiation Effects: Late Pool Fire Distance

Path: \Terminal Adonai - Efeitos físicos\Simulações\H144 (H)

	Dia	Noite
Radiation Level (kW/m2)		

Fireball Hazard

Path: \Terminal Adonai - Efeitos físicos\Simulações\H144 (H)

	Dia	Noite
Fireball Flame Status	No Hazard	No Hazard

Flash Fire Envelope

Path: \Terminal Adonai - Efeitos físicos\Simulações\H144 (H)

All flammable results are reported at the flammable effect height 0 m

			Dia	Noite
Furthest Extent	10500	ppm	39.1569	40.1251
Furthest Extent	10500	ppm	39.1569	40.1251
				Heights (m) for above distances
			Dia	Noite
Furthest Extent	10500	ppm	0	0
Furthest Extent	10500	ppm	0	0

Explosion Effects: Early Explosion

Path: \Terminal Adonai - Efeitos físicos\Simulações\H144 (H)

Early Explosions are assumed to be centered at the release location
Explosion Model Used : TNT

			Dia	Noite
Supplied Flammable Mass		kg	629785	629785
				Distance (m) at Overpressure Levels
			Dia	Noite
Overpressure	0.05	bar	No Hazard	No Hazard
Overpressure	0.1	bar	No Hazard	No Hazard
Overpressure	0.3	bar	No Hazard	No Hazard
				Used Mass (kg) at Overpressure Levels
			Dia	Noite
Overpressure	0.05	bar	0	0
Overpressure	0.1	bar	0	0
Overpressure	0.3	bar	0	0

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Explosion Effects: Late Ignition

Path: \Terminal Adonai - Efeitos físicos\Simulações\H144 (H)

Explosion Model Used : TNT

Explosion Location Criterion: Cloud Center

All distances are measured from the Source

All flammable results are reported at the flammable effect height 0 m

			Maximum Distance (m) at Overpressure Level	
			Dia	Noite
Overpressure	0.05	bar	91.846	91.9808
Overpressure	0.1	bar	59.8352	59.7325
Overpressure	0.3	bar	33.5989	37.0067

Supplementary Data at 0.05 bar

			Dia	Noite
Supplied Flammable Mass		kg	126.636	143.532
Used Flammable Mass		kg	126.636	143.532
Overpressure Radius		m	84.4136	88.0124
Distance to:				
- Ignition Source		m	30	30
- Cloud Front/Centre		m	7.43239	3.96839
- Explosion Centre		m	7.43239	3.96839

Supplementary Data at 0.1 bar

			Dia	Noite
Supplied Flammable Mass		kg	126.636	82.3022
Used Flammable Mass		kg	126.636	82.3022
Overpressure Radius		m	52.4028	45.3913
Distance to:				
- Ignition Source		m	30	40
- Cloud Front/Centre		m	7.43239	14.3412
- Explosion Centre		m	7.43239	14.3412

Supplementary Data at 0.3 bar

			Dia	Noite
Supplied Flammable Mass		kg	126.636	82.3022
Used Flammable Mass		kg	126.636	82.3022
Overpressure Radius		m	26.1666	22.6655
Distance to:				
- Ignition Source		m	30	40
- Cloud Front/Centre		m	7.43239	14.3412
- Explosion Centre		m	7.43239	14.3412

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Weather Conditions

Path: \Terminal Adonai - Efeitos físicos\Simulações\H144 (H)

		Dia	Noite
Wind Speed	m/s	3	2
Pasquill Stability		C	E
Surface Roughness Length	mm	1000	1000
Surface Roughness Parameter		0.173718	0.173718
Atmospheric Temperature	degC	25	20
Surface Temperature	degC	30	20
Relative Humidity	fraction	0.8	0.8

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

H144 (M)

Base Case

CASE Name: Data

Path: \Terminal Adonai - Efeitos físicos\Simulações\H144 (M)

User-Defined Data

Material

Material Identifier	METHANOL
Type of Vessel	Padded Liquid
Pressure Specification	Pressure specified
Storage Pressure - gauge	0.03 bar
Temperature	25 degC
Volume Inventory	960 m3

Scenario

Scenario Type	Catastrophic rupture
Phase to be Released	Liquid
Building Wake Effect	None

Location

Elevation	0 m
Use ERPG averaging time	ERPG not selected
Use IDLH averaging time	IDLH not selected
Use STEL averaging time	STEL not selected
Supply a user defined averaging time	Not supplied

Bund

Status of Bund	Bund present
Bund Area	1050 m2
[Type of Bund Surface	User-Defined (Land)]
Bund Height	3 m
[Bund Failure Modeling	Bund cannot fail]

Indoor/Outdoor

Location of release	Open air release
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Flammable

Explosion Method	TNT
Jet Fire Method	Cone Model

Dispersion

Late Ignition Location	No ignition location
Mass Inventory of material to Disperse	7.58E5 kg
Use Burst Pressure	No - Use release pressure for fireball

Fireball Parameters

[Mass Modification Factor	3]
[Calculation method for fireball	DNV Recommended]
[TNO model flame temperature	1727 degC]

Toxic Parameters

[Indoor Calculations	Unselected]
[Wind Dependent Exchange Rate	Case Specified]

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

[Building Exchange Rate	4 /hr]
[Tail Time	1800 s]
[Set averaging time equal to exposure time	Use a fixed averaging time]
[Cut-off fraction of toxic load for exposure time calculation	0.05 fraction]
[Cut-off concentration for exposure time calculations	0 fraction]

Geometry

Shape	Point
Dimension	2D
System	Absolute
East(1)	0 m
North(1)	0 m

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Path: \Terminal Adonai - Efeitos físicos\Simulações\H144 (M)

DISCHARGE DATA for Weather: Global Weathers\Dia

Wind Speed: 3.00 m/s
Wind Speed at Height (Calculated) 1.78 m/s
Pasquill Stability: C

USER-DEFINED QUANTITIES

Material METHANOL
Scenario Catastrophic rupture
Inventory 758,032.63 kg
Fixed Duration n/a s

Stagnation data (data at upstream end for long pipe):

- Pressure 1.04 bar
- Temperature 25.00 degC
- Fluid State Non-saturated liquid

CALCULATED QUANTITIES

Mass Flow of Air (Vent from Vapor Space only) n/a
Mass Flowrate n/a kg/s
Release Duration n/a s
Orifice or pipe exit data (before atmospheric expansion):
- Pressure n/a bar
- Temperature n/a degC
- Vena Contracta Velocity (exit velocity for pipe releases) n/a m/s
- Discharge Coefficient n/a
Final data (after atmospheric expansion):
- Temperature 25.00 degC
- Liquid Mass Fraction 1.00 fraction
- Droplet Diameter 735.02 um
- Expanded Radius n/a m
- Velocity 1.54 m/s

DISCHARGE DATA for Weather: Global Weathers\Noite

Wind Speed: 2.00 m/s
Wind Speed at Height (Calculated) 0.83 m/s
Pasquill Stability: E

USER-DEFINED QUANTITIES

Material METHANOL
Scenario Catastrophic rupture
Inventory 758,032.63 kg
Fixed Duration n/a s

Stagnation data (data at upstream end for long pipe):

- Pressure 1.04 bar
- Temperature 25.00 degC
- Fluid State Non-saturated liquid

CALCULATED QUANTITIES

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Mass Flow of Air (Vent from Vapor Space only)	n/a
Mass Flowrate	n/a kg/s
Release Duration	n/a s
Orifice or pipe exit data (before atmospheric expansion):	
- Pressure	n/a bar
- Temperature	n/a degC
- Vena Contracta Velocity (exit velocity for pipe releases)	n/a m/s
- Discharge Coefficient	n/a
Final data (after atmospheric expansion):	
- Temperature	25.00 degC
- Liquid Mass Fraction	1.00 fraction
- Droplet Diameter	735.02 um
- Expanded Radius	n/a m
- Velocity	1.54 m/s



Consequence Results

Pool Vaporization Results

Path: \Terminal Adonai - Efeitos físicos\Simulações\H144 (M)

N.B. Pool vaporization segments begin when the cloud has left the pool

		Dia	Noite
Liquid Rainout	fraction	0.999394	0.999389
Initial Vapor Cloud	kg	459.482	463.001
Time Pool Left Behind	s	29.8732	53.1049

Cloud Segment 1

Cloud Segment Duration	s	600	600
Pool Vaporization Rate	kg/s	2.73941	2.22821

Maximum Pool Radius	m	18.2818	18.2818
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Distance to Concentration Results

Path: \Terminal Adonai - Efeitos físicos\Simulações\H144 (M)

The height for user defined concentrations is the user defined height 0 m

All toxic results are reported at the toxic effect height 1 m

All flammable results are reported at the flammable effect height 0 m

Concentration(ppm)	Averaging Time		Dia	Noite	Distance (m)
UFL (360000)	18.75	s	12.7249	12.5573	
LFL (73000)	18.75	s	18.7236	19.6084	
LFL Frac (73000)	18.75	s	18.7236	19.6084	
Concentration(ppm)	Averaging Time		Dia	Noite	Heights (m) for above distances
UFL (360000)	18.75	s	0	0	
LFL (73000)	18.75	s	0	0	
LFL Frac (73000)	18.75	s	0	0	

Late Pool Fire Hazard

Path: \Terminal Adonai - Efeitos físicos\Simulações\H144 (M)

	Dia	Noite
Late Pool Fire Status	Hazard	Hazard

Radiation Effects: Late Pool Fire Ellipse

Path: \Terminal Adonai - Efeitos físicos\Simulações\H144 (M)

			Dia	Noite	Distance (m)
Radiation Level	9.83	kW/m2	37.3304	35.9382	
Radiation Level	19.46	kW/m2	24.9721	23.8813	
Radiation Level	35	kW/m2	19.2818	19.2818	

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Radiation Effects: Late Pool Fire Distance

Path: \Terminal Adonai - Efeitos físicos\Simulações\H144 (M)

	Dia	Noite
Radiation Level (kW/m2)		

Fireball Hazard

Path: \Terminal Adonai - Efeitos físicos\Simulações\H144 (M)

	Dia	Noite
Fireball Flame Status	No Hazard	No Hazard

Flash Fire Envelope

Path: \Terminal Adonai - Efeitos físicos\Simulações\H144 (M)

All flammable results are reported at the flammable effect height 0 m

			Dia	Noite
Furthest Extent	73000	ppm	18.7236	19.6084
Furthest Extent	73000	ppm	18.7236	19.6084

			Dia	Noite
Furthest Extent	73000	ppm	0	0
Furthest Extent	73000	ppm	0	0

Explosion Effects: Early Explosion

Path: \Terminal Adonai - Efeitos físicos\Simulações\H144 (M)

Early Explosions are assumed to be centered at the release location
Explosion Model Used : TNT

			Dia	Noite
Supplied Flammable Mass		kg	758033	758033

			Distance (m) at Overpressure Levels	
			Dia	Noite
Overpressure	0.05	bar	No Hazard	No Hazard
Overpressure	0.1	bar	No Hazard	No Hazard
Overpressure	0.3	bar	No Hazard	No Hazard

			Used Mass (kg) at Overpressure Levels	
			Dia	Noite
Overpressure	0.05	bar	0	0
Overpressure	0.1	bar	0	0
Overpressure	0.3	bar	0	0

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Explosion Effects: Late Ignition

Path: \Terminal Adonai - Efeitos físicos\Simulações\H144 (M)

Explosion Model Used : TNT

Explosion Location Criterion: Cloud Center

All distances are measured from the Source

All flammable results are reported at the flammable effect height 0 m

			Maximum Distance (m) at Overpressure Level	
			Dia	Noite
Overpressure	0.05	bar	61.5346	59.5686
Overpressure	0.1	bar	38.5232	37.2704
Overpressure	0.3	bar	19.6631	18.9946
			Supplementary Data at 0.05 bar	
			Dia	Noite
Supplied Flammable Mass		kg	105.657	96.1363
Used Flammable Mass		kg	105.657	96.1363
Overpressure Radius		m	60.6816	58.8013
Distance to:				
- Ignition Source		m	10	10
- Cloud Front/Centre		m	0.852957	0.767368
- Explosion Centre		m	0.852957	0.767368
			Supplementary Data at 0.1 bar	
			Dia	Noite
Supplied Flammable Mass		kg	105.657	96.1363
Used Flammable Mass		kg	105.657	96.1363
Overpressure Radius		m	37.6703	36.503
Distance to:				
- Ignition Source		m	10	10
- Cloud Front/Centre		m	0.852957	0.767368
- Explosion Centre		m	0.852957	0.767368
			Supplementary Data at 0.3 bar	
			Dia	Noite
Supplied Flammable Mass		kg	105.657	96.1363
Used Flammable Mass		kg	105.657	96.1363
Overpressure Radius		m	18.8101	18.2272
Distance to:				
- Ignition Source		m	10	10
- Cloud Front/Centre		m	0.852957	0.767368
- Explosion Centre		m	0.852957	0.767368

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Weather Conditions

Path: \Terminal Adonai - Efeitos físicos\Simulações\H144 (M)

		Dia	Noite
Wind Speed	m/s	3	2
Pasquill Stability		C	E
Surface Roughness Length	mm	1000	1000
Surface Roughness Parameter		0.173718	0.173718
Atmospheric Temperature	degC	25	20
Surface Temperature	degC	30	20
Relative Humidity	fraction	0.8	0.8

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

H144 (N)

Base Case

CASE Name: Data

Path: \Terminal Adonai - Efeitos físicos\Simulações\H144 (N)

User-Defined Data

Material

Material Identifier	N-NONANE
Type of Vessel	Padded Liquid
Pressure Specification	Pressure specified
Storage Pressure - gauge	0.03 bar
Temperature	25 degC
Volume Inventory	960 m3

Scenario

Scenario Type	Catastrophic rupture
Phase to be Released	Liquid
Building Wake Effect	None

Location

Elevation	0 m
Use ERPG averaging time	ERPG not selected
Use IDLH averaging time	IDLH not selected
Use STEL averaging time	STEL not selected
Supply a user defined averaging time	Not supplied

Bund

Status of Bund	Bund present
Bund Area	1050 m2
[Type of Bund Surface	User-Defined (Land)]
Bund Height	3 m
[Bund Failure Modeling	Bund cannot fail]

Indoor/Outdoor

Location of release	Open air release
---------------------	------------------

Flammable

Explosion Method	TNT
Jet Fire Method	Cone Model

Dispersion

Late Ignition Location	No ignition location
Mass Inventory of material to Disperse	6.857E5 kg
Use Burst Pressure	No - Use release pressure for fireball

Fireball Parameters

[Mass Modification Factor	3]
[Calculation method for fireball	DNV Recommended]
[TNO model flame temperature	1727 degC]

Toxic Parameters

[Indoor Calculations	Unselected]
[Wind Dependent Exchange Rate	Case Specified]

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

[Building Exchange Rate	4 /hr]
[Tail Time	1800 s]
[Set averaging time equal to exposure time	Use a fixed averaging time]
[Cut-off fraction of toxic load for exposure time calculation	0.05 fraction]
[Cut-off concentration for exposure time calculations	0 fraction]

Geometry

Shape	Point
Dimension	2D
System	Absolute
East(1)	0 m
North(1)	0 m

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Path: \Terminal Adonai - Efeitos físicos\Simulações\H144 (N)

DISCHARGE DATA for Weather: Global Weathers\Dia

Wind Speed: 3.00 m/s
Wind Speed at Height (Calculated) 1.78 m/s
Pasquill Stability: C

USER-DEFINED QUANTITIES

Material N-NONANE
Scenario Catastrophic rupture
Inventory 685,720.94 kg
Fixed Duration n/a s

Stagnation data (data at upstream end for long pipe):

- Pressure 1.04 bar
- Temperature 25.00 degC
- Fluid State Non-saturated liquid

CALCULATED QUANTITIES

Mass Flow of Air (Vent from Vapor Space only) n/a
Mass Flowrate n/a kg/s
Release Duration n/a s
Orifice or pipe exit data (before atmospheric expansion):
- Pressure n/a bar
- Temperature n/a degC
- Vena Contracta Velocity (exit velocity for pipe releases) n/a m/s
- Discharge Coefficient n/a
Final data (after atmospheric expansion):
- Temperature 25.00 degC
- Liquid Mass Fraction 1.00 fraction
- Droplet Diameter 727.67 um
- Expanded Radius n/a m
- Velocity 0.76 m/s

DISCHARGE DATA for Weather: Global Weathers\Noite

Wind Speed: 2.00 m/s
Wind Speed at Height (Calculated) 0.83 m/s
Pasquill Stability: E

USER-DEFINED QUANTITIES

Material N-NONANE
Scenario Catastrophic rupture
Inventory 685,720.94 kg
Fixed Duration n/a s

Stagnation data (data at upstream end for long pipe):

- Pressure 1.04 bar
- Temperature 25.00 degC
- Fluid State Non-saturated liquid

CALCULATED QUANTITIES

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Mass Flow of Air (Vent from Vapor Space only)	n/a
Mass Flowrate	n/a kg/s
Release Duration	n/a s
Orifice or pipe exit data (before atmospheric expansion):	
- Pressure	n/a bar
- Temperature	n/a degC
- Vena Contracta Velocity (exit velocity for pipe releases)	n/a m/s
- Discharge Coefficient	n/a
Final data (after atmospheric expansion):	
- Temperature	25.00 degC
- Liquid Mass Fraction	1.00 fraction
- Droplet Diameter	727.67 um
- Expanded Radius	n/a m
- Velocity	0.76 m/s



Consequence Results

Pool Vaporization Results

Path: \Terminal Adonai - Efeitos físicos\Simulações\H144 (N)

N.B. Pool vaporization segments begin when the cloud has left the pool

		Dia	Noite
Liquid Rainout	fraction	0.999996	0.999996
Initial Vapor Cloud	kg	2.6661	2.58942
Time Pool Left Behind	s	19.5719	41.3055

Cloud Segment 1

		Dia	Noite
Cloud Segment Duration	s	600	600
Pool Vaporization Rate	kg/s	0.203162	0.158798
Maximum Pool Radius	m	18.2818	18.2818

Distance to Concentration Results

Path: \Terminal Adonai - Efeitos físicos\Simulações\H144 (N)

The height for user defined concentrations is the user defined height 0 m

All toxic results are reported at the toxic effect height 1 m

All flammable results are reported at the flammable effect height 0 m

Concentration(ppm)	Averaging Time		Dia	Noite	Distance (m)
UFL (56000)	18.75	s	8.40428	8.39235	
LFL (7000)	18.75	s	8.4948	8.48287	
LFL Frac (7000)	18.75	s	8.4948	8.48287	
Concentration(ppm)	Averaging Time		Dia	Noite	Heights (m) for above distances
UFL (56000)	18.75	s	0	0	
LFL (7000)	18.75	s	0	0	
LFL Frac (7000)	18.75	s	0	0	

Late Pool Fire Hazard

Path: \Terminal Adonai - Efeitos físicos\Simulações\H144 (N)

	Dia	Noite
Late Pool Fire Status	Hazard	Hazard

Radiation Effects: Late Pool Fire Ellipse

Path: \Terminal Adonai - Efeitos físicos\Simulações\H144 (N)

			Dia	Noite	Distance (m)
Radiation Level	9.83	kW/m2	26.2674	24.923	
Radiation Level	19.46	kW/m2	19.2818	19.2818	
Radiation Level	35	kW/m2	Not Reached	Not Reached	

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Radiation Effects: Late Pool Fire Distance

Path: \Terminal Adonai - Efeitos físicos\Simulações\H144 (N)

	Radiation Level (kW/m2)
Dia	Noite

Fireball Hazard

Path: \Terminal Adonai - Efeitos físicos\Simulações\H144 (N)

	Dia	Noite
Fireball Flame Status	No Hazard	No Hazard

Flash Fire Envelope

Path: \Terminal Adonai - Efeitos físicos\Simulações\H144 (N)

All flammable results are reported at the flammable effect height 0 m

			Dia	Distance (m) Noite
Furthest Extent	7000	ppm	8.4948	8.48287
Furthest Extent	7000	ppm	8.4948	8.48287
			Dia	Heights (m) for above distances Noite
Furthest Extent	7000	ppm	0	0
Furthest Extent	7000	ppm	0	0

Explosion Effects: Early Explosion

Path: \Terminal Adonai - Efeitos físicos\Simulações\H144 (N)

Early Explosions are assumed to be centered at the release location
Explosion Model Used : TNT

			Dia	Noite
Supplied Flammable Mass		kg	685721	685721
			Distance (m) at Overpressure Levels	
			Dia	Noite
Overpressure	0.05	bar	No Hazard	No Hazard
Overpressure	0.1	bar	No Hazard	No Hazard
Overpressure	0.3	bar	No Hazard	No Hazard
			Used Mass (kg) at Overpressure Levels	
			Dia	Noite
Overpressure	0.05	bar	0	0
Overpressure	0.1	bar	0	0
Overpressure	0.3	bar	0	0

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Weather Conditions

Path: \Terminal Adonai - Efeitos físicos\Simulações\H144 (N)

		Dia	Noite
Wind Speed	m/s	3	2
Pasquill Stability		C	E
Surface Roughness Length	mm	1000	1000
Surface Roughness Parameter		0.173718	0.173718
Atmospheric Temperature	degC	25	20
Surface Temperature	degC	30	20
Relative Humidity	fraction	0.8	0.8

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

H144 (P)

Base Case

CASE Name: Data

Path: \Terminal Adonai - Efeitos físicos\Simulações\H144 (P)

User-Defined Data

Material

Material Identifier	N-PENTANE
Type of Vessel	Padded Liquid
Pressure Specification	Pressure specified
Storage Pressure - gauge	0.03 bar
Temperature	25 degC
Volume Inventory	960 m3

Scenario

Scenario Type	Catastrophic rupture
Phase to be Released	Liquid
Building Wake Effect	None

Location

Elevation	0 m
Use ERPG averaging time	ERPG not selected
Use IDLH averaging time	IDLH not selected
Use STEL averaging time	STEL not selected
Supply a user defined averaging time	Not supplied

Bund

Status of Bund	Bund present
Bund Area	1050 m2
[Type of Bund Surface	User-Defined (Land)]
Bund Height	3 m
[Bund Failure Modeling	Bund cannot fail]

Indoor/Outdoor

Location of release	Open air release
---------------------	------------------

Flammable

Explosion Method	TNT
Jet Fire Method	Cone Model

Dispersion

Late Ignition Location	No ignition location
Mass Inventory of material to Disperse	5.969E5 kg
Use Burst Pressure	No - Use release pressure for fireball

Fireball Parameters

[Mass Modification Factor	3]
[Calculation method for fireball	DNV Recommended]
[TNO model flame temperature	1727 degC]

Toxic Parameters

[Indoor Calculations	Unselected]
[Wind Dependent Exchange Rate	Case Specified]

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

[Building Exchange Rate	4 /hr]
[Tail Time	1800 s]
[Set averaging time equal to exposure time	Use a fixed averaging time]
[Cut-off fraction of toxic load for exposure time calculation	0.05 fraction]
[Cut-off concentration for exposure time calculations	0 fraction]

Geometry

Shape	Point
Dimension	2D
System	Absolute
East(1)	0 m
North(1)	0 m

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Path: \Terminal Adonai - Efeitos físicos\Simulações\H144 (P)

DISCHARGE DATA for Weather: Global Weathers\Dia

Wind Speed: 3.00 m/s
Wind Speed at Height (Calculated) 1.78 m/s
Pasquill Stability: C

USER-DEFINED QUANTITIES

Material N-PENTANE
Scenario Catastrophic rupture
Inventory 596,873.63 kg
Fixed Duration n/a s

Stagnation data (data at upstream end for long pipe):

- Pressure 1.04 bar
- Temperature 25.00 degC
- Fluid State Non-saturated liquid

CALCULATED QUANTITIES

Mass Flow of Air (Vent from Vapor Space only) n/a
Mass Flowrate n/a kg/s
Release Duration n/a s
Orifice or pipe exit data (before atmospheric expansion):
- Pressure n/a bar
- Temperature n/a degC
- Vena Contracta Velocity (exit velocity for pipe releases) n/a m/s
- Discharge Coefficient n/a
Final data (after atmospheric expansion):
- Temperature 25.00 degC
- Liquid Mass Fraction 1.00 fraction
- Droplet Diameter 717.48 um
- Expanded Radius n/a m
- Velocity 0.86 m/s

DISCHARGE DATA for Weather: Global Weathers\Noite

Wind Speed: 2.00 m/s
Wind Speed at Height (Calculated) 0.83 m/s
Pasquill Stability: E

USER-DEFINED QUANTITIES

Material N-PENTANE
Scenario Catastrophic rupture
Inventory 596,873.63 kg
Fixed Duration n/a s

Stagnation data (data at upstream end for long pipe):

- Pressure 1.04 bar
- Temperature 25.00 degC
- Fluid State Non-saturated liquid

CALCULATED QUANTITIES

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Mass Flow of Air (Vent from Vapor Space only)	n/a
Mass Flowrate	n/a kg/s
Release Duration	n/a s
Orifice or pipe exit data (before atmospheric expansion):	
- Pressure	n/a bar
- Temperature	n/a degC
- Vena Contracta Velocity (exit velocity for pipe releases)	n/a m/s
- Discharge Coefficient	n/a
Final data (after atmospheric expansion):	
- Temperature	25.00 degC
- Liquid Mass Fraction	1.00 fraction
- Droplet Diameter	717.48 um
- Expanded Radius	n/a m
- Velocity	0.86 m/s



Consequence Results

Pool Vaporization Results

Path: \Terminal Adonai - Efeitos físicos\Simulações\H144 (P)

N.B. Pool vaporization segments begin when the cloud has left the pool

		Dia	Noite
Liquid Rainout	fraction	0.999216	0.999256
Initial Vapor Cloud	kg	467.769	444.043
Time Pool Left Behind	s	45.9849	120.548

Cloud Segment 1

		Dia	Noite
Cloud Segment Duration	s	600	600
Pool Vaporization Rate	kg/s	25.1336	20.1408
Maximum Pool Radius	m	18.2818	18.2818

Distance to Concentration Results

Path: \Terminal Adonai - Efeitos físicos\Simulações\H144 (P)

The height for user defined concentrations is the user defined height 0 m

All toxic results are reported at the toxic effect height 1 m

All flammable results are reported at the flammable effect height 0 m

Concentration(ppm)	Averaging Time		Dia	Noite	Distance (m)
UFL (80000)	18.75	s	28.4953	33.9135	
LFL (13000)	18.75	s	73.2452	74.5085	
LFL Frac (13000)	18.75	s	73.2452	74.5085	
Concentration(ppm)	Averaging Time		Dia	Noite	Heights (m) for above distances
UFL (80000)	18.75	s	0	0	
LFL (13000)	18.75	s	0	0	
LFL Frac (13000)	18.75	s	0	0	

Late Pool Fire Hazard

Path: \Terminal Adonai - Efeitos físicos\Simulações\H144 (P)

	Dia	Noite
Late Pool Fire Status	Hazard	Hazard

Radiation Effects: Late Pool Fire Ellipse

Path: \Terminal Adonai - Efeitos físicos\Simulações\H144 (P)

			Dia	Noite	Distance (m)
Radiation Level	9.83	kW/m2	26.2238	24.9052	
Radiation Level	19.46	kW/m2	19.2818	19.2818	
Radiation Level	35	kW/m2	Not Reached	Not Reached	

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Radiation Effects: Late Pool Fire Distance

Path: \Terminal Adonai - Efeitos físicos\Simulações\H144 (P)

	Dia	Noite
Radiation Level (kW/m2)		

Fireball Hazard

Path: \Terminal Adonai - Efeitos físicos\Simulações\H144 (P)

	Dia	Noite
Fireball Flame Status	No Hazard	No Hazard

Flash Fire Envelope

Path: \Terminal Adonai - Efeitos físicos\Simulações\H144 (P)

All flammable results are reported at the flammable effect height 0 m

			Dia	Noite
Furthest Extent	13000	ppm	73.2452	74.5085
Furthest Extent	13000	ppm	73.2452	74.5085

			Dia	Noite
Furthest Extent	13000	ppm	0	0
Furthest Extent	13000	ppm	0	0

Explosion Effects: Early Explosion

Path: \Terminal Adonai - Efeitos físicos\Simulações\H144 (P)

Early Explosions are assumed to be centered at the release location
Explosion Model Used : TNT

			Dia	Noite
Supplied Flammable Mass		kg	596874	596874

			Distance (m) at Overpressure Levels	
			Dia	Noite
Overpressure	0.05	bar	No Hazard	No Hazard
Overpressure	0.1	bar	No Hazard	No Hazard
Overpressure	0.3	bar	No Hazard	No Hazard

			Used Mass (kg) at Overpressure Levels	
			Dia	Noite
Overpressure	0.05	bar	0	0
Overpressure	0.1	bar	0	0
Overpressure	0.3	bar	0	0

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Explosion Effects: Late Ignition

Path: \Terminal Adonai - Efeitos físicos\Simulações\H144 (P)

Explosion Model Used : TNT

Explosion Location Criterion: Cloud Center

All distances are measured from the Source

All flammable results are reported at the flammable effect height 0 m

			Maximum Distance (m) at Overpressure Level	
			Dia	Noite
Overpressure	0.05	bar	153.997	158.19
Overpressure	0.1	bar	105.231	105.247
Overpressure	0.3	bar	70.0782	61.8549

			Supplementary Data at 0.05 bar	
			Dia	Noite
Supplied Flammable Mass		kg	498.698	569.86
Used Flammable Mass		kg	498.698	569.86
Overpressure Radius		m	133.541	139.613
Distance to:				
- Ignition Source		m	60	70
- Cloud Front/Centre		m	20.4561	18.5777
- Explosion Centre		m	20.4561	18.5777

			Supplementary Data at 0.1 bar	
			Dia	Noite
Supplied Flammable Mass		kg	302.982	569.86
Used Flammable Mass		kg	302.982	569.86
Overpressure Radius		m	70.2128	86.6696
Distance to:				
- Ignition Source		m	70	70
- Cloud Front/Centre		m	35.0185	18.5777
- Explosion Centre		m	35.0185	18.5777

			Supplementary Data at 0.3 bar	
			Dia	Noite
Supplied Flammable Mass		kg	302.982	569.86
Used Flammable Mass		kg	302.982	569.86
Overpressure Radius		m	35.0597	43.2772
Distance to:				
- Ignition Source		m	70	70
- Cloud Front/Centre		m	35.0185	18.5777
- Explosion Centre		m	35.0185	18.5777

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Weather Conditions

Path: \Terminal Adonai - Efeitos físicos\Simulações\H144 (P)

		Dia	Noite
Wind Speed	m/s	3	2
Pasquill Stability		C	E
Surface Roughness Length	mm	1000	1000
Surface Roughness Parameter		0.173718	0.173718
Atmospheric Temperature	degC	25	20
Surface Temperature	degC	30	20
Relative Humidity	fraction	0.8	0.8

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

H145 (A)

Base Case

CASE Name: Data

Path: \Terminal Adonai - Efeitos físicos\Simulações\H145 (A)

User-Defined Data

Location

Use IDLH averaging time	IDLH not selected
Use STEL averaging time	STEL not selected
Supply a user defined averaging time	Not supplied

Bund

Status of Bund	Bund present
Bund Area	1050 m2
[Type of Bund Surface	User-Defined (Land)]
Bund Height	3 m
[Bund Failure Modeling	Bund cannot fail]

Indoor/Outdoor

Location of release	Open air release
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Flammable

Explosion Method	TNT
Jet Fire Method	Cone Model

Dispersion

Late Ignition Location	No ignition location
Mass Inventory of material to Disperse	9.439E5 kg
Use Burst Pressure	No - Use release pressure for fireball

Fireball Parameters

[Mass Modification Factor	3]
[Calculation method for fireball	DNV Recommended]
[TNO model flame temperature	1727 degC]

Toxic Parameters

[Indoor Calculations	Unselected]
[Wind Dependent Exchange Rate	Case Specified]
[Building Exchange Rate	4 /hr]
[Tail Time	1800 s]
[Set averaging time equal to exposure time	Use a fixed averaging time]
[Cut-off fraction of toxic load for exposure time calculation	0.05 fraction]
[Cut-off concentration for exposure time calculations	0 fraction]

Geometry

Shape	Point
Dimension	2D
System	Absolute
East(1)	0 m
North(1)	0 m

Material

Material Identifier	ACETONE
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SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Type of Vessel	Padded Liquid
Pressure Specification	Pressure specified
Storage Pressure - gauge	0.03 bar
Temperature	25 degC
Volume Inventory	1200 m3
Scenario	
Scenario Type	Catastrophic rupture
Phase to be Released	Liquid
Building Wake Effect	None
Location	
Elevation	0 m
Use ERPG averaging time	ERPG not selected

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Path: \Terminal Adonai - Efeitos físicos\Simulações\H145 (A)

DISCHARGE DATA for Weather: Global Weathers\Dia

Wind Speed: 3.00 m/s
Wind Speed at Height (Calculated) 1.78 m/s
Pasquill Stability: C

USER-DEFINED QUANTITIES

Material ACETONE
Scenario Catastrophic rupture
Inventory 943,896.69 kg
Fixed Duration n/a s

Stagnation data (data at upstream end for long pipe):

- Pressure 1.04 bar
- Temperature 25.00 degC
- Fluid State Non-saturated liquid

CALCULATED QUANTITIES

Mass Flow of Air (Vent from Vapor Space only) n/a
Mass Flowrate n/a kg/s
Release Duration n/a s

Orifice or pipe exit data (before atmospheric expansion):

- Pressure n/a bar
- Temperature n/a degC
- Vena Contracta Velocity (exit velocity for pipe releases) n/a m/s
- Discharge Coefficient n/a

Final data (after atmospheric expansion):

- Temperature 25.00 degC
- Liquid Mass Fraction 1.00 fraction
- Droplet Diameter 734.74 um
- Expanded Radius n/a m
- Velocity 1.11 m/s

DISCHARGE DATA for Weather: Global Weathers\Noite

Wind Speed: 2.00 m/s
Wind Speed at Height (Calculated) 0.83 m/s
Pasquill Stability: E

USER-DEFINED QUANTITIES

Material ACETONE
Scenario Catastrophic rupture
Inventory 943,896.69 kg
Fixed Duration n/a s

Stagnation data (data at upstream end for long pipe):

- Pressure 1.04 bar
- Temperature 25.00 degC
- Fluid State Non-saturated liquid

CALCULATED QUANTITIES

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Mass Flow of Air (Vent from Vapor Space only)	n/a
Mass Flowrate	n/a kg/s
Release Duration	n/a s
Orifice or pipe exit data (before atmospheric expansion):	
- Pressure	n/a bar
- Temperature	n/a degC
- Vena Contracta Velocity (exit velocity for pipe releases)	n/a m/s
- Discharge Coefficient	n/a
Final data (after atmospheric expansion):	
- Temperature	25.00 degC
- Liquid Mass Fraction	1.00 fraction
- Droplet Diameter	734.74 um
- Expanded Radius	n/a m
- Velocity	1.11 m/s



Consequence Results

Pool Vaporization Results

Path: \Terminal Adonai - Efeitos físicos\Simulações\H145 (A)

N.B. Pool vaporization segments begin when the cloud has left the pool

		Dia	Noite
Liquid Rainout	fraction	0.999251	0.999251
Initial Vapor Cloud	kg	706.581	707.398
Time Pool Left Behind	s	41.808	98.0842

Cloud Segment 1

Cloud Segment Duration	s	600	600
Pool Vaporization Rate	kg/s	7.94792	6.45722

Maximum Pool Radius	m	18.2818	18.2818
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Distance to Concentration Results

Path: \Terminal Adonai - Efeitos físicos\Simulações\H145 (A)

The height for user defined concentrations is the user defined height 0 m

All toxic results are reported at the toxic effect height 1 m

All flammable results are reported at the flammable effect height 0 m

Concentration(ppm)	Averaging Time		Dia	Noite	Distance (m)
UFL (128000)	18.75	s	15.0387	16.1286	
LFL (26000)	18.75	s	46.4318	49.0491	
LFL Frac (26000)	18.75	s	46.4318	49.0491	
Concentration(ppm)	Averaging Time		Dia	Noite	Heights (m) for above distances
UFL (128000)	18.75	s	0	0	
LFL (26000)	18.75	s	0	0	
LFL Frac (26000)	18.75	s	0	0	

Late Pool Fire Hazard

Path: \Terminal Adonai - Efeitos físicos\Simulações\H145 (A)

	Dia	Noite
Late Pool Fire Status	Hazard	Hazard

Radiation Effects: Late Pool Fire Ellipse

Path: \Terminal Adonai - Efeitos físicos\Simulações\H145 (A)

			Dia	Noite	Distance (m)
Radiation Level	9.83	kW/m2	70.9043	68.9186	
Radiation Level	19.46	kW/m2	53.6155	50.5672	
Radiation Level	35	kW/m2	37.7123	34.8775	

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Radiation Effects: Late Pool Fire Distance

Path: \Terminal Adonai - Efeitos físicos\Simulações\H145 (A)

	Dia	Noite
Radiation Level (kW/m2)		

Fireball Hazard

Path: \Terminal Adonai - Efeitos físicos\Simulações\H145 (A)

	Dia	Noite
Fireball Flame Status	No Hazard	No Hazard

Flash Fire Envelope

Path: \Terminal Adonai - Efeitos físicos\Simulações\H145 (A)

All flammable results are reported at the flammable effect height 0 m

			Dia	Noite
Furthest Extent	26000	ppm	46.4318	49.0491
Furthest Extent	26000	ppm	46.4318	49.0491
			Distances (m)	
			Dia	Noite
Furthest Extent	26000	ppm	0	0
Furthest Extent	26000	ppm	0	0

Explosion Effects: Early Explosion

Path: \Terminal Adonai - Efeitos físicos\Simulações\H145 (A)

Early Explosions are assumed to be centered at the release location
Explosion Model Used : TNT

			Dia	Noite
Supplied Flammable Mass		kg	943897	943897
			Distance (m) at Overpressure Levels	
			Dia	Noite
Overpressure	0.05	bar	No Hazard	No Hazard
Overpressure	0.1	bar	No Hazard	No Hazard
Overpressure	0.3	bar	No Hazard	No Hazard
			Used Mass (kg) at Overpressure Levels	
			Dia	Noite
Overpressure	0.05	bar	0	0
Overpressure	0.1	bar	0	0
Overpressure	0.3	bar	0	0

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Explosion Effects: Late Ignition

Path: \Terminal Adonai - Efeitos físicos\Simulações\H145 (A)

Explosion Model Used : TNT

Explosion Location Criterion: Cloud Center

All distances are measured from the Source

All flammable results are reported at the flammable effect height 0 m

			Maximum Distance (m) at Overpressure Level	
			Dia	Noite
Overpressure	0.05	bar	118.85	121.269
Overpressure	0.1	bar	77.5922	77.3661
Overpressure	0.3	bar	43.7773	41.3827
			Supplementary Data at 0.05 bar	
			Dia	Noite
Supplied Flammable Mass		kg	424.621	511.66
Used Flammable Mass		kg	424.621	511.66
Overpressure Radius		m	108.798	115.775
Distance to:				
- Ignition Source		m	40	40
- Cloud Front/Centre		m	10.0521	5.49492
- Explosion Centre		m	10.0521	5.49492
			Supplementary Data at 0.1 bar	
			Dia	Noite
Supplied Flammable Mass		kg	424.621	511.66
Used Flammable Mass		kg	424.621	511.66
Overpressure Radius		m	67.5401	71.8712
Distance to:				
- Ignition Source		m	40	40
- Cloud Front/Centre		m	10.0521	5.49492
- Explosion Centre		m	10.0521	5.49492
			Supplementary Data at 0.3 bar	
			Dia	Noite
Supplied Flammable Mass		kg	424.621	511.66
Used Flammable Mass		kg	424.621	511.66
Overpressure Radius		m	33.7252	35.8878
Distance to:				
- Ignition Source		m	40	40
- Cloud Front/Centre		m	10.0521	5.49492
- Explosion Centre		m	10.0521	5.49492

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Weather Conditions

Path: \Terminal Adonai - Efeitos físicos\Simulações\H145 (A)

		Dia	Noite
Wind Speed	m/s	3	2
Pasquill Stability		C	E
Surface Roughness Length	mm	1000	1000
Surface Roughness Parameter		0.173718	0.173718
Atmospheric Temperature	degC	25	20
Surface Temperature	degC	30	20
Relative Humidity	fraction	0.8	0.8

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

H145 (B)

Base Case

CASE Name: Data

Path: \Terminal Adonai - Efeitos físicos\Simulações\H145 (B)

User-Defined Data

Material

Material Identifier	BENZENE
Type of Vessel	Padded Liquid
Pressure Specification	Pressure specified
Storage Pressure - gauge	0.03 bar
Temperature	25 degC
Volume Inventory	1200 m3

Scenario

Scenario Type	Catastrophic rupture
Phase to be Released	Liquid
Building Wake Effect	None

Location

Elevation	0 m
Use ERPG averaging time	ERPG not selected
Use IDLH averaging time	IDLH not selected
Use STEL averaging time	STEL not selected
Supply a user defined averaging time	Not supplied

Bund

Status of Bund	Bund present
Bund Area	1050 m2
[Type of Bund Surface	User-Defined (Land)]
Bund Height	3 m
[Bund Failure Modeling	Bund cannot fail]

Indoor/Outdoor

Location of release	Open air release
---------------------	------------------

Flammable

Explosion Method	TNT
Jet Fire Method	Cone Model

Dispersion

Late Ignition Location	No ignition location
Mass Inventory of material to Disperse	1.048E6 kg
Use Burst Pressure	No - Use release pressure for fireball

Fireball Parameters

[Mass Modification Factor	3]
[Calculation method for fireball	DNV Recommended]
[TNO model flame temperature	1727 degC]

Toxic Parameters

[Indoor Calculations	Unselected]
[Wind Dependent Exchange Rate	Case Specified]

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

[Building Exchange Rate	4 /hr]
[Tail Time	1800 s]
[Set averaging time equal to exposure time	Use a fixed averaging time]
[Cut-off fraction of toxic load for exposure time calculation	0.05 fraction]
[Cut-off concentration for exposure time calculations	0 fraction]

Geometry

Shape	Point
Dimension	2D
System	Absolute
East(1)	0 m
North(1)	0 m

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Path: \Terminal Adonai - Efeitos físicos\Simulações\H145 (B)

DISCHARGE DATA for Weather: Global Weathers\Dia

Wind Speed: 3.00 m/s
Wind Speed at Height (Calculated) 1.78 m/s
Pasquill Stability: C

USER-DEFINED QUANTITIES

Material BENZENE
Scenario Catastrophic rupture
Inventory 1,047,608.94 kg
Fixed Duration n/a s

Stagnation data (data at upstream end for long pipe):

- Pressure 1.04 bar
- Temperature 25.00 degC
- Fluid State Non-saturated liquid

CALCULATED QUANTITIES

Mass Flow of Air (Vent from Vapor Space only) n/a
Mass Flowrate n/a kg/s
Release Duration n/a s

Orifice or pipe exit data (before atmospheric expansion):

- Pressure n/a bar
- Temperature n/a degC
- Vena Contracta Velocity (exit velocity for pipe releases) n/a m/s
- Discharge Coefficient n/a

Final data (after atmospheric expansion):

- Temperature 25.00 degC
- Liquid Mass Fraction 1.00 fraction
- Droplet Diameter 742.39 um
- Expanded Radius n/a m
- Velocity 0.82 m/s

DISCHARGE DATA for Weather: Global Weathers\Noite

Wind Speed: 2.00 m/s
Wind Speed at Height (Calculated) 0.83 m/s
Pasquill Stability: E

USER-DEFINED QUANTITIES

Material BENZENE
Scenario Catastrophic rupture
Inventory 1,047,608.94 kg
Fixed Duration n/a s

Stagnation data (data at upstream end for long pipe):

- Pressure 1.04 bar
- Temperature 25.00 degC
- Fluid State Non-saturated liquid

CALCULATED QUANTITIES

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Mass Flow of Air (Vent from Vapor Space only)	n/a
Mass Flowrate	n/a kg/s
Release Duration	n/a s
Orifice or pipe exit data (before atmospheric expansion):	
- Pressure	n/a bar
- Temperature	n/a degC
- Vena Contracta Velocity (exit velocity for pipe releases)	n/a m/s
- Discharge Coefficient	n/a
Final data (after atmospheric expansion):	
- Temperature	25.00 degC
- Liquid Mass Fraction	1.00 fraction
- Droplet Diameter	742.39 um
- Expanded Radius	n/a m
- Velocity	0.82 m/s



Consequence Results

Pool Vaporization Results

Path: \Terminal Adonai - Efeitos físicos\Simulações\H145 (B)

N.B. Pool vaporization segments begin when the cloud has left the pool

		Dia	Noite
Liquid Rainout	fraction	0.99995	0.999952
Initial Vapor Cloud	kg	52.2197	50.0589
Time Pool Left Behind	s	27.766	65.0073

Cloud Segment 1

Cloud Segment Duration	s	600	600
Pool Vaporization Rate	kg/s	3.76759	2.94671

Maximum Pool Radius	m	18.2818	18.2818
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Distance to Concentration Results

Path: \Terminal Adonai - Efeitos físicos\Simulações\H145 (B)

The height for user defined concentrations is the user defined height 0 m

All toxic results are reported at the toxic effect height 1 m

All flammable results are reported at the flammable effect height 0 m

Concentration(ppm)	Averaging Time		Dia	Noite	Distance (m)
UFL (79000)	18.75	s	9.06535	9.05359	
LFL (13000)	18.75	s	23.4034	23.6633	
LFL Frac (13000)	18.75	s	23.4034	23.6633	
Concentration(ppm)	Averaging Time		Dia	Noite	Heights (m) for above distances
UFL (79000)	18.75	s	0	0	
LFL (13000)	18.75	s	0	0	
LFL Frac (13000)	18.75	s	0	0	

Late Pool Fire Hazard

Path: \Terminal Adonai - Efeitos físicos\Simulações\H145 (B)

	Dia	Noite
Late Pool Fire Status	Hazard	Hazard

Radiation Effects: Late Pool Fire Ellipse

Path: \Terminal Adonai - Efeitos físicos\Simulações\H145 (B)

			Dia	Noite	Distance (m)
Radiation Level	9.83	kW/m2	26.3088	24.9046	
Radiation Level	19.46	kW/m2	19.2818	19.2818	
Radiation Level	35	kW/m2	Not Reached	Not Reached	

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Radiation Effects: Late Pool Fire Distance

Path: \Terminal Adonai - Efeitos físicos\Simulações\H145 (B)

	Dia	Noite
Radiation Level (kW/m2)		

Fireball Hazard

Path: \Terminal Adonai - Efeitos físicos\Simulações\H145 (B)

	Dia	Noite
Fireball Flame Status	No Hazard	No Hazard

Flash Fire Envelope

Path: \Terminal Adonai - Efeitos físicos\Simulações\H145 (B)

All flammable results are reported at the flammable effect height 0 m

			Dia	Noite
Furthest Extent	13000	ppm	23.4034	23.6633
Furthest Extent	13000	ppm	23.4034	23.6633

			Dia	Noite
Furthest Extent	13000	ppm	0	0
Furthest Extent	13000	ppm	0	0

Explosion Effects: Early Explosion

Path: \Terminal Adonai - Efeitos físicos\Simulações\H145 (B)

Early Explosions are assumed to be centered at the release location
Explosion Model Used : TNT

			Dia	Noite
Supplied Flammable Mass		kg	1.04761e+006	1.04761e+006

			Dia	Noite
Overpressure	0.05	bar	No Hazard	No Hazard
Overpressure	0.1	bar	No Hazard	No Hazard
Overpressure	0.3	bar	No Hazard	No Hazard

			Dia	Noite
Overpressure	0.05	bar	0	0
Overpressure	0.1	bar	0	0
Overpressure	0.3	bar	0	0

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Explosion Effects: Late Ignition

Path: \Terminal Adonai - Efeitos físicos\Simulações\H145 (B)

Explosion Model Used : TNT

Explosion Location Criterion: Cloud Center

All distances are measured from the Source

All flammable results are reported at the flammable effect height 0 m

			Maximum Distance (m) at Overpressure Level	
			Dia	Noite
Overpressure	0.05	bar	55.9433	58.581
Overpressure	0.1	bar	37.1512	37.5854
Overpressure	0.3	bar	21.7491	20.3772

Supplementary Data at 0.05 bar

			Dia	Noite
Supplied Flammable Mass		kg	28.5487	39.8151
Used Flammable Mass		kg	28.5487	39.8151
Overpressure Radius		m	49.5554	55.3663
Distance to:				
- Ignition Source		m	20	20
- Cloud Front/Centre		m	6.38788	3.21475
- Explosion Centre		m	6.38788	3.21475

Supplementary Data at 0.1 bar

			Dia	Noite
Supplied Flammable Mass		kg	28.5487	39.8151
Used Flammable Mass		kg	28.5487	39.8151
Overpressure Radius		m	30.7633	34.3706
Distance to:				
- Ignition Source		m	20	20
- Cloud Front/Centre		m	6.38788	3.21475
- Explosion Centre		m	6.38788	3.21475

Supplementary Data at 0.3 bar

			Dia	Noite
Supplied Flammable Mass		kg	28.5487	39.8151
Used Flammable Mass		kg	28.5487	39.8151
Overpressure Radius		m	15.3612	17.1624
Distance to:				
- Ignition Source		m	20	20
- Cloud Front/Centre		m	6.38788	3.21475
- Explosion Centre		m	6.38788	3.21475

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Weather Conditions

Path: \Terminal Adonai - Efeitos físicos\Simulações\H145 (B)

		Dia	Noite
Wind Speed	m/s	3	2
Pasquill Stability		C	E
Surface Roughness Length	mm	1000	1000
Surface Roughness Parameter		0.173718	0.173718
Atmospheric Temperature	degC	25	20
Surface Temperature	degC	30	20
Relative Humidity	fraction	0.8	0.8

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

H145 (E)

Base Case

CASE Name: Data

Path: \Terminal Adonai - Efeitos físicos\Simulações\H145 (E)

User-Defined Data

Material

Material Identifier	ETHANOL
Type of Vessel	Padded Liquid
Pressure Specification	Pressure specified
Storage Pressure - gauge	0.03 bar
Temperature	25 degC
Volume Inventory	1200 m3

Scenario

Scenario Type	Catastrophic rupture
Phase to be Released	Liquid
Building Wake Effect	None

Location

Elevation	0 m
Use ERPG averaging time	ERPG not selected
Use IDLH averaging time	IDLH not selected
Use STEL averaging time	STEL not selected
Supply a user defined averaging time	Not supplied

Bund

Status of Bund	Bund present
Bund Area	1050 m2
[Type of Bund Surface	User-Defined (Land)]
Bund Height	3 m
[Bund Failure Modeling	Bund cannot fail]

Indoor/Outdoor

Location of release	Open air release
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Flammable

Explosion Method	TNT
Jet Fire Method	Cone Model

Dispersion

Late Ignition Location	No ignition location
Mass Inventory of material to Disperse	9.431E5 kg
Use Burst Pressure	No - Use release pressure for fireball

Fireball Parameters

[Mass Modification Factor	3]
[Calculation method for fireball	DNV Recommended]
[TNO model flame temperature	1727 degC]

Toxic Parameters

[Indoor Calculations	Unselected]
[Wind Dependent Exchange Rate	Case Specified]

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

[Building Exchange Rate	4 /hr]
[Tail Time	1800 s]
[Set averaging time equal to exposure time	Use a fixed averaging time]
[Cut-off fraction of toxic load for exposure time calculation	0.05 fraction]
[Cut-off concentration for exposure time calculations	0 fraction]

Geometry

Shape	Point
Dimension	2D
System	Absolute
East(1)	0 m
North(1)	0 m

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Path: \Terminal Adonai - Efeitos físicos\Simulações\H145 (E)

DISCHARGE DATA for Weather: Global Weathers\Dia

Wind Speed: 3.00 m/s
Wind Speed at Height (Calculated) 1.78 m/s
Pasquill Stability: C

USER-DEFINED QUANTITIES

Material ETHANOL
Scenario Catastrophic rupture
Inventory 943,074.00 kg
Fixed Duration n/a s

Stagnation data (data at upstream end for long pipe):

- Pressure 1.04 bar
- Temperature 25.00 degC
- Fluid State Non-saturated liquid

CALCULATED QUANTITIES

Mass Flow of Air (Vent from Vapor Space only) n/a
Mass Flowrate n/a kg/s
Release Duration n/a s
Orifice or pipe exit data (before atmospheric expansion):
- Pressure n/a bar
- Temperature n/a degC
- Vena Contracta Velocity (exit velocity for pipe releases) n/a m/s
- Discharge Coefficient n/a
Final data (after atmospheric expansion):
- Temperature 25.00 degC
- Liquid Mass Fraction 1.00 fraction
- Droplet Diameter 734.68 um
- Expanded Radius n/a m
- Velocity 1.23 m/s

DISCHARGE DATA for Weather: Global Weathers\Noite

Wind Speed: 2.00 m/s
Wind Speed at Height (Calculated) 0.83 m/s
Pasquill Stability: E

USER-DEFINED QUANTITIES

Material ETHANOL
Scenario Catastrophic rupture
Inventory 943,074.00 kg
Fixed Duration n/a s

Stagnation data (data at upstream end for long pipe):

- Pressure 1.04 bar
- Temperature 25.00 degC
- Fluid State Non-saturated liquid

CALCULATED QUANTITIES

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Mass Flow of Air (Vent from Vapor Space only)	n/a
Mass Flowrate	n/a kg/s
Release Duration	n/a s
Orifice or pipe exit data (before atmospheric expansion):	
- Pressure	n/a bar
- Temperature	n/a degC
- Vena Contracta Velocity (exit velocity for pipe releases)	n/a m/s
- Discharge Coefficient	n/a
Final data (after atmospheric expansion):	
- Temperature	25.00 degC
- Liquid Mass Fraction	1.00 fraction
- Droplet Diameter	734.68 um
- Expanded Radius	n/a m
- Velocity	1.23 m/s



Consequence Results

Pool Vaporization Results

Path: \Terminal Adonai - Efeitos físicos\Simulações\H145 (E)

N.B. Pool vaporization segments begin when the cloud has left the pool

		Dia	Noite
Liquid Rainout	fraction	0.999821	0.99982
Initial Vapor Cloud	kg	168.567	169.346
Time Pool Left Behind	s	28.6563	55.9595

Cloud Segment 1

Cloud Segment Duration	s	600	600
Pool Vaporization Rate	kg/s	1.56356	1.26611

Maximum Pool Radius	m	18.2818	18.2818
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Distance to Concentration Results

Path: \Terminal Adonai - Efeitos físicos\Simulações\H145 (E)

The height for user defined concentrations is the user defined height 0 m

All toxic results are reported at the toxic effect height 1 m

All flammable results are reported at the flammable effect height 0 m

Concentration(ppm)	Averaging Time		Dia	Noite	Distance (m)
UFL (190000)	18.75	s	11.2389	11.1292	
LFL (43000)	18.75	s	11.3682	11.2589	
LFL Frac (43000)	18.75	s	11.3682	11.2589	
Concentration(ppm)	Averaging Time		Dia	Noite	Heights (m) for above distances
UFL (190000)	18.75	s	0	0	
LFL (43000)	18.75	s	0	0	
LFL Frac (43000)	18.75	s	0	0	

Late Pool Fire Hazard

Path: \Terminal Adonai - Efeitos físicos\Simulações\H145 (E)

	Dia	Noite
Late Pool Fire Status	Hazard	Hazard

Radiation Effects: Late Pool Fire Ellipse

Path: \Terminal Adonai - Efeitos físicos\Simulações\H145 (E)

			Dia	Noite	Distance (m)
Radiation Level	9.83	kW/m2	51.5779	50.1777	
Radiation Level	19.46	kW/m2	39.1757	36.9808	
Radiation Level	35	kW/m2	24.8167	23.632	

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Radiation Effects: Late Pool Fire Distance

Path: \Terminal Adonai - Efeitos físicos\Simulações\H145 (E)

	Dia	Noite
Radiation Level (kW/m2)		

Fireball Hazard

Path: \Terminal Adonai - Efeitos físicos\Simulações\H145 (E)

	Dia	Noite
Fireball Flame Status	No Hazard	No Hazard

Flash Fire Envelope

Path: \Terminal Adonai - Efeitos físicos\Simulações\H145 (E)

All flammable results are reported at the flammable effect height 0 m

			Dia	Noite
Furthest Extent	43000	ppm	11.3682	11.2589
Furthest Extent	43000	ppm	11.3682	11.2589

			Dia	Noite
Furthest Extent	43000	ppm	0	0
Furthest Extent	43000	ppm	0	0

Explosion Effects: Early Explosion

Path: \Terminal Adonai - Efeitos físicos\Simulações\H145 (E)

Early Explosions are assumed to be centered at the release location
Explosion Model Used : TNT

			Dia	Noite
Supplied Flammable Mass		kg	943074	943074

			Distance (m) at Overpressure Levels	
			Dia	Noite
Overpressure	0.05	bar	No Hazard	No Hazard
Overpressure	0.1	bar	No Hazard	No Hazard
Overpressure	0.3	bar	No Hazard	No Hazard

			Used Mass (kg) at Overpressure Levels	
			Dia	Noite
Overpressure	0.05	bar	0	0
Overpressure	0.1	bar	0	0
Overpressure	0.3	bar	0	0

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Explosion Effects: Late Ignition

Path: \Terminal Adonai - Efeitos físicos\Simulações\H145 (E)

Explosion Model Used : TNT

Explosion Location Criterion: Cloud Center

All distances are measured from the Source

All flammable results are reported at the flammable effect height 0 m

			Maximum Distance (m) at Overpressure Level	
			Dia	Noite
Overpressure	0.05	bar	41.9602	40.3693
Overpressure	0.1	bar	26.3552	25.339
Overpressure	0.3	bar	13.5652	13.0201
			Supplementary Data at 0.05 bar	
			Dia	Noite
Supplied Flammable Mass		kg	24.4819	21.8752
Used Flammable Mass		kg	24.4819	21.8752
Overpressure Radius		m	41.151	39.6354
Distance to:				
- Ignition Source		m	10	10
- Cloud Front/Centre		m	0.809235	0.733891
- Explosion Centre		m	0.809235	0.733891
			Supplementary Data at 0.1 bar	
			Dia	Noite
Supplied Flammable Mass		kg	24.4819	21.8752
Used Flammable Mass		kg	24.4819	21.8752
Overpressure Radius		m	25.546	24.6051
Distance to:				
- Ignition Source		m	10	10
- Cloud Front/Centre		m	0.809235	0.733891
- Explosion Centre		m	0.809235	0.733891
			Supplementary Data at 0.3 bar	
			Dia	Noite
Supplied Flammable Mass		kg	24.4819	21.8752
Used Flammable Mass		kg	24.4819	21.8752
Overpressure Radius		m	12.756	12.2862
Distance to:				
- Ignition Source		m	10	10
- Cloud Front/Centre		m	0.809235	0.733891
- Explosion Centre		m	0.809235	0.733891

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Weather Conditions

Path: \Terminal Adonai - Efeitos físicos\Simulações\H145 (E)

		Dia	Noite
Wind Speed	m/s	3	2
Pasquill Stability		C	E
Surface Roughness Length	mm	1000	1000
Surface Roughness Parameter		0.173718	0.173718
Atmospheric Temperature	degC	25	20
Surface Temperature	degC	30	20
Relative Humidity	fraction	0.8	0.8

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

H145 (H)

Base Case

CASE Name: Data

Path: \Terminal Adonai - Efeitos físicos\Simulações\H145 (H)

User-Defined Data

Material

Material Identifier	N-HEXANE
Type of Vessel	Padded Liquid
Pressure Specification	Pressure specified
Storage Pressure - gauge	0.03 bar
Temperature	25 degC
Volume Inventory	1200 m3

Scenario

Scenario Type	Catastrophic rupture
Phase to be Released	Liquid
Building Wake Effect	None

Location

Elevation	0 m
Use ERPG averaging time	ERPG not selected
Use IDLH averaging time	IDLH not selected
Use STEL averaging time	STEL not selected
Supply a user defined averaging time	Not supplied

Bund

Status of Bund	Bund present
Bund Area	1050 m2
[Type of Bund Surface	User-Defined (Land)]
Bund Height	3 m
[Bund Failure Modeling	Bund cannot fail]

Indoor/Outdoor

Location of release	Open air release
---------------------	------------------

Flammable

Explosion Method	TNT
Jet Fire Method	Cone Model

Dispersion

Late Ignition Location	No ignition location
Mass Inventory of material to Disperse	7.872E5 kg
Use Burst Pressure	No - Use release pressure for fireball

Fireball Parameters

[Mass Modification Factor	3]
[Calculation method for fireball	DNV Recommended]
[TNO model flame temperature	1727 degC]

Toxic Parameters

[Indoor Calculations	Unselected]
[Wind Dependent Exchange Rate	Case Specified]

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

[Building Exchange Rate	4 /hr]
[Tail Time	1800 s]
[Set averaging time equal to exposure time	Use a fixed averaging time]
[Cut-off fraction of toxic load for exposure time calculation	0.05 fraction]
[Cut-off concentration for exposure time calculations	0 fraction]

Geometry

Shape	Point
Dimension	2D
System	Absolute
East(1)	0 m
North(1)	0 m

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Path: \Terminal Adonai - Efeitos físicos\Simulações\H145 (H)

DISCHARGE DATA for Weather: Global Weathers\Dia

Wind Speed:	3.00 m/s
Wind Speed at Height (Calculated)	1.78 m/s
Pasquill Stability:	C

USER-DEFINED QUANTITIES

Material	N-HEXANE
Scenario	Catastrophic rupture
Inventory	787,231.44 kg
Fixed Duration	n/a s

Stagnation data (data at upstream end for long pipe):

- Pressure	1.04 bar
- Temperature	25.00 degC
- Fluid State	Non-saturated liquid

CALCULATED QUANTITIES

Mass Flow of Air (Vent from Vapor Space only)	n/a
Mass Flowrate	n/a kg/s
Release Duration	n/a s
Orifice or pipe exit data (before atmospheric expansion):	
- Pressure	n/a bar
- Temperature	n/a degC
- Vena Contracta Velocity (exit velocity for pipe releases)	n/a m/s
- Discharge Coefficient	n/a
Final data (after atmospheric expansion):	
- Temperature	25.00 degC
- Liquid Mass Fraction	1.00 fraction
- Droplet Diameter	721.42 um
- Expanded Radius	n/a m
- Velocity	1.04 m/s

DISCHARGE DATA for Weather: Global Weathers\Noite

Wind Speed:	2.00 m/s
Wind Speed at Height (Calculated)	0.83 m/s
Pasquill Stability:	E

USER-DEFINED QUANTITIES

Material	N-HEXANE
Scenario	Catastrophic rupture
Inventory	787,231.44 kg
Fixed Duration	n/a s

Stagnation data (data at upstream end for long pipe):

- Pressure	1.04 bar
- Temperature	25.00 degC
- Fluid State	Non-saturated liquid

CALCULATED QUANTITIES

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Mass Flow of Air (Vent from Vapor Space only)	n/a
Mass Flowrate	n/a kg/s
Release Duration	n/a s
Orifice or pipe exit data (before atmospheric expansion):	
- Pressure	n/a bar
- Temperature	n/a degC
- Vena Contracta Velocity (exit velocity for pipe releases)	n/a m/s
- Discharge Coefficient	n/a
Final data (after atmospheric expansion):	
- Temperature	25.00 degC
- Liquid Mass Fraction	1.00 fraction
- Droplet Diameter	721.42 um
- Expanded Radius	n/a m
- Velocity	1.04 m/s



Consequence Results

Pool Vaporization Results

Path: \Terminal Adonai - Efeitos físicos\Simulações\H145 (H)

N.B. Pool vaporization segments begin when the cloud has left the pool

		Dia	Noite
Liquid Rainout	fraction	0.999751	0.999754
Initial Vapor Cloud	kg	195.773	193.898
Time Pool Left Behind	s	35.3285	84.0446

Cloud Segment 1

		Dia	Noite
Cloud Segment Duration	s	600	600
Pool Vaporization Rate	kg/s	6.10393	4.90601

		Dia	Noite
Maximum Pool Radius	m	18.2818	18.2818

Distance to Concentration Results

Path: \Terminal Adonai - Efeitos físicos\Simulações\H145 (H)

The height for user defined concentrations is the user defined height 0 m

All toxic results are reported at the toxic effect height 1 m

All flammable results are reported at the flammable effect height 0 m

Concentration(ppm)	Averaging Time		Dia	Noite	Distance (m)
UFL (76800)	18.75	s	11.8696	13.7093	
LFL (10500)	18.75	s	40.9489	42.3507	
LFL Frac (10500)	18.75	s	40.9489	42.3507	

Concentration(ppm)	Averaging Time		Dia	Noite	Heights (m) for above distances
UFL (76800)	18.75	s	0	0	
LFL (10500)	18.75	s	0	0	
LFL Frac (10500)	18.75	s	0	0	

Late Pool Fire Hazard

Path: \Terminal Adonai - Efeitos físicos\Simulações\H145 (H)

	Dia	Noite
Late Pool Fire Status	Hazard	Hazard

Radiation Effects: Late Pool Fire Ellipse

Path: \Terminal Adonai - Efeitos físicos\Simulações\H145 (H)

			Dia	Noite	Distance (m)
Radiation Level	9.83	kW/m2	26.2347	24.9207	
Radiation Level	19.46	kW/m2	19.2818	19.2818	
Radiation Level	35	kW/m2	Not Reached	Not Reached	

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Radiation Effects: Late Pool Fire Distance

Path: \Terminal Adonai - Efeitos físicos\Simulações\H145 (H)

	Dia	Noite
Radiation Level (kW/m2)		

Fireball Hazard

Path: \Terminal Adonai - Efeitos físicos\Simulações\H145 (H)

	Dia	Noite
Fireball Flame Status	No Hazard	No Hazard

Flash Fire Envelope

Path: \Terminal Adonai - Efeitos físicos\Simulações\H145 (H)

All flammable results are reported at the flammable effect height 0 m

			Dia	Noite
Furthest Extent	10500	ppm	40.9489	42.3507
Furthest Extent	10500	ppm	40.9489	42.3507
				Heights (m) for above distances
			Dia	Noite
Furthest Extent	10500	ppm	0	0
Furthest Extent	10500	ppm	0	0

Explosion Effects: Early Explosion

Path: \Terminal Adonai - Efeitos físicos\Simulações\H145 (H)

Early Explosions are assumed to be centered at the release location
Explosion Model Used : TNT

			Dia	Noite
Supplied Flammable Mass		kg	787231	787231
				Distance (m) at Overpressure Levels
			Dia	Noite
Overpressure	0.05	bar	No Hazard	No Hazard
Overpressure	0.1	bar	No Hazard	No Hazard
Overpressure	0.3	bar	No Hazard	No Hazard
				Used Mass (kg) at Overpressure Levels
			Dia	Noite
Overpressure	0.05	bar	0	0
Overpressure	0.1	bar	0	0
Overpressure	0.3	bar	0	0

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Explosion Effects: Late Ignition

Path: \Terminal Adonai - Efeitos físicos\Simulações\H145 (H)

Explosion Model Used : TNT

Explosion Location Criterion: Cloud Center

All distances are measured from the Source

All flammable results are reported at the flammable effect height 0 m

			Maximum Distance (m) at Overpressure Level	
			Dia	Noite
Overpressure	0.05	bar	97.9511	98.8293
Overpressure	0.1	bar	63.1185	65.0065
Overpressure	0.3	bar	41.0046	37.2852

			Supplementary Data at 0.05 bar	
			Dia	Noite
Supplied Flammable Mass		kg	163.165	149.38
Used Flammable Mass		kg	163.165	149.38
Overpressure Radius		m	91.8549	89.1918
Distance to:				
- Ignition Source		m	30	40
- Cloud Front/Centre		m	6.09622	9.63755
- Explosion Centre		m	6.09622	9.63755

			Supplementary Data at 0.1 bar	
			Dia	Noite
Supplied Flammable Mass		kg	163.165	149.38
Used Flammable Mass		kg	163.165	149.38
Overpressure Radius		m	57.0222	55.369
Distance to:				
- Ignition Source		m	30	40
- Cloud Front/Centre		m	6.09622	9.63755
- Explosion Centre		m	6.09622	9.63755

			Supplementary Data at 0.3 bar	
			Dia	Noite
Supplied Flammable Mass		kg	73.5771	149.38
Used Flammable Mass		kg	73.5771	149.38
Overpressure Radius		m	21.8344	27.6477
Distance to:				
- Ignition Source		m	40	40
- Cloud Front/Centre		m	19.1702	9.63755
- Explosion Centre		m	19.1702	9.63755

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Weather Conditions

Path: \Terminal Adonai - Efeitos físicos\Simulações\H145 (H)

		Dia	Noite
Wind Speed	m/s	3	2
Pasquill Stability		C	E
Surface Roughness Length	mm	1000	1000
Surface Roughness Parameter		0.173718	0.173718
Atmospheric Temperature	degC	25	20
Surface Temperature	degC	30	20
Relative Humidity	fraction	0.8	0.8

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

H145 (M)

Base Case

CASE Name: Data

Path: \Terminal Adonai - Efeitos físicos\Simulações\H145 (M)

User-Defined Data

Material

Material Identifier	METHANOL
Type of Vessel	Padded Liquid
Pressure Specification	Pressure specified
Storage Pressure - gauge	0.03 bar
Temperature	25 degC
Volume Inventory	1200 m3

Scenario

Scenario Type	Catastrophic rupture
Phase to be Released	Liquid
Building Wake Effect	None

Location

Elevation	0 m
Use ERPG averaging time	ERPG not selected
Use IDLH averaging time	IDLH not selected
Use STEL averaging time	STEL not selected
Supply a user defined averaging time	Not supplied

Bund

Status of Bund	Bund present
Bund Area	1050 m2
[Type of Bund Surface	User-Defined (Land)]
Bund Height	3 m
[Bund Failure Modeling	Bund cannot fail]

Indoor/Outdoor

Location of release	Open air release
---------------------	------------------

Flammable

Explosion Method	TNT
Jet Fire Method	Cone Model

Dispersion

Late Ignition Location	No ignition location
Mass Inventory of material to Disperse	9.475E5 kg
Use Burst Pressure	No - Use release pressure for fireball

Fireball Parameters

[Mass Modification Factor	3]
[Calculation method for fireball	DNV Recommended]
[TNO model flame temperature	1727 degC]

Toxic Parameters

[Indoor Calculations	Unselected]
[Wind Dependent Exchange Rate	Case Specified]

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

[Building Exchange Rate	4 /hr]
[Tail Time	1800 s]
[Set averaging time equal to exposure time	Use a fixed averaging time]
[Cut-off fraction of toxic load for exposure time calculation	0.05 fraction]
[Cut-off concentration for exposure time calculations	0 fraction]

Geometry

Shape	Point
Dimension	2D
System	Absolute
East(1)	0 m
North(1)	0 m

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Path: \Terminal Adonai - Efeitos físicos\Simulações\H145 (M)

DISCHARGE DATA for Weather: Global Weathers\Dia

Wind Speed: 3.00 m/s
Wind Speed at Height (Calculated) 1.78 m/s
Pasquill Stability: C

USER-DEFINED QUANTITIES

Material METHANOL
Scenario Catastrophic rupture
Inventory 947,540.81 kg
Fixed Duration n/a s

Stagnation data (data at upstream end for long pipe):

- Pressure 1.04 bar
- Temperature 25.00 degC
- Fluid State Non-saturated liquid

CALCULATED QUANTITIES

Mass Flow of Air (Vent from Vapor Space only) n/a
Mass Flowrate n/a kg/s
Release Duration n/a s
Orifice or pipe exit data (before atmospheric expansion):
- Pressure n/a bar
- Temperature n/a degC
- Vena Contracta Velocity (exit velocity for pipe releases) n/a m/s
- Discharge Coefficient n/a
Final data (after atmospheric expansion):
- Temperature 25.00 degC
- Liquid Mass Fraction 1.00 fraction
- Droplet Diameter 735.02 um
- Expanded Radius n/a m
- Velocity 1.54 m/s

DISCHARGE DATA for Weather: Global Weathers\Noite

Wind Speed: 2.00 m/s
Wind Speed at Height (Calculated) 0.83 m/s
Pasquill Stability: E

USER-DEFINED QUANTITIES

Material METHANOL
Scenario Catastrophic rupture
Inventory 947,540.81 kg
Fixed Duration n/a s

Stagnation data (data at upstream end for long pipe):

- Pressure 1.04 bar
- Temperature 25.00 degC
- Fluid State Non-saturated liquid

CALCULATED QUANTITIES

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Mass Flow of Air (Vent from Vapor Space only)	n/a
Mass Flowrate	n/a kg/s
Release Duration	n/a s
Orifice or pipe exit data (before atmospheric expansion):	
- Pressure	n/a bar
- Temperature	n/a degC
- Vena Contracta Velocity (exit velocity for pipe releases)	n/a m/s
- Discharge Coefficient	n/a
Final data (after atmospheric expansion):	
- Temperature	25.00 degC
- Liquid Mass Fraction	1.00 fraction
- Droplet Diameter	735.02 um
- Expanded Radius	n/a m
- Velocity	1.54 m/s



Consequence Results

Pool Vaporization Results

Path: \Terminal Adonai - Efeitos físicos\Simulações\H145 (M)

N.B. Pool vaporization segments begin when the cloud has left the pool

		Dia	Noite
Liquid Rainout	fraction	0.999393	0.999389
Initial Vapor Cloud	kg	574.876	579.418
Time Pool Left Behind	s	31.1264	54.8495

Cloud Segment 1

		Dia	Noite
Cloud Segment Duration	s	600	600
Pool Vaporization Rate	kg/s	2.74976	2.24061

		Dia	Noite
Maximum Pool Radius	m	18.2818	18.2818

Distance to Concentration Results

Path: \Terminal Adonai - Efeitos físicos\Simulações\H145 (M)

The height for user defined concentrations is the user defined height 0 m

All toxic results are reported at the toxic effect height 1 m

All flammable results are reported at the flammable effect height 0 m

Concentration(ppm)	Averaging Time		Dia	Noite	Distance (m)
UFL (360000)	18.75	s	13.8123	13.6323	
LFL (73000)	18.75	s	20.2921	21.4052	
LFL Frac (73000)	18.75	s	20.2921	21.4052	
Concentration(ppm)	Averaging Time		Dia	Noite	Heights (m) for above distances
UFL (360000)	18.75	s	0	0	
LFL (73000)	18.75	s	0	0	
LFL Frac (73000)	18.75	s	0	0	

Late Pool Fire Hazard

Path: \Terminal Adonai - Efeitos físicos\Simulações\H145 (M)

	Dia	Noite
Late Pool Fire Status	Hazard	Hazard

Radiation Effects: Late Pool Fire Ellipse

Path: \Terminal Adonai - Efeitos físicos\Simulações\H145 (M)

			Dia	Noite	Distance (m)
Radiation Level	9.83	kW/m2	37.3304	35.9382	
Radiation Level	19.46	kW/m2	24.9721	23.8813	
Radiation Level	35	kW/m2	19.2818	19.2818	

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Radiation Effects: Late Pool Fire Distance

Path: \Terminal Adonai - Efeitos físicos\Simulações\H145 (M)

	Radiation Level (kW/m2)
Dia	Noite

Fireball Hazard

Path: \Terminal Adonai - Efeitos físicos\Simulações\H145 (M)

	Dia	Noite
Fireball Flame Status	No Hazard	No Hazard

Flash Fire Envelope

Path: \Terminal Adonai - Efeitos físicos\Simulações\H145 (M)

All flammable results are reported at the flammable effect height 0 m

			Dia	Distance (m)
				Noite
Furthest Extent	73000	ppm	20.2921	21.4052
Furthest Extent	73000	ppm	20.2921	21.4052
			Dia	Heights (m) for above distances
				Noite
Furthest Extent	73000	ppm	0	0
Furthest Extent	73000	ppm	0	0

Explosion Effects: Early Explosion

Path: \Terminal Adonai - Efeitos físicos\Simulações\H145 (M)

Early Explosions are assumed to be centered at the release location
Explosion Model Used : TNT

			Dia	Noite
Supplied Flammable Mass		kg	947541	947541
			Distance (m) at Overpressure Levels	
			Dia	Noite
Overpressure	0.05	bar	No Hazard	No Hazard
Overpressure	0.1	bar	No Hazard	No Hazard
Overpressure	0.3	bar	No Hazard	No Hazard
			Used Mass (kg) at Overpressure Levels	
			Dia	Noite
Overpressure	0.05	bar	0	0
Overpressure	0.1	bar	0	0
Overpressure	0.3	bar	0	0

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Explosion Effects: Late Ignition

Path: \Terminal Adonai - Efeitos físicos\Simulações\H145 (M)

Explosion Model Used : TNT

Explosion Location Criterion: Cloud Center

All distances are measured from the Source

All flammable results are reported at the flammable effect height 0 m

			Maximum Distance (m) at Overpressure Level	
			Dia	Noite
Overpressure	0.05	bar	58.8787	64.211
Overpressure	0.1	bar	37.5776	43.4679
Overpressure	0.3	bar	24.3211	26.4668
			Supplementary Data at 0.05 bar	
			Dia	Noite
Supplied Flammable Mass		kg	93.2495	77.3918
Used Flammable Mass		kg	93.2495	77.3918
Overpressure Radius		m	58.2067	54.7002
Distance to:				
- Ignition Source		m	10	20
- Cloud Front/Centre		m	0.671953	9.51077
- Explosion Centre		m	0.671953	9.51077
			Supplementary Data at 0.1 bar	
			Dia	Noite
Supplied Flammable Mass		kg	36.6902	77.3918
Used Flammable Mass		kg	36.6902	77.3918
Overpressure Radius		m	26.4778	33.9571
Distance to:				
- Ignition Source		m	20	20
- Cloud Front/Centre		m	11.0998	9.51077
- Explosion Centre		m	11.0998	9.51077
			Supplementary Data at 0.3 bar	
			Dia	Noite
Supplied Flammable Mass		kg	36.6902	77.3918
Used Flammable Mass		kg	36.6902	77.3918
Overpressure Radius		m	13.2213	16.956
Distance to:				
- Ignition Source		m	20	20
- Cloud Front/Centre		m	11.0998	9.51077
- Explosion Centre		m	11.0998	9.51077

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Weather Conditions

Path: \Terminal Adonai - Efeitos físicos\Simulações\H145 (M)

		Dia	Noite
Wind Speed	m/s	3	2
Pasquill Stability		C	E
Surface Roughness Length	mm	1000	1000
Surface Roughness Parameter		0.173718	0.173718
Atmospheric Temperature	degC	25	20
Surface Temperature	degC	30	20
Relative Humidity	fraction	0.8	0.8

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

H145 (N)

Base Case

CASE Name: Data

Path: \Terminal Adonai - Efeitos físicos\Simulações\H145 (N)

User-Defined Data

Material

Material Identifier	N-NONANE
Type of Vessel	Padded Liquid
Pressure Specification	Pressure specified
Storage Pressure - gauge	0.03 bar
Temperature	25 degC
Volume Inventory	1200 m3

Scenario

Scenario Type	Catastrophic rupture
Phase to be Released	Liquid
Building Wake Effect	None

Location

Elevation	0 m
Use ERPG averaging time	ERPG not selected
Use IDLH averaging time	IDLH not selected
Use STEL averaging time	STEL not selected
Supply a user defined averaging time	Not supplied

Bund

Status of Bund	Bund present
Bund Area	1050 m2
[Type of Bund Surface	User-Defined (Land)]
Bund Height	3 m
[Bund Failure Modeling	Bund cannot fail]

Indoor/Outdoor

Location of release	Open air release
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Flammable

Explosion Method	TNT
Jet Fire Method	Cone Model

Dispersion

Late Ignition Location	No ignition location
Mass Inventory of material to Disperse	8.572E5 kg
Use Burst Pressure	No - Use release pressure for fireball

Fireball Parameters

[Mass Modification Factor	3]
[Calculation method for fireball	DNV Recommended]
[TNO model flame temperature	1727 degC]

Toxic Parameters

[Indoor Calculations	Unselected]
[Wind Dependent Exchange Rate	Case Specified]

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

[Building Exchange Rate	4 /hr]
[Tail Time	1800 s]
[Set averaging time equal to exposure time	Use a fixed averaging time]
[Cut-off fraction of toxic load for exposure time calculation	0.05 fraction]
[Cut-off concentration for exposure time calculations	0 fraction]

Geometry

Shape	Point
Dimension	2D
System	Absolute
East(1)	0 m
North(1)	0 m

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Path: \Terminal Adonai - Efeitos físicos\Simulações\H145 (N)

DISCHARGE DATA for Weather: Global Weathers\Dia

Wind Speed: 3.00 m/s
Wind Speed at Height (Calculated) 1.78 m/s
Pasquill Stability: C

USER-DEFINED QUANTITIES

Material N-NONANE
Scenario Catastrophic rupture
Inventory 857,151.19 kg
Fixed Duration n/a s

Stagnation data (data at upstream end for long pipe):

- Pressure 1.04 bar
- Temperature 25.00 degC
- Fluid State Non-saturated liquid

CALCULATED QUANTITIES

Mass Flow of Air (Vent from Vapor Space only) n/a
Mass Flowrate n/a kg/s
Release Duration n/a s
Orifice or pipe exit data (before atmospheric expansion):
- Pressure n/a bar
- Temperature n/a degC
- Vena Contracta Velocity (exit velocity for pipe releases) n/a m/s
- Discharge Coefficient n/a
Final data (after atmospheric expansion):
- Temperature 25.00 degC
- Liquid Mass Fraction 1.00 fraction
- Droplet Diameter 727.67 um
- Expanded Radius n/a m
- Velocity 0.76 m/s

DISCHARGE DATA for Weather: Global Weathers\Noite

Wind Speed: 2.00 m/s
Wind Speed at Height (Calculated) 0.83 m/s
Pasquill Stability: E

USER-DEFINED QUANTITIES

Material N-NONANE
Scenario Catastrophic rupture
Inventory 857,151.19 kg
Fixed Duration n/a s

Stagnation data (data at upstream end for long pipe):

- Pressure 1.04 bar
- Temperature 25.00 degC
- Fluid State Non-saturated liquid

CALCULATED QUANTITIES

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Mass Flow of Air (Vent from Vapor Space only)	n/a
Mass Flowrate	n/a kg/s
Release Duration	n/a s
Orifice or pipe exit data (before atmospheric expansion):	
- Pressure	n/a bar
- Temperature	n/a degC
- Vena Contracta Velocity (exit velocity for pipe releases)	n/a m/s
- Discharge Coefficient	n/a
Final data (after atmospheric expansion):	
- Temperature	25.00 degC
- Liquid Mass Fraction	1.00 fraction
- Droplet Diameter	727.67 um
- Expanded Radius	n/a m
- Velocity	0.76 m/s



Consequence Results

Pool Vaporization Results

Path: \Terminal Adonai - Efeitos físicos\Simulações\H145 (N)

N.B. Pool vaporization segments begin when the cloud has left the pool

		Dia	Noite
Liquid Rainout	fraction	0.999996	0.999996
Initial Vapor Cloud	kg	3.34755	3.25534
Time Pool Left Behind	s	20.1992	42.3612

Cloud Segment 1

		Dia	Noite
Cloud Segment Duration	s	600	600
Pool Vaporization Rate	kg/s	0.202622	0.159111
Maximum Pool Radius	m	18.2818	18.2818

Distance to Concentration Results

Path: \Terminal Adonai - Efeitos físicos\Simulações\H145 (N)

The height for user defined concentrations is the user defined height 0 m

All toxic results are reported at the toxic effect height 1 m

All flammable results are reported at the flammable effect height 0 m

Concentration(ppm)	Averaging Time		Dia	Noite	Distance (m)
UFL (56000)	18.75	s	9.06159	9.04932	
LFL (7000)	18.75	s	9.15916	9.14691	
LFL Frac (7000)	18.75	s	9.15916	9.14691	
Concentration(ppm)	Averaging Time		Dia	Noite	Heights (m) for above distances
UFL (56000)	18.75	s	0	0	
LFL (7000)	18.75	s	0	0	
LFL Frac (7000)	18.75	s	0	0	

Late Pool Fire Hazard

Path: \Terminal Adonai - Efeitos físicos\Simulações\H145 (N)

	Dia	Noite
Late Pool Fire Status	Hazard	Hazard

Radiation Effects: Late Pool Fire Ellipse

Path: \Terminal Adonai - Efeitos físicos\Simulações\H145 (N)

			Dia	Noite	Distance (m)
Radiation Level	9.83	kW/m2	26.2674	24.923	
Radiation Level	19.46	kW/m2	19.2818	19.2818	
Radiation Level	35	kW/m2	Not Reached	Not Reached	

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Radiation Effects: Late Pool Fire Distance

Path: \Terminal Adonai - Efeitos físicos\Simulações\H145 (N)

	Dia	Noite
Radiation Level (kW/m2)		

Fireball Hazard

Path: \Terminal Adonai - Efeitos físicos\Simulações\H145 (N)

	Dia	Noite
Fireball Flame Status	No Hazard	No Hazard

Flash Fire Envelope

Path: \Terminal Adonai - Efeitos físicos\Simulações\H145 (N)

All flammable results are reported at the flammable effect height 0 m

			Dia	Noite
Furthest Extent	7000	ppm	9.15916	9.14691
Furthest Extent	7000	ppm	9.15916	9.14691

			Dia	Noite
Furthest Extent	7000	ppm	0	0
Furthest Extent	7000	ppm	0	0

Explosion Effects: Early Explosion

Path: \Terminal Adonai - Efeitos físicos\Simulações\H145 (N)

Early Explosions are assumed to be centered at the release location
Explosion Model Used : TNT

			Dia	Noite
Supplied Flammable Mass		kg	857151	857151

			Distance (m) at Overpressure Levels	
			Dia	Noite
Overpressure	0.05	bar	No Hazard	No Hazard
Overpressure	0.1	bar	No Hazard	No Hazard
Overpressure	0.3	bar	No Hazard	No Hazard

			Used Mass (kg) at Overpressure Levels	
			Dia	Noite
Overpressure	0.05	bar	0	0
Overpressure	0.1	bar	0	0
Overpressure	0.3	bar	0	0

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Weather Conditions

Path: \Terminal Adonai - Efeitos físicos\Simulações\H145 (N)

		Dia	Noite
Wind Speed	m/s	3	2
Pasquill Stability		C	E
Surface Roughness Length	mm	1000	1000
Surface Roughness Parameter		0.173718	0.173718
Atmospheric Temperature	degC	25	20
Surface Temperature	degC	30	20
Relative Humidity	fraction	0.8	0.8

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

H145 (P)

Base Case

CASE Name: Data

Path: \Terminal Adonai - Efeitos físicos\Simulações\H145 (P)

User-Defined Data

Material

Material Identifier	N-PENTANE
Type of Vessel	Padded Liquid
Pressure Specification	Pressure specified
Storage Pressure - gauge	0.03 bar
Temperature	25 degC
Volume Inventory	1200 m3

Scenario

Scenario Type	Catastrophic rupture
Phase to be Released	Liquid
Building Wake Effect	None

Location

Elevation	0 m
Use ERPG averaging time	ERPG not selected
Use IDLH averaging time	IDLH not selected
Use STEL averaging time	STEL not selected
Supply a user defined averaging time	Not supplied

Bund

Status of Bund	Bund present
Bund Area	1050 m2
[Type of Bund Surface	User-Defined (Land)]
Bund Height	3 m
[Bund Failure Modeling	Bund cannot fail]

Indoor/Outdoor

Location of release	Open air release
---------------------	------------------

Flammable

Explosion Method	TNT
Jet Fire Method	Cone Model

Dispersion

Late Ignition Location	No ignition location
Mass Inventory of material to Disperse	7.461E5 kg
Use Burst Pressure	No - Use release pressure for fireball

Fireball Parameters

[Mass Modification Factor	3]
[Calculation method for fireball	DNV Recommended]
[TNO model flame temperature	1727 degC]

Toxic Parameters

[Indoor Calculations	Unselected]
[Wind Dependent Exchange Rate	Case Specified]

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

[Building Exchange Rate	4 /hr]
[Tail Time	1800 s]
[Set averaging time equal to exposure time	Use a fixed averaging time]
[Cut-off fraction of toxic load for exposure time calculation	0.05 fraction]
[Cut-off concentration for exposure time calculations	0 fraction]

Geometry

Shape	Point
Dimension	2D
System	Absolute
East(1)	0 m
North(1)	0 m

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Path: \Terminal Adonai - Efeitos físicos\Simulações\H145 (P)

DISCHARGE DATA for Weather: Global Weathers\Dia

Wind Speed: 3.00 m/s
Wind Speed at Height (Calculated) 1.78 m/s
Pasquill Stability: C

USER-DEFINED QUANTITIES

Material N-PENTANE
Scenario Catastrophic rupture
Inventory 746,092.06 kg
Fixed Duration n/a s

Stagnation data (data at upstream end for long pipe):

- Pressure 1.04 bar
- Temperature 25.00 degC
- Fluid State Non-saturated liquid

CALCULATED QUANTITIES

Mass Flow of Air (Vent from Vapor Space only) n/a
Mass Flowrate n/a kg/s
Release Duration n/a s
Orifice or pipe exit data (before atmospheric expansion):
- Pressure n/a bar
- Temperature n/a degC
- Vena Contracta Velocity (exit velocity for pipe releases) n/a m/s
- Discharge Coefficient n/a
Final data (after atmospheric expansion):
- Temperature 25.00 degC
- Liquid Mass Fraction 1.00 fraction
- Droplet Diameter 717.48 um
- Expanded Radius n/a m
- Velocity 0.86 m/s

DISCHARGE DATA for Weather: Global Weathers\Noite

Wind Speed: 2.00 m/s
Wind Speed at Height (Calculated) 0.83 m/s
Pasquill Stability: E

USER-DEFINED QUANTITIES

Material N-PENTANE
Scenario Catastrophic rupture
Inventory 746,092.06 kg
Fixed Duration n/a s

Stagnation data (data at upstream end for long pipe):

- Pressure 1.04 bar
- Temperature 25.00 degC
- Fluid State Non-saturated liquid

CALCULATED QUANTITIES

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Mass Flow of Air (Vent from Vapor Space only)	n/a
Mass Flowrate	n/a kg/s
Release Duration	n/a s
Orifice or pipe exit data (before atmospheric expansion):	
- Pressure	n/a bar
- Temperature	n/a degC
- Vena Contracta Velocity (exit velocity for pipe releases)	n/a m/s
- Discharge Coefficient	n/a
Final data (after atmospheric expansion):	
- Temperature	25.00 degC
- Liquid Mass Fraction	1.00 fraction
- Droplet Diameter	717.48 um
- Expanded Radius	n/a m
- Velocity	0.86 m/s



Consequence Results

Pool Vaporization Results

Path: \Terminal Adonai - Efeitos físicos\Simulações\H145 (P)

N.B. Pool vaporization segments begin when the cloud has left the pool

		Dia	Noite
Liquid Rainout	fraction	0.999212	0.999251
Initial Vapor Cloud	kg	588.17	559.103
Time Pool Left Behind	s	47.6246	123.658

Cloud Segment 1

		Dia	Noite
Cloud Segment Duration	s	600	600
Pool Vaporization Rate	kg/s	25.6452	20.552
Maximum Pool Radius	m	18.2818	18.2818

Distance to Concentration Results

Path: \Terminal Adonai - Efeitos físicos\Simulações\H145 (P)

The height for user defined concentrations is the user defined height 0 m

All toxic results are reported at the toxic effect height 1 m

All flammable results are reported at the flammable effect height 0 m

Concentration(ppm)	Averaging Time		Dia	Noite	Distance (m)
UFL (80000)	18.75	s	30.3895	36.0895	
LFL (13000)	18.75	s	75.9708	77.6446	
LFL Frac (13000)	18.75	s	75.9708	77.6446	
Concentration(ppm)	Averaging Time		Dia	Noite	Heights (m) for above distances
UFL (80000)	18.75	s	0	0	
LFL (13000)	18.75	s	0	0	
LFL Frac (13000)	18.75	s	0	0	

Late Pool Fire Hazard

Path: \Terminal Adonai - Efeitos físicos\Simulações\H145 (P)

	Dia	Noite
Late Pool Fire Status	Hazard	Hazard

Radiation Effects: Late Pool Fire Ellipse

Path: \Terminal Adonai - Efeitos físicos\Simulações\H145 (P)

			Dia	Noite	Distance (m)
Radiation Level	9.83	kW/m2	26.2238	24.9052	
Radiation Level	19.46	kW/m2	19.2818	19.2818	
Radiation Level	35	kW/m2	Not Reached	Not Reached	

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Radiation Effects: Late Pool Fire Distance

Path: \Terminal Adonai - Efeitos físicos\Simulações\H145 (P)

	Dia	Noite
Radiation Level (kW/m2)		

Fireball Hazard

Path: \Terminal Adonai - Efeitos físicos\Simulações\H145 (P)

	Dia	Noite
Fireball Flame Status	No Hazard	No Hazard

Flash Fire Envelope

Path: \Terminal Adonai - Efeitos físicos\Simulações\H145 (P)

All flammable results are reported at the flammable effect height 0 m

			Dia	Noite
Furthest Extent	13000	ppm	75.9708	77.6446
Furthest Extent	13000	ppm	75.9708	77.6446
				Heights (m) for above distances
			Dia	Noite
Furthest Extent	13000	ppm	0	0
Furthest Extent	13000	ppm	0	0

Explosion Effects: Early Explosion

Path: \Terminal Adonai - Efeitos físicos\Simulações\H145 (P)

Early Explosions are assumed to be centered at the release location
Explosion Model Used : TNT

			Dia	Noite
Supplied Flammable Mass		kg	746092	746092
				Distance (m) at Overpressure Levels
			Dia	Noite
Overpressure	0.05	bar	No Hazard	No Hazard
Overpressure	0.1	bar	No Hazard	No Hazard
Overpressure	0.3	bar	No Hazard	No Hazard
				Used Mass (kg) at Overpressure Levels
			Dia	Noite
Overpressure	0.05	bar	0	0
Overpressure	0.1	bar	0	0
Overpressure	0.3	bar	0	0

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Explosion Effects: Late Ignition

Path: \Terminal Adonai - Efeitos físicos\Simulações\H145 (P)

Explosion Model Used : TNT

Explosion Location Criterion: Cloud Center

All distances are measured from the Source

All flammable results are reported at the flammable effect height 0 m

			Maximum Distance (m) at Overpressure Level	
			Dia	Noite
Overpressure	0.05	bar	161.715	165.169
Overpressure	0.1	bar	110.4	108.459
Overpressure	0.3	bar	70.0678	61.9788

			Supplementary Data at 0.05 bar	
			Dia	Noite
Supplied Flammable Mass		kg	622.397	700.356
Used Flammable Mass		kg	622.397	700.356
Overpressure Radius		m	143.778	149.546
Distance to:				
- Ignition Source		m	60	70
- Cloud Front/Centre		m	17.9375	15.6224
- Explosion Centre		m	17.9375	15.6224

			Supplementary Data at 0.1 bar	
			Dia	Noite
Supplied Flammable Mass		kg	457.582	700.356
Used Flammable Mass		kg	457.582	700.356
Overpressure Radius		m	80.5565	92.8361
Distance to:				
- Ignition Source		m	70	70
- Cloud Front/Centre		m	29.8431	15.6224
- Explosion Centre		m	29.8431	15.6224

			Supplementary Data at 0.3 bar	
			Dia	Noite
Supplied Flammable Mass		kg	457.582	700.356
Used Flammable Mass		kg	457.582	700.356
Overpressure Radius		m	40.2247	46.3563
Distance to:				
- Ignition Source		m	70	70
- Cloud Front/Centre		m	29.8431	15.6224
- Explosion Centre		m	29.8431	15.6224

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Weather Conditions

Path: \Terminal Adonai - Efeitos físicos\Simulações\H145 (P)

		Dia	Noite
Wind Speed	m/s	3	2
Pasquill Stability		C	E
Surface Roughness Length	mm	1000	1000
Surface Roughness Parameter		0.173718	0.173718
Atmospheric Temperature	degC	25	20
Surface Temperature	degC	30	20
Relative Humidity	fraction	0.8	0.8

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

H146 (A)

Base Case

CASE Name: Data

Path: \Terminal Adonai - Efeitos físicos\Simulações\H146 (A)

User-Defined Data

Material

Material Identifier	ACETONE
Type of Vessel	Padded Liquid
Pressure Specification	Pressure specified
Storage Pressure - gauge	0.03 bar
Temperature	25 degC
Volume Inventory	480 m3

Scenario

Scenario Type	Catastrophic rupture
Phase to be Released	Liquid
Building Wake Effect	None

Location

Elevation	0 m
Use ERPG averaging time	ERPG not selected
Use IDLH averaging time	IDLH not selected
Use STEL averaging time	STEL not selected
Supply a user defined averaging time	Not supplied

Bund

Status of Bund	Bund present
Bund Area	978 m2
[Type of Bund Surface	User-Defined (Land)]
Bund Height	3 m
[Bund Failure Modeling	Bund cannot fail]

Indoor/Outdoor

Location of release	Open air release
---------------------	------------------

Flammable

Explosion Method	TNT
Jet Fire Method	Cone Model

Dispersion

Late Ignition Location	No ignition location
Mass Inventory of material to Disperse	3.776E5 kg
Use Burst Pressure	No - Use release pressure for fireball

Fireball Parameters

[Mass Modification Factor	3]
[Calculation method for fireball	DNV Recommended]
[TNO model flame temperature	1727 degC]

Toxic Parameters

[Indoor Calculations	Unselected]
[Wind Dependent Exchange Rate	Case Specified]

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

[Building Exchange Rate	4 /hr]
[Tail Time	1800 s]
[Set averaging time equal to exposure time	Use a fixed averaging time]
[Cut-off fraction of toxic load for exposure time calculation	0.05 fraction]
[Cut-off concentration for exposure time calculations	0 fraction]

Geometry

Shape	Point
Dimension	2D
System	Absolute
East(1)	0 m
North(1)	0 m

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Path: \Terminal Adonai - Efeitos físicos\Simulações\H146 (A)

DISCHARGE DATA for Weather: Global Weathers\Dia

Wind Speed: 3.00 m/s
Wind Speed at Height (Calculated) 1.78 m/s
Pasquill Stability: C

USER-DEFINED QUANTITIES

Material ACETONE
Scenario Catastrophic rupture
Inventory 377,558.66 kg
Fixed Duration n/a s

Stagnation data (data at upstream end for long pipe):

- Pressure 1.04 bar
- Temperature 25.00 degC
- Fluid State Non-saturated liquid

CALCULATED QUANTITIES

Mass Flow of Air (Vent from Vapor Space only) n/a
Mass Flowrate n/a kg/s
Release Duration n/a s
Orifice or pipe exit data (before atmospheric expansion):
- Pressure n/a bar
- Temperature n/a degC
- Vena Contracta Velocity (exit velocity for pipe releases) n/a m/s
- Discharge Coefficient n/a
Final data (after atmospheric expansion):
- Temperature 25.00 degC
- Liquid Mass Fraction 1.00 fraction
- Droplet Diameter 734.74 um
- Expanded Radius n/a m
- Velocity 1.11 m/s

DISCHARGE DATA for Weather: Global Weathers\Noite

Wind Speed: 2.00 m/s
Wind Speed at Height (Calculated) 0.83 m/s
Pasquill Stability: E

USER-DEFINED QUANTITIES

Material ACETONE
Scenario Catastrophic rupture
Inventory 377,558.66 kg
Fixed Duration n/a s

Stagnation data (data at upstream end for long pipe):

- Pressure 1.04 bar
- Temperature 25.00 degC
- Fluid State Non-saturated liquid

CALCULATED QUANTITIES

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Mass Flow of Air (Vent from Vapor Space only)	n/a
Mass Flowrate	n/a kg/s
Release Duration	n/a s
Orifice or pipe exit data (before atmospheric expansion):	
- Pressure	n/a bar
- Temperature	n/a degC
- Vena Contracta Velocity (exit velocity for pipe releases)	n/a m/s
- Discharge Coefficient	n/a
Final data (after atmospheric expansion):	
- Temperature	25.00 degC
- Liquid Mass Fraction	1.00 fraction
- Droplet Diameter	734.74 um
- Expanded Radius	n/a m
- Velocity	1.11 m/s



Consequence Results

Pool Vaporization Results

Path: \Terminal Adonai - Efeitos físicos\Simulações\H146 (A)

N.B. Pool vaporization segments begin when the cloud has left the pool

		Dia	Noite
Liquid Rainout	fraction	0.999254	0.999255
Initial Vapor Cloud	kg	281.612	281.445
Time Pool Left Behind	s	34.7244	82.483

Cloud Segment 1

		Dia	Noite
Cloud Segment Duration	s	600	600
Pool Vaporization Rate	kg/s	7.22255	5.8207
Maximum Pool Radius	m	17.6439	17.6439

Distance to Concentration Results

Path: \Terminal Adonai - Efeitos físicos\Simulações\H146 (A)

The height for user defined concentrations is the user defined height 0 m

All toxic results are reported at the toxic effect height 1 m

All flammable results are reported at the flammable effect height 0 m

Concentration(ppm)	Averaging Time		Dia	Noite	Distance (m)
UFL (128000)	18.75	s	10.8267	11.8096	
LFL (26000)	18.75	s	35.1295	36.8464	
LFL Frac (26000)	18.75	s	35.1295	36.8464	
Concentration(ppm)	Averaging Time		Dia	Noite	Heights (m) for above distances
UFL (128000)	18.75	s	0	0	
LFL (26000)	18.75	s	0	0	
LFL Frac (26000)	18.75	s	0	0	

Late Pool Fire Hazard

Path: \Terminal Adonai - Efeitos físicos\Simulações\H146 (A)

	Dia	Noite
Late Pool Fire Status	Hazard	Hazard

Radiation Effects: Late Pool Fire Ellipse

Path: \Terminal Adonai - Efeitos físicos\Simulações\H146 (A)

			Dia	Noite	Distance (m)
Radiation Level	9.83	kW/m2	68.6853	66.7366	
Radiation Level	19.46	kW/m2	51.9112	48.9236	
Radiation Level	35	kW/m2	36.303	33.6139	

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Radiation Effects: Late Pool Fire Distance

Path: \Terminal Adonai - Efeitos físicos\Simulações\H146 (A)

	Dia	Noite
Radiation Level (kW/m2)		

Fireball Hazard

Path: \Terminal Adonai - Efeitos físicos\Simulações\H146 (A)

	Dia	Noite
Fireball Flame Status	No Hazard	No Hazard

Flash Fire Envelope

Path: \Terminal Adonai - Efeitos físicos\Simulações\H146 (A)

All flammable results are reported at the flammable effect height 0 m

			Dia	Noite
Furthest Extent	26000	ppm	35.1295	36.8464
Furthest Extent	26000	ppm	35.1295	36.8464
				Heights (m) for above distances
			Dia	Noite
Furthest Extent	26000	ppm	0	0
Furthest Extent	26000	ppm	0	0

Explosion Effects: Early Explosion

Path: \Terminal Adonai - Efeitos físicos\Simulações\H146 (A)

Early Explosions are assumed to be centered at the release location
Explosion Model Used : TNT

			Dia	Noite
Supplied Flammable Mass		kg	377559	377559
				Distance (m) at Overpressure Levels
			Dia	Noite
Overpressure	0.05	bar	No Hazard	No Hazard
Overpressure	0.1	bar	No Hazard	No Hazard
Overpressure	0.3	bar	No Hazard	No Hazard
				Used Mass (kg) at Overpressure Levels
			Dia	Noite
Overpressure	0.05	bar	0	0
Overpressure	0.1	bar	0	0
Overpressure	0.3	bar	0	0

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Explosion Effects: Late Ignition

Path: \Terminal Adonai - Efeitos físicos\Simulações\H146 (A)

Explosion Model Used : TNT

Explosion Location Criterion: Cloud Center

All distances are measured from the Source

All flammable results are reported at the flammable effect height 0 m

			Maximum Distance (m) at Overpressure Level	
			Dia	Noite
Overpressure	0.05	bar	89.2507	91.5747
Overpressure	0.1	bar	58.5718	58.5866
Overpressure	0.3	bar	33.4271	31.5494

			Supplementary Data at 0.05 bar	
			Dia	Noite
Supplied Flammable Mass		kg	174.586	217.05
Used Flammable Mass		kg	174.586	217.05
Overpressure Radius		m	80.9014	86.9906
Distance to:				
- Ignition Source		m	30	30
- Cloud Front/Centre		m	8.34932	4.58407
- Explosion Centre		m	8.34932	4.58407

			Supplementary Data at 0.1 bar	
			Dia	Noite
Supplied Flammable Mass		kg	174.586	217.05
Used Flammable Mass		kg	174.586	217.05
Overpressure Radius		m	50.2224	54.0026
Distance to:				
- Ignition Source		m	30	30
- Cloud Front/Centre		m	8.34932	4.58407
- Explosion Centre		m	8.34932	4.58407

			Supplementary Data at 0.3 bar	
			Dia	Noite
Supplied Flammable Mass		kg	174.586	217.05
Used Flammable Mass		kg	174.586	217.05
Overpressure Radius		m	25.0778	26.9654
Distance to:				
- Ignition Source		m	30	30
- Cloud Front/Centre		m	8.34932	4.58407
- Explosion Centre		m	8.34932	4.58407

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Weather Conditions

Path: \Terminal Adonai - Efeitos físicos\Simulações\H146 (A)

		Dia	Noite
Wind Speed	m/s	3	2
Pasquill Stability		C	E
Surface Roughness Length	mm	1000	1000
Surface Roughness Parameter		0.173718	0.173718
Atmospheric Temperature	degC	25	20
Surface Temperature	degC	30	20
Relative Humidity	fraction	0.8	0.8

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

H146 (B)

Base Case

CASE Name: Data

Path: \Terminal Adonai - Efeitos físicos\Simulações\H146 (B)

User-Defined Data

Material

Material Identifier	BENZENE
Type of Vessel	Padded Liquid
Pressure Specification	Pressure specified
Storage Pressure - gauge	0.03 bar
Temperature	25 degC
Volume Inventory	480 m3

Scenario

Scenario Type	Catastrophic rupture
Phase to be Released	Liquid
Building Wake Effect	None

Location

Elevation	0 m
Use ERPG averaging time	ERPG not selected
Use IDLH averaging time	IDLH not selected
Use STEL averaging time	STEL not selected
Supply a user defined averaging time	Not supplied

Bund

Status of Bund	Bund present
Bund Area	978 m2
[Type of Bund Surface	User-Defined (Land)]
Bund Height	3 m
[Bund Failure Modeling	Bund cannot fail]

Indoor/Outdoor

Location of release	Open air release
---------------------	------------------

Flammable

Explosion Method	TNT
Jet Fire Method	Cone Model

Dispersion

Late Ignition Location	No ignition location
Mass Inventory of material to Disperse	4.19E5 kg
Use Burst Pressure	No - Use release pressure for fireball

Fireball Parameters

[Mass Modification Factor	3]
[Calculation method for fireball	DNV Recommended]
[TNO model flame temperature	1727 degC]

Toxic Parameters

[Indoor Calculations	Unselected]
[Wind Dependent Exchange Rate	Case Specified]

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

[Building Exchange Rate	4 /hr]
[Tail Time	1800 s]
[Set averaging time equal to exposure time	Use a fixed averaging time]
[Cut-off fraction of toxic load for exposure time calculation	0.05 fraction]
[Cut-off concentration for exposure time calculations	0 fraction]

Geometry

Shape	Point
Dimension	2D
System	Absolute
East(1)	0 m
North(1)	0 m

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Path: \Terminal Adonai - Efeitos físicos\Simulações\H146 (B)

DISCHARGE DATA for Weather: Global Weathers\Dia

Wind Speed: 3.00 m/s
Wind Speed at Height (Calculated) 1.78 m/s
Pasquill Stability: C

USER-DEFINED QUANTITIES

Material BENZENE
Scenario Catastrophic rupture
Inventory 419,043.56 kg
Fixed Duration n/a s

Stagnation data (data at upstream end for long pipe):

- Pressure 1.04 bar
- Temperature 25.00 degC
- Fluid State Non-saturated liquid

CALCULATED QUANTITIES

Mass Flow of Air (Vent from Vapor Space only) n/a
Mass Flowrate n/a kg/s
Release Duration n/a s
Orifice or pipe exit data (before atmospheric expansion):
- Pressure n/a bar
- Temperature n/a degC
- Vena Contracta Velocity (exit velocity for pipe releases) n/a m/s
- Discharge Coefficient n/a
Final data (after atmospheric expansion):
- Temperature 25.00 degC
- Liquid Mass Fraction 1.00 fraction
- Droplet Diameter 742.39 um
- Expanded Radius n/a m
- Velocity 0.82 m/s

DISCHARGE DATA for Weather: Global Weathers\Noite

Wind Speed: 2.00 m/s
Wind Speed at Height (Calculated) 0.83 m/s
Pasquill Stability: E

USER-DEFINED QUANTITIES

Material BENZENE
Scenario Catastrophic rupture
Inventory 419,043.56 kg
Fixed Duration n/a s

Stagnation data (data at upstream end for long pipe):

- Pressure 1.04 bar
- Temperature 25.00 degC
- Fluid State Non-saturated liquid

CALCULATED QUANTITIES

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Mass Flow of Air (Vent from Vapor Space only)	n/a
Mass Flowrate	n/a kg/s
Release Duration	n/a s
Orifice or pipe exit data (before atmospheric expansion):	
- Pressure	n/a bar
- Temperature	n/a degC
- Vena Contracta Velocity (exit velocity for pipe releases)	n/a m/s
- Discharge Coefficient	n/a
Final data (after atmospheric expansion):	
- Temperature	25.00 degC
- Liquid Mass Fraction	1.00 fraction
- Droplet Diameter	742.39 um
- Expanded Radius	n/a m
- Velocity	0.82 m/s



Consequence Results

Pool Vaporization Results

Path: \Terminal Adonai - Efeitos físicos\Simulações\H146 (B)

N.B. Pool vaporization segments begin when the cloud has left the pool

		Dia	Noite
Liquid Rainout	fraction	0.999951	0.999953
Initial Vapor Cloud	kg	20.5259	19.5516
Time Pool Left Behind	s	24.818	58.7766

Cloud Segment 1

Cloud Segment Duration	s	600	600
Pool Vaporization Rate	kg/s	3.51005	2.70019

Maximum Pool Radius	m	17.6439	17.6439
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Distance to Concentration Results

Path: \Terminal Adonai - Efeitos físicos\Simulações\H146 (B)

The height for user defined concentrations is the user defined height 0 m

All toxic results are reported at the toxic effect height 1 m

All flammable results are reported at the flammable effect height 0 m

Concentration(ppm)	Averaging Time		Dia	Noite	Distance (m)
UFL (79000)	18.75	s	6.65262	6.64328	
LFL (13000)	18.75	s	21.3854	20.2108	
LFL Frac (13000)	18.75	s	21.3854	20.2108	

Concentration(ppm)	Averaging Time		Dia	Noite	Heights (m) for above distances
UFL (79000)	18.75	s	0	0	
LFL (13000)	18.75	s	0	0	
LFL Frac (13000)	18.75	s	0	0	

Late Pool Fire Hazard

Path: \Terminal Adonai - Efeitos físicos\Simulações\H146 (B)

	Dia	Noite
Late Pool Fire Status	Hazard	Hazard

Radiation Effects: Late Pool Fire Ellipse

Path: \Terminal Adonai - Efeitos físicos\Simulações\H146 (B)

			Dia	Noite	Distance (m)
Radiation Level	9.83	kW/m2	25.765	24.431	
Radiation Level	19.46	kW/m2	18.6439	18.6439	
Radiation Level	35	kW/m2	Not Reached	Not Reached	

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Radiation Effects: Late Pool Fire Distance

Path: \Terminal Adonai - Efeitos físicos\Simulações\H146 (B)

	Dia	Noite
Radiation Level (kW/m2)		

Fireball Hazard

Path: \Terminal Adonai - Efeitos físicos\Simulações\H146 (B)

	Dia	Noite
Fireball Flame Status	No Hazard	No Hazard

Flash Fire Envelope

Path: \Terminal Adonai - Efeitos físicos\Simulações\H146 (B)

All flammable results are reported at the flammable effect height 0 m

			Dia	Noite
Furthest Extent	13000	ppm	21.3854	20.2108
Furthest Extent	13000	ppm	21.3854	20.2108

			Dia	Noite
Furthest Extent	13000	ppm	0	0
Furthest Extent	13000	ppm	0	0

Explosion Effects: Early Explosion

Path: \Terminal Adonai - Efeitos físicos\Simulações\H146 (B)

Early Explosions are assumed to be centered at the release location
Explosion Model Used : TNT

			Dia	Noite
Supplied Flammable Mass		kg	419044	419044

			Dia	Noite
Overpressure	0.05	bar	No Hazard	No Hazard
Overpressure	0.1	bar	No Hazard	No Hazard
Overpressure	0.3	bar	No Hazard	No Hazard

			Dia	Noite
Overpressure	0.05	bar	0	0
Overpressure	0.1	bar	0	0
Overpressure	0.3	bar	0	0

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Explosion Effects: Late Ignition

Path: \Terminal Adonai - Efeitos físicos\Simulações\H146 (B)

Explosion Model Used : TNT

Explosion Location Criterion: Cloud Center

All distances are measured from the Source

All flammable results are reported at the flammable effect height 0 m

			Maximum Distance (m) at Overpressure Level	
			Dia	Noite
Overpressure	0.05	bar	43.7469	45.0961
Overpressure	0.1	bar	31.3088	31.188
Overpressure	0.3	bar	21.1145	19.7888

Supplementary Data at 0.05 bar

			Dia	Noite
Supplied Flammable Mass		kg	8.27789	11.5735
Used Flammable Mass		kg	8.27789	11.5735
Overpressure Radius		m	32.7996	36.6761
Distance to:				
- Ignition Source		m	20	20
- Cloud Front/Centre		m	10.9473	8.41996
- Explosion Centre		m	10.9473	8.41996

Supplementary Data at 0.1 bar

			Dia	Noite
Supplied Flammable Mass		kg	8.27789	11.5735
Used Flammable Mass		kg	8.27789	11.5735
Overpressure Radius		m	20.3616	22.768
Distance to:				
- Ignition Source		m	20	20
- Cloud Front/Centre		m	10.9473	8.41996
- Explosion Centre		m	10.9473	8.41996

Supplementary Data at 0.3 bar

			Dia	Noite
Supplied Flammable Mass		kg	8.27789	11.5735
Used Flammable Mass		kg	8.27789	11.5735
Overpressure Radius		m	10.1672	11.3689
Distance to:				
- Ignition Source		m	20	20
- Cloud Front/Centre		m	10.9473	8.41996
- Explosion Centre		m	10.9473	8.41996

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Weather Conditions

Path: \Terminal Adonai - Efeitos físicos\Simulações\H146 (B)

		Dia	Noite
Wind Speed	m/s	3	2
Pasquill Stability		C	E
Surface Roughness Length	mm	1000	1000
Surface Roughness Parameter		0.173718	0.173718
Atmospheric Temperature	degC	25	20
Surface Temperature	degC	30	20
Relative Humidity	fraction	0.8	0.8

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

H146 (E)

Base Case

CASE Name: Data

Path: \Terminal Adonai - Efeitos físicos\Simulações\H146 (E)

User-Defined Data

Material

Material Identifier	ETHANOL
Type of Vessel	Padded Liquid
Pressure Specification	Pressure specified
Storage Pressure - gauge	0.03 bar
Temperature	25 degC
Volume Inventory	480 m3

Scenario

Scenario Type	Catastrophic rupture
Phase to be Released	Liquid
Building Wake Effect	None

Location

Elevation	0 m
Use ERPG averaging time	ERPG not selected
Use IDLH averaging time	IDLH not selected
Use STEL averaging time	STEL not selected
Supply a user defined averaging time	Not supplied

Bund

Status of Bund	Bund present
Bund Area	978 m2
[Type of Bund Surface	User-Defined (Land)]
Bund Height	3 m
[Bund Failure Modeling	Bund cannot fail]

Indoor/Outdoor

Location of release	Open air release
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Flammable

Explosion Method	TNT
Jet Fire Method	Cone Model

Dispersion

Late Ignition Location	No ignition location
Mass Inventory of material to Disperse	3.772E5 kg
Use Burst Pressure	No - Use release pressure for fireball

Fireball Parameters

[Mass Modification Factor	3]
[Calculation method for fireball	DNV Recommended]
[TNO model flame temperature	1727 degC]

Toxic Parameters

[Indoor Calculations	Unselected]
[Wind Dependent Exchange Rate	Case Specified]

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

[Building Exchange Rate	4 /hr]
[Tail Time	1800 s]
[Set averaging time equal to exposure time	Use a fixed averaging time]
[Cut-off fraction of toxic load for exposure time calculation	0.05 fraction]
[Cut-off concentration for exposure time calculations	0 fraction]

Geometry

Shape	Point
Dimension	2D
System	Absolute
East(1)	0 m
North(1)	0 m

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Path: \Terminal Adonai - Efeitos físicos\Simulações\H146 (E)

DISCHARGE DATA for Weather: Global Weathers\Dia

Wind Speed: 3.00 m/s
Wind Speed at Height (Calculated) 1.78 m/s
Pasquill Stability: C

USER-DEFINED QUANTITIES

Material ETHANOL
Scenario Catastrophic rupture
Inventory 377,229.59 kg
Fixed Duration n/a s

Stagnation data (data at upstream end for long pipe):

- Pressure 1.04 bar
- Temperature 25.00 degC
- Fluid State Non-saturated liquid

CALCULATED QUANTITIES

Mass Flow of Air (Vent from Vapor Space only) n/a
Mass Flowrate n/a kg/s
Release Duration n/a s
Orifice or pipe exit data (before atmospheric expansion):
- Pressure n/a bar
- Temperature n/a degC
- Vena Contracta Velocity (exit velocity for pipe releases) n/a m/s
- Discharge Coefficient n/a
Final data (after atmospheric expansion):
- Temperature 25.00 degC
- Liquid Mass Fraction 1.00 fraction
- Droplet Diameter 734.68 um
- Expanded Radius n/a m
- Velocity 1.23 m/s

DISCHARGE DATA for Weather: Global Weathers\Noite

Wind Speed: 2.00 m/s
Wind Speed at Height (Calculated) 0.83 m/s
Pasquill Stability: E

USER-DEFINED QUANTITIES

Material ETHANOL
Scenario Catastrophic rupture
Inventory 377,229.59 kg
Fixed Duration n/a s

Stagnation data (data at upstream end for long pipe):

- Pressure 1.04 bar
- Temperature 25.00 degC
- Fluid State Non-saturated liquid

CALCULATED QUANTITIES

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Mass Flow of Air (Vent from Vapor Space only)	n/a
Mass Flowrate	n/a kg/s
Release Duration	n/a s
Orifice or pipe exit data (before atmospheric expansion):	
- Pressure	n/a bar
- Temperature	n/a degC
- Vena Contracta Velocity (exit velocity for pipe releases)	n/a m/s
- Discharge Coefficient	n/a
Final data (after atmospheric expansion):	
- Temperature	25.00 degC
- Liquid Mass Fraction	1.00 fraction
- Droplet Diameter	734.68 um
- Expanded Radius	n/a m
- Velocity	1.23 m/s



Consequence Results

Pool Vaporization Results

Path: \Terminal Adonai - Efeitos físicos\Simulações\H146 (E)

N.B. Pool vaporization segments begin when the cloud has left the pool

		Dia	Noite
Liquid Rainout	fraction	0.999822	0.999821
Initial Vapor Cloud	kg	67.2101	67.4384
Time Pool Left Behind	s	24.2036	48.3734

Cloud Segment 1

		Dia	Noite
Cloud Segment Duration	s	600	600
Pool Vaporization Rate	kg/s	1.45607	1.16314
Maximum Pool Radius	m	17.6439	17.6439

Distance to Concentration Results

Path: \Terminal Adonai - Efeitos físicos\Simulações\H146 (E)

The height for user defined concentrations is the user defined height 0 m

All toxic results are reported at the toxic effect height 1 m

All flammable results are reported at the flammable effect height 0 m

Concentration(ppm)	Averaging Time		Dia	Noite	Distance (m)
UFL (190000)	18.75	s	8.09699	8.02157	
LFL (43000)	18.75	s	8.19199	8.11685	
LFL Frac (43000)	18.75	s	8.19199	8.11685	
Concentration(ppm)	Averaging Time		Dia	Noite	Heights (m) for above distances
UFL (190000)	18.75	s	0	0	
LFL (43000)	18.75	s	0	0	
LFL Frac (43000)	18.75	s	0	0	

Late Pool Fire Hazard

Path: \Terminal Adonai - Efeitos físicos\Simulações\H146 (E)

	Dia	Noite
Late Pool Fire Status	Hazard	Hazard

Radiation Effects: Late Pool Fire Ellipse

Path: \Terminal Adonai - Efeitos físicos\Simulações\H146 (E)

			Dia	Noite	Distance (m)
Radiation Level	9.83	kW/m2	49.9555	48.5822	
Radiation Level	19.46	kW/m2	37.9083	35.7588	
Radiation Level	35	kW/m2	23.7668	22.7281	

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Radiation Effects: Late Pool Fire Distance

Path: \Terminal Adonai - Efeitos físicos\Simulações\H146 (E)

	Dia	Noite
Radiation Level (kW/m2)		

Fireball Hazard

Path: \Terminal Adonai - Efeitos físicos\Simulações\H146 (E)

	Dia	Noite
Fireball Flame Status	No Hazard	No Hazard

Flash Fire Envelope

Path: \Terminal Adonai - Efeitos físicos\Simulações\H146 (E)

All flammable results are reported at the flammable effect height 0 m

			Dia	Noite
Furthest Extent	43000	ppm	8.19199	8.11685
Furthest Extent	43000	ppm	8.19199	8.11685

			Dia	Noite
Furthest Extent	43000	ppm	0	0
Furthest Extent	43000	ppm	0	0

Explosion Effects: Early Explosion

Path: \Terminal Adonai - Efeitos físicos\Simulações\H146 (E)

Early Explosions are assumed to be centered at the release location
Explosion Model Used : TNT

			Dia	Noite
Supplied Flammable Mass		kg	377230	377230

			Distance (m) at Overpressure Levels	
			Dia	Noite
Overpressure	0.05	bar	No Hazard	No Hazard
Overpressure	0.1	bar	No Hazard	No Hazard
Overpressure	0.3	bar	No Hazard	No Hazard

			Used Mass (kg) at Overpressure Levels	
			Dia	Noite
Overpressure	0.05	bar	0	0
Overpressure	0.1	bar	0	0
Overpressure	0.3	bar	0	0

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Weather Conditions

Path: \Terminal Adonai - Efeitos físicos\Simulações\H146 (E)

		Dia	Noite
Wind Speed	m/s	3	2
Pasquill Stability		C	E
Surface Roughness Length	mm	1000	1000
Surface Roughness Parameter		0.173718	0.173718
Atmospheric Temperature	degC	25	20
Surface Temperature	degC	30	20
Relative Humidity	fraction	0.8	0.8

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

H146 (H)

Base Case

CASE Name: Data

Path: \Terminal Adonai - Efeitos físicos\Simulações\H146 (H)

User-Defined Data

Material

Material Identifier	N-HEXANE
Type of Vessel	Padded Liquid
Pressure Specification	Pressure specified
Storage Pressure - gauge	0.03 bar
Temperature	25 degC
Volume Inventory	480 m3

Scenario

Scenario Type	Catastrophic rupture
Phase to be Released	Liquid
Building Wake Effect	None

Location

Elevation	0 m
Use ERPG averaging time	ERPG not selected
Use IDLH averaging time	IDLH not selected
Use STEL averaging time	STEL not selected
Supply a user defined averaging time	Not supplied

Bund

Status of Bund	Bund present
Bund Area	978 m2
[Type of Bund Surface	User-Defined (Land)]
Bund Height	3 m
[Bund Failure Modeling	Bund cannot fail]

Indoor/Outdoor

Location of release	Open air release
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Flammable

Explosion Method	TNT
Jet Fire Method	Cone Model

Dispersion

Late Ignition Location	No ignition location
Mass Inventory of material to Disperse	3.149E5 kg
Use Burst Pressure	No - Use release pressure for fireball

Fireball Parameters

[Mass Modification Factor	3]
[Calculation method for fireball	DNV Recommended]
[TNO model flame temperature	1727 degC]

Toxic Parameters

[Indoor Calculations	Unselected]
[Wind Dependent Exchange Rate	Case Specified]

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

[Building Exchange Rate	4 /hr]
[Tail Time	1800 s]
[Set averaging time equal to exposure time	Use a fixed averaging time]
[Cut-off fraction of toxic load for exposure time calculation	0.05 fraction]
[Cut-off concentration for exposure time calculations	0 fraction]

Geometry

Shape	Point
Dimension	2D
System	Absolute
East(1)	0 m
North(1)	0 m

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Path: \Terminal Adonai - Efeitos físicos\Simulações\H146 (H)

DISCHARGE DATA for Weather: Global Weathers\Dia

Wind Speed: 3.00 m/s
Wind Speed at Height (Calculated) 1.78 m/s
Pasquill Stability: C

USER-DEFINED QUANTITIES

Material N-HEXANE
Scenario Catastrophic rupture
Inventory 314,892.56 kg
Fixed Duration n/a s

Stagnation data (data at upstream end for long pipe):

- Pressure 1.04 bar
- Temperature 25.00 degC
- Fluid State Non-saturated liquid

CALCULATED QUANTITIES

Mass Flow of Air (Vent from Vapor Space only) n/a
Mass Flowrate n/a kg/s
Release Duration n/a s
Orifice or pipe exit data (before atmospheric expansion):
- Pressure n/a bar
- Temperature n/a degC
- Vena Contracta Velocity (exit velocity for pipe releases) n/a m/s
- Discharge Coefficient n/a
Final data (after atmospheric expansion):
- Temperature 25.00 degC
- Liquid Mass Fraction 1.00 fraction
- Droplet Diameter 721.42 um
- Expanded Radius n/a m
- Velocity 1.04 m/s

DISCHARGE DATA for Weather: Global Weathers\Noite

Wind Speed: 2.00 m/s
Wind Speed at Height (Calculated) 0.83 m/s
Pasquill Stability: E

USER-DEFINED QUANTITIES

Material N-HEXANE
Scenario Catastrophic rupture
Inventory 314,892.56 kg
Fixed Duration n/a s

Stagnation data (data at upstream end for long pipe):

- Pressure 1.04 bar
- Temperature 25.00 degC
- Fluid State Non-saturated liquid

CALCULATED QUANTITIES

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Mass Flow of Air (Vent from Vapor Space only)	n/a
Mass Flowrate	n/a kg/s
Release Duration	n/a s
Orifice or pipe exit data (before atmospheric expansion):	
- Pressure	n/a bar
- Temperature	n/a degC
- Vena Contracta Velocity (exit velocity for pipe releases)	n/a m/s
- Discharge Coefficient	n/a
Final data (after atmospheric expansion):	
- Temperature	25.00 degC
- Liquid Mass Fraction	1.00 fraction
- Droplet Diameter	721.42 um
- Expanded Radius	n/a m
- Velocity	1.04 m/s



Consequence Results

Pool Vaporization Results

Path: \Terminal Adonai - Efeitos físicos\Simulações\H146 (H)

N.B. Pool vaporization segments begin when the cloud has left the pool

		Dia	Noite
Liquid Rainout	fraction	0.999755	0.999758
Initial Vapor Cloud	kg	77.0309	76.1191
Time Pool Left Behind	s	30.3528	73.761

Cloud Segment 1

		Dia	Noite
Cloud Segment Duration	s	600	600
Pool Vaporization Rate	kg/s	5.64237	4.47789
Maximum Pool Radius	m	17.6439	17.6439

Distance to Concentration Results

Path: \Terminal Adonai - Efeitos físicos\Simulações\H146 (H)

The height for user defined concentrations is the user defined height 0 m

All toxic results are reported at the toxic effect height 1 m

All flammable results are reported at the flammable effect height 0 m

Concentration(ppm)	Averaging Time		Dia	Noite	Distance (m)
UFL (76800)	18.75	s	8.89797	10.3301	
LFL (10500)	18.75	s	34.606	34.2547	
LFL Frac (10500)	18.75	s	34.606	34.2547	
Concentration(ppm)	Averaging Time		Dia	Noite	Heights (m) for above distances
UFL (76800)	18.75	s	0	0	
LFL (10500)	18.75	s	0	0	
LFL Frac (10500)	18.75	s	0	0	

Late Pool Fire Hazard

Path: \Terminal Adonai - Efeitos físicos\Simulações\H146 (H)

	Dia	Noite
Late Pool Fire Status	Hazard	Hazard

Radiation Effects: Late Pool Fire Ellipse

Path: \Terminal Adonai - Efeitos físicos\Simulações\H146 (H)

			Dia	Noite	Distance (m)
Radiation Level	9.83	kW/m2	25.797	24.4086	
Radiation Level	19.46	kW/m2	18.6439	18.6439	
Radiation Level	35	kW/m2	Not Reached	Not Reached	

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Radiation Effects: Late Pool Fire Distance

Path: \Terminal Adonai - Efeitos físicos\Simulações\H146 (H)

	Dia	Noite
Radiation Level (kW/m2)		

Fireball Hazard

Path: \Terminal Adonai - Efeitos físicos\Simulações\H146 (H)

	Dia	Noite
Fireball Flame Status	No Hazard	No Hazard

Flash Fire Envelope

Path: \Terminal Adonai - Efeitos físicos\Simulações\H146 (H)

All flammable results are reported at the flammable effect height 0 m

			Dia	Noite
Furthest Extent	10500	ppm	34.606	34.2547
Furthest Extent	10500	ppm	34.606	34.2547
				Heights (m) for above distances
			Dia	Noite
Furthest Extent	10500	ppm	0	0
Furthest Extent	10500	ppm	0	0

Explosion Effects: Early Explosion

Path: \Terminal Adonai - Efeitos físicos\Simulações\H146 (H)

Early Explosions are assumed to be centered at the release location
Explosion Model Used : TNT

			Dia	Noite
Supplied Flammable Mass		kg	314893	314893
				Distance (m) at Overpressure Levels
			Dia	Noite
Overpressure	0.05	bar	No Hazard	No Hazard
Overpressure	0.1	bar	No Hazard	No Hazard
Overpressure	0.3	bar	No Hazard	No Hazard
				Used Mass (kg) at Overpressure Levels
			Dia	Noite
Overpressure	0.05	bar	0	0
Overpressure	0.1	bar	0	0
Overpressure	0.3	bar	0	0

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Explosion Effects: Late Ignition

Path: \Terminal Adonai - Efeitos físicos\Simulações\H146 (H)

Explosion Model Used : TNT

Explosion Location Criterion: Cloud Center

All distances are measured from the Source

All flammable results are reported at the flammable effect height 0 m

			Maximum Distance (m) at Overpressure Level	
			Dia	Noite
Overpressure	0.05	bar	75.092	78.3941
Overpressure	0.1	bar	51.388	51.3457
Overpressure	0.3	bar	31.9601	29.1767

			Supplementary Data at 0.05 bar	
			Dia	Noite
Supplied Flammable Mass		kg	51.4197	76.3996
Used Flammable Mass		kg	51.4197	76.3996
Overpressure Radius		m	62.5082	71.3276
Distance to:				
- Ignition Source		m	30	30
- Cloud Front/Centre		m	12.5838	7.06655
- Explosion Centre		m	12.5838	7.06655

			Supplementary Data at 0.1 bar	
			Dia	Noite
Supplied Flammable Mass		kg	51.4197	76.3996
Used Flammable Mass		kg	51.4197	76.3996
Overpressure Radius		m	38.8042	44.2792
Distance to:				
- Ignition Source		m	30	30
- Cloud Front/Centre		m	12.5838	7.06655
- Explosion Centre		m	12.5838	7.06655

			Supplementary Data at 0.3 bar	
			Dia	Noite
Supplied Flammable Mass		kg	51.4197	76.3996
Used Flammable Mass		kg	51.4197	76.3996
Overpressure Radius		m	19.3763	22.1101
Distance to:				
- Ignition Source		m	30	30
- Cloud Front/Centre		m	12.5838	7.06655
- Explosion Centre		m	12.5838	7.06655

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Weather Conditions

Path: \Terminal Adonai - Efeitos físicos\Simulações\H146 (H)

		Dia	Noite
Wind Speed	m/s	3	2
Pasquill Stability		C	E
Surface Roughness Length	mm	1000	1000
Surface Roughness Parameter		0.173718	0.173718
Atmospheric Temperature	degC	25	20
Surface Temperature	degC	30	20
Relative Humidity	fraction	0.8	0.8

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

H146 (M)

Base Case

CASE Name: Data

Path: \Terminal Adonai - Efeitos físicos\Simulações\H146 (M)

User-Defined Data

Material

Material Identifier	METHANOL
Type of Vessel	Padded Liquid
Pressure Specification	Pressure specified
Storage Pressure - gauge	0.03 bar
Temperature	25 degC
Volume Inventory	480 m3

Scenario

Scenario Type	Catastrophic rupture
Phase to be Released	Liquid
Building Wake Effect	None

Location

Elevation	0 m
Use ERPG averaging time	ERPG not selected
Use IDLH averaging time	IDLH not selected
Use STEL averaging time	STEL not selected
Supply a user defined averaging time	Not supplied

Bund

Status of Bund	Bund present
Bund Area	978 m2
[Type of Bund Surface	User-Defined (Land)]
Bund Height	3 m
[Bund Failure Modeling	Bund cannot fail]

Indoor/Outdoor

Location of release	Open air release
---------------------	------------------

Flammable

Explosion Method	TNT
Jet Fire Method	Cone Model

Dispersion

Late Ignition Location	No ignition location
Mass Inventory of material to Disperse	3.79E5 kg
Use Burst Pressure	No - Use release pressure for fireball

Fireball Parameters

[Mass Modification Factor	3]
[Calculation method for fireball	DNV Recommended]
[TNO model flame temperature	1727 degC]

Toxic Parameters

[Indoor Calculations	Unselected]
[Wind Dependent Exchange Rate	Case Specified]

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

[Building Exchange Rate	4 /hr]
[Tail Time	1800 s]
[Set averaging time equal to exposure time	Use a fixed averaging time]
[Cut-off fraction of toxic load for exposure time calculation	0.05 fraction]
[Cut-off concentration for exposure time calculations	0 fraction]

Geometry

Shape	Point
Dimension	2D
System	Absolute
East(1)	0 m
North(1)	0 m

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Path: \Terminal Adonai - Efeitos físicos\Simulações\H146 (M)

DISCHARGE DATA for Weather: Global Weathers\Dia

Wind Speed: 3.00 m/s
Wind Speed at Height (Calculated) 1.78 m/s
Pasquill Stability: C

USER-DEFINED QUANTITIES

Material METHANOL
Scenario Catastrophic rupture
Inventory 379,016.31 kg
Fixed Duration n/a s

Stagnation data (data at upstream end for long pipe):

- Pressure 1.04 bar
- Temperature 25.00 degC
- Fluid State Non-saturated liquid

CALCULATED QUANTITIES

Mass Flow of Air (Vent from Vapor Space only) n/a
Mass Flowrate n/a kg/s
Release Duration n/a s
Orifice or pipe exit data (before atmospheric expansion):
- Pressure n/a bar
- Temperature n/a degC
- Vena Contracta Velocity (exit velocity for pipe releases) n/a m/s
- Discharge Coefficient n/a
Final data (after atmospheric expansion):
- Temperature 25.00 degC
- Liquid Mass Fraction 1.00 fraction
- Droplet Diameter 735.02 um
- Expanded Radius n/a m
- Velocity 1.54 m/s

DISCHARGE DATA for Weather: Global Weathers\Noite

Wind Speed: 2.00 m/s
Wind Speed at Height (Calculated) 0.83 m/s
Pasquill Stability: E

USER-DEFINED QUANTITIES

Material METHANOL
Scenario Catastrophic rupture
Inventory 379,016.31 kg
Fixed Duration n/a s

Stagnation data (data at upstream end for long pipe):

- Pressure 1.04 bar
- Temperature 25.00 degC
- Fluid State Non-saturated liquid

CALCULATED QUANTITIES

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Mass Flow of Air (Vent from Vapor Space only)	n/a
Mass Flowrate	n/a kg/s
Release Duration	n/a s
Orifice or pipe exit data (before atmospheric expansion):	
- Pressure	n/a bar
- Temperature	n/a degC
- Vena Contracta Velocity (exit velocity for pipe releases)	n/a m/s
- Discharge Coefficient	n/a
Final data (after atmospheric expansion):	
- Temperature	25.00 degC
- Liquid Mass Fraction	1.00 fraction
- Droplet Diameter	735.02 um
- Expanded Radius	n/a m
- Velocity	1.54 m/s



Consequence Results

Pool Vaporization Results

Path: \Terminal Adonai - Efeitos físicos\Simulações\H146 (M)

N.B. Pool vaporization segments begin when the cloud has left the pool

		Dia	Noite
Liquid Rainout	fraction	0.999395	0.999391
Initial Vapor Cloud	kg	229.273	230.872
Time Pool Left Behind	s	26.2438	47.9705

Cloud Segment 1

Cloud Segment Duration	s	600	600
Pool Vaporization Rate	kg/s	2.52115	2.03562

Maximum Pool Radius	m	17.6439	17.6439
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Distance to Concentration Results

Path: \Terminal Adonai - Efeitos físicos\Simulações\H146 (M)

The height for user defined concentrations is the user defined height 0 m

All toxic results are reported at the toxic effect height 1 m

All flammable results are reported at the flammable effect height 0 m

Concentration(ppm)	Averaging Time		Dia	Noite	Distance (m)
UFL (360000)	18.75	s	9.87363	9.74574	
LFL (73000)	18.75	s	14.7068	15.1509	
LFL Frac (73000)	18.75	s	14.7068	15.1509	

Concentration(ppm)	Averaging Time		Dia	Noite	Heights (m) for above distances
UFL (360000)	18.75	s	0	0	
LFL (73000)	18.75	s	0	0	
LFL Frac (73000)	18.75	s	0	0	

Late Pool Fire Hazard

Path: \Terminal Adonai - Efeitos físicos\Simulações\H146 (M)

	Dia	Noite
Late Pool Fire Status	Hazard	Hazard

Radiation Effects: Late Pool Fire Ellipse

Path: \Terminal Adonai - Efeitos físicos\Simulações\H146 (M)

			Dia	Noite	Distance (m)
Radiation Level	9.83	kW/m2	36.1397	34.7759	
Radiation Level	19.46	kW/m2	24.0825	22.9777	
Radiation Level	35	kW/m2	18.6439	18.6439	

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Radiation Effects: Late Pool Fire Distance

Path: \Terminal Adonai - Efeitos físicos\Simulações\H146 (M)

	Dia	Noite
Radiation Level (kW/m2)		

Fireball Hazard

Path: \Terminal Adonai - Efeitos físicos\Simulações\H146 (M)

	Dia	Noite
Fireball Flame Status	No Hazard	No Hazard

Flash Fire Envelope

Path: \Terminal Adonai - Efeitos físicos\Simulações\H146 (M)

All flammable results are reported at the flammable effect height 0 m

			Dia	Noite
Furthest Extent	73000	ppm	14.7068	15.1509
Furthest Extent	73000	ppm	14.7068	15.1509

			Dia	Noite
Furthest Extent	73000	ppm	0	0
Furthest Extent	73000	ppm	0	0

Explosion Effects: Early Explosion

Path: \Terminal Adonai - Efeitos físicos\Simulações\H146 (M)

Early Explosions are assumed to be centered at the release location
Explosion Model Used : TNT

			Dia	Noite
Supplied Flammable Mass		kg	379016	379016

			Distance (m) at Overpressure Levels	
			Dia	Noite
Overpressure	0.05	bar	No Hazard	No Hazard
Overpressure	0.1	bar	No Hazard	No Hazard
Overpressure	0.3	bar	No Hazard	No Hazard

			Used Mass (kg) at Overpressure Levels	
			Dia	Noite
Overpressure	0.05	bar	0	0
Overpressure	0.1	bar	0	0
Overpressure	0.3	bar	0	0

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Explosion Effects: Late Ignition

Path: \Terminal Adonai - Efeitos físicos\Simulações\H146 (M)

Explosion Model Used : TNT

Explosion Location Criterion: Cloud Center

All distances are measured from the Source

All flammable results are reported at the flammable effect height 0 m

			Maximum Distance (m) at Overpressure Level	
			Dia	Noite
Overpressure	0.05	bar	62.3371	55.4807
Overpressure	0.1	bar	39.1522	35.1599
Overpressure	0.3	bar	20.1496	18.5048

Supplementary Data at 0.05 bar

			Dia	Noite
Supplied Flammable Mass		kg	108.067	72.7615
Used Flammable Mass		kg	108.067	72.7615
Overpressure Radius		m	61.1396	53.5868
Distance to:				
- Ignition Source		m	10	10
- Cloud Front/Centre		m	1.19757	1.89391
- Explosion Centre		m	1.19757	1.89391

Supplementary Data at 0.1 bar

			Dia	Noite
Supplied Flammable Mass		kg	108.067	72.7615
Used Flammable Mass		kg	108.067	72.7615
Overpressure Radius		m	37.9546	33.266
Distance to:				
- Ignition Source		m	10	10
- Cloud Front/Centre		m	1.19757	1.89391
- Explosion Centre		m	1.19757	1.89391

Supplementary Data at 0.3 bar

			Dia	Noite
Supplied Flammable Mass		kg	108.067	72.7615
Used Flammable Mass		kg	108.067	72.7615
Overpressure Radius		m	18.9521	16.6109
Distance to:				
- Ignition Source		m	10	10
- Cloud Front/Centre		m	1.19757	1.89391
- Explosion Centre		m	1.19757	1.89391

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Weather Conditions

Path: \Terminal Adonai - Efeitos físicos\Simulações\H146 (M)

		Dia	Noite
Wind Speed	m/s	3	2
Pasquill Stability		C	E
Surface Roughness Length	mm	1000	1000
Surface Roughness Parameter		0.173718	0.173718
Atmospheric Temperature	degC	25	20
Surface Temperature	degC	30	20
Relative Humidity	fraction	0.8	0.8

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

H146 (N)

Base Case

CASE Name: Data

Path: \Terminal Adonai - Efeitos físicos\Simulações\H146 (N)

User-Defined Data

Fireball Parameters

[Calculation method for fireball DNV Recommended]
[TNO model flame temperature 1727 degC]

Toxic Parameters

[Indoor Calculations Unselected]
[Wind Dependent Exchange Rate Case Specified]
[Building Exchange Rate 4 /hr]
[Tail Time 1800 s]
[Set averaging time equal to exposure time Use a fixed averaging time]
[Cut-off fraction of toxic load for exposure time calculation 0.05 fraction]
[Cut-off concentration for exposure time calculations 0 fraction]

Geometry

Shape Point
Dimension 2D
System Absolute
East(1) 0 m
North(1) 0 m

Material

Material Identifier N-NONANE
Type of Vessel Padded Liquid
Pressure Specification Pressure specified
Storage Pressure - gauge 0.03 bar
Temperature 25 degC
Volume Inventory 480 m3

Scenario

Scenario Type Catastrophic rupture
Phase to be Released Liquid
Building Wake Effect None

Location

Elevation 0 m
Use ERPG averaging time ERPG not selected
Use IDLH averaging time IDLH not selected
Use STEL averaging time STEL not selected
Supply a user defined averaging time Not supplied

Bund

Status of Bund Bund present
Bund Area 978 m2
[Type of Bund Surface User-Defined (Land)]
Bund Height 3 m
[Bund Failure Modeling Bund cannot fail]

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Indoor/Outdoor

Location of release

Open air release

Flammable

Explosion Method

TNT

Jet Fire Method

Cone Model

Dispersion

Late Ignition Location

No ignition location

Mass Inventory of material to Disperse

3.429E5 kg

Use Burst Pressure

No - Use release pressure for fireball

Fireball Parameters

[Mass Modification Factor

3]

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Path: \Terminal Adonai - Efeitos físicos\Simulações\H146 (N)

DISCHARGE DATA for Weather: Global Weathers\Dia

Wind Speed:	3.00 m/s
Wind Speed at Height (Calculated)	1.78 m/s
Pasquill Stability:	C

USER-DEFINED QUANTITIES

Material	N-NONANE
Scenario	Catastrophic rupture
Inventory	342,860.47 kg
Fixed Duration	n/a s

Stagnation data (data at upstream end for long pipe):

- Pressure	1.04 bar
- Temperature	25.00 degC
- Fluid State	Non-saturated liquid

CALCULATED QUANTITIES

Mass Flow of Air (Vent from Vapor Space only)	n/a
Mass Flowrate	n/a kg/s
Release Duration	n/a s

Orifice or pipe exit data (before atmospheric expansion):

- Pressure	n/a bar
- Temperature	n/a degC
- Vena Contracta Velocity (exit velocity for pipe releases)	n/a m/s
- Discharge Coefficient	n/a

Final data (after atmospheric expansion):

- Temperature	25.00 degC
- Liquid Mass Fraction	1.00 fraction
- Droplet Diameter	727.67 um
- Expanded Radius	n/a m
- Velocity	0.76 m/s

DISCHARGE DATA for Weather: Global Weathers\Noite

Wind Speed:	2.00 m/s
Wind Speed at Height (Calculated)	0.83 m/s
Pasquill Stability:	E

USER-DEFINED QUANTITIES

Material	N-NONANE
Scenario	Catastrophic rupture
Inventory	342,860.47 kg
Fixed Duration	n/a s

Stagnation data (data at upstream end for long pipe):

- Pressure	1.04 bar
- Temperature	25.00 degC
- Fluid State	Non-saturated liquid

CALCULATED QUANTITIES

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Mass Flow of Air (Vent from Vapor Space only)	n/a
Mass Flowrate	n/a kg/s
Release Duration	n/a s
Orifice or pipe exit data (before atmospheric expansion):	
- Pressure	n/a bar
- Temperature	n/a degC
- Vena Contracta Velocity (exit velocity for pipe releases)	n/a m/s
- Discharge Coefficient	n/a
Final data (after atmospheric expansion):	
- Temperature	25.00 degC
- Liquid Mass Fraction	1.00 fraction
- Droplet Diameter	727.67 um
- Expanded Radius	n/a m
- Velocity	0.76 m/s



Consequence Results

Pool Vaporization Results

Path: \Terminal Adonai - Efeitos físicos\Simulações\H146 (N)

N.B. Pool vaporization segments begin when the cloud has left the pool

		Dia	Noite
Liquid Rainout	fraction	0.999996	0.999996
Initial Vapor Cloud	kg	1.31788	1.27478
Time Pool Left Behind	s	17.5932	37.7051

Cloud Segment 1

Cloud Segment Duration	s	600	600
Pool Vaporization Rate	kg/s	0.192035	0.14733

Maximum Pool Radius	m	17.6439	17.6439
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Distance to Concentration Results

Path: \Terminal Adonai - Efeitos físicos\Simulações\H146 (N)

The height for user defined concentrations is the user defined height 0 m

All toxic results are reported at the toxic effect height 1 m

All flammable results are reported at the flammable effect height 0 m

Concentration(ppm)	Averaging Time		Dia	Noite	Distance (m)
UFL (56000)	18.75	s	6.65274	6.64244	
LFL (7000)	18.75	s	6.72446	6.71416	
LFL Frac (7000)	18.75	s	6.72446	6.71416	

Concentration(ppm)	Averaging Time		Dia	Noite	Heights (m) for above distances
UFL (56000)	18.75	s	0	0	
LFL (7000)	18.75	s	0	0	
LFL Frac (7000)	18.75	s	0	0	

Late Pool Fire Hazard

Path: \Terminal Adonai - Efeitos físicos\Simulações\H146 (N)

	Dia	Noite
Late Pool Fire Status	Hazard	Hazard

Radiation Effects: Late Pool Fire Ellipse

Path: \Terminal Adonai - Efeitos físicos\Simulações\H146 (N)

			Dia	Noite	Distance (m)
Radiation Level	9.83	kW/m2	25.7031	24.4848	
Radiation Level	19.46	kW/m2	18.6439	18.6439	
Radiation Level	35	kW/m2	Not Reached	Not Reached	

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Radiation Effects: Late Pool Fire Distance

Path: \Terminal Adonai - Efeitos físicos\Simulações\H146 (N)

	Dia	Noite
Radiation Level (kW/m2)		

Fireball Hazard

Path: \Terminal Adonai - Efeitos físicos\Simulações\H146 (N)

	Dia	Noite
Fireball Flame Status	No Hazard	No Hazard

Flash Fire Envelope

Path: \Terminal Adonai - Efeitos físicos\Simulações\H146 (N)

All flammable results are reported at the flammable effect height 0 m

			Dia	Noite
Furthest Extent	7000	ppm	6.72446	6.71416
Furthest Extent	7000	ppm	6.72446	6.71416

			Dia	Noite
Furthest Extent	7000	ppm	0	0
Furthest Extent	7000	ppm	0	0

Explosion Effects: Early Explosion

Path: \Terminal Adonai - Efeitos físicos\Simulações\H146 (N)

Early Explosions are assumed to be centered at the release location
Explosion Model Used : TNT

			Dia	Noite
Supplied Flammable Mass		kg	342860	342860

			Distance (m) at Overpressure Levels	
			Dia	Noite
Overpressure	0.05	bar	No Hazard	No Hazard
Overpressure	0.1	bar	No Hazard	No Hazard
Overpressure	0.3	bar	No Hazard	No Hazard

			Used Mass (kg) at Overpressure Levels	
			Dia	Noite
Overpressure	0.05	bar	0	0
Overpressure	0.1	bar	0	0
Overpressure	0.3	bar	0	0

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Weather Conditions

Path: \Terminal Adonai - Efeitos físicos\Simulações\H146 (N)

		Dia	Noite
Wind Speed	m/s	3	2
Pasquill Stability		C	E
Surface Roughness Length	mm	1000	1000
Surface Roughness Parameter		0.173718	0.173718
Atmospheric Temperature	degC	25	20
Surface Temperature	degC	30	20
Relative Humidity	fraction	0.8	0.8

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

H146 (P)

Base Case

CASE Name: Data

Path: \Terminal Adonai - Efeitos físicos\Simulações\H146 (P)

User-Defined Data

Material

Material Identifier	N-PENTANE
Type of Vessel	Padded Liquid
Pressure Specification	Pressure specified
Storage Pressure - gauge	0.03 bar
Temperature	25 degC
Volume Inventory	480 m3

Scenario

Scenario Type	Catastrophic rupture
Phase to be Released	Liquid
Building Wake Effect	None

Location

Elevation	0 m
Use ERPG averaging time	ERPG not selected
Use IDLH averaging time	IDLH not selected
Use STEL averaging time	STEL not selected
Supply a user defined averaging time	Not supplied

Bund

Status of Bund	Bund present
Bund Area	978 m2
[Type of Bund Surface	User-Defined (Land)]
Bund Height	3 m
[Bund Failure Modeling	Bund cannot fail]

Indoor/Outdoor

Location of release	Open air release
---------------------	------------------

Flammable

Explosion Method	TNT
Jet Fire Method	Cone Model

Dispersion

Late Ignition Location	No ignition location
Mass Inventory of material to Disperse	2.984E5 kg
Use Burst Pressure	No - Use release pressure for fireball

Fireball Parameters

[Mass Modification Factor	3]
[Calculation method for fireball	DNV Recommended]
[TNO model flame temperature	1727 degC]

Toxic Parameters

[Indoor Calculations	Unselected]
[Wind Dependent Exchange Rate	Case Specified]

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

[Building Exchange Rate	4 /hr]
[Tail Time	1800 s]
[Set averaging time equal to exposure time	Use a fixed averaging time]
[Cut-off fraction of toxic load for exposure time calculation	0.05 fraction]
[Cut-off concentration for exposure time calculations	0 fraction]

Geometry

Shape	Point
Dimension	2D
System	Absolute
East(1)	0 m
North(1)	0 m

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Path: \Terminal Adonai - Efeitos físicos\Simulações\H146 (P)

DISCHARGE DATA for Weather: Global Weathers\Dia

Wind Speed: 3.00 m/s
Wind Speed at Height (Calculated) 1.78 m/s
Pasquill Stability: C

USER-DEFINED QUANTITIES

Material N-PENTANE
Scenario Catastrophic rupture
Inventory 298,436.81 kg
Fixed Duration n/a s

Stagnation data (data at upstream end for long pipe):

- Pressure 1.04 bar
- Temperature 25.00 degC
- Fluid State Non-saturated liquid

CALCULATED QUANTITIES

Mass Flow of Air (Vent from Vapor Space only) n/a
Mass Flowrate n/a kg/s
Release Duration n/a s
Orifice or pipe exit data (before atmospheric expansion):
- Pressure n/a bar
- Temperature n/a degC
- Vena Contracta Velocity (exit velocity for pipe releases) n/a m/s
- Discharge Coefficient n/a
Final data (after atmospheric expansion):
- Temperature 25.00 degC
- Liquid Mass Fraction 1.00 fraction
- Droplet Diameter 717.48 um
- Expanded Radius n/a m
- Velocity 0.86 m/s

DISCHARGE DATA for Weather: Global Weathers\Noite

Wind Speed: 2.00 m/s
Wind Speed at Height (Calculated) 0.83 m/s
Pasquill Stability: E

USER-DEFINED QUANTITIES

Material N-PENTANE
Scenario Catastrophic rupture
Inventory 298,436.81 kg
Fixed Duration n/a s

Stagnation data (data at upstream end for long pipe):

- Pressure 1.04 bar
- Temperature 25.00 degC
- Fluid State Non-saturated liquid

CALCULATED QUANTITIES

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Mass Flow of Air (Vent from Vapor Space only)	n/a
Mass Flowrate	n/a kg/s
Release Duration	n/a s
Orifice or pipe exit data (before atmospheric expansion):	
- Pressure	n/a bar
- Temperature	n/a degC
- Vena Contracta Velocity (exit velocity for pipe releases)	n/a m/s
- Discharge Coefficient	n/a
Final data (after atmospheric expansion):	
- Temperature	25.00 degC
- Liquid Mass Fraction	1.00 fraction
- Droplet Diameter	717.48 um
- Expanded Radius	n/a m
- Velocity	0.86 m/s



Consequence Results

Pool Vaporization Results

Path: \Terminal Adonai - Efeitos físicos\Simulações\H146 (P)

N.B. Pool vaporization segments begin when the cloud has left the pool

		Dia	Noite
Liquid Rainout	fraction	0.999227	0.999271
Initial Vapor Cloud	kg	230.613	217.565
Time Pool Left Behind	s	40.6405	110.053

Cloud Segment 1

		Dia	Noite
Cloud Segment Duration	s	600	600
Pool Vaporization Rate	kg/s	21.7285	17.4062
Maximum Pool Radius	m	17.6439	17.6439

Distance to Concentration Results

Path: \Terminal Adonai - Efeitos físicos\Simulações\H146 (P)

The height for user defined concentrations is the user defined height 0 m

All toxic results are reported at the toxic effect height 1 m

All flammable results are reported at the flammable effect height 0 m

Concentration(ppm)	Averaging Time		Dia	Noite	Distance (m)
UFL (80000)	18.75	s	23.1858	27.4677	
LFL (13000)	18.75	s	64.3879	65.2292	
LFL Frac (13000)	18.75	s	64.3879	65.2292	
Concentration(ppm)	Averaging Time		Dia	Noite	Heights (m) for above distances
UFL (80000)	18.75	s	0	0	
LFL (13000)	18.75	s	0	0	
LFL Frac (13000)	18.75	s	0	0	

Late Pool Fire Hazard

Path: \Terminal Adonai - Efeitos físicos\Simulações\H146 (P)

	Dia	Noite
Late Pool Fire Status	Hazard	Hazard

Radiation Effects: Late Pool Fire Ellipse

Path: \Terminal Adonai - Efeitos físicos\Simulações\H146 (P)

			Dia	Noite	Distance (m)
Radiation Level	9.83	kW/m2	25.955	24.4149	
Radiation Level	19.46	kW/m2	18.6439	18.6439	
Radiation Level	35	kW/m2	Not Reached	Not Reached	

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Radiation Effects: Late Pool Fire Distance

Path: \Terminal Adonai - Efeitos físicos\Simulações\H146 (P)

	Dia	Noite
Radiation Level (kW/m2)		

Fireball Hazard

Path: \Terminal Adonai - Efeitos físicos\Simulações\H146 (P)

	Dia	Noite
Fireball Flame Status	No Hazard	No Hazard

Flash Fire Envelope

Path: \Terminal Adonai - Efeitos físicos\Simulações\H146 (P)

All flammable results are reported at the flammable effect height 0 m

			Dia	Noite
Furthest Extent	13000	ppm	64.3879	65.2292
Furthest Extent	13000	ppm	64.3879	65.2292
				Heights (m) for above distances
			Dia	Noite
Furthest Extent	13000	ppm	0	0
Furthest Extent	13000	ppm	0	0

Explosion Effects: Early Explosion

Path: \Terminal Adonai - Efeitos físicos\Simulações\H146 (P)

Early Explosions are assumed to be centered at the release location
Explosion Model Used : TNT

			Dia	Noite
Supplied Flammable Mass		kg	298437	298437
				Distance (m) at Overpressure Levels
			Dia	Noite
Overpressure	0.05	bar	No Hazard	No Hazard
Overpressure	0.1	bar	No Hazard	No Hazard
Overpressure	0.3	bar	No Hazard	No Hazard
				Used Mass (kg) at Overpressure Levels
			Dia	Noite
Overpressure	0.05	bar	0	0
Overpressure	0.1	bar	0	0
Overpressure	0.3	bar	0	0

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Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Explosion Effects: Late Ignition

Path: \Terminal Adonai - Efeitos físicos\Simulações\H146 (P)

Explosion Model Used : TNT

Explosion Location Criterion: Cloud Center

All distances are measured from the Source

All flammable results are reported at the flammable effect height 0 m

			Maximum Distance (m) at Overpressure Level	
			Dia	Noite
Overpressure	0.05	bar	130.627	137.019
Overpressure	0.1	bar	91.88	91.5916
Overpressure	0.3	bar	61.0766	54.3593

Supplementary Data at 0.05 bar

			Dia	Noite
Supplied Flammable Mass		kg	301.491	359.987
Used Flammable Mass		kg	301.491	359.987
Overpressure Radius		m	112.917	119.793
Distance to:				
- Ignition Source		m	50	60
- Cloud Front/Centre		m	17.71	17.2259
- Explosion Centre		m	17.71	17.2259

Supplementary Data at 0.1 bar

			Dia	Noite
Supplied Flammable Mass		kg	203.855	359.987
Used Flammable Mass		kg	203.855	359.987
Overpressure Radius		m	61.525	74.3658
Distance to:				
- Ignition Source		m	60	60
- Cloud Front/Centre		m	30.355	17.2259
- Explosion Centre		m	30.355	17.2259

Supplementary Data at 0.3 bar

			Dia	Noite
Supplied Flammable Mass		kg	203.855	359.987
Used Flammable Mass		kg	203.855	359.987
Overpressure Radius		m	30.7216	37.1334
Distance to:				
- Ignition Source		m	60	60
- Cloud Front/Centre		m	30.355	17.2259
- Explosion Centre		m	30.355	17.2259

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Weather Conditions

Path: \Terminal Adonai - Efeitos físicos\Simulações\H146 (P)

		Dia	Noite
Wind Speed	m/s	3	2
Pasquill Stability		C	E
Surface Roughness Length	mm	1000	1000
Surface Roughness Parameter		0.173718	0.173718
Atmospheric Temperature	degC	25	20
Surface Temperature	degC	30	20
Relative Humidity	fraction	0.8	0.8

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

H147 (A)

Base Case

CASE Name: Data

Path: \Terminal Adonai - Efeitos físicos\Simulações\H147 (A)

User-Defined Data

Material

Material Identifier	ACETONE
Type of Vessel	Padded Liquid
Pressure Specification	Pressure specified
Storage Pressure - gauge	0.03 bar
Temperature	25 degC
Volume Inventory	960 m3

Scenario

Scenario Type	Catastrophic rupture
Phase to be Released	Liquid
Building Wake Effect	None

Location

Elevation	0 m
Use ERPG averaging time	ERPG not selected
Use IDLH averaging time	IDLH not selected
Use STEL averaging time	STEL not selected
Supply a user defined averaging time	Not supplied

Bund

Status of Bund	Bund present
Bund Area	1249 m2
[Type of Bund Surface	User-Defined (Land)]
Bund Height	3 m
[Bund Failure Modeling	Bund cannot fail]

Indoor/Outdoor

Location of release	Open air release
---------------------	------------------

Flammable

Explosion Method	TNT
Jet Fire Method	Cone Model

Dispersion

Late Ignition Location	No ignition location
Mass Inventory of material to Disperse	7.551E5 kg
Use Burst Pressure	No - Use release pressure for fireball

Fireball Parameters

[Mass Modification Factor	3]
[Calculation method for fireball	DNV Recommended]
[TNO model flame temperature	1727 degC]

Toxic Parameters

[Indoor Calculations	Unselected]
[Wind Dependent Exchange Rate	Case Specified]

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

[Building Exchange Rate	4 /hr]
[Tail Time	1800 s]
[Set averaging time equal to exposure time	Use a fixed averaging time]
[Cut-off fraction of toxic load for exposure time calculation	0.05 fraction]
[Cut-off concentration for exposure time calculations	0 fraction]

Geometry

Shape	Point
Dimension	2D
System	Absolute
East(1)	0 m
North(1)	0 m

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Path: \Terminal Adonai - Efeitos físicos\Simulações\H147 (A)

DISCHARGE DATA for Weather: Global Weathers\Dia

Wind Speed: 3.00 m/s
Wind Speed at Height (Calculated) 1.78 m/s
Pasquill Stability: C

USER-DEFINED QUANTITIES

Material ACETONE
Scenario Catastrophic rupture
Inventory 755,117.31 kg
Fixed Duration n/a s

Stagnation data (data at upstream end for long pipe):

- Pressure 1.04 bar
- Temperature 25.00 degC
- Fluid State Non-saturated liquid

CALCULATED QUANTITIES

Mass Flow of Air (Vent from Vapor Space only) n/a
Mass Flowrate n/a kg/s
Release Duration n/a s
Orifice or pipe exit data (before atmospheric expansion):
- Pressure n/a bar
- Temperature n/a degC
- Vena Contracta Velocity (exit velocity for pipe releases) n/a m/s
- Discharge Coefficient n/a
Final data (after atmospheric expansion):
- Temperature 25.00 degC
- Liquid Mass Fraction 1.00 fraction
- Droplet Diameter 734.74 um
- Expanded Radius n/a m
- Velocity 1.11 m/s

DISCHARGE DATA for Weather: Global Weathers\Noite

Wind Speed: 2.00 m/s
Wind Speed at Height (Calculated) 0.83 m/s
Pasquill Stability: E

USER-DEFINED QUANTITIES

Material ACETONE
Scenario Catastrophic rupture
Inventory 755,117.31 kg
Fixed Duration n/a s

Stagnation data (data at upstream end for long pipe):

- Pressure 1.04 bar
- Temperature 25.00 degC
- Fluid State Non-saturated liquid

CALCULATED QUANTITIES

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Mass Flow of Air (Vent from Vapor Space only)	n/a
Mass Flowrate	n/a kg/s
Release Duration	n/a s
Orifice or pipe exit data (before atmospheric expansion):	
- Pressure	n/a bar
- Temperature	n/a degC
- Vena Contracta Velocity (exit velocity for pipe releases)	n/a m/s
- Discharge Coefficient	n/a
Final data (after atmospheric expansion):	
- Temperature	25.00 degC
- Liquid Mass Fraction	1.00 fraction
- Droplet Diameter	734.74 um
- Expanded Radius	n/a m
- Velocity	1.11 m/s



Consequence Results

Pool Vaporization Results

Path: \Terminal Adonai - Efeitos físicos\Simulações\H147 (A)

N.B. Pool vaporization segments begin when the cloud has left the pool

		Dia	Noite
Liquid Rainout	fraction	0.999252	0.999252
Initial Vapor Cloud	kg	564.764	565.102
Time Pool Left Behind	s	41.1439	96.6977

Cloud Segment 1

		Dia	Noite
Cloud Segment Duration	s	600	600
Pool Vaporization Rate	kg/s	9.2661	7.50611
Maximum Pool Radius	m	19.9391	19.9391

Distance to Concentration Results

Path: \Terminal Adonai - Efeitos físicos\Simulações\H147 (A)

The height for user defined concentrations is the user defined height 0 m

All toxic results are reported at the toxic effect height 1 m

All flammable results are reported at the flammable effect height 0 m

Concentration(ppm)	Averaging Time		Dia	Noite	Distance (m)
UFL (128000)	18.75	s	13.9813	15.1287	
LFL (26000)	18.75	s	44.0295	46.4664	
LFL Frac (26000)	18.75	s	44.0295	46.4664	

Concentration(ppm)	Averaging Time		Dia	Noite	Heights (m) for above distances
UFL (128000)	18.75	s	0	0	
LFL (26000)	18.75	s	0	0	
LFL Frac (26000)	18.75	s	0	0	

Late Pool Fire Hazard

Path: \Terminal Adonai - Efeitos físicos\Simulações\H147 (A)

	Dia	Noite
Late Pool Fire Status	Hazard	Hazard

Radiation Effects: Late Pool Fire Ellipse

Path: \Terminal Adonai - Efeitos físicos\Simulações\H147 (A)

			Dia	Noite	Distance (m)
Radiation Level	9.83	kW/m2	76.6272	74.5536	
Radiation Level	19.46	kW/m2	58.0153	54.814	
Radiation Level	35	kW/m2	41.3098	38.1355	

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Radiation Effects: Late Pool Fire Distance

Path: \Terminal Adonai - Efeitos físicos\Simulações\H147 (A)

	Dia	Noite
Radiation Level (kW/m2)		

Fireball Hazard

Path: \Terminal Adonai - Efeitos físicos\Simulações\H147 (A)

	Dia	Noite
Fireball Flame Status	No Hazard	No Hazard

Flash Fire Envelope

Path: \Terminal Adonai - Efeitos físicos\Simulações\H147 (A)

All flammable results are reported at the flammable effect height 0 m

			Dia	Noite
Furthest Extent	26000	ppm	44.0295	46.4664
Furthest Extent	26000	ppm	44.0295	46.4664
				Heights (m) for above distances
			Dia	Noite
Furthest Extent	26000	ppm	0	0
Furthest Extent	26000	ppm	0	0

Explosion Effects: Early Explosion

Path: \Terminal Adonai - Efeitos físicos\Simulações\H147 (A)

Early Explosions are assumed to be centered at the release location
Explosion Model Used : TNT

			Dia	Noite
Supplied Flammable Mass		kg	755117	755117
				Distance (m) at Overpressure Levels
			Dia	Noite
Overpressure	0.05	bar	No Hazard	No Hazard
Overpressure	0.1	bar	No Hazard	No Hazard
Overpressure	0.3	bar	No Hazard	No Hazard
				Used Mass (kg) at Overpressure Levels
			Dia	Noite
Overpressure	0.05	bar	0	0
Overpressure	0.1	bar	0	0
Overpressure	0.3	bar	0	0

SUMMARY REPORT

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Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Explosion Effects: Late Ignition

Path: \Terminal Adonai - Efeitos físicos\Simulações\H147 (A)

Explosion Model Used : TNT

Explosion Location Criterion: Cloud Center

All distances are measured from the Source

All flammable results are reported at the flammable effect height 0 m

			Maximum Distance (m) at Overpressure Level	
			Dia	Noite
Overpressure	0.05	bar	110.398	114.032
Overpressure	0.1	bar	72.6357	73.2708
Overpressure	0.3	bar	42.4328	39.8624

Supplementary Data at 0.05 bar

			Dia	Noite
Supplied Flammable Mass		kg	391.341	409.49
Used Flammable Mass		kg	391.341	409.49
Overpressure Radius		m	105.878	107.49
Distance to:				
- Ignition Source		m	30	40
- Cloud Front/Centre		m	4.5207	6.54269
- Explosion Centre		m	4.5207	6.54269

Supplementary Data at 0.1 bar

			Dia	Noite
Supplied Flammable Mass		kg	302.565	409.49
Used Flammable Mass		kg	302.565	409.49
Overpressure Radius		m	60.3255	66.7282
Distance to:				
- Ignition Source		m	40	40
- Cloud Front/Centre		m	12.3102	6.54269
- Explosion Centre		m	12.3102	6.54269

Supplementary Data at 0.3 bar

			Dia	Noite
Supplied Flammable Mass		kg	302.565	409.49
Used Flammable Mass		kg	302.565	409.49
Overpressure Radius		m	30.1226	33.3197
Distance to:				
- Ignition Source		m	40	40
- Cloud Front/Centre		m	12.3102	6.54269
- Explosion Centre		m	12.3102	6.54269

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Weather Conditions

Path: \Terminal Adonai - Efeitos físicos\Simulações\H147 (A)

		Dia	Noite
Wind Speed	m/s	3	2
Pasquill Stability		C	E
Surface Roughness Length	mm	1000	1000
Surface Roughness Parameter		0.173718	0.173718
Atmospheric Temperature	degC	25	20
Surface Temperature	degC	30	20
Relative Humidity	fraction	0.8	0.8

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

H147 (B)

Base Case

CASE Name: Data

Path: \Terminal Adonai - Efeitos físicos\Simulações\H147 (B)

User-Defined Data

Material

Material Identifier	BENZENE
Type of Vessel	Padded Liquid
Pressure Specification	Pressure specified
Storage Pressure - gauge	0.03 bar
Temperature	25 degC
Volume Inventory	960 m3

Scenario

Scenario Type	Catastrophic rupture
Phase to be Released	Liquid
Building Wake Effect	None

Location

Elevation	0 m
Use ERPG averaging time	ERPG not selected
Use IDLH averaging time	IDLH not selected
Use STEL averaging time	STEL not selected
Supply a user defined averaging time	Not supplied

Bund

Status of Bund	Bund present
Bund Area	1249 m2
[Type of Bund Surface	User-Defined (Land)]
Bund Height	3 m
[Bund Failure Modeling	Bund cannot fail]

Indoor/Outdoor

Location of release	Open air release
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Flammable

Explosion Method	TNT
Jet Fire Method	Cone Model

Dispersion

Late Ignition Location	No ignition location
Mass Inventory of material to Disperse	8.381E5 kg
Use Burst Pressure	No - Use release pressure for fireball

Fireball Parameters

[Mass Modification Factor	3]
[Calculation method for fireball	DNV Recommended]
[TNO model flame temperature	1727 degC]

Toxic Parameters

[Indoor Calculations	Unselected]
[Wind Dependent Exchange Rate	Case Specified]

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

[Building Exchange Rate	4 /hr]
[Tail Time	1800 s]
[Set averaging time equal to exposure time	Use a fixed averaging time]
[Cut-off fraction of toxic load for exposure time calculation	0.05 fraction]
[Cut-off concentration for exposure time calculations	0 fraction]

Geometry

Shape	Point
Dimension	2D
System	Absolute
East(1)	0 m
North(1)	0 m

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Path: \Terminal Adonai - Efeitos físicos\Simulações\H147 (B)

DISCHARGE DATA for Weather: Global Weathers\Dia

Wind Speed:	3.00 m/s
Wind Speed at Height (Calculated)	1.78 m/s
Pasquill Stability:	C

USER-DEFINED QUANTITIES

Material	BENZENE
Scenario	Catastrophic rupture
Inventory	838,087.13 kg
Fixed Duration	n/a s

Stagnation data (data at upstream end for long pipe):

- Pressure	1.04 bar
- Temperature	25.00 degC
- Fluid State	Non-saturated liquid

CALCULATED QUANTITIES

Mass Flow of Air (Vent from Vapor Space only)	n/a
Mass Flowrate	n/a kg/s
Release Duration	n/a s
Orifice or pipe exit data (before atmospheric expansion):	
- Pressure	n/a bar
- Temperature	n/a degC
- Vena Contracta Velocity (exit velocity for pipe releases)	n/a m/s
- Discharge Coefficient	n/a
Final data (after atmospheric expansion):	
- Temperature	25.00 degC
- Liquid Mass Fraction	1.00 fraction
- Droplet Diameter	742.39 um
- Expanded Radius	n/a m
- Velocity	0.82 m/s

DISCHARGE DATA for Weather: Global Weathers\Noite

Wind Speed:	2.00 m/s
Wind Speed at Height (Calculated)	0.83 m/s
Pasquill Stability:	E

USER-DEFINED QUANTITIES

Material	BENZENE
Scenario	Catastrophic rupture
Inventory	838,087.13 kg
Fixed Duration	n/a s

Stagnation data (data at upstream end for long pipe):

- Pressure	1.04 bar
- Temperature	25.00 degC
- Fluid State	Non-saturated liquid

CALCULATED QUANTITIES

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Mass Flow of Air (Vent from Vapor Space only)	n/a
Mass Flowrate	n/a kg/s
Release Duration	n/a s
Orifice or pipe exit data (before atmospheric expansion):	
- Pressure	n/a bar
- Temperature	n/a degC
- Vena Contracta Velocity (exit velocity for pipe releases)	n/a m/s
- Discharge Coefficient	n/a
Final data (after atmospheric expansion):	
- Temperature	25.00 degC
- Liquid Mass Fraction	1.00 fraction
- Droplet Diameter	742.39 um
- Expanded Radius	n/a m
- Velocity	0.82 m/s



Consequence Results

Pool Vaporization Results

Path: \Terminal Adonai - Efeitos físicos\Simulações\H147 (B)

N.B. Pool vaporization segments begin when the cloud has left the pool

		Dia	Noite
Liquid Rainout	fraction	0.99995	0.999953
Initial Vapor Cloud	kg	41.5676	39.7943
Time Pool Left Behind	s	28.4135	66.8245

Cloud Segment 1

		Dia	Noite
Cloud Segment Duration	s	600	600
Pool Vaporization Rate	kg/s	4.43069	3.4466
Maximum Pool Radius	m	19.9391	19.9391

Distance to Concentration Results

Path: \Terminal Adonai - Efeitos físicos\Simulações\H147 (B)

The height for user defined concentrations is the user defined height 0 m

All toxic results are reported at the toxic effect height 1 m

All flammable results are reported at the flammable effect height 0 m

Concentration(ppm)	Averaging Time		Dia	Noite	Distance (m)
UFL (79000)	18.75	s	8.4067	8.3956	
LFL (13000)	18.75	s	24.1187	23.9481	
LFL Frac (13000)	18.75	s	24.1187	23.9481	
Concentration(ppm)	Averaging Time		Dia	Noite	Heights (m) for above distances
UFL (79000)	18.75	s	0	0	
LFL (13000)	18.75	s	0	0	
LFL Frac (13000)	18.75	s	0	0	

Late Pool Fire Hazard

Path: \Terminal Adonai - Efeitos físicos\Simulações\H147 (B)

	Dia	Noite
Late Pool Fire Status	Hazard	Hazard

Radiation Effects: Late Pool Fire Ellipse

Path: \Terminal Adonai - Efeitos físicos\Simulações\H147 (B)

			Dia	Noite	Distance (m)
Radiation Level	9.83	kW/m2	27.5711	26.2974	
Radiation Level	19.46	kW/m2	20.9391	20.9391	
Radiation Level	35	kW/m2	Not Reached	Not Reached	

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Radiation Effects: Late Pool Fire Distance

Path: \Terminal Adonai - Efeitos físicos\Simulações\H147 (B)

	Dia	Noite
Radiation Level (kW/m2)		

Fireball Hazard

Path: \Terminal Adonai - Efeitos físicos\Simulações\H147 (B)

	Dia	Noite
Fireball Flame Status	No Hazard	No Hazard

Flash Fire Envelope

Path: \Terminal Adonai - Efeitos físicos\Simulações\H147 (B)

All flammable results are reported at the flammable effect height 0 m

			Dia	Noite
Furthest Extent	13000	ppm	24.1187	23.9481
Furthest Extent	13000	ppm	24.1187	23.9481

			Dia	Noite
Furthest Extent	13000	ppm	0	0
Furthest Extent	13000	ppm	0	0

Explosion Effects: Early Explosion

Path: \Terminal Adonai - Efeitos físicos\Simulações\H147 (B)

Early Explosions are assumed to be centered at the release location
Explosion Model Used : TNT

			Dia	Noite
Supplied Flammable Mass		kg	838087	838087

			Distance (m) at Overpressure Levels	
			Dia	Noite
Overpressure	0.05	bar	No Hazard	No Hazard
Overpressure	0.1	bar	No Hazard	No Hazard
Overpressure	0.3	bar	No Hazard	No Hazard

			Used Mass (kg) at Overpressure Levels	
			Dia	Noite
Overpressure	0.05	bar	0	0
Overpressure	0.1	bar	0	0
Overpressure	0.3	bar	0	0

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Explosion Effects: Late Ignition

Path: \Terminal Adonai - Efeitos físicos\Simulações\H147 (B)

Explosion Model Used : TNT

Explosion Location Criterion: Cloud Center

All distances are measured from the Source

All flammable results are reported at the flammable effect height 0 m

			Maximum Distance (m) at Overpressure Level	
			Dia	Noite
Overpressure	0.05	bar	54.1935	56.7171
Overpressure	0.1	bar	36.2925	36.6057
Overpressure	0.3	bar	21.6208	20.1223

Supplementary Data at 0.05 bar

			Dia	Noite
Supplied Flammable Mass		kg	24.6769	34.9936
Used Flammable Mass		kg	24.6769	34.9936
Overpressure Radius		m	47.2055	53.0345
Distance to:				
- Ignition Source		m	20	20
- Cloud Front/Centre		m	6.98801	3.68259
- Explosion Centre		m	6.98801	3.68259

Supplementary Data at 0.1 bar

			Dia	Noite
Supplied Flammable Mass		kg	24.6769	34.9936
Used Flammable Mass		kg	24.6769	34.9936
Overpressure Radius		m	29.3045	32.9231
Distance to:				
- Ignition Source		m	20	20
- Cloud Front/Centre		m	6.98801	3.68259
- Explosion Centre		m	6.98801	3.68259

Supplementary Data at 0.3 bar

			Dia	Noite
Supplied Flammable Mass		kg	24.6769	34.9936
Used Flammable Mass		kg	24.6769	34.9936
Overpressure Radius		m	14.6328	16.4397
Distance to:				
- Ignition Source		m	20	20
- Cloud Front/Centre		m	6.98801	3.68259
- Explosion Centre		m	6.98801	3.68259

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Weather Conditions

Path: \Terminal Adonai - Efeitos físicos\Simulações\H147 (B)

		Dia	Noite
Wind Speed	m/s	3	2
Pasquill Stability		C	E
Surface Roughness Length	mm	1000	1000
Surface Roughness Parameter		0.173718	0.173718
Atmospheric Temperature	degC	25	20
Surface Temperature	degC	30	20
Relative Humidity	fraction	0.8	0.8

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

H147 (E)

Base Case

CASE Name: Data

Path: \Terminal Adonai - Efeitos físicos\Simulações\H147 (E)

User-Defined Data

Material

Material Identifier	ETHANOL
Type of Vessel	Padded Liquid
Pressure Specification	Pressure specified
Storage Pressure - gauge	0.03 bar
Temperature	25 degC
Volume Inventory	960 m3

Scenario

Scenario Type	Catastrophic rupture
Phase to be Released	Liquid
Building Wake Effect	None

Location

Elevation	0 m
Use ERPG averaging time	ERPG not selected
Use IDLH averaging time	IDLH not selected
Use STEL averaging time	STEL not selected
Supply a user defined averaging time	Not supplied

Bund

Status of Bund	Bund present
Bund Area	1249 m2
[Type of Bund Surface	User-Defined (Land)]
Bund Height	3 m
[Bund Failure Modeling	Bund cannot fail]

Indoor/Outdoor

Location of release	Open air release
---------------------	------------------

Flammable

Explosion Method	TNT
Jet Fire Method	Cone Model

Dispersion

Late Ignition Location	No ignition location
Mass Inventory of material to Disperse	7.545E5 kg
Use Burst Pressure	No - Use release pressure for fireball

Fireball Parameters

[Mass Modification Factor	3]
[Calculation method for fireball	DNV Recommended]
[TNO model flame temperature	1727 degC]

Toxic Parameters

[Indoor Calculations	Unselected]
[Wind Dependent Exchange Rate	Case Specified]

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

[Building Exchange Rate	4 /hr]
[Tail Time	1800 s]
[Set averaging time equal to exposure time	Use a fixed averaging time]
[Cut-off fraction of toxic load for exposure time calculation	0.05 fraction]
[Cut-off concentration for exposure time calculations	0 fraction]

Geometry

Shape	Point
Dimension	2D
System	Absolute
East(1)	0 m
North(1)	0 m

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Path: \Terminal Adonai - Efeitos físicos\Simulações\H147 (E)

DISCHARGE DATA for Weather: Global Weathers\Dia

Wind Speed: 3.00 m/s
Wind Speed at Height (Calculated) 1.78 m/s
Pasquill Stability: C

USER-DEFINED QUANTITIES

Material ETHANOL
Scenario Catastrophic rupture
Inventory 754,459.19 kg
Fixed Duration n/a s

Stagnation data (data at upstream end for long pipe):

- Pressure 1.04 bar
- Temperature 25.00 degC
- Fluid State Non-saturated liquid

CALCULATED QUANTITIES

Mass Flow of Air (Vent from Vapor Space only) n/a
Mass Flowrate n/a kg/s
Release Duration n/a s
Orifice or pipe exit data (before atmospheric expansion):
- Pressure n/a bar
- Temperature n/a degC
- Vena Contracta Velocity (exit velocity for pipe releases) n/a m/s
- Discharge Coefficient n/a
Final data (after atmospheric expansion):
- Temperature 25.00 degC
- Liquid Mass Fraction 1.00 fraction
- Droplet Diameter 734.68 um
- Expanded Radius n/a m
- Velocity 1.23 m/s

DISCHARGE DATA for Weather: Global Weathers\Noite

Wind Speed: 2.00 m/s
Wind Speed at Height (Calculated) 0.83 m/s
Pasquill Stability: E

USER-DEFINED QUANTITIES

Material ETHANOL
Scenario Catastrophic rupture
Inventory 754,459.19 kg
Fixed Duration n/a s

Stagnation data (data at upstream end for long pipe):

- Pressure 1.04 bar
- Temperature 25.00 degC
- Fluid State Non-saturated liquid

CALCULATED QUANTITIES

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Mass Flow of Air (Vent from Vapor Space only)	n/a
Mass Flowrate	n/a kg/s
Release Duration	n/a s
Orifice or pipe exit data (before atmospheric expansion):	
- Pressure	n/a bar
- Temperature	n/a degC
- Vena Contracta Velocity (exit velocity for pipe releases)	n/a m/s
- Discharge Coefficient	n/a
Final data (after atmospheric expansion):	
- Temperature	25.00 degC
- Liquid Mass Fraction	1.00 fraction
- Droplet Diameter	734.68 um
- Expanded Radius	n/a m
- Velocity	1.23 m/s



Consequence Results

Pool Vaporization Results

Path: \Terminal Adonai - Efeitos físicos\Simulações\H147 (E)

N.B. Pool vaporization segments begin when the cloud has left the pool

		Dia	Noite
Liquid Rainout	fraction	0.999821	0.999821
Initial Vapor Cloud	kg	134.71	135.299
Time Pool Left Behind	s	28.2652	55.5832

Cloud Segment 1

		Dia	Noite
Cloud Segment Duration	s	600	600
Pool Vaporization Rate	kg/s	1.83913	1.48197
Maximum Pool Radius	m	19.9391	19.9391

Distance to Concentration Results

Path: \Terminal Adonai - Efeitos físicos\Simulações\H147 (E)

The height for user defined concentrations is the user defined height 0 m

All toxic results are reported at the toxic effect height 1 m

All flammable results are reported at the flammable effect height 0 m

Concentration(ppm)	Averaging Time		Dia	Noite
UFL (190000)	18.75	s	10.3737	10.2727
LFL (43000)	18.75	s	10.4936	10.393
LFL Frac (43000)	18.75	s	10.4936	10.393

Concentration(ppm)	Averaging Time		Dia	Noite
UFL (190000)	18.75	s	0	0
LFL (43000)	18.75	s	0	0
LFL Frac (43000)	18.75	s	0	0

Late Pool Fire Hazard

Path: \Terminal Adonai - Efeitos físicos\Simulações\H147 (E)

	Dia	Noite
Late Pool Fire Status	Hazard	Hazard

Radiation Effects: Late Pool Fire Ellipse

Path: \Terminal Adonai - Efeitos físicos\Simulações\H147 (E)

			Dia	Noite
Radiation Level	9.83	kW/m2	55.7624	54.2989
Radiation Level	19.46	kW/m2	42.4491	40.1347
Radiation Level	35	kW/m2	27.2498	25.9755

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Radiation Effects: Late Pool Fire Distance

Path: \Terminal Adonai - Efeitos físicos\Simulações\H147 (E)

	Dia	Noite
Radiation Level (kW/m ²)		

Fireball Hazard

Path: \Terminal Adonai - Efeitos físicos\Simulações\H147 (E)

	Dia	Noite
Fireball Flame Status	No Hazard	No Hazard

Flash Fire Envelope

Path: \Terminal Adonai - Efeitos físicos\Simulações\H147 (E)

All flammable results are reported at the flammable effect height 0 m

			Dia	Noite
Furthest Extent	43000	ppm	10.4936	10.393
Furthest Extent	43000	ppm	10.4936	10.393

			Dia	Noite
Furthest Extent	43000	ppm	0	0
Furthest Extent	43000	ppm	0	0

Explosion Effects: Early Explosion

Path: \Terminal Adonai - Efeitos físicos\Simulações\H147 (E)

Early Explosions are assumed to be centered at the release location
Explosion Model Used : TNT

			Dia	Noite
Supplied Flammable Mass		kg	754459	754459

			Dia	Noite
Overpressure	0.05	bar	No Hazard	No Hazard
Overpressure	0.1	bar	No Hazard	No Hazard
Overpressure	0.3	bar	No Hazard	No Hazard

			Dia	Noite
Overpressure	0.05	bar	0	0
Overpressure	0.1	bar	0	0
Overpressure	0.3	bar	0	0

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Explosion Effects: Late Ignition

Path: \Terminal Adonai - Efeitos físicos\Simulações\H147 (E)

Explosion Model Used : TNT

Explosion Location Criterion: Cloud Center

All distances are measured from the Source

All flammable results are reported at the flammable effect height 0 m

			Maximum Distance (m) at Overpressure Level	
			Dia	Noite
Overpressure	0.05	bar	43.2276	41.1882
Overpressure	0.1	bar	27.2022	25.8909
Overpressure	0.3	bar	14.0676	13.3533

Supplementary Data at 0.05 bar

			Dia	Noite
Supplied Flammable Mass		kg	26.5144	23.0616
Used Flammable Mass		kg	26.5144	23.0616
Overpressure Radius		m	42.2597	40.3393
Distance to:				
- Ignition Source		m	10	10
- Cloud Front/Centre		m	0.967949	0.848855
- Explosion Centre		m	0.967949	0.848855

Supplementary Data at 0.1 bar

			Dia	Noite
Supplied Flammable Mass		kg	26.5144	23.0616
Used Flammable Mass		kg	26.5144	23.0616
Overpressure Radius		m	26.2342	25.0421
Distance to:				
- Ignition Source		m	10	10
- Cloud Front/Centre		m	0.967949	0.848855
- Explosion Centre		m	0.967949	0.848855

Supplementary Data at 0.3 bar

			Dia	Noite
Supplied Flammable Mass		kg	26.5144	23.0616
Used Flammable Mass		kg	26.5144	23.0616
Overpressure Radius		m	13.0997	12.5044
Distance to:				
- Ignition Source		m	10	10
- Cloud Front/Centre		m	0.967949	0.848855
- Explosion Centre		m	0.967949	0.848855

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Weather Conditions

Path: \Terminal Adonai - Efeitos físicos\Simulações\H147 (E)

		Dia	Noite
Wind Speed	m/s	3	2
Pasquill Stability		C	E
Surface Roughness Length	mm	1000	1000
Surface Roughness Parameter		0.173718	0.173718
Atmospheric Temperature	degC	25	20
Surface Temperature	degC	30	20
Relative Humidity	fraction	0.8	0.8

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

H147 (H)

Base Case

CASE Name: Data

Path: \Terminal Adonai - Efeitos físicos\Simulações\H147 (H)

User-Defined Data

Material

Material Identifier	N-HEXANE
Type of Vessel	Padded Liquid
Pressure Specification	Pressure specified
Storage Pressure - gauge	0.03 bar
Temperature	25 degC
Volume Inventory	960 m3

Scenario

Scenario Type	Catastrophic rupture
Phase to be Released	Liquid
Building Wake Effect	None

Location

Elevation	0 m
Use ERPG averaging time	ERPG not selected
Use IDLH averaging time	IDLH not selected
Use STEL averaging time	STEL not selected
Supply a user defined averaging time	Not supplied

Bund

Status of Bund	Bund present
Bund Area	1249 m2
[Type of Bund Surface	User-Defined (Land)]
Bund Height	3 m
[Bund Failure Modeling	Bund cannot fail]

Indoor/Outdoor

Location of release	Open air release
---------------------	------------------

Flammable

Explosion Method	TNT
Jet Fire Method	Cone Model

Dispersion

Late Ignition Location	No ignition location
Mass Inventory of material to Disperse	6.298E5 kg
Use Burst Pressure	No - Use release pressure for fireball

Fireball Parameters

[Mass Modification Factor	3]
[Calculation method for fireball	DNV Recommended]
[TNO model flame temperature	1727 degC]

Toxic Parameters

[Indoor Calculations	Unselected]
[Wind Dependent Exchange Rate	Case Specified]

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

[Building Exchange Rate	4 /hr]
[Tail Time	1800 s]
[Set averaging time equal to exposure time	Use a fixed averaging time]
[Cut-off fraction of toxic load for exposure time calculation	0.05 fraction]
[Cut-off concentration for exposure time calculations	0 fraction]

Geometry

Shape	Point
Dimension	2D
System	Absolute
East(1)	0 m
North(1)	0 m

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Path: \Terminal Adonai - Efeitos físicos\Simulações\H147 (H)

DISCHARGE DATA for Weather: Global Weathers\Dia

Wind Speed: 3.00 m/s
Wind Speed at Height (Calculated) 1.78 m/s
Pasquill Stability: C

USER-DEFINED QUANTITIES

Material N-HEXANE
Scenario Catastrophic rupture
Inventory 629,785.13 kg
Fixed Duration n/a s

Stagnation data (data at upstream end for long pipe):

- Pressure 1.04 bar
- Temperature 25.00 degC
- Fluid State Non-saturated liquid

CALCULATED QUANTITIES

Mass Flow of Air (Vent from Vapor Space only) n/a
Mass Flowrate n/a kg/s
Release Duration n/a s

Orifice or pipe exit data (before atmospheric expansion):

- Pressure n/a bar
- Temperature n/a degC
- Vena Contracta Velocity (exit velocity for pipe releases) n/a m/s
- Discharge Coefficient n/a

Final data (after atmospheric expansion):

- Temperature 25.00 degC
- Liquid Mass Fraction 1.00 fraction
- Droplet Diameter 721.42 um
- Expanded Radius n/a m
- Velocity 1.04 m/s

DISCHARGE DATA for Weather: Global Weathers\Noite

Wind Speed: 2.00 m/s
Wind Speed at Height (Calculated) 0.83 m/s
Pasquill Stability: E

USER-DEFINED QUANTITIES

Material N-HEXANE
Scenario Catastrophic rupture
Inventory 629,785.13 kg
Fixed Duration n/a s

Stagnation data (data at upstream end for long pipe):

- Pressure 1.04 bar
- Temperature 25.00 degC
- Fluid State Non-saturated liquid

CALCULATED QUANTITIES

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Mass Flow of Air (Vent from Vapor Space only)	n/a
Mass Flowrate	n/a kg/s
Release Duration	n/a s
Orifice or pipe exit data (before atmospheric expansion):	
- Pressure	n/a bar
- Temperature	n/a degC
- Vena Contracta Velocity (exit velocity for pipe releases)	n/a m/s
- Discharge Coefficient	n/a
Final data (after atmospheric expansion):	
- Temperature	25.00 degC
- Liquid Mass Fraction	1.00 fraction
- Droplet Diameter	721.42 um
- Expanded Radius	n/a m
- Velocity	1.04 m/s



Consequence Results

Pool Vaporization Results

Path: \Terminal Adonai - Efeitos físicos\Simulações\H147 (H)

N.B. Pool vaporization segments begin when the cloud has left the pool

		Dia	Noite
Liquid Rainout	fraction	0.999753	0.999755
Initial Vapor Cloud	kg	155.849	154.33
Time Pool Left Behind	s	35.433	85.0592

Cloud Segment 1

		Dia	Noite
Cloud Segment Duration	s	600	600
Pool Vaporization Rate	kg/s	7.16011	5.72915
Maximum Pool Radius	m	19.9391	19.9391

Distance to Concentration Results

Path: \Terminal Adonai - Efeitos físicos\Simulações\H147 (H)

The height for user defined concentrations is the user defined height 0 m

All toxic results are reported at the toxic effect height 1 m

All flammable results are reported at the flammable effect height 0 m

Concentration(ppm)	Averaging Time		Dia	Noite
UFL (76800)	18.75	s	11.2244	13.065
LFL (10500)	18.75	s	40.5123	41.4675
LFL Frac (10500)	18.75	s	40.5123	41.4675

Concentration(ppm)	Averaging Time		Dia	Noite
UFL (76800)	18.75	s	0	0
LFL (10500)	18.75	s	0	0
LFL Frac (10500)	18.75	s	0	0

Late Pool Fire Hazard

Path: \Terminal Adonai - Efeitos físicos\Simulações\H147 (H)

	Dia	Noite
Late Pool Fire Status	Hazard	Hazard

Radiation Effects: Late Pool Fire Ellipse

Path: \Terminal Adonai - Efeitos físicos\Simulações\H147 (H)

			Dia	Noite
Radiation Level	9.83	kW/m2	27.6005	26.2893
Radiation Level	19.46	kW/m2	20.9391	20.9391
Radiation Level	35	kW/m2	Not Reached	Not Reached

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Radiation Effects: Late Pool Fire Distance

Path: \Terminal Adonai - Efeitos físicos\Simulações\H147 (H)

	Dia	Noite
Radiation Level (kW/m2)		

Fireball Hazard

Path: \Terminal Adonai - Efeitos físicos\Simulações\H147 (H)

	Dia	Noite
Fireball Flame Status	No Hazard	No Hazard

Flash Fire Envelope

Path: \Terminal Adonai - Efeitos físicos\Simulações\H147 (H)

All flammable results are reported at the flammable effect height 0 m

			Dia	Noite
Furthest Extent	10500	ppm	40.5123	41.4675
Furthest Extent	10500	ppm	40.5123	41.4675

			Dia	Noite
Furthest Extent	10500	ppm	0	0
Furthest Extent	10500	ppm	0	0

Explosion Effects: Early Explosion

Path: \Terminal Adonai - Efeitos físicos\Simulações\H147 (H)

Early Explosions are assumed to be centered at the release location
Explosion Model Used : TNT

			Dia	Noite
Supplied Flammable Mass		kg	629785	629785

			Dia	Noite
Overpressure	0.05	bar	No Hazard	No Hazard
Overpressure	0.1	bar	No Hazard	No Hazard
Overpressure	0.3	bar	No Hazard	No Hazard

			Dia	Noite
Overpressure	0.05	bar	0	0
Overpressure	0.1	bar	0	0
Overpressure	0.3	bar	0	0

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Explosion Effects: Late Ignition

Path: \Terminal Adonai - Efeitos físicos\Simulações\H147 (H)

Explosion Model Used : TNT

Explosion Location Criterion: Cloud Center

All distances are measured from the Source

All flammable results are reported at the flammable effect height 0 m

			Maximum Distance (m) at Overpressure Level	
			Dia	Noite
Overpressure	0.05	bar	93.0545	94.2943
Overpressure	0.1	bar	60.4613	62.8743
Overpressure	0.3	bar	40.8408	37.1223
			Supplementary Data at 0.05 bar	
			Dia	Noite
Supplied Flammable Mass		kg	133.675	119.752
Used Flammable Mass		kg	133.675	119.752
Overpressure Radius		m	85.9495	82.8556
Distance to:				
- Ignition Source		m	30	40
- Cloud Front/Centre		m	7.10504	11.4387
- Explosion Centre		m	7.10504	11.4387
			Supplementary Data at 0.1 bar	
			Dia	Noite
Supplied Flammable Mass		kg	133.675	119.752
Used Flammable Mass		kg	133.675	119.752
Overpressure Radius		m	53.3563	51.4356
Distance to:				
- Ignition Source		m	30	40
- Cloud Front/Centre		m	7.10504	11.4387
- Explosion Centre		m	7.10504	11.4387
			Supplementary Data at 0.3 bar	
			Dia	Noite
Supplied Flammable Mass		kg	48.5444	119.752
Used Flammable Mass		kg	48.5444	119.752
Overpressure Radius		m	19.0082	25.6836
Distance to:				
- Ignition Source		m	40	40
- Cloud Front/Centre		m	21.8326	11.4387
- Explosion Centre		m	21.8326	11.4387

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Weather Conditions

Path: \Terminal Adonai - Efeitos físicos\Simulações\H147 (H)

		Dia	Noite
Wind Speed	m/s	3	2
Pasquill Stability		C	E
Surface Roughness Length	mm	1000	1000
Surface Roughness Parameter		0.173718	0.173718
Atmospheric Temperature	degC	25	20
Surface Temperature	degC	30	20
Relative Humidity	fraction	0.8	0.8

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

H147 (M)

Base Case

CASE Name: Data

Path: \Terminal Adonai - Efeitos físicos\Simulações\H147 (M)

User-Defined Data

Material

Material Identifier	METHANOL
Type of Vessel	Padded Liquid
Pressure Specification	Pressure specified
Storage Pressure - gauge	0.03 bar
Temperature	25 degC
Volume Inventory	960 m3

Scenario

Scenario Type	Catastrophic rupture
Phase to be Released	Liquid
Building Wake Effect	None

Location

Elevation	0 m
Use ERPG averaging time	ERPG not selected
Use IDLH averaging time	IDLH not selected
Use STEL averaging time	STEL not selected
Supply a user defined averaging time	Not supplied

Bund

Status of Bund	Bund present
Bund Area	1249 m2
[Type of Bund Surface	User-Defined (Land)]
Bund Height	3 m
[Bund Failure Modeling	Bund cannot fail]

Indoor/Outdoor

Location of release	Open air release
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Flammable

Explosion Method	TNT
Jet Fire Method	Cone Model

Dispersion

Late Ignition Location	No ignition location
Mass Inventory of material to Disperse	7.58E5 kg
Use Burst Pressure	No - Use release pressure for fireball

Fireball Parameters

[Mass Modification Factor	3]
[Calculation method for fireball	DNV Recommended]
[TNO model flame temperature	1727 degC]

Toxic Parameters

[Indoor Calculations	Unselected]
[Wind Dependent Exchange Rate	Case Specified]

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

[Building Exchange Rate	4 /hr]
[Tail Time	1800 s]
[Set averaging time equal to exposure time	Use a fixed averaging time]
[Cut-off fraction of toxic load for exposure time calculation	0.05 fraction]
[Cut-off concentration for exposure time calculations	0 fraction]

Geometry

Shape	Point
Dimension	2D
System	Absolute
East(1)	0 m
North(1)	0 m

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Path: \Terminal Adonai - Efeitos físicos\Simulações\H147 (M)

DISCHARGE DATA for Weather: Global Weathers\Dia

Wind Speed: 3.00 m/s
Wind Speed at Height (Calculated) 1.78 m/s
Pasquill Stability: C

USER-DEFINED QUANTITIES

Material METHANOL
Scenario Catastrophic rupture
Inventory 758,032.63 kg
Fixed Duration n/a s

Stagnation data (data at upstream end for long pipe):

- Pressure 1.04 bar
- Temperature 25.00 degC
- Fluid State Non-saturated liquid

CALCULATED QUANTITIES

Mass Flow of Air (Vent from Vapor Space only) n/a
Mass Flowrate n/a kg/s
Release Duration n/a s
Orifice or pipe exit data (before atmospheric expansion):
- Pressure n/a bar
- Temperature n/a degC
- Vena Contracta Velocity (exit velocity for pipe releases) n/a m/s
- Discharge Coefficient n/a
Final data (after atmospheric expansion):
- Temperature 25.00 degC
- Liquid Mass Fraction 1.00 fraction
- Droplet Diameter 735.02 um
- Expanded Radius n/a m
- Velocity 1.54 m/s

DISCHARGE DATA for Weather: Global Weathers\Noite

Wind Speed: 2.00 m/s
Wind Speed at Height (Calculated) 0.83 m/s
Pasquill Stability: E

USER-DEFINED QUANTITIES

Material METHANOL
Scenario Catastrophic rupture
Inventory 758,032.63 kg
Fixed Duration n/a s

Stagnation data (data at upstream end for long pipe):

- Pressure 1.04 bar
- Temperature 25.00 degC
- Fluid State Non-saturated liquid

CALCULATED QUANTITIES

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Mass Flow of Air (Vent from Vapor Space only)	n/a
Mass Flowrate	n/a kg/s
Release Duration	n/a s
Orifice or pipe exit data (before atmospheric expansion):	
- Pressure	n/a bar
- Temperature	n/a degC
- Vena Contracta Velocity (exit velocity for pipe releases)	n/a m/s
- Discharge Coefficient	n/a
Final data (after atmospheric expansion):	
- Temperature	25.00 degC
- Liquid Mass Fraction	1.00 fraction
- Droplet Diameter	735.02 um
- Expanded Radius	n/a m
- Velocity	1.54 m/s



Consequence Results

Pool Vaporization Results

Path: \Terminal Adonai - Efeitos físicos\Simulações\H147 (M)

N.B. Pool vaporization segments begin when the cloud has left the pool

		Dia	Noite
Liquid Rainout	fraction	0.999394	0.999389
Initial Vapor Cloud	kg	459.482	463.001
Time Pool Left Behind	s	30.6458	54.5607

Cloud Segment 1

Cloud Segment Duration	s	600	600
Pool Vaporization Rate	kg/s	3.21637	2.61205

Maximum Pool Radius	m	19.9391	19.9391
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Distance to Concentration Results

Path: \Terminal Adonai - Efeitos físicos\Simulações\H147 (M)

The height for user defined concentrations is the user defined height 0 m

All toxic results are reported at the toxic effect height 1 m

All flammable results are reported at the flammable effect height 0 m

Concentration(ppm)	Averaging Time		Dia	Noite	Distance (m)
UFL (360000)	18.75	s	12.7249	12.5573	
LFL (73000)	18.75	s	18.8711	19.8486	
LFL Frac (73000)	18.75	s	18.8711	19.8486	
Concentration(ppm)	Averaging Time		Dia	Noite	Heights (m) for above distances
UFL (360000)	18.75	s	0	0	
LFL (73000)	18.75	s	0	0	
LFL Frac (73000)	18.75	s	0	0	

Late Pool Fire Hazard

Path: \Terminal Adonai - Efeitos físicos\Simulações\H147 (M)

	Dia	Noite
Late Pool Fire Status	Hazard	Hazard

Radiation Effects: Late Pool Fire Ellipse

Path: \Terminal Adonai - Efeitos físicos\Simulações\H147 (M)

			Dia	Noite	Distance (m)
Radiation Level	9.83	kW/m2	40.4069	38.9425	
Radiation Level	19.46	kW/m2	27.5315	26.1932	
Radiation Level	35	kW/m2	20.9391	20.9391	

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Radiation Effects: Late Pool Fire Distance

Path: \Terminal Adonai - Efeitos físicos\Simulações\H147 (M)

	Dia	Noite
Radiation Level (kW/m2)		

Fireball Hazard

Path: \Terminal Adonai - Efeitos físicos\Simulações\H147 (M)

	Dia	Noite
Fireball Flame Status	No Hazard	No Hazard

Flash Fire Envelope

Path: \Terminal Adonai - Efeitos físicos\Simulações\H147 (M)

All flammable results are reported at the flammable effect height 0 m

			Dia	Noite
Furthest Extent	73000	ppm	18.8711	19.8486
Furthest Extent	73000	ppm	18.8711	19.8486

			Dia	Noite
Furthest Extent	73000	ppm	0	0
Furthest Extent	73000	ppm	0	0

Explosion Effects: Early Explosion

Path: \Terminal Adonai - Efeitos físicos\Simulações\H147 (M)

Early Explosions are assumed to be centered at the release location
Explosion Model Used : TNT

			Dia	Noite
Supplied Flammable Mass		kg	758033	758033

			Distance (m) at Overpressure Levels	
			Dia	Noite
Overpressure	0.05	bar	No Hazard	No Hazard
Overpressure	0.1	bar	No Hazard	No Hazard
Overpressure	0.3	bar	No Hazard	No Hazard

			Used Mass (kg) at Overpressure Levels	
			Dia	Noite
Overpressure	0.05	bar	0	0
Overpressure	0.1	bar	0	0
Overpressure	0.3	bar	0	0

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Explosion Effects: Late Ignition

Path: \Terminal Adonai - Efeitos físicos\Simulações\H147 (M)

Explosion Model Used : TNT

Explosion Location Criterion: Cloud Center

All distances are measured from the Source

All flammable results are reported at the flammable effect height 0 m

			Maximum Distance (m) at Overpressure Level	
			Dia	Noite
Overpressure	0.05	bar	61.5346	59.5686
Overpressure	0.1	bar	38.5232	37.2704
Overpressure	0.3	bar	19.6631	18.9946
			Supplementary Data at 0.05 bar	
			Dia	Noite
Supplied Flammable Mass		kg	105.657	96.1363
Used Flammable Mass		kg	105.657	96.1363
Overpressure Radius		m	60.6816	58.8013
Distance to:				
- Ignition Source		m	10	10
- Cloud Front/Centre		m	0.852957	0.767368
- Explosion Centre		m	0.852957	0.767368
			Supplementary Data at 0.1 bar	
			Dia	Noite
Supplied Flammable Mass		kg	105.657	96.1363
Used Flammable Mass		kg	105.657	96.1363
Overpressure Radius		m	37.6703	36.503
Distance to:				
- Ignition Source		m	10	10
- Cloud Front/Centre		m	0.852957	0.767368
- Explosion Centre		m	0.852957	0.767368
			Supplementary Data at 0.3 bar	
			Dia	Noite
Supplied Flammable Mass		kg	105.657	96.1363
Used Flammable Mass		kg	105.657	96.1363
Overpressure Radius		m	18.8101	18.2272
Distance to:				
- Ignition Source		m	10	10
- Cloud Front/Centre		m	0.852957	0.767368
- Explosion Centre		m	0.852957	0.767368

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Weather Conditions

Path: \Terminal Adonai - Efeitos físicos\Simulações\H147 (M)

		Dia	Noite
Wind Speed	m/s	3	2
Pasquill Stability		C	E
Surface Roughness Length	mm	1000	1000
Surface Roughness Parameter		0.173718	0.173718
Atmospheric Temperature	degC	25	20
Surface Temperature	degC	30	20
Relative Humidity	fraction	0.8	0.8

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

H147 (N)

Base Case

CASE Name: Data

Path: \Terminal Adonai - Efeitos físicos\Simulações\H147 (N)

User-Defined Data

Dispersion

Late Ignition Location No ignition location
Mass Inventory of material to Disperse 6.857E5 kg
Use Burst Pressure No - Use release pressure for fireball

Fireball Parameters

[Mass Modification Factor 3]
[Calculation method for fireball DNV Recommended]
[TNO model flame temperature 1727 degC]

Toxic Parameters

[Indoor Calculations Unselected]
[Wind Dependent Exchange Rate Case Specified]
[Building Exchange Rate 4 /hr]
[Tail Time 1800 s]
[Set averaging time equal to exposure time Use a fixed averaging time]
[Cut-off fraction of toxic load for exposure time calculation 0.05 fraction]
[Cut-off concentration for exposure time calculations 0 fraction]

Geometry

Shape Point
Dimension 2D
System Absolute
East(1) 0 m
North(1) 0 m

Material

Material Identifier N-NONANE
Type of Vessel Padded Liquid
Pressure Specification Pressure specified
Storage Pressure - gauge 0.03 bar
Temperature 25 degC
Volume Inventory 960 m3

Scenario

Scenario Type Catastrophic rupture
Phase to be Released Liquid
Building Wake Effect None

Location

Elevation 0 m
Use ERPG averaging time ERPG not selected
Use IDLH averaging time IDLH not selected
Use STEL averaging time STEL not selected
Supply a user defined averaging time Not supplied

Bund

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Status of Bund	Bund present
Bund Area	1249 m2
[Type of Bund Surface	User-Defined (Land)]
Bund Height	3 m
[Bund Failure Modeling	Bund cannot fail]

Indoor/Outdoor

Location of release	Open air release
---------------------	------------------

Flammable

Explosion Method	TNT
Jet Fire Method	Cone Model

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Path: \Terminal Adonai - Efeitos físicos\Simulações\H147 (N)

DISCHARGE DATA for Weather: Global Weathers\Dia

Wind Speed: 3.00 m/s
Wind Speed at Height (Calculated) 1.78 m/s
Pasquill Stability: C

USER-DEFINED QUANTITIES

Material N-NONANE
Scenario Catastrophic rupture
Inventory 685,720.94 kg
Fixed Duration n/a s

Stagnation data (data at upstream end for long pipe):

- Pressure 1.04 bar
- Temperature 25.00 degC
- Fluid State Non-saturated liquid

CALCULATED QUANTITIES

Mass Flow of Air (Vent from Vapor Space only) n/a
Mass Flowrate n/a kg/s
Release Duration n/a s
Orifice or pipe exit data (before atmospheric expansion):
- Pressure n/a bar
- Temperature n/a degC
- Vena Contracta Velocity (exit velocity for pipe releases) n/a m/s
- Discharge Coefficient n/a
Final data (after atmospheric expansion):
- Temperature 25.00 degC
- Liquid Mass Fraction 1.00 fraction
- Droplet Diameter 727.67 um
- Expanded Radius n/a m
- Velocity 0.76 m/s

DISCHARGE DATA for Weather: Global Weathers\Noite

Wind Speed: 2.00 m/s
Wind Speed at Height (Calculated) 0.83 m/s
Pasquill Stability: E

USER-DEFINED QUANTITIES

Material N-NONANE
Scenario Catastrophic rupture
Inventory 685,720.94 kg
Fixed Duration n/a s

Stagnation data (data at upstream end for long pipe):

- Pressure 1.04 bar
- Temperature 25.00 degC
- Fluid State Non-saturated liquid

CALCULATED QUANTITIES

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Mass Flow of Air (Vent from Vapor Space only)	n/a
Mass Flowrate	n/a kg/s
Release Duration	n/a s
Orifice or pipe exit data (before atmospheric expansion):	
- Pressure	n/a bar
- Temperature	n/a degC
- Vena Contracta Velocity (exit velocity for pipe releases)	n/a m/s
- Discharge Coefficient	n/a
Final data (after atmospheric expansion):	
- Temperature	25.00 degC
- Liquid Mass Fraction	1.00 fraction
- Droplet Diameter	727.67 um
- Expanded Radius	n/a m
- Velocity	0.76 m/s



Consequence Results

Pool Vaporization Results

Path: \Terminal Adonai - Efeitos físicos\Simulações\H147 (N)

N.B. Pool vaporization segments begin when the cloud has left the pool

		Dia	Noite
Liquid Rainout	fraction	0.999996	0.999996
Initial Vapor Cloud	kg	2.6661	2.58942
Time Pool Left Behind	s	20.3375	42.9967

Cloud Segment 1

Cloud Segment Duration	s	600	600
Pool Vaporization Rate	kg/s	0.239768	0.186791
Maximum Pool Radius	m	19.9391	19.9391

Distance to Concentration Results

Path: \Terminal Adonai - Efeitos físicos\Simulações\H147 (N)

The height for user defined concentrations is the user defined height 0 m

All toxic results are reported at the toxic effect height 1 m

All flammable results are reported at the flammable effect height 0 m

Concentration(ppm)	Averaging Time		Dia	Noite	Distance (m)
UFL (56000)	18.75	s	8.40428	8.39235	
LFL (7000)	18.75	s	8.4948	8.48287	
LFL Frac (7000)	18.75	s	8.4948	8.48287	
Concentration(ppm)	Averaging Time		Dia	Noite	Heights (m) for above distances
UFL (56000)	18.75	s	0	0	
LFL (7000)	18.75	s	0	0	
LFL Frac (7000)	18.75	s	0	0	

Late Pool Fire Hazard

Path: \Terminal Adonai - Efeitos físicos\Simulações\H147 (N)

	Dia	Noite
Late Pool Fire Status	Hazard	Hazard

Radiation Effects: Late Pool Fire Ellipse

Path: \Terminal Adonai - Efeitos físicos\Simulações\H147 (N)

			Dia	Noite	Distance (m)
Radiation Level	9.83	kW/m2	27.6536	26.3098	
Radiation Level	19.46	kW/m2	20.9391	20.9391	
Radiation Level	35	kW/m2	Not Reached	Not Reached	

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Radiation Effects: Late Pool Fire Distance

Path: \Terminal Adonai - Efeitos físicos\Simulações\H147 (N)

	Dia	Noite
Radiation Level (kW/m2)		

Fireball Hazard

Path: \Terminal Adonai - Efeitos físicos\Simulações\H147 (N)

	Dia	Noite
Fireball Flame Status	No Hazard	No Hazard

Flash Fire Envelope

Path: \Terminal Adonai - Efeitos físicos\Simulações\H147 (N)

All flammable results are reported at the flammable effect height 0 m

			Dia	Noite
Furthest Extent	7000	ppm	8.4948	8.48287
Furthest Extent	7000	ppm	8.4948	8.48287

			Dia	Noite
Furthest Extent	7000	ppm	0	0
Furthest Extent	7000	ppm	0	0

Explosion Effects: Early Explosion

Path: \Terminal Adonai - Efeitos físicos\Simulações\H147 (N)

Early Explosions are assumed to be centered at the release location
Explosion Model Used : TNT

			Dia	Noite
Supplied Flammable Mass		kg	685721	685721

			Distance (m) at Overpressure Levels	
			Dia	Noite
Overpressure	0.05	bar	No Hazard	No Hazard
Overpressure	0.1	bar	No Hazard	No Hazard
Overpressure	0.3	bar	No Hazard	No Hazard

			Used Mass (kg) at Overpressure Levels	
			Dia	Noite
Overpressure	0.05	bar	0	0
Overpressure	0.1	bar	0	0
Overpressure	0.3	bar	0	0

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Weather Conditions

Path: \Terminal Adonai - Efeitos físicos\Simulações\H147 (N)

		Dia	Noite
Wind Speed	m/s	3	2
Pasquill Stability		C	E
Surface Roughness Length	mm	1000	1000
Surface Roughness Parameter		0.173718	0.173718
Atmospheric Temperature	degC	25	20
Surface Temperature	degC	30	20
Relative Humidity	fraction	0.8	0.8

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

H147 (P)

Base Case

CASE Name: Data

Path: \Terminal Adonai - Efeitos físicos\Simulações\H147 (P)

User-Defined Data

Material

Material Identifier	N-PENTANE
Type of Vessel	Padded Liquid
Pressure Specification	Pressure specified
Storage Pressure - gauge	0.03 bar
Temperature	25 degC
Volume Inventory	960 m3

Scenario

Scenario Type	Catastrophic rupture
Phase to be Released	Liquid
Building Wake Effect	None

Location

Elevation	0 m
Use ERPG averaging time	ERPG not selected
Use IDLH averaging time	IDLH not selected
Use STEL averaging time	STEL not selected
Supply a user defined averaging time	Not supplied

Bund

Status of Bund	Bund present
Bund Area	1249 m2
[Type of Bund Surface	User-Defined (Land)]
Bund Height	3 m
[Bund Failure Modeling	Bund cannot fail]

Indoor/Outdoor

Location of release	Open air release
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Flammable

Explosion Method	TNT
Jet Fire Method	Cone Model

Dispersion

Late Ignition Location	No ignition location
Mass Inventory of material to Disperse	5.969E5 kg
Use Burst Pressure	No - Use release pressure for fireball

Fireball Parameters

[Mass Modification Factor	3]
[Calculation method for fireball	DNV Recommended]
[TNO model flame temperature	1727 degC]

Toxic Parameters

[Indoor Calculations	Unselected]
[Wind Dependent Exchange Rate	Case Specified]

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

[Building Exchange Rate	4 /hr]
[Tail Time	1800 s]
[Set averaging time equal to exposure time	Use a fixed averaging time]
[Cut-off fraction of toxic load for exposure time calculation	0.05 fraction]
[Cut-off concentration for exposure time calculations	0 fraction]

Geometry

Shape	Point
Dimension	2D
System	Absolute
East(1)	0 m
North(1)	0 m

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Path: \Terminal Adonai - Efeitos físicos\Simulações\H147 (P)

DISCHARGE DATA for Weather: Global Weathers\Dia

Wind Speed:	3.00 m/s
Wind Speed at Height (Calculated)	1.78 m/s
Pasquill Stability:	C

USER-DEFINED QUANTITIES

Material	N-PENTANE
Scenario	Catastrophic rupture
Inventory	596,873.63 kg
Fixed Duration	n/a s

Stagnation data (data at upstream end for long pipe):

- Pressure	1.04 bar
- Temperature	25.00 degC
- Fluid State	Non-saturated liquid

CALCULATED QUANTITIES

Mass Flow of Air (Vent from Vapor Space only)	n/a
Mass Flowrate	n/a kg/s
Release Duration	n/a s
Orifice or pipe exit data (before atmospheric expansion):	
- Pressure	n/a bar
- Temperature	n/a degC
- Vena Contracta Velocity (exit velocity for pipe releases)	n/a m/s
- Discharge Coefficient	n/a
Final data (after atmospheric expansion):	
- Temperature	25.00 degC
- Liquid Mass Fraction	1.00 fraction
- Droplet Diameter	717.48 um
- Expanded Radius	n/a m
- Velocity	0.86 m/s

DISCHARGE DATA for Weather: Global Weathers\Noite

Wind Speed:	2.00 m/s
Wind Speed at Height (Calculated)	0.83 m/s
Pasquill Stability:	E

USER-DEFINED QUANTITIES

Material	N-PENTANE
Scenario	Catastrophic rupture
Inventory	596,873.63 kg
Fixed Duration	n/a s

Stagnation data (data at upstream end for long pipe):

- Pressure	1.04 bar
- Temperature	25.00 degC
- Fluid State	Non-saturated liquid

CALCULATED QUANTITIES

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Mass Flow of Air (Vent from Vapor Space only)	n/a
Mass Flowrate	n/a kg/s
Release Duration	n/a s
Orifice or pipe exit data (before atmospheric expansion):	
- Pressure	n/a bar
- Temperature	n/a degC
- Vena Contracta Velocity (exit velocity for pipe releases)	n/a m/s
- Discharge Coefficient	n/a
Final data (after atmospheric expansion):	
- Temperature	25.00 degC
- Liquid Mass Fraction	1.00 fraction
- Droplet Diameter	717.48 um
- Expanded Radius	n/a m
- Velocity	0.86 m/s



Consequence Results

Pool Vaporization Results

Path: \Terminal Adonai - Efeitos físicos\Simulações\H147 (P)

N.B. Pool vaporization segments begin when the cloud has left the pool

		Dia	Noite
Liquid Rainout	fraction	0.999216	0.999256
Initial Vapor Cloud	kg	467.769	444.043
Time Pool Left Behind	s	48.0704	126.932

Cloud Segment 1

Cloud Segment Duration	s	600	600
Pool Vaporization Rate	kg/s	29.092	23.3239

Maximum Pool Radius	m	19.9391	19.9391
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Distance to Concentration Results

Path: \Terminal Adonai - Efeitos físicos\Simulações\H147 (P)

The height for user defined concentrations is the user defined height 0 m

All toxic results are reported at the toxic effect height 1 m

All flammable results are reported at the flammable effect height 0 m

Concentration(ppm)	Averaging Time		Distance (m)	
			Dia	Noite
UFL (80000)	18.75	s	29.089	34.8755
LFL (13000)	18.75	s	76.8573	78.5916
LFL Frac (13000)	18.75	s	76.8573	78.5916

Concentration(ppm)	Averaging Time		Heights (m) for above distances	
			Dia	Noite
UFL (80000)	18.75	s	0	0
LFL (13000)	18.75	s	0	0
LFL Frac (13000)	18.75	s	0	0

Late Pool Fire Hazard

Path: \Terminal Adonai - Efeitos físicos\Simulações\H147 (P)

	Dia	Noite
Late Pool Fire Status	Hazard	Hazard

Radiation Effects: Late Pool Fire Ellipse

Path: \Terminal Adonai - Efeitos físicos\Simulações\H147 (P)

			Distance (m)	
			Dia	Noite
Radiation Level	9.83	kW/m2	27.6747	26.2873
Radiation Level	19.46	kW/m2	20.9391	20.9391
Radiation Level	35	kW/m2	Not Reached	Not Reached

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Radiation Effects: Late Pool Fire Distance

Path: \Terminal Adonai - Efeitos físicos\Simulações\H147 (P)

	Dia	Noite
Radiation Level (kW/m2)		

Fireball Hazard

Path: \Terminal Adonai - Efeitos físicos\Simulações\H147 (P)

	Dia	Noite
Fireball Flame Status	No Hazard	No Hazard

Flash Fire Envelope

Path: \Terminal Adonai - Efeitos físicos\Simulações\H147 (P)

All flammable results are reported at the flammable effect height 0 m

			Dia	Noite
Furthest Extent	13000	ppm	76.8573	78.5916
Furthest Extent	13000	ppm	76.8573	78.5916
			Heights (m) for above distances	
			Dia	Noite
Furthest Extent	13000	ppm	0	0
Furthest Extent	13000	ppm	0	0

Explosion Effects: Early Explosion

Path: \Terminal Adonai - Efeitos físicos\Simulações\H147 (P)

Early Explosions are assumed to be centered at the release location
Explosion Model Used : TNT

			Dia	Noite
Supplied Flammable Mass		kg	596874	596874
			Distance (m) at Overpressure Levels	
			Dia	Noite
Overpressure	0.05	bar	No Hazard	No Hazard
Overpressure	0.1	bar	No Hazard	No Hazard
Overpressure	0.3	bar	No Hazard	No Hazard
			Used Mass (kg) at Overpressure Levels	
			Dia	Noite
Overpressure	0.05	bar	0	0
Overpressure	0.1	bar	0	0
Overpressure	0.3	bar	0	0

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Explosion Effects: Late Ignition

Path: \Terminal Adonai - Efeitos físicos\Simulações\H147 (P)

Explosion Model Used : TNT

Explosion Location Criterion: Cloud Center

All distances are measured from the Source

All flammable results are reported at the flammable effect height 0 m

			Maximum Distance (m) at Overpressure Level	
			Dia	Noite
Overpressure	0.05	bar	157.706	163.394
Overpressure	0.1	bar	109.407	107.747
Overpressure	0.3	bar	70.2224	62.1384
			Supplementary Data at 0.05 bar	
			Dia	Noite
Supplied Flammable Mass		kg	554.355	661.706
Used Flammable Mass		kg	554.355	661.706
Overpressure Radius		m	138.335	146.743
Distance to:				
- Ignition Source		m	60	70
- Cloud Front/Centre		m	19.3716	16.651
- Explosion Centre		m	19.3716	16.651
			Supplementary Data at 0.1 bar	
			Dia	Noite
Supplied Flammable Mass		kg	419.649	661.706
Used Flammable Mass		kg	419.649	661.706
Overpressure Radius		m	78.266	91.096
Distance to:				
- Ignition Source		m	70	70
- Cloud Front/Centre		m	31.1414	16.651
- Explosion Centre		m	31.1414	16.651
			Supplementary Data at 0.3 bar	
			Dia	Noite
Supplied Flammable Mass		kg	419.649	661.706
Used Flammable Mass		kg	419.649	661.706
Overpressure Radius		m	39.0809	45.4874
Distance to:				
- Ignition Source		m	70	70
- Cloud Front/Centre		m	31.1414	16.651
- Explosion Centre		m	31.1414	16.651

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Weather Conditions

Path: \Terminal Adonai - Efeitos físicos\Simulações\H147 (P)

		Dia	Noite
Wind Speed	m/s	3	2
Pasquill Stability		C	E
Surface Roughness Length	mm	1000	1000
Surface Roughness Parameter		0.173718	0.173718
Atmospheric Temperature	degC	25	20
Surface Temperature	degC	30	20
Relative Humidity	fraction	0.8	0.8

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

H148 (A)

Base Case

CASE Name: Data

Path: \Terminal Adonai - Efeitos físicos\Simulações\H148 (A)

User-Defined Data

Material

Material Identifier	ACETONE
Type of Vessel	Padded Liquid
Pressure Specification	Pressure specified
Storage Pressure - gauge	0.03 bar
Temperature	25 degC
Volume Inventory	480 m3

Scenario

Scenario Type	Catastrophic rupture
Phase to be Released	Liquid
Building Wake Effect	None

Location

Elevation	0 m
Use ERPG averaging time	ERPG not selected
Use IDLH averaging time	IDLH not selected
Use STEL averaging time	STEL not selected
Supply a user defined averaging time	Not supplied

Bund

Status of Bund	Bund present
Bund Area	1266 m2
[Type of Bund Surface	User-Defined (Land)]
Bund Height	3 m
[Bund Failure Modeling	Bund cannot fail]

Indoor/Outdoor

Location of release	Open air release
---------------------	------------------

Flammable

Explosion Method	TNT
Jet Fire Method	Cone Model

Dispersion

Late Ignition Location	No ignition location
Mass Inventory of material to Disperse	3.776E5 kg
Use Burst Pressure	No - Use release pressure for fireball

Fireball Parameters

[Mass Modification Factor	3]
[Calculation method for fireball	DNV Recommended]
[TNO model flame temperature	1727 degC]

Toxic Parameters

[Indoor Calculations	Unselected]
[Wind Dependent Exchange Rate	Case Specified]

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

[Building Exchange Rate	4 /hr]
[Tail Time	1800 s]
[Set averaging time equal to exposure time	Use a fixed averaging time]
[Cut-off fraction of toxic load for exposure time calculation	0.05 fraction]
[Cut-off concentration for exposure time calculations	0 fraction]

Geometry

Shape	Point
Dimension	2D
System	Absolute
East(1)	0 m
North(1)	0 m

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Path: \Terminal Adonai - Efeitos físicos\Simulações\H148 (A)

DISCHARGE DATA for Weather: Global Weathers\Dia

Wind Speed: 3.00 m/s
Wind Speed at Height (Calculated) 1.78 m/s
Pasquill Stability: C

USER-DEFINED QUANTITIES

Material ACETONE
Scenario Catastrophic rupture
Inventory 377,558.66 kg
Fixed Duration n/a s

Stagnation data (data at upstream end for long pipe):

- Pressure 1.04 bar
- Temperature 25.00 degC
- Fluid State Non-saturated liquid

CALCULATED QUANTITIES

Mass Flow of Air (Vent from Vapor Space only) n/a
Mass Flowrate n/a kg/s
Release Duration n/a s
Orifice or pipe exit data (before atmospheric expansion):
- Pressure n/a bar
- Temperature n/a degC
- Vena Contracta Velocity (exit velocity for pipe releases) n/a m/s
- Discharge Coefficient n/a
Final data (after atmospheric expansion):
- Temperature 25.00 degC
- Liquid Mass Fraction 1.00 fraction
- Droplet Diameter 734.74 um
- Expanded Radius n/a m
- Velocity 1.11 m/s

DISCHARGE DATA for Weather: Global Weathers\Noite

Wind Speed: 2.00 m/s
Wind Speed at Height (Calculated) 0.83 m/s
Pasquill Stability: E

USER-DEFINED QUANTITIES

Material ACETONE
Scenario Catastrophic rupture
Inventory 377,558.66 kg
Fixed Duration n/a s

Stagnation data (data at upstream end for long pipe):

- Pressure 1.04 bar
- Temperature 25.00 degC
- Fluid State Non-saturated liquid

CALCULATED QUANTITIES

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Mass Flow of Air (Vent from Vapor Space only)	n/a
Mass Flowrate	n/a kg/s
Release Duration	n/a s
Orifice or pipe exit data (before atmospheric expansion):	
- Pressure	n/a bar
- Temperature	n/a degC
- Vena Contracta Velocity (exit velocity for pipe releases)	n/a m/s
- Discharge Coefficient	n/a
Final data (after atmospheric expansion):	
- Temperature	25.00 degC
- Liquid Mass Fraction	1.00 fraction
- Droplet Diameter	734.74 um
- Expanded Radius	n/a m
- Velocity	1.11 m/s



Consequence Results

Pool Vaporization Results

Path: \Terminal Adonai - Efeitos físicos\Simulações\H148 (A)

N.B. Pool vaporization segments begin when the cloud has left the pool

		Dia	Noite
Liquid Rainout	fraction	0.999254	0.999255
Initial Vapor Cloud	kg	281.612	281.445
Time Pool Left Behind	s	36.5815	87.1415

Cloud Segment 1

		Dia	Noite
Cloud Segment Duration	s	600	600
Pool Vaporization Rate	kg/s	9.09412	7.30266
Maximum Pool Radius	m	20.0744	20.0744

Distance to Concentration Results

Path: \Terminal Adonai - Efeitos físicos\Simulações\H148 (A)

The height for user defined concentrations is the user defined height 0 m

All toxic results are reported at the toxic effect height 1 m

All flammable results are reported at the flammable effect height 0 m

Concentration(ppm)	Averaging Time		Dia	Noite	Distance (m)
UFL (128000)	18.75	s	11.0885	12.1857	
LFL (26000)	18.75	s	36.3833	38.2186	
LFL Frac (26000)	18.75	s	36.3833	38.2186	
Concentration(ppm)	Averaging Time		Dia	Noite	Heights (m) for above distances
UFL (128000)	18.75	s	0	0	
LFL (26000)	18.75	s	0	0	
LFL Frac (26000)	18.75	s	0	0	

Late Pool Fire Hazard

Path: \Terminal Adonai - Efeitos físicos\Simulações\H148 (A)

	Dia	Noite
Late Pool Fire Status	Hazard	Hazard

Radiation Effects: Late Pool Fire Ellipse

Path: \Terminal Adonai - Efeitos físicos\Simulações\H148 (A)

			Dia	Noite	Distance (m)
Radiation Level	9.83	kW/m2	77.0919	75.0114	
Radiation Level	19.46	kW/m2	58.3726	55.1592	
Radiation Level	35	kW/m2	41.5978	38.4001	

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Radiation Effects: Late Pool Fire Distance

Path: \Terminal Adonai - Efeitos físicos\Simulações\H148 (A)

	Dia	Noite
Radiation Level (kW/m2)		

Fireball Hazard

Path: \Terminal Adonai - Efeitos físicos\Simulações\H148 (A)

	Dia	Noite
Fireball Flame Status	No Hazard	No Hazard

Flash Fire Envelope

Path: \Terminal Adonai - Efeitos físicos\Simulações\H148 (A)

All flammable results are reported at the flammable effect height 0 m

			Dia	Noite
Furthest Extent	26000	ppm	36.3833	38.2186
Furthest Extent	26000	ppm	36.3833	38.2186
				Heights (m) for above distances
			Dia	Noite
Furthest Extent	26000	ppm	0	0
Furthest Extent	26000	ppm	0	0

Explosion Effects: Early Explosion

Path: \Terminal Adonai - Efeitos físicos\Simulações\H148 (A)

Early Explosions are assumed to be centered at the release location
Explosion Model Used : TNT

			Dia	Noite
Supplied Flammable Mass		kg	377559	377559
				Distance (m) at Overpressure Levels
			Dia	Noite
Overpressure	0.05	bar	No Hazard	No Hazard
Overpressure	0.1	bar	No Hazard	No Hazard
Overpressure	0.3	bar	No Hazard	No Hazard
				Used Mass (kg) at Overpressure Levels
			Dia	Noite
Overpressure	0.05	bar	0	0
Overpressure	0.1	bar	0	0
Overpressure	0.3	bar	0	0

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Explosion Effects: Late Ignition

Path: \Terminal Adonai - Efeitos físicos\Simulações\H148 (A)

Explosion Model Used : TNT

Explosion Location Criterion: Cloud Center

All distances are measured from the Source

All flammable results are reported at the flammable effect height 0 m

			Maximum Distance (m) at Overpressure Level	
			Dia	Noite
Overpressure	0.05	bar	91.077	92.6988
Overpressure	0.1	bar	59.5253	59.1977
Overpressure	0.3	bar	33.6653	31.74

			Supplementary Data at 0.05 bar	
			Dia	Noite
Supplied Flammable Mass		kg	189.915	227.335
Used Flammable Mass		kg	189.915	227.335
Overpressure Radius		m	83.203	88.3436
Distance to:				
- Ignition Source		m	30	30
- Cloud Front/Centre		m	7.87402	4.35522
- Explosion Centre		m	7.87402	4.35522

			Supplementary Data at 0.1 bar	
			Dia	Noite
Supplied Flammable Mass		kg	189.915	227.335
Used Flammable Mass		kg	189.915	227.335
Overpressure Radius		m	51.6512	54.8424
Distance to:				
- Ignition Source		m	30	30
- Cloud Front/Centre		m	7.87402	4.35522
- Explosion Centre		m	7.87402	4.35522

			Supplementary Data at 0.3 bar	
			Dia	Noite
Supplied Flammable Mass		kg	189.915	227.335
Used Flammable Mass		kg	189.915	227.335
Overpressure Radius		m	25.7913	27.3848
Distance to:				
- Ignition Source		m	30	30
- Cloud Front/Centre		m	7.87402	4.35522
- Explosion Centre		m	7.87402	4.35522

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Weather Conditions

Path: \Terminal Adonai - Efeitos físicos\Simulações\H148 (A)

		Dia	Noite
Wind Speed	m/s	3	2
Pasquill Stability		C	E
Surface Roughness Length	mm	1000	1000
Surface Roughness Parameter		0.173718	0.173718
Atmospheric Temperature	degC	25	20
Surface Temperature	degC	30	20
Relative Humidity	fraction	0.8	0.8

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

H148 (B)

Base Case

CASE Name: Data

Path: \Terminal Adonai - Efeitos físicos\Simulações\H148 (B)

User-Defined Data

Material

Material Identifier	BENZENE
Type of Vessel	Padded Liquid
Pressure Specification	Pressure specified
Storage Pressure - gauge	0.03 bar
Temperature	25 degC
Volume Inventory	480 m3

Scenario

Scenario Type	Catastrophic rupture
Phase to be Released	Liquid
Building Wake Effect	None

Location

Elevation	0 m
Use ERPG averaging time	ERPG not selected
Use IDLH averaging time	IDLH not selected
Use STEL averaging time	STEL not selected
Supply a user defined averaging time	Not supplied

Bund

Status of Bund	Bund present
Bund Area	1266 m2
[Type of Bund Surface	User-Defined (Land)]
Bund Height	3 m
[Bund Failure Modeling	Bund cannot fail]

Indoor/Outdoor

Location of release	Open air release
---------------------	------------------

Flammable

Explosion Method	TNT
Jet Fire Method	Cone Model

Dispersion

Late Ignition Location	No ignition location
Mass Inventory of material to Disperse	4.19E5 kg
Use Burst Pressure	No - Use release pressure for fireball

Fireball Parameters

[Mass Modification Factor	3]
[Calculation method for fireball	DNV Recommended]
[TNO model flame temperature	1727 degC]

Toxic Parameters

[Indoor Calculations	Unselected]
[Wind Dependent Exchange Rate	Case Specified]

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

[Building Exchange Rate	4 /hr]
[Tail Time	1800 s]
[Set averaging time equal to exposure time	Use a fixed averaging time]
[Cut-off fraction of toxic load for exposure time calculation	0.05 fraction]
[Cut-off concentration for exposure time calculations	0 fraction]

Geometry

Shape	Point
Dimension	2D
System	Absolute
East(1)	0 m
North(1)	0 m

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Path: \Terminal Adonai - Efeitos físicos\Simulações\H148 (B)

DISCHARGE DATA for Weather: Global Weathers\Dia

Wind Speed: 3.00 m/s
Wind Speed at Height (Calculated) 1.78 m/s
Pasquill Stability: C

USER-DEFINED QUANTITIES

Material BENZENE
Scenario Catastrophic rupture
Inventory 419,043.56 kg
Fixed Duration n/a s

Stagnation data (data at upstream end for long pipe):

- Pressure 1.04 bar
- Temperature 25.00 degC
- Fluid State Non-saturated liquid

CALCULATED QUANTITIES

Mass Flow of Air (Vent from Vapor Space only) n/a
Mass Flowrate n/a kg/s
Release Duration n/a s
Orifice or pipe exit data (before atmospheric expansion):
- Pressure n/a bar
- Temperature n/a degC
- Vena Contracta Velocity (exit velocity for pipe releases) n/a m/s
- Discharge Coefficient n/a
Final data (after atmospheric expansion):
- Temperature 25.00 degC
- Liquid Mass Fraction 1.00 fraction
- Droplet Diameter 742.39 um
- Expanded Radius n/a m
- Velocity 0.82 m/s

DISCHARGE DATA for Weather: Global Weathers\Noite

Wind Speed: 2.00 m/s
Wind Speed at Height (Calculated) 0.83 m/s
Pasquill Stability: E

USER-DEFINED QUANTITIES

Material BENZENE
Scenario Catastrophic rupture
Inventory 419,043.56 kg
Fixed Duration n/a s

Stagnation data (data at upstream end for long pipe):

- Pressure 1.04 bar
- Temperature 25.00 degC
- Fluid State Non-saturated liquid

CALCULATED QUANTITIES

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Mass Flow of Air (Vent from Vapor Space only)	n/a
Mass Flowrate	n/a kg/s
Release Duration	n/a s
Orifice or pipe exit data (before atmospheric expansion):	
- Pressure	n/a bar
- Temperature	n/a degC
- Vena Contracta Velocity (exit velocity for pipe releases)	n/a m/s
- Discharge Coefficient	n/a
Final data (after atmospheric expansion):	
- Temperature	25.00 degC
- Liquid Mass Fraction	1.00 fraction
- Droplet Diameter	742.39 um
- Expanded Radius	n/a m
- Velocity	0.82 m/s



Consequence Results

Pool Vaporization Results

Path: \Terminal Adonai - Efeitos físicos\Simulações\H148 (B)

N.B. Pool vaporization segments begin when the cloud has left the pool

		Dia	Noite
Liquid Rainout	fraction	0.999951	0.999953
Initial Vapor Cloud	kg	20.5259	19.5516
Time Pool Left Behind	s	26.9453	63.6481

Cloud Segment 1

		Dia	Noite
Cloud Segment Duration	s	600	600
Pool Vaporization Rate	kg/s	4.46375	3.41515
Maximum Pool Radius	m	20.0744	20.0744

Distance to Concentration Results

Path: \Terminal Adonai - Efeitos físicos\Simulações\H148 (B)

The height for user defined concentrations is the user defined height 0 m

All toxic results are reported at the toxic effect height 1 m

All flammable results are reported at the flammable effect height 0 m

Concentration(ppm)	Averaging Time		Dia	Noite	Distance (m)
UFL (79000)	18.75	s	6.65262	6.64328	
LFL (13000)	18.75	s	23.6212	22.187	
LFL Frac (13000)	18.75	s	23.6212	22.187	

Concentration(ppm)	Averaging Time		Dia	Noite	Heights (m) for above distances
UFL (79000)	18.75	s	0	0	
LFL (13000)	18.75	s	0	0	
LFL Frac (13000)	18.75	s	0	0	

Late Pool Fire Hazard

Path: \Terminal Adonai - Efeitos físicos\Simulações\H148 (B)

	Dia	Noite
Late Pool Fire Status	Hazard	Hazard

Radiation Effects: Late Pool Fire Ellipse

Path: \Terminal Adonai - Efeitos físicos\Simulações\H148 (B)

			Dia	Noite	Distance (m)
Radiation Level	9.83	kW/m2	27.7055	26.4193	
Radiation Level	19.46	kW/m2	21.0744	21.0744	
Radiation Level	35	kW/m2	Not Reached	Not Reached	

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Radiation Effects: Late Pool Fire Distance

Path: \Terminal Adonai - Efeitos físicos\Simulações\H148 (B)

	Dia	Noite
Radiation Level (kW/m2)		

Fireball Hazard

Path: \Terminal Adonai - Efeitos físicos\Simulações\H148 (B)

	Dia	Noite
Fireball Flame Status	No Hazard	No Hazard

Flash Fire Envelope

Path: \Terminal Adonai - Efeitos físicos\Simulações\H148 (B)

All flammable results are reported at the flammable effect height 0 m

			Dia	Noite
Furthest Extent	13000	ppm	23.6212	22.187
Furthest Extent	13000	ppm	23.6212	22.187

			Dia	Noite
Furthest Extent	13000	ppm	0	0
Furthest Extent	13000	ppm	0	0

Explosion Effects: Early Explosion

Path: \Terminal Adonai - Efeitos físicos\Simulações\H148 (B)

Early Explosions are assumed to be centered at the release location
Explosion Model Used : TNT

			Dia	Noite
Supplied Flammable Mass		kg	419044	419044

			Distance (m) at Overpressure Levels	
			Dia	Noite
Overpressure	0.05	bar	No Hazard	No Hazard
Overpressure	0.1	bar	No Hazard	No Hazard
Overpressure	0.3	bar	No Hazard	No Hazard

			Used Mass (kg) at Overpressure Levels	
			Dia	Noite
Overpressure	0.05	bar	0	0
Overpressure	0.1	bar	0	0
Overpressure	0.3	bar	0	0

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Explosion Effects: Late Ignition

Path: \Terminal Adonai - Efeitos físicos\Simulações\H148 (B)

Explosion Model Used : TNT

Explosion Location Criterion: Cloud Center

All distances are measured from the Source

All flammable results are reported at the flammable effect height 0 m

			Maximum Distance (m) at Overpressure Level	
			Dia	Noite
Overpressure	0.05	bar	47.9045	50.2705
Overpressure	0.1	bar	33.258	33.47
Overpressure	0.3	bar	21.2537	19.7002

			Supplementary Data at 0.05 bar	
			Dia	Noite
Supplied Flammable Mass		kg	13.5164	20.3999
Used Flammable Mass		kg	13.5164	20.3999
Overpressure Radius		m	38.6233	44.3036
Distance to:				
- Ignition Source		m	20	20
- Cloud Front/Centre		m	9.28122	5.96692
- Explosion Centre		m	9.28122	5.96692

			Supplementary Data at 0.1 bar	
			Dia	Noite
Supplied Flammable Mass		kg	13.5164	20.3999
Used Flammable Mass		kg	13.5164	20.3999
Overpressure Radius		m	23.9768	27.503
Distance to:				
- Ignition Source		m	20	20
- Cloud Front/Centre		m	9.28122	5.96692
- Explosion Centre		m	9.28122	5.96692

			Supplementary Data at 0.3 bar	
			Dia	Noite
Supplied Flammable Mass		kg	13.5164	20.3999
Used Flammable Mass		kg	13.5164	20.3999
Overpressure Radius		m	11.9724	13.7332
Distance to:				
- Ignition Source		m	20	20
- Cloud Front/Centre		m	9.28122	5.96692
- Explosion Centre		m	9.28122	5.96692

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Weather Conditions

Path: \Terminal Adonai - Efeitos físicos\Simulações\H148 (B)

		Dia	Noite
Wind Speed	m/s	3	2
Pasquill Stability		C	E
Surface Roughness Length	mm	1000	1000
Surface Roughness Parameter		0.173718	0.173718
Atmospheric Temperature	degC	25	20
Surface Temperature	degC	30	20
Relative Humidity	fraction	0.8	0.8

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

H148 (E)

Base Case

CASE Name: Data

Path: \Terminal Adonai - Efeitos físicos\Simulações\H148 (E)

User-Defined Data

Material

Material Identifier	ETHANOL
Type of Vessel	Padded Liquid
Pressure Specification	Pressure specified
Storage Pressure - gauge	0.03 bar
Temperature	25 degC
Volume Inventory	480 m3

Scenario

Scenario Type	Catastrophic rupture
Phase to be Released	Liquid
Building Wake Effect	None

Location

Elevation	0 m
Use ERPG averaging time	ERPG not selected
Use IDLH averaging time	IDLH not selected
Use STEL averaging time	STEL not selected
Supply a user defined averaging time	Not supplied

Bund

Status of Bund	Bund present
Bund Area	1266 m2
[Type of Bund Surface	User-Defined (Land)]
Bund Height	3 m
[Bund Failure Modeling	Bund cannot fail]

Indoor/Outdoor

Location of release	Open air release
---------------------	------------------

Flammable

Explosion Method	TNT
Jet Fire Method	Cone Model

Dispersion

Late Ignition Location	No ignition location
Mass Inventory of material to Disperse	3.772E5 kg
Use Burst Pressure	No - Use release pressure for fireball

Fireball Parameters

[Mass Modification Factor	3]
[Calculation method for fireball	DNV Recommended]
[TNO model flame temperature	1727 degC]

Toxic Parameters

[Indoor Calculations	Unselected]
[Wind Dependent Exchange Rate	Case Specified]

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

[Building Exchange Rate	4 /hr]
[Tail Time	1800 s]
[Set averaging time equal to exposure time	Use a fixed averaging time]
[Cut-off fraction of toxic load for exposure time calculation	0.05 fraction]
[Cut-off concentration for exposure time calculations	0 fraction]

Geometry

Shape	Point
Dimension	2D
System	Absolute
East(1)	0 m
North(1)	0 m

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Path: \Terminal Adonai - Efeitos físicos\Simulações\H148 (E)

DISCHARGE DATA for Weather: Global Weathers\Dia

Wind Speed: 3.00 m/s
Wind Speed at Height (Calculated) 1.78 m/s
Pasquill Stability: C

USER-DEFINED QUANTITIES

Material ETHANOL
Scenario Catastrophic rupture
Inventory 377,229.59 kg
Fixed Duration n/a s

Stagnation data (data at upstream end for long pipe):

- Pressure 1.04 bar
- Temperature 25.00 degC
- Fluid State Non-saturated liquid

CALCULATED QUANTITIES

Mass Flow of Air (Vent from Vapor Space only) n/a
Mass Flowrate n/a kg/s
Release Duration n/a s
Orifice or pipe exit data (before atmospheric expansion):
- Pressure n/a bar
- Temperature n/a degC
- Vena Contracta Velocity (exit velocity for pipe releases) n/a m/s
- Discharge Coefficient n/a
Final data (after atmospheric expansion):
- Temperature 25.00 degC
- Liquid Mass Fraction 1.00 fraction
- Droplet Diameter 734.68 um
- Expanded Radius n/a m
- Velocity 1.23 m/s

DISCHARGE DATA for Weather: Global Weathers\Noite

Wind Speed: 2.00 m/s
Wind Speed at Height (Calculated) 0.83 m/s
Pasquill Stability: E

USER-DEFINED QUANTITIES

Material ETHANOL
Scenario Catastrophic rupture
Inventory 377,229.59 kg
Fixed Duration n/a s

Stagnation data (data at upstream end for long pipe):

- Pressure 1.04 bar
- Temperature 25.00 degC
- Fluid State Non-saturated liquid

CALCULATED QUANTITIES

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Mass Flow of Air (Vent from Vapor Space only)	n/a
Mass Flowrate	n/a kg/s
Release Duration	n/a s
Orifice or pipe exit data (before atmospheric expansion):	
- Pressure	n/a bar
- Temperature	n/a degC
- Vena Contracta Velocity (exit velocity for pipe releases)	n/a m/s
- Discharge Coefficient	n/a
Final data (after atmospheric expansion):	
- Temperature	25.00 degC
- Liquid Mass Fraction	1.00 fraction
- Droplet Diameter	734.68 um
- Expanded Radius	n/a m
- Velocity	1.23 m/s



Consequence Results

Pool Vaporization Results

Path: \Terminal Adonai - Efeitos físicos\Simulações\H148 (E)

N.B. Pool vaporization segments begin when the cloud has left the pool

		Dia	Noite
Liquid Rainout	fraction	0.999822	0.999821
Initial Vapor Cloud	kg	67.2101	67.4384
Time Pool Left Behind	s	25.3431	51.2654

Cloud Segment 1

		Dia	Noite
Cloud Segment Duration	s	600	600
Pool Vaporization Rate	kg/s	1.85399	1.47168
Maximum Pool Radius	m	20.0744	20.0744

Distance to Concentration Results

Path: \Terminal Adonai - Efeitos físicos\Simulações\H148 (E)

The height for user defined concentrations is the user defined height 0 m

All toxic results are reported at the toxic effect height 1 m

All flammable results are reported at the flammable effect height 0 m

Concentration(ppm)	Averaging Time		Dia	Noite	Distance (m)
UFL (190000)	18.75	s	8.09699	8.02157	
LFL (43000)	18.75	s	8.19199	8.11685	
LFL Frac (43000)	18.75	s	8.19199	8.11685	
Concentration(ppm)	Averaging Time		Dia	Noite	Heights (m) for above distances
UFL (190000)	18.75	s	0	0	
LFL (43000)	18.75	s	0	0	
LFL Frac (43000)	18.75	s	0	0	

Late Pool Fire Hazard

Path: \Terminal Adonai - Efeitos físicos\Simulações\H148 (E)

	Dia	Noite
Late Pool Fire Status	Hazard	Hazard

Radiation Effects: Late Pool Fire Ellipse

Path: \Terminal Adonai - Efeitos físicos\Simulações\H148 (E)

			Dia	Noite	Distance (m)
Radiation Level	9.83	kW/m2	56.1026	54.6337	
Radiation Level	19.46	kW/m2	42.7151	40.3915	
Radiation Level	35	kW/m2	27.4461	26.1629	

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Radiation Effects: Late Pool Fire Distance

Path: \Terminal Adonai - Efeitos físicos\Simulações\H148 (E)

	Dia	Noite
Radiation Level (kW/m2)		

Fireball Hazard

Path: \Terminal Adonai - Efeitos físicos\Simulações\H148 (E)

	Dia	Noite
Fireball Flame Status	No Hazard	No Hazard

Flash Fire Envelope

Path: \Terminal Adonai - Efeitos físicos\Simulações\H148 (E)

All flammable results are reported at the flammable effect height 0 m

			Dia	Noite
Furthest Extent	43000	ppm	8.19199	8.11685
Furthest Extent	43000	ppm	8.19199	8.11685

			Dia	Noite
Furthest Extent	43000	ppm	0	0
Furthest Extent	43000	ppm	0	0

Explosion Effects: Early Explosion

Path: \Terminal Adonai - Efeitos físicos\Simulações\H148 (E)

Early Explosions are assumed to be centered at the release location
Explosion Model Used : TNT

			Dia	Noite
Supplied Flammable Mass		kg	377230	377230

			Distance (m) at Overpressure Levels	
			Dia	Noite
Overpressure	0.05	bar	No Hazard	No Hazard
Overpressure	0.1	bar	No Hazard	No Hazard
Overpressure	0.3	bar	No Hazard	No Hazard

			Used Mass (kg) at Overpressure Levels	
			Dia	Noite
Overpressure	0.05	bar	0	0
Overpressure	0.1	bar	0	0
Overpressure	0.3	bar	0	0

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Weather Conditions

Path: \Terminal Adonai - Efeitos físicos\Simulações\H148 (E)

		Dia	Noite
Wind Speed	m/s	3	2
Pasquill Stability		C	E
Surface Roughness Length	mm	1000	1000
Surface Roughness Parameter		0.173718	0.173718
Atmospheric Temperature	degC	25	20
Surface Temperature	degC	30	20
Relative Humidity	fraction	0.8	0.8

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

H148 (H)

Base Case

CASE Name: Data

Path: \Terminal Adonai - Efeitos físicos\Simulações\H148 (H)

User-Defined Data

Material

Material Identifier	N-HEXANE
Type of Vessel	Padded Liquid
Pressure Specification	Pressure specified
Storage Pressure - gauge	0.03 bar
Temperature	25 degC
Volume Inventory	480 m3

Scenario

Scenario Type	Catastrophic rupture
Phase to be Released	Liquid
Building Wake Effect	None

Location

Elevation	0 m
Use ERPG averaging time	ERPG not selected
Use IDLH averaging time	IDLH not selected
Use STEL averaging time	STEL not selected
Supply a user defined averaging time	Not supplied

Bund

Status of Bund	Bund present
Bund Area	1266 m2
[Type of Bund Surface	User-Defined (Land)]
Bund Height	3 m
[Bund Failure Modeling	Bund cannot fail]

Indoor/Outdoor

Location of release	Open air release
---------------------	------------------

Flammable

Explosion Method	TNT
Jet Fire Method	Cone Model

Dispersion

Late Ignition Location	No ignition location
Mass Inventory of material to Disperse	3.149E5 kg
Use Burst Pressure	No - Use release pressure for fireball

Fireball Parameters

[Mass Modification Factor	3]
[Calculation method for fireball	DNV Recommended]
[TNO model flame temperature	1727 degC]

Toxic Parameters

[Indoor Calculations	Unselected]
[Wind Dependent Exchange Rate	Case Specified]

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

[Building Exchange Rate	4 /hr]
[Tail Time	1800 s]
[Set averaging time equal to exposure time	Use a fixed averaging time]
[Cut-off fraction of toxic load for exposure time calculation	0.05 fraction]
[Cut-off concentration for exposure time calculations	0 fraction]

Geometry

Shape	Point
Dimension	2D
System	Absolute
East(1)	0 m
North(1)	0 m

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Path: \Terminal Adonai - Efeitos físicos\Simulações\H148 (H)

DISCHARGE DATA for Weather: Global Weathers\Dia

Wind Speed: 3.00 m/s
Wind Speed at Height (Calculated) 1.78 m/s
Pasquill Stability: C

USER-DEFINED QUANTITIES

Material N-HEXANE
Scenario Catastrophic rupture
Inventory 314,892.56 kg
Fixed Duration n/a s

Stagnation data (data at upstream end for long pipe):

- Pressure 1.04 bar
- Temperature 25.00 degC
- Fluid State Non-saturated liquid

CALCULATED QUANTITIES

Mass Flow of Air (Vent from Vapor Space only) n/a
Mass Flowrate n/a kg/s
Release Duration n/a s
Orifice or pipe exit data (before atmospheric expansion):
- Pressure n/a bar
- Temperature n/a degC
- Vena Contracta Velocity (exit velocity for pipe releases) n/a m/s
- Discharge Coefficient n/a
Final data (after atmospheric expansion):
- Temperature 25.00 degC
- Liquid Mass Fraction 1.00 fraction
- Droplet Diameter 721.42 um
- Expanded Radius n/a m
- Velocity 1.04 m/s

DISCHARGE DATA for Weather: Global Weathers\Noite

Wind Speed: 2.00 m/s
Wind Speed at Height (Calculated) 0.83 m/s
Pasquill Stability: E

USER-DEFINED QUANTITIES

Material N-HEXANE
Scenario Catastrophic rupture
Inventory 314,892.56 kg
Fixed Duration n/a s

Stagnation data (data at upstream end for long pipe):

- Pressure 1.04 bar
- Temperature 25.00 degC
- Fluid State Non-saturated liquid

CALCULATED QUANTITIES

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Mass Flow of Air (Vent from Vapor Space only)	n/a
Mass Flowrate	n/a kg/s
Release Duration	n/a s
Orifice or pipe exit data (before atmospheric expansion):	
- Pressure	n/a bar
- Temperature	n/a degC
- Vena Contracta Velocity (exit velocity for pipe releases)	n/a m/s
- Discharge Coefficient	n/a
Final data (after atmospheric expansion):	
- Temperature	25.00 degC
- Liquid Mass Fraction	1.00 fraction
- Droplet Diameter	721.42 um
- Expanded Radius	n/a m
- Velocity	1.04 m/s



Consequence Results

Pool Vaporization Results

Path: \Terminal Adonai - Efeitos físicos\Simulações\H148 (H)

N.B. Pool vaporization segments begin when the cloud has left the pool

		Dia	Noite
Liquid Rainout	fraction	0.999755	0.999758
Initial Vapor Cloud	kg	77.0309	76.1191
Time Pool Left Behind	s	32.5543	79.4941

Cloud Segment 1

		Dia	Noite
Cloud Segment Duration	s	600	600
Pool Vaporization Rate	kg/s	7.1578	5.64983
Maximum Pool Radius	m	20.0744	20.0744

Distance to Concentration Results

Path: \Terminal Adonai - Efeitos físicos\Simulações\H148 (H)

The height for user defined concentrations is the user defined height 0 m

All toxic results are reported at the toxic effect height 1 m

All flammable results are reported at the flammable effect height 0 m

Concentration(ppm)	Averaging Time		Dia	Noite	Distance (m)
UFL (76800)	18.75	s	9.25489	10.901	
LFL (10500)	18.75	s	36.6858	36.6906	
LFL Frac (10500)	18.75	s	36.6858	36.6906	
Concentration(ppm)	Averaging Time		Dia	Noite	Heights (m) for above distances
UFL (76800)	18.75	s	0	0	
LFL (10500)	18.75	s	0	0	
LFL Frac (10500)	18.75	s	0	0	

Late Pool Fire Hazard

Path: \Terminal Adonai - Efeitos físicos\Simulações\H148 (H)

	Dia	Noite
Late Pool Fire Status	Hazard	Hazard

Radiation Effects: Late Pool Fire Ellipse

Path: \Terminal Adonai - Efeitos físicos\Simulações\H148 (H)

			Dia	Noite	Distance (m)
Radiation Level	9.83	kW/m2	27.7322	26.4128	
Radiation Level	19.46	kW/m2	21.0744	21.0744	
Radiation Level	35	kW/m2	Not Reached	Not Reached	

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Radiation Effects: Late Pool Fire Distance

Path: \Terminal Adonai - Efeitos físicos\Simulações\H148 (H)

	Dia	Noite
Radiation Level (kW/m2)		

Fireball Hazard

Path: \Terminal Adonai - Efeitos físicos\Simulações\H148 (H)

	Dia	Noite
Fireball Flame Status	No Hazard	No Hazard

Flash Fire Envelope

Path: \Terminal Adonai - Efeitos físicos\Simulações\H148 (H)

All flammable results are reported at the flammable effect height 0 m

			Dia	Noite
Furthest Extent	10500	ppm	36.6858	36.6906
Furthest Extent	10500	ppm	36.6858	36.6906

			Dia	Noite
Furthest Extent	10500	ppm	0	0
Furthest Extent	10500	ppm	0	0

Explosion Effects: Early Explosion

Path: \Terminal Adonai - Efeitos físicos\Simulações\H148 (H)

Early Explosions are assumed to be centered at the release location
Explosion Model Used : TNT

			Dia	Noite
Supplied Flammable Mass		kg	314893	314893

			Dia	Noite
Overpressure	0.05	bar	No Hazard	No Hazard
Overpressure	0.1	bar	No Hazard	No Hazard
Overpressure	0.3	bar	No Hazard	No Hazard

			Dia	Noite
Overpressure	0.05	bar	0	0
Overpressure	0.1	bar	0	0
Overpressure	0.3	bar	0	0

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Explosion Effects: Late Ignition

Path: \Terminal Adonai - Efeitos físicos\Simulações\H148 (H)

Explosion Model Used : TNT

Explosion Location Criterion: Cloud Center

All distances are measured from the Source

All flammable results are reported at the flammable effect height 0 m

			Maximum Distance (m) at Overpressure Level	
			Dia	Noite
Overpressure	0.05	bar	78.727	80.9734
Overpressure	0.1	bar	53.1425	52.6263
Overpressure	0.3	bar	32.1734	29.3928
			Supplementary Data at 0.05 bar	
			Dia	Noite
Supplied Flammable Mass		kg	64.654	87.9412
Used Flammable Mass		kg	64.654	87.9412
Overpressure Radius		m	67.4671	74.7523
Distance to:				
- Ignition Source		m	30	30
- Cloud Front/Centre		m	11.2599	6.2211
- Explosion Centre		m	11.2599	6.2211
			Supplementary Data at 0.1 bar	
			Dia	Noite
Supplied Flammable Mass		kg	64.654	87.9412
Used Flammable Mass		kg	64.654	87.9412
Overpressure Radius		m	41.8827	46.4052
Distance to:				
- Ignition Source		m	30	30
- Cloud Front/Centre		m	11.2599	6.2211
- Explosion Centre		m	11.2599	6.2211
			Supplementary Data at 0.3 bar	
			Dia	Noite
Supplied Flammable Mass		kg	64.654	87.9412
Used Flammable Mass		kg	64.654	87.9412
Overpressure Radius		m	20.9135	23.1717
Distance to:				
- Ignition Source		m	30	30
- Cloud Front/Centre		m	11.2599	6.2211
- Explosion Centre		m	11.2599	6.2211

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Weather Conditions

Path: \Terminal Adonai - Efeitos físicos\Simulações\H148 (H)

		Dia	Noite
Wind Speed	m/s	3	2
Pasquill Stability		C	E
Surface Roughness Length	mm	1000	1000
Surface Roughness Parameter		0.173718	0.173718
Atmospheric Temperature	degC	25	20
Surface Temperature	degC	30	20
Relative Humidity	fraction	0.8	0.8

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

H148 (M)

Base Case

CASE Name: Data

Path: \Terminal Adonai - Efeitos físicos\Simulações\H148 (M)

User-Defined Data

Material

Material Identifier	METHANOL
Type of Vessel	Padded Liquid
Pressure Specification	Pressure specified
Storage Pressure - gauge	0.03 bar
Temperature	25 degC
Volume Inventory	480 m3

Scenario

Scenario Type	Catastrophic rupture
Phase to be Released	Liquid
Building Wake Effect	None

Location

Elevation	0 m
Use ERPG averaging time	ERPG not selected
Use IDLH averaging time	IDLH not selected
Use STEL averaging time	STEL not selected
Supply a user defined averaging time	Not supplied

Bund

Status of Bund	Bund present
Bund Area	1266 m2
[Type of Bund Surface	User-Defined (Land)]
Bund Height	3 m
[Bund Failure Modeling	Bund cannot fail]

Indoor/Outdoor

Location of release	Open air release
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Flammable

Explosion Method	TNT
Jet Fire Method	Cone Model

Dispersion

Late Ignition Location	No ignition location
Mass Inventory of material to Disperse	3.79E5 kg
Use Burst Pressure	No - Use release pressure for fireball

Fireball Parameters

[Mass Modification Factor	3]
[Calculation method for fireball	DNV Recommended]
[TNO model flame temperature	1727 degC]

Toxic Parameters

[Indoor Calculations	Unselected]
[Wind Dependent Exchange Rate	Case Specified]

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

[Building Exchange Rate	4 /hr]
[Tail Time	1800 s]
[Set averaging time equal to exposure time	Use a fixed averaging time]
[Cut-off fraction of toxic load for exposure time calculation	0.05 fraction]
[Cut-off concentration for exposure time calculations	0 fraction]

Geometry

Shape	Point
Dimension	2D
System	Absolute
East(1)	0 m
North(1)	0 m

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Path: \Terminal Adonai - Efeitos físicos\Simulações\H148 (M)

DISCHARGE DATA for Weather: Global Weathers\Dia

Wind Speed: 3.00 m/s
Wind Speed at Height (Calculated) 1.78 m/s
Pasquill Stability: C

USER-DEFINED QUANTITIES

Material METHANOL
Scenario Catastrophic rupture
Inventory 379,016.31 kg
Fixed Duration n/a s

Stagnation data (data at upstream end for long pipe):

- Pressure 1.04 bar
- Temperature 25.00 degC
- Fluid State Non-saturated liquid

CALCULATED QUANTITIES

Mass Flow of Air (Vent from Vapor Space only) n/a
Mass Flowrate n/a kg/s
Release Duration n/a s
Orifice or pipe exit data (before atmospheric expansion):
- Pressure n/a bar
- Temperature n/a degC
- Vena Contracta Velocity (exit velocity for pipe releases) n/a m/s
- Discharge Coefficient n/a
Final data (after atmospheric expansion):
- Temperature 25.00 degC
- Liquid Mass Fraction 1.00 fraction
- Droplet Diameter 735.02 um
- Expanded Radius n/a m
- Velocity 1.54 m/s

DISCHARGE DATA for Weather: Global Weathers\Noite

Wind Speed: 2.00 m/s
Wind Speed at Height (Calculated) 0.83 m/s
Pasquill Stability: E

USER-DEFINED QUANTITIES

Material METHANOL
Scenario Catastrophic rupture
Inventory 379,016.31 kg
Fixed Duration n/a s

Stagnation data (data at upstream end for long pipe):

- Pressure 1.04 bar
- Temperature 25.00 degC
- Fluid State Non-saturated liquid

CALCULATED QUANTITIES

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Mass Flow of Air (Vent from Vapor Space only)	n/a
Mass Flowrate	n/a kg/s
Release Duration	n/a s
Orifice or pipe exit data (before atmospheric expansion):	
- Pressure	n/a bar
- Temperature	n/a degC
- Vena Contracta Velocity (exit velocity for pipe releases)	n/a m/s
- Discharge Coefficient	n/a
Final data (after atmospheric expansion):	
- Temperature	25.00 degC
- Liquid Mass Fraction	1.00 fraction
- Droplet Diameter	735.02 um
- Expanded Radius	n/a m
- Velocity	1.54 m/s



Consequence Results

Pool Vaporization Results

Path: \Terminal Adonai - Efeitos físicos\Simulações\H148 (M)

N.B. Pool vaporization segments begin when the cloud has left the pool

		Dia	Noite
Liquid Rainout	fraction	0.999395	0.999391
Initial Vapor Cloud	kg	229.273	230.872
Time Pool Left Behind	s	27.4233	50.2173

Cloud Segment 1

Cloud Segment Duration	s	600	600
Pool Vaporization Rate	kg/s	3.1875	2.56249

Maximum Pool Radius	m	20.0744	20.0744
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Distance to Concentration Results

Path: \Terminal Adonai - Efeitos físicos\Simulações\H148 (M)

The height for user defined concentrations is the user defined height 0 m

All toxic results are reported at the toxic effect height 1 m

All flammable results are reported at the flammable effect height 0 m

Concentration(ppm)	Averaging Time		Dia	Noite	Distance (m)
UFL (360000)	18.75	s	9.87363	9.74574	
LFL (73000)	18.75	s	15.1522	15.5404	
LFL Frac (73000)	18.75	s	15.1522	15.5404	
Concentration(ppm)	Averaging Time		Dia	Noite	Heights (m) for above distances
UFL (360000)	18.75	s	0	0	
LFL (73000)	18.75	s	0	0	
LFL Frac (73000)	18.75	s	0	0	

Late Pool Fire Hazard

Path: \Terminal Adonai - Efeitos físicos\Simulações\H148 (M)

	Dia	Noite
Late Pool Fire Status	Hazard	Hazard

Radiation Effects: Late Pool Fire Ellipse

Path: \Terminal Adonai - Efeitos físicos\Simulações\H148 (M)

			Dia	Noite	Distance (m)
Radiation Level	9.83	kW/m2	40.6569	39.1868	
Radiation Level	19.46	kW/m2	27.7243	26.3797	
Radiation Level	35	kW/m2	21.0744	21.0744	

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Radiation Effects: Late Pool Fire Distance

Path: \Terminal Adonai - Efeitos físicos\Simulações\H148 (M)

	Dia	Noite
Radiation Level (kW/m2)		

Fireball Hazard

Path: \Terminal Adonai - Efeitos físicos\Simulações\H148 (M)

	Dia	Noite
Fireball Flame Status	No Hazard	No Hazard

Flash Fire Envelope

Path: \Terminal Adonai - Efeitos físicos\Simulações\H148 (M)

All flammable results are reported at the flammable effect height 0 m

			Dia	Noite
Furthest Extent	73000	ppm	15.1522	15.5404
Furthest Extent	73000	ppm	15.1522	15.5404

			Dia	Noite
Furthest Extent	73000	ppm	0	0
Furthest Extent	73000	ppm	0	0

Explosion Effects: Early Explosion

Path: \Terminal Adonai - Efeitos físicos\Simulações\H148 (M)

Early Explosions are assumed to be centered at the release location
Explosion Model Used : TNT

			Dia	Noite
Supplied Flammable Mass		kg	379016	379016

			Distance (m) at Overpressure Levels	
			Dia	Noite
Overpressure	0.05	bar	No Hazard	No Hazard
Overpressure	0.1	bar	No Hazard	No Hazard
Overpressure	0.3	bar	No Hazard	No Hazard

			Used Mass (kg) at Overpressure Levels	
			Dia	Noite
Overpressure	0.05	bar	0	0
Overpressure	0.1	bar	0	0
Overpressure	0.3	bar	0	0

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Explosion Effects: Late Ignition

Path: \Terminal Adonai - Efeitos físicos\Simulações\H148 (M)

Explosion Model Used : TNT

Explosion Location Criterion: Cloud Center

All distances are measured from the Source

All flammable results are reported at the flammable effect height 0 m

			Maximum Distance (m) at Overpressure Level	
			Dia	Noite
Overpressure	0.05	bar	62.3371	55.6542
Overpressure	0.1	bar	39.1522	35.2593
Overpressure	0.3	bar	20.1496	18.5435

Supplementary Data at 0.05 bar

			Dia	Noite
Supplied Flammable Mass		kg	108.067	73.5599
Used Flammable Mass		kg	108.067	73.5599
Overpressure Radius		m	61.1396	53.7821
Distance to:				
- Ignition Source		m	10	10
- Cloud Front/Centre		m	1.19757	1.87208
- Explosion Centre		m	1.19757	1.87208

Supplementary Data at 0.1 bar

			Dia	Noite
Supplied Flammable Mass		kg	108.067	73.5599
Used Flammable Mass		kg	108.067	73.5599
Overpressure Radius		m	37.9546	33.3872
Distance to:				
- Ignition Source		m	10	10
- Cloud Front/Centre		m	1.19757	1.87208
- Explosion Centre		m	1.19757	1.87208

Supplementary Data at 0.3 bar

			Dia	Noite
Supplied Flammable Mass		kg	108.067	73.5599
Used Flammable Mass		kg	108.067	73.5599
Overpressure Radius		m	18.9521	16.6714
Distance to:				
- Ignition Source		m	10	10
- Cloud Front/Centre		m	1.19757	1.87208
- Explosion Centre		m	1.19757	1.87208

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Weather Conditions

Path: \Terminal Adonai - Efeitos físicos\Simulações\H148 (M)

		Dia	Noite
Wind Speed	m/s	3	2
Pasquill Stability		C	E
Surface Roughness Length	mm	1000	1000
Surface Roughness Parameter		0.173718	0.173718
Atmospheric Temperature	degC	25	20
Surface Temperature	degC	30	20
Relative Humidity	fraction	0.8	0.8

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

H148 (N)

Base Case

CASE Name: Data

Path: \Terminal Adonai - Efeitos físicos\Simulações\H148 (N)

User-Defined Data

Material

Material Identifier	N-NONANE
Type of Vessel	Padded Liquid
Pressure Specification	Pressure specified
Storage Pressure - gauge	0.03 bar
Temperature	25 degC
Volume Inventory	480 m3

Scenario

Scenario Type	Catastrophic rupture
Phase to be Released	Liquid
Building Wake Effect	None

Location

Elevation	0 m
Use ERPG averaging time	ERPG not selected
Use IDLH averaging time	IDLH not selected
Use STEL averaging time	STEL not selected
Supply a user defined averaging time	Not supplied

Bund

Status of Bund	Bund present
Bund Area	1266 m2
[Type of Bund Surface	User-Defined (Land)]
Bund Height	3 m
[Bund Failure Modeling	Bund cannot fail]

Indoor/Outdoor

Location of release	Open air release
---------------------	------------------

Flammable

Explosion Method	TNT
Jet Fire Method	Cone Model

Dispersion

Late Ignition Location	No ignition location
Mass Inventory of material to Disperse	3.429E5 kg
Use Burst Pressure	No - Use release pressure for fireball

Fireball Parameters

[Mass Modification Factor	3]
[Calculation method for fireball	DNV Recommended]
[TNO model flame temperature	1727 degC]

Toxic Parameters

[Indoor Calculations	Unselected]
[Wind Dependent Exchange Rate	Case Specified]

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

[Building Exchange Rate	4 /hr]
[Tail Time	1800 s]
[Set averaging time equal to exposure time	Use a fixed averaging time]
[Cut-off fraction of toxic load for exposure time calculation	0.05 fraction]
[Cut-off concentration for exposure time calculations	0 fraction]

Geometry

Shape	Point
Dimension	2D
System	Absolute
East(1)	0 m
North(1)	0 m

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Path: \Terminal Adonai - Efeitos físicos\Simulações\H148 (N)

DISCHARGE DATA for Weather: Global Weathers\Dia

Wind Speed:	3.00 m/s
Wind Speed at Height (Calculated)	1.78 m/s
Pasquill Stability:	C

USER-DEFINED QUANTITIES

Material	N-NONANE
Scenario	Catastrophic rupture
Inventory	342,860.47 kg
Fixed Duration	n/a s

Stagnation data (data at upstream end for long pipe):

- Pressure	1.04 bar
- Temperature	25.00 degC
- Fluid State	Non-saturated liquid

CALCULATED QUANTITIES

Mass Flow of Air (Vent from Vapor Space only)	n/a
Mass Flowrate	n/a kg/s
Release Duration	n/a s
Orifice or pipe exit data (before atmospheric expansion):	
- Pressure	n/a bar
- Temperature	n/a degC
- Vena Contracta Velocity (exit velocity for pipe releases)	n/a m/s
- Discharge Coefficient	n/a
Final data (after atmospheric expansion):	
- Temperature	25.00 degC
- Liquid Mass Fraction	1.00 fraction
- Droplet Diameter	727.67 um
- Expanded Radius	n/a m
- Velocity	0.76 m/s

DISCHARGE DATA for Weather: Global Weathers\Noite

Wind Speed:	2.00 m/s
Wind Speed at Height (Calculated)	0.83 m/s
Pasquill Stability:	E

USER-DEFINED QUANTITIES

Material	N-NONANE
Scenario	Catastrophic rupture
Inventory	342,860.47 kg
Fixed Duration	n/a s

Stagnation data (data at upstream end for long pipe):

- Pressure	1.04 bar
- Temperature	25.00 degC
- Fluid State	Non-saturated liquid

CALCULATED QUANTITIES

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Mass Flow of Air (Vent from Vapor Space only)	n/a
Mass Flowrate	n/a kg/s
Release Duration	n/a s
Orifice or pipe exit data (before atmospheric expansion):	
- Pressure	n/a bar
- Temperature	n/a degC
- Vena Contracta Velocity (exit velocity for pipe releases)	n/a m/s
- Discharge Coefficient	n/a
Final data (after atmospheric expansion):	
- Temperature	25.00 degC
- Liquid Mass Fraction	1.00 fraction
- Droplet Diameter	727.67 um
- Expanded Radius	n/a m
- Velocity	0.76 m/s



Consequence Results

Pool Vaporization Results

Path: \Terminal Adonai - Efeitos físicos\Simulações\H148 (N)

N.B. Pool vaporization segments begin when the cloud has left the pool

		Dia	Noite
Liquid Rainout	fraction	0.999996	0.999996
Initial Vapor Cloud	kg	1.31788	1.27478
Time Pool Left Behind	s	18.7628	40.3843

Cloud Segment 1

Cloud Segment Duration	s	600	600
Pool Vaporization Rate	kg/s	0.246281	0.187203

Maximum Pool Radius	m	20.0744	20.0744
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Distance to Concentration Results

Path: \Terminal Adonai - Efeitos físicos\Simulações\H148 (N)

The height for user defined concentrations is the user defined height 0 m

All toxic results are reported at the toxic effect height 1 m

All flammable results are reported at the flammable effect height 0 m

Concentration(ppm)	Averaging Time		Dia	Noite	Distance (m)
UFL (56000)	18.75	s	6.65274	6.64244	
LFL (7000)	18.75	s	6.72446	6.71416	
LFL Frac (7000)	18.75	s	6.72446	6.71416	

Concentration(ppm)	Averaging Time		Dia	Noite	Heights (m) for above distances
UFL (56000)	18.75	s	0	0	
LFL (7000)	18.75	s	0	0	
LFL Frac (7000)	18.75	s	0	0	

Late Pool Fire Hazard

Path: \Terminal Adonai - Efeitos físicos\Simulações\H148 (N)

	Dia	Noite
Late Pool Fire Status	Hazard	Hazard

Radiation Effects: Late Pool Fire Ellipse

Path: \Terminal Adonai - Efeitos físicos\Simulações\H148 (N)

			Dia	Noite	Distance (m)
Radiation Level	9.83	kW/m2	27.7652	26.429	
Radiation Level	19.46	kW/m2	21.0744	21.0744	
Radiation Level	35	kW/m2	Not Reached	Not Reached	

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Radiation Effects: Late Pool Fire Distance

Path: \Terminal Adonai - Efeitos físicos\Simulações\H148 (N)

	Radiation Level (kW/m2)
Dia	Noite

Fireball Hazard

Path: \Terminal Adonai - Efeitos físicos\Simulações\H148 (N)

	Dia	Noite
Fireball Flame Status	No Hazard	No Hazard

Flash Fire Envelope

Path: \Terminal Adonai - Efeitos físicos\Simulações\H148 (N)

All flammable results are reported at the flammable effect height 0 m

			Dia	Noite
			Distance (m)	
Furthest Extent	7000	ppm	6.72446	6.71416
Furthest Extent	7000	ppm	6.72446	6.71416
			Dia	Noite
			Heights (m) for above distances	
Furthest Extent	7000	ppm	0	0
Furthest Extent	7000	ppm	0	0

Explosion Effects: Early Explosion

Path: \Terminal Adonai - Efeitos físicos\Simulações\H148 (N)

Early Explosions are assumed to be centered at the release location
Explosion Model Used : TNT

			Dia	Noite
Supplied Flammable Mass		kg	342860	342860
			Distance (m) at Overpressure Levels	
			Dia	Noite
Overpressure	0.05	bar	No Hazard	No Hazard
Overpressure	0.1	bar	No Hazard	No Hazard
Overpressure	0.3	bar	No Hazard	No Hazard
			Used Mass (kg) at Overpressure Levels	
			Dia	Noite
Overpressure	0.05	bar	0	0
Overpressure	0.1	bar	0	0
Overpressure	0.3	bar	0	0

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Weather Conditions

Path: \Terminal Adonai - Efeitos físicos\Simulações\H148 (N)

		Dia	Noite
Wind Speed	m/s	3	2
Pasquill Stability		C	E
Surface Roughness Length	mm	1000	1000
Surface Roughness Parameter		0.173718	0.173718
Atmospheric Temperature	degC	25	20
Surface Temperature	degC	30	20
Relative Humidity	fraction	0.8	0.8

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

H148 (P)

Base Case

CASE Name: Data

Path: \Terminal Adonai - Efeitos físicos\Simulações\H148 (P)

User-Defined Data

Material

Material Identifier	N-PENTANE
Type of Vessel	Padded Liquid
Pressure Specification	Pressure specified
Storage Pressure - gauge	0.03 bar
Temperature	25 degC
Volume Inventory	480 m3

Scenario

Scenario Type	Catastrophic rupture
Phase to be Released	Liquid
Building Wake Effect	None

Location

Elevation	0 m
Use ERPG averaging time	ERPG not selected
Use IDLH averaging time	IDLH not selected
Use STEL averaging time	STEL not selected
Supply a user defined averaging time	Not supplied

Bund

Status of Bund	Bund present
Bund Area	1266 m2
[Type of Bund Surface	User-Defined (Land)]
Bund Height	3 m
[Bund Failure Modeling	Bund cannot fail]

Indoor/Outdoor

Location of release	Open air release
---------------------	------------------

Flammable

Explosion Method	TNT
Jet Fire Method	Cone Model

Dispersion

Late Ignition Location	No ignition location
Mass Inventory of material to Disperse	2.984E5 kg
Use Burst Pressure	No - Use release pressure for fireball

Fireball Parameters

[Mass Modification Factor	3]
[Calculation method for fireball	DNV Recommended]
[TNO model flame temperature	1727 degC]

Toxic Parameters

[Indoor Calculations	Unselected]
[Wind Dependent Exchange Rate	Case Specified]

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

[Building Exchange Rate	4 /hr]
[Tail Time	1800 s]
[Set averaging time equal to exposure time	Use a fixed averaging time]
[Cut-off fraction of toxic load for exposure time calculation	0.05 fraction]
[Cut-off concentration for exposure time calculations	0 fraction]

Geometry

Shape	Point
Dimension	2D
System	Absolute
East(1)	0 m
North(1)	0 m

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Path: \Terminal Adonai - Efeitos físicos\Simulações\H148 (P)

DISCHARGE DATA for Weather: Global Weathers\Noite

Wind Speed: 2.00 m/s
Wind Speed at Height (Calculated) 0.83 m/s
Pasquill Stability: E

USER-DEFINED QUANTITIES

Material N-PENTANE
Scenario Catastrophic rupture
Inventory 298,436.81 kg
Fixed Duration n/a s

Stagnation data (data at upstream end for long pipe):

- Pressure 1.04 bar
- Temperature 25.00 degC
- Fluid State Non-saturated liquid

CALCULATED QUANTITIES

Mass Flow of Air (Vent from Vapor Space only) n/a
Mass Flowrate n/a kg/s
Release Duration n/a s
Orifice or pipe exit data (before atmospheric expansion):
- Pressure n/a bar
- Temperature n/a degC
- Vena Contracta Velocity (exit velocity for pipe releases) n/a m/s
- Discharge Coefficient n/a
Final data (after atmospheric expansion):
- Temperature 25.00 degC
- Liquid Mass Fraction 1.00 fraction
- Droplet Diameter 717.48 um
- Expanded Radius n/a m
- Velocity 0.86 m/s

DISCHARGE DATA for Weather: Global Weathers\Dia

Wind Speed: 3.00 m/s
Wind Speed at Height (Calculated) 1.78 m/s
Pasquill Stability: C

USER-DEFINED QUANTITIES

Material N-PENTANE
Scenario Catastrophic rupture
Inventory 298,436.81 kg
Fixed Duration n/a s

Stagnation data (data at upstream end for long pipe):

- Pressure 1.04 bar
- Temperature 25.00 degC
- Fluid State Non-saturated liquid

CALCULATED QUANTITIES

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Mass Flow of Air (Vent from Vapor Space only)	n/a
Mass Flowrate	n/a kg/s
Release Duration	n/a s
Orifice or pipe exit data (before atmospheric expansion):	
- Pressure	n/a bar
- Temperature	n/a degC
- Vena Contracta Velocity (exit velocity for pipe releases)	n/a m/s
- Discharge Coefficient	n/a
Final data (after atmospheric expansion):	
- Temperature	25.00 degC
- Liquid Mass Fraction	1.00 fraction
- Droplet Diameter	717.48 um
- Expanded Radius	n/a m
- Velocity	0.86 m/s

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Consequence Results

Pool Vaporization Results

Path: \Terminal Adonai - Efeitos físicos\Simulações\H148 (P)

N.B. Pool vaporization segments begin when the cloud has left the pool

		Dia	Noite
Liquid Rainout	fraction	0.999227	0.999271
Initial Vapor Cloud	kg	230.613	217.565
Time Pool Left Behind	s	45.2015	122.001
Cloud Segment 1			
Cloud Segment Duration	s	159.391	31.6406
Pool Vaporization Rate	kg/s	31.1444	25.1043
Cloud Segment 2			
Cloud Segment Duration	s	440.609	568.359
Pool Vaporization Rate	kg/s	24.957	21.1026
Maximum Pool Radius	m	20.0744	20.0744

Distance to Concentration Results

Path: \Terminal Adonai - Efeitos físicos\Simulações\H148 (P)

The height for user defined concentrations is the user defined height 0 m

All toxic results are reported at the toxic effect height 1 m

All flammable results are reported at the flammable effect height 0 m

Concentration(ppm)	Averaging Time		Dia	Noite
UFL (80000)	18.75	s	24.9223	30.5029
LFL (13000)	18.75	s	74.9033	74.8906
LFL Frac (13000)	18.75	s	74.9033	74.8906
Concentration(ppm)	Averaging Time		Dia	Noite
UFL (80000)	18.75	s	0	0
LFL (13000)	18.75	s	0	0
LFL Frac (13000)	18.75	s	0	0

Late Pool Fire Hazard

Path: \Terminal Adonai - Efeitos físicos\Simulações\H148 (P)

	Dia	Noite
Late Pool Fire Status	Hazard	Hazard

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Radiation Effects: Late Pool Fire Ellipse

Path: \Terminal Adonai - Efeitos físicos\Simulações\H148 (P)

			Distance (m)	
			Dia	Noite
Radiation Level	9.83	kW/m2	27.7984	26.4107
Radiation Level	19.46	kW/m2	21.0744	21.0744
Radiation Level	35	kW/m2	Not Reached	Not Reached

Radiation Effects: Late Pool Fire Distance

Path: \Terminal Adonai - Efeitos físicos\Simulações\H148 (P)

	Radiation Level (kW/m2)	
	Dia	Noite

Fireball Hazard

Path: \Terminal Adonai - Efeitos físicos\Simulações\H148 (P)

	Dia	Noite
Fireball Flame Status	No Hazard	No Hazard

Flash Fire Envelope

Path: \Terminal Adonai - Efeitos físicos\Simulações\H148 (P)

All flammable results are reported at the flammable effect height 0 m

			Distance (m)	
			Dia	Noite
Furthest Extent	13000	ppm	74.9033	74.8906
Furthest Extent	13000	ppm	74.9033	74.8906

			Heights (m) for above distances	
			Dia	Noite
Furthest Extent	13000	ppm	0	0
Furthest Extent	13000	ppm	0	0

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Explosion Effects: Early Explosion

Path: \Terminal Adonai - Efeitos físicos\Simulações\H148 (P)

Early Explosions are assumed to be centered at the release location
Explosion Model Used : TNT

Supplied Flammable Mass			Dia	Noite
		kg	298437	298437
Distance (m) at Overpressure Levels				
			Dia	Noite
Overpressure	0.05	bar	No Hazard	No Hazard
Overpressure	0.1	bar	No Hazard	No Hazard
Overpressure	0.3	bar	No Hazard	No Hazard
Used Mass (kg) at Overpressure Levels				
			Dia	Noite
Overpressure	0.05	bar	0	0
Overpressure	0.1	bar	0	0
Overpressure	0.3	bar	0	0

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Explosion Effects: Late Ignition

Path: \Terminal Adonai - Efeitos físicos\Simulações\H148 (P)

Explosion Model Used : TNT

Explosion Location Criterion: Cloud Center

All distances are measured from the Source

All flammable results are reported at the flammable effect height 0 m

			Maximum Distance (m) at Overpressure Level	
			Dia	Noite
Overpressure	0.05	bar	145.297	155.08
Overpressure	0.1	bar	103.643	104.282
Overpressure	0.3	bar	70.5765	62.6477

			Supplementary Data at 0.05 bar	
			Dia	Noite
Supplied Flammable Mass		kg	370.549	503.361
Used Flammable Mass		kg	370.549	503.361
Overpressure Radius		m	120.953	133.956
Distance to:				
- Ignition Source		m	60	70
- Cloud Front/Centre		m	24.3436	21.124
- Explosion Centre		m	24.3436	21.124

			Supplementary Data at 0.1 bar	
			Dia	Noite
Supplied Flammable Mass		kg	252.179	503.361
Used Flammable Mass		kg	252.179	503.361
Overpressure Radius		m	66.0461	83.158
Distance to:				
- Ignition Source		m	70	70
- Cloud Front/Centre		m	37.5974	21.124
- Explosion Centre		m	37.5974	21.124

			Supplementary Data at 0.3 bar	
			Dia	Noite
Supplied Flammable Mass		kg	252.179	503.361
Used Flammable Mass		kg	252.179	503.361
Overpressure Radius		m	32.9791	41.5237
Distance to:				
- Ignition Source		m	70	70
- Cloud Front/Centre		m	37.5974	21.124
- Explosion Centre		m	37.5974	21.124

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Weather Conditions

Path: \Terminal Adonai - Efeitos físicos\Simulações\H148 (P)

		Dia	Noite
Wind Speed	m/s	3	2
Pasquill Stability		C	E
Surface Roughness Length	mm	1000	1000
Surface Roughness Parameter		0.173718	0.173718
Atmospheric Temperature	degC	25	20
Surface Temperature	degC	30	20
Relative Humidity	fraction	0.8	0.8

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

H149 (A)

Base Case

CASE Name: Data

Path: \Terminal Adonai - Efeitos físicos\Simulações\H149 (A)

User-Defined Data

Material

Material Identifier	ACETONE
Type of Vessel	Padded Liquid
Pressure Specification	Pressure specified
Storage Pressure - gauge	0.03 bar
Temperature	25 degC
Volume Inventory	640 m3

Scenario

Scenario Type	Catastrophic rupture
Phase to be Released	Liquid
Building Wake Effect	None

Location

Elevation	0 m
Use ERPG averaging time	ERPG not selected
Use IDLH averaging time	IDLH not selected
Use STEL averaging time	STEL not selected
Supply a user defined averaging time	Not supplied

Bund

Status of Bund	Bund present
Bund Area	1266 m2
[Type of Bund Surface	User-Defined (Land)]
Bund Height	3 m
[Bund Failure Modeling	Bund cannot fail]

Indoor/Outdoor

Location of release	Open air release
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Flammable

Explosion Method	TNT
Jet Fire Method	Cone Model

Dispersion

Late Ignition Location	No ignition location
Mass Inventory of material to Disperse	5.034E5 kg
Use Burst Pressure	No - Use release pressure for fireball

Fireball Parameters

[Mass Modification Factor	3]
[Calculation method for fireball	DNV Recommended]
[TNO model flame temperature	1727 degC]

Toxic Parameters

[Indoor Calculations	Unselected]
[Wind Dependent Exchange Rate	Case Specified]

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

[Building Exchange Rate	4 /hr]
[Tail Time	1800 s]
[Set averaging time equal to exposure time	Use a fixed averaging time]
[Cut-off fraction of toxic load for exposure time calculation	0.05 fraction]
[Cut-off concentration for exposure time calculations	0 fraction]

Geometry

Shape	Point
Dimension	2D
System	Absolute
East(1)	0 m
North(1)	0 m

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Path: \Terminal Adonai - Efeitos físicos\Simulações\H149 (A)

DISCHARGE DATA for Weather: Global Weathers\Dia

Wind Speed: 3.00 m/s
Wind Speed at Height (Calculated) 1.78 m/s
Pasquill Stability: C

USER-DEFINED QUANTITIES

Material ACETONE
Scenario Catastrophic rupture
Inventory 503,411.56 kg
Fixed Duration n/a s

Stagnation data (data at upstream end for long pipe):

- Pressure 1.04 bar
- Temperature 25.00 degC
- Fluid State Non-saturated liquid

CALCULATED QUANTITIES

Mass Flow of Air (Vent from Vapor Space only) n/a
Mass Flowrate n/a kg/s
Release Duration n/a s
Orifice or pipe exit data (before atmospheric expansion):
- Pressure n/a bar
- Temperature n/a degC
- Vena Contracta Velocity (exit velocity for pipe releases) n/a m/s
- Discharge Coefficient n/a
Final data (after atmospheric expansion):
- Temperature 25.00 degC
- Liquid Mass Fraction 1.00 fraction
- Droplet Diameter 734.74 um
- Expanded Radius n/a m
- Velocity 1.11 m/s

DISCHARGE DATA for Weather: Global Weathers\Noite

Wind Speed: 2.00 m/s
Wind Speed at Height (Calculated) 0.83 m/s
Pasquill Stability: E

USER-DEFINED QUANTITIES

Material ACETONE
Scenario Catastrophic rupture
Inventory 503,411.56 kg
Fixed Duration n/a s

Stagnation data (data at upstream end for long pipe):

- Pressure 1.04 bar
- Temperature 25.00 degC
- Fluid State Non-saturated liquid

CALCULATED QUANTITIES

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Mass Flow of Air (Vent from Vapor Space only)	n/a
Mass Flowrate	n/a kg/s
Release Duration	n/a s
Orifice or pipe exit data (before atmospheric expansion):	
- Pressure	n/a bar
- Temperature	n/a degC
- Vena Contracta Velocity (exit velocity for pipe releases)	n/a m/s
- Discharge Coefficient	n/a
Final data (after atmospheric expansion):	
- Temperature	25.00 degC
- Liquid Mass Fraction	1.00 fraction
- Droplet Diameter	734.74 um
- Expanded Radius	n/a m
- Velocity	1.11 m/s



Consequence Results

Pool Vaporization Results

Path: \Terminal Adonai - Efeitos físicos\Simulações\H149 (A)

N.B. Pool vaporization segments begin when the cloud has left the pool

		Dia	Noite
Liquid Rainout	fraction	0.999253	0.999253
Initial Vapor Cloud	kg	375.864	375.834
Time Pool Left Behind	s	38.3894	90.7229

Cloud Segment 1

		Dia	Noite
Cloud Segment Duration	s	600	600
Pool Vaporization Rate	kg/s	9.23384	7.44598
Maximum Pool Radius	m	20.0744	20.0744

Distance to Concentration Results

Path: \Terminal Adonai - Efeitos físicos\Simulações\H149 (A)

The height for user defined concentrations is the user defined height 0 m

All toxic results are reported at the toxic effect height 1 m

All flammable results are reported at the flammable effect height 0 m

Concentration(ppm)	Averaging Time		Dia	Noite	Distance (m)
UFL (128000)	18.75	s	12.1588	13.2986	
LFL (26000)	18.75	s	39.3282	41.3759	
LFL Frac (26000)	18.75	s	39.3282	41.3759	
Concentration(ppm)	Averaging Time		Dia	Noite	Heights (m) for above distances
UFL (128000)	18.75	s	0	0	
LFL (26000)	18.75	s	0	0	
LFL Frac (26000)	18.75	s	0	0	

Late Pool Fire Hazard

Path: \Terminal Adonai - Efeitos físicos\Simulações\H149 (A)

	Dia	Noite
Late Pool Fire Status	Hazard	Hazard

Radiation Effects: Late Pool Fire Ellipse

Path: \Terminal Adonai - Efeitos físicos\Simulações\H149 (A)

			Dia	Noite	Distance (m)
Radiation Level	9.83	kW/m2	77.0919	75.0114	
Radiation Level	19.46	kW/m2	58.3726	55.1592	
Radiation Level	35	kW/m2	41.5978	38.4001	

SUMMARY REPORT

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Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Radiation Effects: Late Pool Fire Distance

Path: \Terminal Adonai - Efeitos físicos\Simulações\H149 (A)

	Dia	Noite
Radiation Level (kW/m2)		

Fireball Hazard

Path: \Terminal Adonai - Efeitos físicos\Simulações\H149 (A)

	Dia	Noite
Fireball Flame Status	No Hazard	No Hazard

Flash Fire Envelope

Path: \Terminal Adonai - Efeitos físicos\Simulações\H149 (A)

All flammable results are reported at the flammable effect height 0 m

			Dia	Noite
Furthest Extent	26000	ppm	39.3282	41.3759
Furthest Extent	26000	ppm	39.3282	41.3759
			Distances (m)	
			Dia	Noite
Furthest Extent	26000	ppm	0	0
Furthest Extent	26000	ppm	0	0

Explosion Effects: Early Explosion

Path: \Terminal Adonai - Efeitos físicos\Simulações\H149 (A)

Early Explosions are assumed to be centered at the release location
Explosion Model Used : TNT

			Dia	Noite
Supplied Flammable Mass		kg	503412	503412
			Distance (m) at Overpressure Levels	
			Dia	Noite
Overpressure	0.05	bar	No Hazard	No Hazard
Overpressure	0.1	bar	No Hazard	No Hazard
Overpressure	0.3	bar	No Hazard	No Hazard
			Used Mass (kg) at Overpressure Levels	
			Dia	Noite
Overpressure	0.05	bar	0	0
Overpressure	0.1	bar	0	0
Overpressure	0.3	bar	0	0

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Explosion Effects: Late Ignition

Path: \Terminal Adonai - Efeitos físicos\Simulações\H149 (A)

Explosion Model Used : TNT

Explosion Location Criterion: Cloud Center

All distances are measured from the Source

All flammable results are reported at the flammable effect height 0 m

			Maximum Distance (m) at Overpressure Level	
			Dia	Noite
Overpressure	0.05	bar	99.7939	98.1048
Overpressure	0.1	bar	64.3106	64.7471
Overpressure	0.3	bar	35.2283	37.4069

Supplementary Data at 0.05 bar

			Dia	Noite
Supplied Flammable Mass		kg	270.122	224.428
Used Flammable Mass		kg	270.122	224.428
Overpressure Radius		m	93.5706	87.9654
Distance to:				
- Ignition Source		m	30	40
- Cloud Front/Centre		m	6.22328	10.1394
- Explosion Centre		m	6.22328	10.1394

Supplementary Data at 0.1 bar

			Dia	Noite
Supplied Flammable Mass		kg	270.122	224.428
Used Flammable Mass		kg	270.122	224.428
Overpressure Radius		m	58.0873	54.6077
Distance to:				
- Ignition Source		m	30	40
- Cloud Front/Centre		m	6.22328	10.1394
- Explosion Centre		m	6.22328	10.1394

Supplementary Data at 0.3 bar

			Dia	Noite
Supplied Flammable Mass		kg	270.122	224.428
Used Flammable Mass		kg	270.122	224.428
Overpressure Radius		m	29.005	27.2675
Distance to:				
- Ignition Source		m	30	40
- Cloud Front/Centre		m	6.22328	10.1394
- Explosion Centre		m	6.22328	10.1394

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Weather Conditions

Path: \Terminal Adonai - Efeitos físicos\Simulações\H149 (A)

		Dia	Noite
Wind Speed	m/s	3	2
Pasquill Stability		C	E
Surface Roughness Length	mm	1000	1000
Surface Roughness Parameter		0.173718	0.173718
Atmospheric Temperature	degC	25	20
Surface Temperature	degC	30	20
Relative Humidity	fraction	0.8	0.8

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

H149 (B)

Base Case

CASE Name: Data

Path: \Terminal Adonai - Efeitos físicos\Simulações\H149 (B)

User-Defined Data

Material

Material Identifier	BENZENE
Type of Vessel	Padded Liquid
Pressure Specification	Pressure specified
Storage Pressure - gauge	0.03 bar
Temperature	25 degC
Volume Inventory	640 m3

Scenario

Scenario Type	Catastrophic rupture
Phase to be Released	Liquid
Building Wake Effect	None

Location

Elevation	0 m
Use ERPG averaging time	ERPG not selected
Use IDLH averaging time	IDLH not selected
Use STEL averaging time	STEL not selected
Supply a user defined averaging time	Not supplied

Bund

Status of Bund	Bund present
Bund Area	1266 m2
[Type of Bund Surface	User-Defined (Land)]
Bund Height	3 m
[Bund Failure Modeling	Bund cannot fail]

Indoor/Outdoor

Location of release	Open air release
---------------------	------------------

Flammable

Explosion Method	TNT
Jet Fire Method	Cone Model

Dispersion

Late Ignition Location	No ignition location
Mass Inventory of material to Disperse	5.587E5 kg
Use Burst Pressure	No - Use release pressure for fireball

Fireball Parameters

[Mass Modification Factor	3]
[Calculation method for fireball	DNV Recommended]
[TNO model flame temperature	1727 degC]

Toxic Parameters

[Indoor Calculations	Unselected]
[Wind Dependent Exchange Rate	Case Specified]

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

[Building Exchange Rate	4 /hr]
[Tail Time	1800 s]
[Set averaging time equal to exposure time	Use a fixed averaging time]
[Cut-off fraction of toxic load for exposure time calculation	0.05 fraction]
[Cut-off concentration for exposure time calculations	0 fraction]

Geometry

Shape	Point
Dimension	2D
System	Absolute
East(1)	0 m
North(1)	0 m

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Path: \Terminal Adonai - Efeitos físicos\Simulações\H149 (B)

DISCHARGE DATA for Weather: Global Weathers\Dia

Wind Speed: 3.00 m/s
Wind Speed at Height (Calculated) 1.78 m/s
Pasquill Stability: C

USER-DEFINED QUANTITIES

Material BENZENE
Scenario Catastrophic rupture
Inventory 558,724.75 kg
Fixed Duration n/a s

Stagnation data (data at upstream end for long pipe):

- Pressure 1.04 bar
- Temperature 25.00 degC
- Fluid State Non-saturated liquid

CALCULATED QUANTITIES

Mass Flow of Air (Vent from Vapor Space only) n/a
Mass Flowrate n/a kg/s
Release Duration n/a s

Orifice or pipe exit data (before atmospheric expansion):

- Pressure n/a bar
- Temperature n/a degC
- Vena Contracta Velocity (exit velocity for pipe releases) n/a m/s
- Discharge Coefficient n/a

Final data (after atmospheric expansion):

- Temperature 25.00 degC
- Liquid Mass Fraction 1.00 fraction
- Droplet Diameter 742.39 um
- Expanded Radius n/a m
- Velocity 0.82 m/s

DISCHARGE DATA for Weather: Global Weathers\Noite

Wind Speed: 2.00 m/s
Wind Speed at Height (Calculated) 0.83 m/s
Pasquill Stability: E

USER-DEFINED QUANTITIES

Material BENZENE
Scenario Catastrophic rupture
Inventory 558,724.75 kg
Fixed Duration n/a s

Stagnation data (data at upstream end for long pipe):

- Pressure 1.04 bar
- Temperature 25.00 degC
- Fluid State Non-saturated liquid

CALCULATED QUANTITIES

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Mass Flow of Air (Vent from Vapor Space only)	n/a
Mass Flowrate	n/a kg/s
Release Duration	n/a s
Orifice or pipe exit data (before atmospheric expansion):	
- Pressure	n/a bar
- Temperature	n/a degC
- Vena Contracta Velocity (exit velocity for pipe releases)	n/a m/s
- Discharge Coefficient	n/a
Final data (after atmospheric expansion):	
- Temperature	25.00 degC
- Liquid Mass Fraction	1.00 fraction
- Droplet Diameter	742.39 um
- Expanded Radius	n/a m
- Velocity	0.82 m/s



Consequence Results

Pool Vaporization Results

Path: \Terminal Adonai - Efeitos físicos\Simulações\H149 (B)

N.B. Pool vaporization segments begin when the cloud has left the pool

		Dia	Noite
Liquid Rainout	fraction	0.999951	0.999953
Initial Vapor Cloud	kg	27.4976	26.2465
Time Pool Left Behind	s	27.5122	65.2196

Cloud Segment 1

		Dia	Noite
Cloud Segment Duration	s	600	600
Pool Vaporization Rate	kg/s	4.47616	3.45143
Maximum Pool Radius	m	20.0744	20.0744

Distance to Concentration Results

Path: \Terminal Adonai - Efeitos físicos\Simulações\H149 (B)

The height for user defined concentrations is the user defined height 0 m

All toxic results are reported at the toxic effect height 1 m

All flammable results are reported at the flammable effect height 0 m

Concentration(ppm)	Averaging Time		Dia	Noite	Distance (m)
UFL (79000)	18.75	s	7.33092	7.3207	
LFL (13000)	18.75	s	23.7546	22.8605	
LFL Frac (13000)	18.75	s	23.7546	22.8605	

Concentration(ppm)	Averaging Time		Dia	Noite	Heights (m) for above distances
UFL (79000)	18.75	s	0	0	
LFL (13000)	18.75	s	0	0	
LFL Frac (13000)	18.75	s	0	0	

Late Pool Fire Hazard

Path: \Terminal Adonai - Efeitos físicos\Simulações\H149 (B)

	Dia	Noite
Late Pool Fire Status	Hazard	Hazard

Radiation Effects: Late Pool Fire Ellipse

Path: \Terminal Adonai - Efeitos físicos\Simulações\H149 (B)

			Dia	Noite	Distance (m)
Radiation Level	9.83	kW/m2	27.7055	26.4193	
Radiation Level	19.46	kW/m2	21.0744	21.0744	
Radiation Level	35	kW/m2	Not Reached	Not Reached	

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Radiation Effects: Late Pool Fire Distance

Path: \Terminal Adonai - Efeitos físicos\Simulações\H149 (B)

	Dia	Noite
Radiation Level (kW/m2)		

Fireball Hazard

Path: \Terminal Adonai - Efeitos físicos\Simulações\H149 (B)

	Dia	Noite
Fireball Flame Status	No Hazard	No Hazard

Flash Fire Envelope

Path: \Terminal Adonai - Efeitos físicos\Simulações\H149 (B)

All flammable results are reported at the flammable effect height 0 m

			Dia	Noite
Furthest Extent	13000	ppm	23.7546	22.8605
Furthest Extent	13000	ppm	23.7546	22.8605

			Dia	Noite
Furthest Extent	13000	ppm	0	0
Furthest Extent	13000	ppm	0	0

Explosion Effects: Early Explosion

Path: \Terminal Adonai - Efeitos físicos\Simulações\H149 (B)

Early Explosions are assumed to be centered at the release location
Explosion Model Used : TNT

			Dia	Noite
Supplied Flammable Mass		kg	558725	558725

			Distance (m) at Overpressure Levels	
			Dia	Noite
Overpressure	0.05	bar	No Hazard	No Hazard
Overpressure	0.1	bar	No Hazard	No Hazard
Overpressure	0.3	bar	No Hazard	No Hazard

			Used Mass (kg) at Overpressure Levels	
			Dia	Noite
Overpressure	0.05	bar	0	0
Overpressure	0.1	bar	0	0
Overpressure	0.3	bar	0	0

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Explosion Effects: Late Ignition

Path: \Terminal Adonai - Efeitos físicos\Simulações\H149 (B)

Explosion Model Used : TNT

Explosion Location Criterion: Cloud Center

All distances are measured from the Source

All flammable results are reported at the flammable effect height 0 m

			Maximum Distance (m) at Overpressure Level	
			Dia	Noite
Overpressure	0.05	bar	50.043	52.6627
Overpressure	0.1	bar	34.2856	34.5983
Overpressure	0.3	bar	21.3708	19.7926

Supplementary Data at 0.05 bar

			Dia	Noite
Supplied Flammable Mass		kg	16.8309	25.3589
Used Flammable Mass		kg	16.8309	25.3589
Overpressure Radius		m	41.5526	47.6364
Distance to:				
- Ignition Source		m	20	20
- Cloud Front/Centre		m	8.49035	5.02626
- Explosion Centre		m	8.49035	5.02626

Supplementary Data at 0.1 bar

			Dia	Noite
Supplied Flammable Mass		kg	16.8309	25.3589
Used Flammable Mass		kg	16.8309	25.3589
Overpressure Radius		m	25.7953	29.572
Distance to:				
- Ignition Source		m	20	20
- Cloud Front/Centre		m	8.49035	5.02626
- Explosion Centre		m	8.49035	5.02626

Supplementary Data at 0.3 bar

			Dia	Noite
Supplied Flammable Mass		kg	16.8309	25.3589
Used Flammable Mass		kg	16.8309	25.3589
Overpressure Radius		m	12.8805	14.7663
Distance to:				
- Ignition Source		m	20	20
- Cloud Front/Centre		m	8.49035	5.02626
- Explosion Centre		m	8.49035	5.02626

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Weather Conditions

Path: \Terminal Adonai - Efeitos físicos\Simulações\H149 (B)

		Dia	Noite
Wind Speed	m/s	3	2
Pasquill Stability		C	E
Surface Roughness Length	mm	1000	1000
Surface Roughness Parameter		0.173718	0.173718
Atmospheric Temperature	degC	25	20
Surface Temperature	degC	30	20
Relative Humidity	fraction	0.8	0.8

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

H149 (E)

Base Case

CASE Name: Data

Path: \Terminal Adonai - Efeitos físicos\Simulações\H149 (E)

User-Defined Data

Material

Material Identifier	ETHANOL
Type of Vessel	Padded Liquid
Pressure Specification	Pressure specified
Storage Pressure - gauge	0.03 bar
Temperature	25 degC
Volume Inventory	640 m3

Scenario

Scenario Type	Catastrophic rupture
Phase to be Released	Liquid
Building Wake Effect	None

Location

Elevation	0 m
Use ERPG averaging time	ERPG not selected
Use IDLH averaging time	IDLH not selected
Use STEL averaging time	STEL not selected
Supply a user defined averaging time	Not supplied

Bund

Status of Bund	Bund present
Bund Area	1266 m2
[Type of Bund Surface	User-Defined (Land)]
Bund Height	3 m
[Bund Failure Modeling	Bund cannot fail]

Indoor/Outdoor

Location of release	Open air release
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Flammable

Explosion Method	TNT
Jet Fire Method	Cone Model

Dispersion

Late Ignition Location	No ignition location
Mass Inventory of material to Disperse	5.03E5 kg
Use Burst Pressure	No - Use release pressure for fireball

Fireball Parameters

[Mass Modification Factor	3]
[Calculation method for fireball	DNV Recommended]
[TNO model flame temperature	1727 degC]

Toxic Parameters

[Indoor Calculations	Unselected]
[Wind Dependent Exchange Rate	Case Specified]

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

[Building Exchange Rate	4 /hr]
[Tail Time	1800 s]
[Set averaging time equal to exposure time	Use a fixed averaging time]
[Cut-off fraction of toxic load for exposure time calculation	0.05 fraction]
[Cut-off concentration for exposure time calculations	0 fraction]

Geometry

Shape	Point
Dimension	2D
System	Absolute
East(1)	0 m
North(1)	0 m

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Path: \Terminal Adonai - Efeitos físicos\Simulações\H149 (E)

DISCHARGE DATA for Weather: Global Weathers\Dia

Wind Speed: 3.00 m/s
Wind Speed at Height (Calculated) 1.78 m/s
Pasquill Stability: C

USER-DEFINED QUANTITIES

Material ETHANOL
Scenario Catastrophic rupture
Inventory 502,972.81 kg
Fixed Duration n/a s

Stagnation data (data at upstream end for long pipe):

- Pressure 1.04 bar
- Temperature 25.00 degC
- Fluid State Non-saturated liquid

CALCULATED QUANTITIES

Mass Flow of Air (Vent from Vapor Space only) n/a
Mass Flowrate n/a kg/s
Release Duration n/a s
Orifice or pipe exit data (before atmospheric expansion):
- Pressure n/a bar
- Temperature n/a degC
- Vena Contracta Velocity (exit velocity for pipe releases) n/a m/s
- Discharge Coefficient n/a
Final data (after atmospheric expansion):
- Temperature 25.00 degC
- Liquid Mass Fraction 1.00 fraction
- Droplet Diameter 734.68 um
- Expanded Radius n/a m
- Velocity 1.23 m/s

DISCHARGE DATA for Weather: Global Weathers\Noite

Wind Speed: 2.00 m/s
Wind Speed at Height (Calculated) 0.83 m/s
Pasquill Stability: E

USER-DEFINED QUANTITIES

Material ETHANOL
Scenario Catastrophic rupture
Inventory 502,972.81 kg
Fixed Duration n/a s

Stagnation data (data at upstream end for long pipe):

- Pressure 1.04 bar
- Temperature 25.00 degC
- Fluid State Non-saturated liquid

CALCULATED QUANTITIES

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Mass Flow of Air (Vent from Vapor Space only)	n/a
Mass Flowrate	n/a kg/s
Release Duration	n/a s
Orifice or pipe exit data (before atmospheric expansion):	
- Pressure	n/a bar
- Temperature	n/a degC
- Vena Contracta Velocity (exit velocity for pipe releases)	n/a m/s
- Discharge Coefficient	n/a
Final data (after atmospheric expansion):	
- Temperature	25.00 degC
- Liquid Mass Fraction	1.00 fraction
- Droplet Diameter	734.68 um
- Expanded Radius	n/a m
- Velocity	1.23 m/s



Consequence Results

Pool Vaporization Results

Path: \Terminal Adonai - Efeitos físicos\Simulações\H149 (E)

N.B. Pool vaporization segments begin when the cloud has left the pool

		Dia	Noite
Liquid Rainout	fraction	0.999822	0.999821
Initial Vapor Cloud	kg	89.6676	90.0134
Time Pool Left Behind	s	26.5094	52.7599

Cloud Segment 1

Cloud Segment Duration	s	600	600
Pool Vaporization Rate	kg/s	1.85827	1.48588

Maximum Pool Radius	m	20.0744	20.0744
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Distance to Concentration Results

Path: \Terminal Adonai - Efeitos físicos\Simulações\H149 (E)

The height for user defined concentrations is the user defined height 0 m

All toxic results are reported at the toxic effect height 1 m

All flammable results are reported at the flammable effect height 0 m

Concentration(ppm)	Averaging Time		Dia	Noite	Distance (m)
UFL (190000)	18.75	s	8.97175	8.88615	
LFL (43000)	18.75	s	9.07638	8.99109	
LFL Frac (43000)	18.75	s	9.07638	8.99109	

Concentration(ppm)	Averaging Time		Dia	Noite	Heights (m) for above distances
UFL (190000)	18.75	s	0	0	
LFL (43000)	18.75	s	0	0	
LFL Frac (43000)	18.75	s	0	0	

Late Pool Fire Hazard

Path: \Terminal Adonai - Efeitos físicos\Simulações\H149 (E)

	Dia	Noite
Late Pool Fire Status	Hazard	Hazard

Radiation Effects: Late Pool Fire Ellipse

Path: \Terminal Adonai - Efeitos físicos\Simulações\H149 (E)

			Dia	Noite	Distance (m)
Radiation Level	9.83	kW/m2	56.1026	54.6337	
Radiation Level	19.46	kW/m2	42.7151	40.3915	
Radiation Level	35	kW/m2	27.4461	26.1629	

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Radiation Effects: Late Pool Fire Distance

Path: \Terminal Adonai - Efeitos físicos\Simulações\H149 (E)

	Dia	Noite
Radiation Level (kW/m2)		

Fireball Hazard

Path: \Terminal Adonai - Efeitos físicos\Simulações\H149 (E)

	Dia	Noite
Fireball Flame Status	No Hazard	No Hazard

Flash Fire Envelope

Path: \Terminal Adonai - Efeitos físicos\Simulações\H149 (E)

All flammable results are reported at the flammable effect height 0 m

			Dia	Noite
Furthest Extent	43000	ppm	9.07638	8.99109
Furthest Extent	43000	ppm	9.07638	8.99109

			Dia	Noite
Furthest Extent	43000	ppm	0	0
Furthest Extent	43000	ppm	0	0

Explosion Effects: Early Explosion

Path: \Terminal Adonai - Efeitos físicos\Simulações\H149 (E)

Early Explosions are assumed to be centered at the release location
Explosion Model Used : TNT

			Dia	Noite
Supplied Flammable Mass		kg	502973	502973

			Dia	Noite
Overpressure	0.05	bar	No Hazard	No Hazard
Overpressure	0.1	bar	No Hazard	No Hazard
Overpressure	0.3	bar	No Hazard	No Hazard

			Dia	Noite
Overpressure	0.05	bar	0	0
Overpressure	0.1	bar	0	0
Overpressure	0.3	bar	0	0

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Weather Conditions

Path: \Terminal Adonai - Efeitos físicos\Simulações\H149 (E)

		Dia	Noite
Wind Speed	m/s	3	2
Pasquill Stability		C	E
Surface Roughness Length	mm	1000	1000
Surface Roughness Parameter		0.173718	0.173718
Atmospheric Temperature	degC	25	20
Surface Temperature	degC	30	20
Relative Humidity	fraction	0.8	0.8

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

H149 (H)

Base Case

CASE Name: Data

Path: \Terminal Adonai - Efeitos físicos\Simulações\H149 (H)

User-Defined Data

Material

Material Identifier	N-HEXANE
Type of Vessel	Padded Liquid
Pressure Specification	Pressure specified
Storage Pressure - gauge	0.03 bar
Temperature	25 degC
Volume Inventory	640 m3

Scenario

Scenario Type	Catastrophic rupture
Phase to be Released	Liquid
Building Wake Effect	None

Location

Elevation	0 m
Use ERPG averaging time	ERPG not selected
Use IDLH averaging time	IDLH not selected
Use STEL averaging time	STEL not selected
Supply a user defined averaging time	Not supplied

Bund

Status of Bund	Bund present
Bund Area	1266 m2
[Type of Bund Surface	User-Defined (Land)]
Bund Height	3 m
[Bund Failure Modeling	Bund cannot fail]

Indoor/Outdoor

Location of release	Open air release
---------------------	------------------

Flammable

Explosion Method	TNT
Jet Fire Method	Cone Model

Dispersion

Late Ignition Location	No ignition location
Mass Inventory of material to Disperse	4.199E5 kg
Use Burst Pressure	No - Use release pressure for fireball

Fireball Parameters

[Mass Modification Factor	3]
[Calculation method for fireball	DNV Recommended]
[TNO model flame temperature	1727 degC]

Toxic Parameters

[Indoor Calculations	Unselected]
[Wind Dependent Exchange Rate	Case Specified]

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

[Building Exchange Rate	4 /hr]
[Tail Time	1800 s]
[Set averaging time equal to exposure time	Use a fixed averaging time]
[Cut-off fraction of toxic load for exposure time calculation	0.05 fraction]
[Cut-off concentration for exposure time calculations	0 fraction]

Geometry

Shape	Point
Dimension	2D
System	Absolute
East(1)	0 m
North(1)	0 m

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Path: \Terminal Adonai - Efeitos físicos\Simulações\H149 (H)

DISCHARGE DATA for Weather: Global Weathers\Dia

Wind Speed: 3.00 m/s
Wind Speed at Height (Calculated) 1.78 m/s
Pasquill Stability: C

USER-DEFINED QUANTITIES

Material N-HEXANE
Scenario Catastrophic rupture
Inventory 419,856.78 kg
Fixed Duration n/a s

Stagnation data (data at upstream end for long pipe):

- Pressure 1.04 bar
- Temperature 25.00 degC
- Fluid State Non-saturated liquid

CALCULATED QUANTITIES

Mass Flow of Air (Vent from Vapor Space only) n/a
Mass Flowrate n/a kg/s
Release Duration n/a s
Orifice or pipe exit data (before atmospheric expansion):
- Pressure n/a bar
- Temperature n/a degC
- Vena Contracta Velocity (exit velocity for pipe releases) n/a m/s
- Discharge Coefficient n/a
Final data (after atmospheric expansion):
- Temperature 25.00 degC
- Liquid Mass Fraction 1.00 fraction
- Droplet Diameter 721.42 um
- Expanded Radius n/a m
- Velocity 1.04 m/s

DISCHARGE DATA for Weather: Global Weathers\Noite

Wind Speed: 2.00 m/s
Wind Speed at Height (Calculated) 0.83 m/s
Pasquill Stability: E

USER-DEFINED QUANTITIES

Material N-HEXANE
Scenario Catastrophic rupture
Inventory 419,856.78 kg
Fixed Duration n/a s

Stagnation data (data at upstream end for long pipe):

- Pressure 1.04 bar
- Temperature 25.00 degC
- Fluid State Non-saturated liquid

CALCULATED QUANTITIES

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Mass Flow of Air (Vent from Vapor Space only)	n/a
Mass Flowrate	n/a kg/s
Release Duration	n/a s
Orifice or pipe exit data (before atmospheric expansion):	
- Pressure	n/a bar
- Temperature	n/a degC
- Vena Contracta Velocity (exit velocity for pipe releases)	n/a m/s
- Discharge Coefficient	n/a
Final data (after atmospheric expansion):	
- Temperature	25.00 degC
- Liquid Mass Fraction	1.00 fraction
- Droplet Diameter	721.42 um
- Expanded Radius	n/a m
- Velocity	1.04 m/s



Consequence Results

Pool Vaporization Results

Path: \Terminal Adonai - Efeitos físicos\Simulações\H149 (H)

N.B. Pool vaporization segments begin when the cloud has left the pool

		Dia	Noite
Liquid Rainout	fraction	0.999754	0.999757
Initial Vapor Cloud	kg	103.15	102.048
Time Pool Left Behind	s	33.6887	81.6847

Cloud Segment 1

Cloud Segment Duration	s	600	600
Pool Vaporization Rate	kg/s	7.20386	5.72341

Maximum Pool Radius	m	20.0744	20.0744
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Distance to Concentration Results

Path: \Terminal Adonai - Efeitos físicos\Simulações\H149 (H)

The height for user defined concentrations is the user defined height 0 m

All toxic results are reported at the toxic effect height 1 m

All flammable results are reported at the flammable effect height 0 m

Concentration(ppm)	Averaging Time		Dia	Noite	Distance (m)
UFL (76800)	18.75	s	9.99233	11.6852	
LFL (10500)	18.75	s	38.0296	38.4606	
LFL Frac (10500)	18.75	s	38.0296	38.4606	

Concentration(ppm)	Averaging Time		Dia	Noite	Heights (m) for above distances
UFL (76800)	18.75	s	0	0	
LFL (10500)	18.75	s	0	0	
LFL Frac (10500)	18.75	s	0	0	

Late Pool Fire Hazard

Path: \Terminal Adonai - Efeitos físicos\Simulações\H149 (H)

	Dia	Noite
Late Pool Fire Status	Hazard	Hazard

Radiation Effects: Late Pool Fire Ellipse

Path: \Terminal Adonai - Efeitos físicos\Simulações\H149 (H)

			Dia	Noite	Distance (m)
Radiation Level	9.83	kW/m2	27.7322	26.4128	
Radiation Level	19.46	kW/m2	21.0744	21.0744	
Radiation Level	35	kW/m2	Not Reached	Not Reached	

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Radiation Effects: Late Pool Fire Distance

Path: \Terminal Adonai - Efeitos físicos\Simulações\H149 (H)

	Dia	Noite
Radiation Level (kW/m2)		

Fireball Hazard

Path: \Terminal Adonai - Efeitos físicos\Simulações\H149 (H)

	Dia	Noite
Fireball Flame Status	No Hazard	No Hazard

Flash Fire Envelope

Path: \Terminal Adonai - Efeitos físicos\Simulações\H149 (H)

All flammable results are reported at the flammable effect height 0 m

			Dia	Noite
Furthest Extent	10500	ppm	38.0296	38.4606
Furthest Extent	10500	ppm	38.0296	38.4606

			Dia	Noite
Furthest Extent	10500	ppm	0	0
Furthest Extent	10500	ppm	0	0

Explosion Effects: Early Explosion

Path: \Terminal Adonai - Efeitos físicos\Simulações\H149 (H)

Early Explosions are assumed to be centered at the release location
Explosion Model Used : TNT

			Dia	Noite
Supplied Flammable Mass		kg	419857	419857

			Dia	Noite
Overpressure	0.05	bar	No Hazard	No Hazard
Overpressure	0.1	bar	No Hazard	No Hazard
Overpressure	0.3	bar	No Hazard	No Hazard

			Dia	Noite
Overpressure	0.05	bar	0	0
Overpressure	0.1	bar	0	0
Overpressure	0.3	bar	0	0

SUMMARY REPORT

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Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Explosion Effects: Late Ignition

Path: \Terminal Adonai - Efeitos físicos\Simulações\H149 (H)

Explosion Model Used : TNT

Explosion Location Criterion: Cloud Center

All distances are measured from the Source

All flammable results are reported at the flammable effect height 0 m

			Maximum Distance (m) at Overpressure Level	
			Dia	Noite
Overpressure	0.05	bar	84.1126	85.7062
Overpressure	0.1	bar	55.8221	55.1535
Overpressure	0.3	bar	32.6351	30.1124

			Supplementary Data at 0.05 bar	
			Dia	Noite
Supplied Flammable Mass		kg	87.4154	110.107
Used Flammable Mass		kg	87.4154	110.107
Overpressure Radius		m	74.603	80.5685
Distance to:				
- Ignition Source		m	30	30
- Cloud Front/Centre		m	9.5096	5.13773
- Explosion Centre		m	9.5096	5.13773

			Supplementary Data at 0.1 bar	
			Dia	Noite
Supplied Flammable Mass		kg	87.4154	110.107
Used Flammable Mass		kg	87.4154	110.107
Overpressure Radius		m	46.3125	50.0158
Distance to:				
- Ignition Source		m	30	30
- Cloud Front/Centre		m	9.5096	5.13773
- Explosion Centre		m	9.5096	5.13773

			Supplementary Data at 0.3 bar	
			Dia	Noite
Supplied Flammable Mass		kg	87.4154	110.107
Used Flammable Mass		kg	87.4154	110.107
Overpressure Radius		m	23.1255	24.9746
Distance to:				
- Ignition Source		m	30	30
- Cloud Front/Centre		m	9.5096	5.13773
- Explosion Centre		m	9.5096	5.13773

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Weather Conditions

Path: \Terminal Adonai - Efeitos físicos\Simulações\H149 (H)

		Dia	Noite
Wind Speed	m/s	3	2
Pasquill Stability		C	E
Surface Roughness Length	mm	1000	1000
Surface Roughness Parameter		0.173718	0.173718
Atmospheric Temperature	degC	25	20
Surface Temperature	degC	30	20
Relative Humidity	fraction	0.8	0.8

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

H149 (M)

Base Case

CASE Name: Data

Path: \Terminal Adonai - Efeitos físicos\Simulações\H149 (M)

User-Defined Data

Material

Material Identifier	METHANOL
Type of Vessel	Padded Liquid
Pressure Specification	Pressure specified
Storage Pressure - gauge	0.03 bar
Temperature	25 degC
Volume Inventory	640 m3

Scenario

Scenario Type	Catastrophic rupture
Phase to be Released	Liquid
Building Wake Effect	None

Location

Elevation	0 m
Use ERPG averaging time	ERPG not selected
Use IDLH averaging time	IDLH not selected
Use STEL averaging time	STEL not selected
Supply a user defined averaging time	Not supplied

Bund

Status of Bund	Bund present
Bund Area	1266 m2
[Type of Bund Surface	User-Defined (Land)]
Bund Height	3 m
[Bund Failure Modeling	Bund cannot fail]

Indoor/Outdoor

Location of release	Open air release
---------------------	------------------

Flammable

Explosion Method	TNT
Jet Fire Method	Cone Model

Dispersion

Late Ignition Location	No ignition location
Mass Inventory of material to Disperse	5.054E5 kg
Use Burst Pressure	No - Use release pressure for fireball

Fireball Parameters

[Mass Modification Factor	3]
[Calculation method for fireball	DNV Recommended]
[TNO model flame temperature	1727 degC]

Toxic Parameters

[Indoor Calculations	Unselected]
[Wind Dependent Exchange Rate	Case Specified]

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

[Building Exchange Rate	4 /hr]
[Tail Time	1800 s]
[Set averaging time equal to exposure time	Use a fixed averaging time]
[Cut-off fraction of toxic load for exposure time calculation	0.05 fraction]
[Cut-off concentration for exposure time calculations	0 fraction]

Geometry

Shape	Point
Dimension	2D
System	Absolute
East(1)	0 m
North(1)	0 m

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Path: \Terminal Adonai - Efeitos físicos\Simulações\H149 (M)

DISCHARGE DATA for Weather: Global Weathers\Dia

Wind Speed: 3.00 m/s
Wind Speed at Height (Calculated) 1.78 m/s
Pasquill Stability: C

USER-DEFINED QUANTITIES

Material METHANOL
Scenario Catastrophic rupture
Inventory 505,355.09 kg
Fixed Duration n/a s

Stagnation data (data at upstream end for long pipe):

- Pressure 1.04 bar
- Temperature 25.00 degC
- Fluid State Non-saturated liquid

CALCULATED QUANTITIES

Mass Flow of Air (Vent from Vapor Space only) n/a
Mass Flowrate n/a kg/s
Release Duration n/a s
Orifice or pipe exit data (before atmospheric expansion):
- Pressure n/a bar
- Temperature n/a degC
- Vena Contracta Velocity (exit velocity for pipe releases) n/a m/s
- Discharge Coefficient n/a
Final data (after atmospheric expansion):
- Temperature 25.00 degC
- Liquid Mass Fraction 1.00 fraction
- Droplet Diameter 735.02 um
- Expanded Radius n/a m
- Velocity 1.54 m/s

DISCHARGE DATA for Weather: Global Weathers\Noite

Wind Speed: 2.00 m/s
Wind Speed at Height (Calculated) 0.83 m/s
Pasquill Stability: E

USER-DEFINED QUANTITIES

Material METHANOL
Scenario Catastrophic rupture
Inventory 505,355.09 kg
Fixed Duration n/a s

Stagnation data (data at upstream end for long pipe):

- Pressure 1.04 bar
- Temperature 25.00 degC
- Fluid State Non-saturated liquid

CALCULATED QUANTITIES

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Mass Flow of Air (Vent from Vapor Space only)	n/a
Mass Flowrate	n/a kg/s
Release Duration	n/a s
Orifice or pipe exit data (before atmospheric expansion):	
- Pressure	n/a bar
- Temperature	n/a degC
- Vena Contracta Velocity (exit velocity for pipe releases)	n/a m/s
- Discharge Coefficient	n/a
Final data (after atmospheric expansion):	
- Temperature	25.00 degC
- Liquid Mass Fraction	1.00 fraction
- Droplet Diameter	735.02 um
- Expanded Radius	n/a m
- Velocity	1.54 m/s



Consequence Results

Pool Vaporization Results

Path: \Terminal Adonai - Efeitos físicos\Simulações\H149 (M)

N.B. Pool vaporization segments begin when the cloud has left the pool

		Dia	Noite
Liquid Rainout	fraction	0.999395	0.99939
Initial Vapor Cloud	kg	305.896	308.179
Time Pool Left Behind	s	28.6975	51.9953

Cloud Segment 1

		Dia	Noite
Cloud Segment Duration	s	600	600
Pool Vaporization Rate	kg/s	3.22139	2.60246
Maximum Pool Radius	m	20.0744	20.0744

Distance to Concentration Results

Path: \Terminal Adonai - Efeitos físicos\Simulações\H149 (M)

The height for user defined concentrations is the user defined height 0 m

All toxic results are reported at the toxic effect height 1 m

All flammable results are reported at the flammable effect height 0 m

Concentration(ppm)	Averaging Time		Dia	Noite	Distance (m)
UFL (360000)	18.75	s	10.9674	10.8252	
LFL (73000)	18.75	s	16.5933	17.0997	
LFL Frac (73000)	18.75	s	16.5933	17.0997	
Concentration(ppm)	Averaging Time		Dia	Noite	Heights (m) for above distances
UFL (360000)	18.75	s	0	0	
LFL (73000)	18.75	s	0	0	
LFL Frac (73000)	18.75	s	0	0	

Late Pool Fire Hazard

Path: \Terminal Adonai - Efeitos físicos\Simulações\H149 (M)

	Dia	Noite
Late Pool Fire Status	Hazard	Hazard

Radiation Effects: Late Pool Fire Ellipse

Path: \Terminal Adonai - Efeitos físicos\Simulações\H149 (M)

			Dia	Noite	Distance (m)
Radiation Level	9.83	kW/m2	40.6569	39.1868	
Radiation Level	19.46	kW/m2	27.7243	26.3797	
Radiation Level	35	kW/m2	21.0744	21.0744	

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Radiation Effects: Late Pool Fire Distance

Path: \Terminal Adonai - Efeitos físicos\Simulações\H149 (M)

	Dia	Noite
Radiation Level (kW/m2)		

Fireball Hazard

Path: \Terminal Adonai - Efeitos físicos\Simulações\H149 (M)

	Dia	Noite
Fireball Flame Status	No Hazard	No Hazard

Flash Fire Envelope

Path: \Terminal Adonai - Efeitos físicos\Simulações\H149 (M)

All flammable results are reported at the flammable effect height 0 m

			Dia	Noite
Furthest Extent	73000	ppm	16.5933	17.0997
Furthest Extent	73000	ppm	16.5933	17.0997

			Dia	Noite
Furthest Extent	73000	ppm	0	0
Furthest Extent	73000	ppm	0	0

Explosion Effects: Early Explosion

Path: \Terminal Adonai - Efeitos físicos\Simulações\H149 (M)

Early Explosions are assumed to be centered at the release location
Explosion Model Used : TNT

			Dia	Noite
Supplied Flammable Mass		kg	505355	505355

			Dia	Noite
Overpressure	0.05	bar	No Hazard	No Hazard
Overpressure	0.1	bar	No Hazard	No Hazard
Overpressure	0.3	bar	No Hazard	No Hazard

			Dia	Noite
Overpressure	0.05	bar	0	0
Overpressure	0.1	bar	0	0
Overpressure	0.3	bar	0	0

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Explosion Effects: Late Ignition

Path: \Terminal Adonai - Efeitos físicos\Simulações\H149 (M)

Explosion Model Used : TNT

Explosion Location Criterion: Cloud Center

All distances are measured from the Source

All flammable results are reported at the flammable effect height 0 m

			Maximum Distance (m) at Overpressure Level	
			Dia	Noite
Overpressure	0.05	bar	64.0823	62.1765
Overpressure	0.1	bar	40.2249	38.9985
Overpressure	0.3	bar	20.6713	20.0018

Supplementary Data at 0.05 bar

			Dia	Noite
Supplied Flammable Mass		kg	117.745	107.969
Used Flammable Mass		kg	117.745	107.969
Overpressure Radius		m	62.9127	61.121
Distance to:				
- Ignition Source		m	10	10
- Cloud Front/Centre		m	1.16956	1.05546
- Explosion Centre		m	1.16956	1.05546

Supplementary Data at 0.1 bar

			Dia	Noite
Supplied Flammable Mass		kg	117.745	107.969
Used Flammable Mass		kg	117.745	107.969
Overpressure Radius		m	39.0553	37.9431
Distance to:				
- Ignition Source		m	10	10
- Cloud Front/Centre		m	1.16956	1.05546
- Explosion Centre		m	1.16956	1.05546

Supplementary Data at 0.3 bar

			Dia	Noite
Supplied Flammable Mass		kg	117.745	107.969
Used Flammable Mass		kg	117.745	107.969
Overpressure Radius		m	19.5017	18.9463
Distance to:				
- Ignition Source		m	10	10
- Cloud Front/Centre		m	1.16956	1.05546
- Explosion Centre		m	1.16956	1.05546

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Weather Conditions

Path: \Terminal Adonai - Efeitos físicos\Simulações\H149 (M)

		Dia	Noite
Wind Speed	m/s	3	2
Pasquill Stability		C	E
Surface Roughness Length	mm	1000	1000
Surface Roughness Parameter		0.173718	0.173718
Atmospheric Temperature	degC	25	20
Surface Temperature	degC	30	20
Relative Humidity	fraction	0.8	0.8

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

H149 (N)

Base Case

CASE Name: Data

Path: \Terminal Adonai - Efeitos físicos\Simulações\H149 (N)

User-Defined Data

Material

Material Identifier	N-NONANE
Type of Vessel	Padded Liquid
Pressure Specification	Pressure specified
Storage Pressure - gauge	0.03 bar
Temperature	25 degC
Volume Inventory	640 m3

Scenario

Scenario Type	Catastrophic rupture
Phase to be Released	Liquid
Building Wake Effect	None

Location

Elevation	0 m
Use ERPG averaging time	ERPG not selected
Use IDLH averaging time	IDLH not selected
Use STEL averaging time	STEL not selected
Supply a user defined averaging time	Not supplied

Bund

Status of Bund	Bund present
Bund Area	1266 m2
[Type of Bund Surface	User-Defined (Land)]
Bund Height	3 m
[Bund Failure Modeling	Bund cannot fail]

Indoor/Outdoor

Location of release	Open air release
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Flammable

Explosion Method	TNT
Jet Fire Method	Cone Model

Dispersion

Late Ignition Location	No ignition location
Mass Inventory of material to Disperse	4.571E5 kg
Use Burst Pressure	No - Use release pressure for fireball

Fireball Parameters

[Mass Modification Factor	3]
[Calculation method for fireball	DNV Recommended]
[TNO model flame temperature	1727 degC]

Toxic Parameters

[Indoor Calculations	Unselected]
[Wind Dependent Exchange Rate	Case Specified]

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

[Building Exchange Rate	4 /hr]
[Tail Time	1800 s]
[Set averaging time equal to exposure time	Use a fixed averaging time]
[Cut-off fraction of toxic load for exposure time calculation	0.05 fraction]
[Cut-off concentration for exposure time calculations	0 fraction]

Geometry

Shape	Point
Dimension	2D
System	Absolute
East(1)	0 m
North(1)	0 m

SUMMARY REPORT

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Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Path: \Terminal Adonai - Efeitos físicos\Simulações\H149 (N)

DISCHARGE DATA for Weather: Global Weathers\Dia

Wind Speed: 3.00 m/s
Wind Speed at Height (Calculated) 1.78 m/s
Pasquill Stability: C

USER-DEFINED QUANTITIES

Material N-NONANE
Scenario Catastrophic rupture
Inventory 457,147.28 kg
Fixed Duration n/a s

Stagnation data (data at upstream end for long pipe):

- Pressure 1.04 bar
- Temperature 25.00 degC
- Fluid State Non-saturated liquid

CALCULATED QUANTITIES

Mass Flow of Air (Vent from Vapor Space only) n/a
Mass Flowrate n/a kg/s
Release Duration n/a s
Orifice or pipe exit data (before atmospheric expansion):
- Pressure n/a bar
- Temperature n/a degC
- Vena Contracta Velocity (exit velocity for pipe releases) n/a m/s
- Discharge Coefficient n/a
Final data (after atmospheric expansion):
- Temperature 25.00 degC
- Liquid Mass Fraction 1.00 fraction
- Droplet Diameter 727.67 um
- Expanded Radius n/a m
- Velocity 0.76 m/s

DISCHARGE DATA for Weather: Global Weathers\Noite

Wind Speed: 2.00 m/s
Wind Speed at Height (Calculated) 0.83 m/s
Pasquill Stability: E

USER-DEFINED QUANTITIES

Material N-NONANE
Scenario Catastrophic rupture
Inventory 457,147.28 kg
Fixed Duration n/a s

Stagnation data (data at upstream end for long pipe):

- Pressure 1.04 bar
- Temperature 25.00 degC
- Fluid State Non-saturated liquid

CALCULATED QUANTITIES

SUMMARY REPORT

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Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Mass Flow of Air (Vent from Vapor Space only)	n/a
Mass Flowrate	n/a kg/s
Release Duration	n/a s
Orifice or pipe exit data (before atmospheric expansion):	
- Pressure	n/a bar
- Temperature	n/a degC
- Vena Contracta Velocity (exit velocity for pipe releases)	n/a m/s
- Discharge Coefficient	n/a
Final data (after atmospheric expansion):	
- Temperature	25.00 degC
- Liquid Mass Fraction	1.00 fraction
- Droplet Diameter	727.67 um
- Expanded Radius	n/a m
- Velocity	0.76 m/s



Consequence Results

Pool Vaporization Results

Path: \Terminal Adonai - Efeitos físicos\Simulações\H149 (N)

N.B. Pool vaporization segments begin when the cloud has left the pool

		Dia	Noite
Liquid Rainout	fraction	0.999996	0.999996
Initial Vapor Cloud	kg	1.76521	1.71007
Time Pool Left Behind	s	19.3955	41.4537

Cloud Segment 1

Cloud Segment Duration	s	600	600
Pool Vaporization Rate	kg/s	0.244628	0.188152

Maximum Pool Radius	m	20.0744	20.0744
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Distance to Concentration Results

Path: \Terminal Adonai - Efeitos físicos\Simulações\H149 (N)

The height for user defined concentrations is the user defined height 0 m

All toxic results are reported at the toxic effect height 1 m

All flammable results are reported at the flammable effect height 0 m

Concentration(ppm)	Averaging Time		Dia	Noite	Distance (m)
UFL (56000)	18.75	s	7.3304	7.31912	
LFL (7000)	18.75	s	7.40939	7.39811	
LFL Frac (7000)	18.75	s	7.40939	7.39811	
Concentration(ppm)	Averaging Time		Dia	Noite	Heights (m) for above distances
UFL (56000)	18.75	s	0	0	
LFL (7000)	18.75	s	0	0	
LFL Frac (7000)	18.75	s	0	0	

Late Pool Fire Hazard

Path: \Terminal Adonai - Efeitos físicos\Simulações\H149 (N)

	Dia	Noite
Late Pool Fire Status	Hazard	Hazard

Radiation Effects: Late Pool Fire Ellipse

Path: \Terminal Adonai - Efeitos físicos\Simulações\H149 (N)

			Dia	Noite	Distance (m)
Radiation Level	9.83	kW/m2	27.7652	26.429	
Radiation Level	19.46	kW/m2	21.0744	21.0744	
Radiation Level	35	kW/m2	Not Reached	Not Reached	

SUMMARY REPORT

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Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Radiation Effects: Late Pool Fire Distance

Path: \Terminal Adonai - Efeitos físicos\Simulações\H149 (N)

	Dia	Noite
Radiation Level (kW/m2)		

Fireball Hazard

Path: \Terminal Adonai - Efeitos físicos\Simulações\H149 (N)

	Dia	Noite
Fireball Flame Status	No Hazard	No Hazard

Flash Fire Envelope

Path: \Terminal Adonai - Efeitos físicos\Simulações\H149 (N)

All flammable results are reported at the flammable effect height 0 m

			Dia	Noite
Furthest Extent	7000	ppm	7.40939	7.39811
Furthest Extent	7000	ppm	7.40939	7.39811

			Dia	Noite
Furthest Extent	7000	ppm	0	0
Furthest Extent	7000	ppm	0	0

Explosion Effects: Early Explosion

Path: \Terminal Adonai - Efeitos físicos\Simulações\H149 (N)

Early Explosions are assumed to be centered at the release location
Explosion Model Used : TNT

			Dia	Noite
Supplied Flammable Mass		kg	457147	457147

			Distance (m) at Overpressure Levels	
			Dia	Noite
Overpressure	0.05	bar	No Hazard	No Hazard
Overpressure	0.1	bar	No Hazard	No Hazard
Overpressure	0.3	bar	No Hazard	No Hazard

			Used Mass (kg) at Overpressure Levels	
			Dia	Noite
Overpressure	0.05	bar	0	0
Overpressure	0.1	bar	0	0
Overpressure	0.3	bar	0	0

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Weather Conditions

Path: \Terminal Adonai - Efeitos físicos\Simulações\H149 (N)

		Dia	Noite
Wind Speed	m/s	3	2
Pasquill Stability		C	E
Surface Roughness Length	mm	1000	1000
Surface Roughness Parameter		0.173718	0.173718
Atmospheric Temperature	degC	25	20
Surface Temperature	degC	30	20
Relative Humidity	fraction	0.8	0.8

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

H149 (P)

Base Case

CASE Name: Data

Path: \Terminal Adonai - Efeitos físicos\Simulações\H149 (P)

User-Defined Data

Material

Material Identifier	N-PENTANE
Type of Vessel	Padded Liquid
Pressure Specification	Pressure specified
Storage Pressure - gauge	0.03 bar
Temperature	25 degC
Volume Inventory	640 m3

Scenario

Scenario Type	Catastrophic rupture
Phase to be Released	Liquid
Building Wake Effect	None

Location

Elevation	0 m
Use ERPG averaging time	ERPG not selected
Use IDLH averaging time	IDLH not selected
Use STEL averaging time	STEL not selected
Supply a user defined averaging time	Not supplied

Bund

Status of Bund	Bund present
Bund Area	1266 m2
[Type of Bund Surface	User-Defined (Land)]
Bund Height	3 m
[Bund Failure Modeling	Bund cannot fail]

Indoor/Outdoor

Location of release	Open air release
---------------------	------------------

Flammable

Explosion Method	TNT
Jet Fire Method	Cone Model

Dispersion

Late Ignition Location	No ignition location
Mass Inventory of material to Disperse	3.979E5 kg
Use Burst Pressure	No - Use release pressure for fireball

Fireball Parameters

[Mass Modification Factor	3]
[Calculation method for fireball	DNV Recommended]
[TNO model flame temperature	1727 degC]

Toxic Parameters

[Indoor Calculations	Unselected]
[Wind Dependent Exchange Rate	Case Specified]

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

[Building Exchange Rate	4 /hr]
[Tail Time	1800 s]
[Set averaging time equal to exposure time	Use a fixed averaging time]
[Cut-off fraction of toxic load for exposure time calculation	0.05 fraction]
[Cut-off concentration for exposure time calculations	0 fraction]

Geometry

Shape	Point
Dimension	2D
System	Absolute
East(1)	0 m
North(1)	0 m

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Path: \Terminal Adonai - Efeitos físicos\Simulações\H149 (P)

DISCHARGE DATA for Weather: Global Weathers\Dia

Wind Speed: 3.00 m/s
Wind Speed at Height (Calculated) 1.78 m/s
Pasquill Stability: C

USER-DEFINED QUANTITIES

Material N-PENTANE
Scenario Catastrophic rupture
Inventory 397,915.78 kg
Fixed Duration n/a s

Stagnation data (data at upstream end for long pipe):

- Pressure 1.04 bar
- Temperature 25.00 degC
- Fluid State Non-saturated liquid

CALCULATED QUANTITIES

Mass Flow of Air (Vent from Vapor Space only) n/a
Mass Flowrate n/a kg/s
Release Duration n/a s
Orifice or pipe exit data (before atmospheric expansion):
- Pressure n/a bar
- Temperature n/a degC
- Vena Contracta Velocity (exit velocity for pipe releases) n/a m/s
- Discharge Coefficient n/a
Final data (after atmospheric expansion):
- Temperature 25.00 degC
- Liquid Mass Fraction 1.00 fraction
- Droplet Diameter 717.48 um
- Expanded Radius n/a m
- Velocity 0.86 m/s

DISCHARGE DATA for Weather: Global Weathers\Noite

Wind Speed: 2.00 m/s
Wind Speed at Height (Calculated) 0.83 m/s
Pasquill Stability: E

USER-DEFINED QUANTITIES

Material N-PENTANE
Scenario Catastrophic rupture
Inventory 397,915.78 kg
Fixed Duration n/a s

Stagnation data (data at upstream end for long pipe):

- Pressure 1.04 bar
- Temperature 25.00 degC
- Fluid State Non-saturated liquid

CALCULATED QUANTITIES

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Mass Flow of Air (Vent from Vapor Space only)	n/a
Mass Flowrate	n/a kg/s
Release Duration	n/a s
Orifice or pipe exit data (before atmospheric expansion):	
- Pressure	n/a bar
- Temperature	n/a degC
- Vena Contracta Velocity (exit velocity for pipe releases)	n/a m/s
- Discharge Coefficient	n/a
Final data (after atmospheric expansion):	
- Temperature	25.00 degC
- Liquid Mass Fraction	1.00 fraction
- Droplet Diameter	717.48 um
- Expanded Radius	n/a m
- Velocity	0.86 m/s



Consequence Results

Pool Vaporization Results

Path: \Terminal Adonai - Efeitos físicos\Simulações\H149 (P)

N.B. Pool vaporization segments begin when the cloud has left the pool

		Dia	Noite
Liquid Rainout	fraction	0.999223	0.999265
Initial Vapor Cloud	kg	309.238	292.422
Time Pool Left Behind	s	45.5079	122.874

Cloud Segment 1

Cloud Segment Duration	s	600	600
Pool Vaporization Rate	kg/s	27.8981	22.3627

Maximum Pool Radius	m	20.0744	20.0744
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Distance to Concentration Results

Path: \Terminal Adonai - Efeitos físicos\Simulações\H149 (P)

The height for user defined concentrations is the user defined height 0 m

All toxic results are reported at the toxic effect height 1 m

All flammable results are reported at the flammable effect height 0 m

Concentration(ppm)	Averaging Time		Dia	Noite	Distance (m)
UFL (80000)	18.75	s	26.0757	31.3711	
LFL (13000)	18.75	s	72.9628	74.0674	
LFL Frac (13000)	18.75	s	72.9628	74.0674	
Concentration(ppm)	Averaging Time		Dia	Noite	Heights (m) for above distances
UFL (80000)	18.75	s	0	0	
LFL (13000)	18.75	s	0	0	
LFL Frac (13000)	18.75	s	0	0	

Late Pool Fire Hazard

Path: \Terminal Adonai - Efeitos físicos\Simulações\H149 (P)

	Dia	Noite
Late Pool Fire Status	Hazard	Hazard

Radiation Effects: Late Pool Fire Ellipse

Path: \Terminal Adonai - Efeitos físicos\Simulações\H149 (P)

			Dia	Noite	Distance (m)
Radiation Level	9.83	kW/m2	27.7984	26.4107	
Radiation Level	19.46	kW/m2	21.0744	21.0744	
Radiation Level	35	kW/m2	Not Reached	Not Reached	

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Radiation Effects: Late Pool Fire Distance

Path: \Terminal Adonai - Efeitos físicos\Simulações\H149 (P)

	Dia	Noite
Radiation Level (kW/m2)		

Fireball Hazard

Path: \Terminal Adonai - Efeitos físicos\Simulações\H149 (P)

	Dia	Noite
Fireball Flame Status	No Hazard	No Hazard

Flash Fire Envelope

Path: \Terminal Adonai - Efeitos físicos\Simulações\H149 (P)

All flammable results are reported at the flammable effect height 0 m

			Dia	Noite
Furthest Extent	13000	ppm	72.9628	74.0674
Furthest Extent	13000	ppm	72.9628	74.0674

			Dia	Noite
Furthest Extent	13000	ppm	0	0
Furthest Extent	13000	ppm	0	0

Explosion Effects: Early Explosion

Path: \Terminal Adonai - Efeitos físicos\Simulações\H149 (P)

Early Explosions are assumed to be centered at the release location
Explosion Model Used : TNT

			Dia	Noite
Supplied Flammable Mass		kg	397916	397916

			Distance (m) at Overpressure Levels	
			Dia	Noite
Overpressure	0.05	bar	No Hazard	No Hazard
Overpressure	0.1	bar	No Hazard	No Hazard
Overpressure	0.3	bar	No Hazard	No Hazard

			Used Mass (kg) at Overpressure Levels	
			Dia	Noite
Overpressure	0.05	bar	0	0
Overpressure	0.1	bar	0	0
Overpressure	0.3	bar	0	0

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Explosion Effects: Late Ignition

Path: \Terminal Adonai - Efeitos físicos\Simulações\H149 (P)

Explosion Model Used : TNT

Explosion Location Criterion: Cloud Center

All distances are measured from the Source

All flammable results are reported at the flammable effect height 0 m

			Maximum Distance (m) at Overpressure Level	
			Dia	Noite
Overpressure	0.05	bar	146.353	153.383
Overpressure	0.1	bar	102.063	103.302
Overpressure	0.3	bar	70.2118	62.2554

Supplementary Data at 0.05 bar

			Dia	Noite
Supplied Flammable Mass		kg	387.642	482.346
Used Flammable Mass		kg	387.642	482.346
Overpressure Radius		m	122.785	132.065
Distance to:				
- Ignition Source		m	60	70
- Cloud Front/Centre		m	23.5677	21.3177
- Explosion Centre		m	23.5677	21.3177

Supplementary Data at 0.1 bar

			Dia	Noite
Supplied Flammable Mass		kg	225.378	482.346
Used Flammable Mass		kg	225.378	482.346
Overpressure Radius		m	63.6182	81.9842
Distance to:				
- Ignition Source		m	70	70
- Cloud Front/Centre		m	38.445	21.3177
- Explosion Centre		m	38.445	21.3177

Supplementary Data at 0.3 bar

			Dia	Noite
Supplied Flammable Mass		kg	225.378	482.346
Used Flammable Mass		kg	225.378	482.346
Overpressure Radius		m	31.7668	40.9376
Distance to:				
- Ignition Source		m	70	70
- Cloud Front/Centre		m	38.445	21.3177
- Explosion Centre		m	38.445	21.3177

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Weather Conditions

Path: \Terminal Adonai - Efeitos físicos\Simulações\H149 (P)

		Dia	Noite
Wind Speed	m/s	3	2
Pasquill Stability		C	E
Surface Roughness Length	mm	1000	1000
Surface Roughness Parameter		0.173718	0.173718
Atmospheric Temperature	degC	25	20
Surface Temperature	degC	30	20
Relative Humidity	fraction	0.8	0.8

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

H150 (A)

Base Case

CASE Name: Data

Path: \Terminal Adonai - Efeitos físicos\Simulações\H150 (A)

User-Defined Data

Material

Material Identifier	ACETONE
Type of Vessel	Padded Liquid
Pressure Specification	Pressure specified
Storage Pressure - gauge	0.03 bar
Temperature	25 degC
Volume Inventory	1200 m3

Scenario

Scenario Type	Catastrophic rupture
Phase to be Released	Liquid
Building Wake Effect	None

Location

Elevation	0 m
Use ERPG averaging time	ERPG not selected
Use IDLH averaging time	IDLH not selected
Use STEL averaging time	STEL not selected
Supply a user defined averaging time	Not supplied

Bund

Status of Bund	Bund present
Bund Area	1940 m2
[Type of Bund Surface	User-Defined (Land)]
Bund Height	3 m
[Bund Failure Modeling	Bund cannot fail]

Indoor/Outdoor

Location of release	Open air release
---------------------	------------------

Flammable

Explosion Method	TNT
Jet Fire Method	Cone Model

Dispersion

Late Ignition Location	No ignition location
Mass Inventory of material to Disperse	9.439E5 kg
Use Burst Pressure	No - Use release pressure for fireball

Fireball Parameters

[Mass Modification Factor	3]
[Calculation method for fireball	DNV Recommended]
[TNO model flame temperature	1727 degC]

Toxic Parameters

[Indoor Calculations	Unselected]
[Wind Dependent Exchange Rate	Case Specified]

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

[Building Exchange Rate	4 /hr]
[Tail Time	1800 s]
[Set averaging time equal to exposure time	Use a fixed averaging time]
[Cut-off fraction of toxic load for exposure time calculation	0.05 fraction]
[Cut-off concentration for exposure time calculations	0 fraction]

Geometry

Shape	Point
Dimension	2D
System	Absolute
East(1)	0 m
North(1)	0 m

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Path: \Terminal Adonai - Efeitos físicos\Simulações\H150 (A)

DISCHARGE DATA for Weather: Global Weathers\Dia

Wind Speed: 3.00 m/s
Wind Speed at Height (Calculated) 1.78 m/s
Pasquill Stability: C

USER-DEFINED QUANTITIES

Material ACETONE
Scenario Catastrophic rupture
Inventory 943,896.69 kg
Fixed Duration n/a s

Stagnation data (data at upstream end for long pipe):

- Pressure 1.04 bar
- Temperature 25.00 degC
- Fluid State Non-saturated liquid

CALCULATED QUANTITIES

Mass Flow of Air (Vent from Vapor Space only) n/a
Mass Flowrate n/a kg/s
Release Duration n/a s
Orifice or pipe exit data (before atmospheric expansion):
- Pressure n/a bar
- Temperature n/a degC
- Vena Contracta Velocity (exit velocity for pipe releases) n/a m/s
- Discharge Coefficient n/a
Final data (after atmospheric expansion):
- Temperature 25.00 degC
- Liquid Mass Fraction 1.00 fraction
- Droplet Diameter 734.74 um
- Expanded Radius n/a m
- Velocity 1.11 m/s

DISCHARGE DATA for Weather: Global Weathers\Noite

Wind Speed: 2.00 m/s
Wind Speed at Height (Calculated) 0.83 m/s
Pasquill Stability: E

USER-DEFINED QUANTITIES

Material ACETONE
Scenario Catastrophic rupture
Inventory 943,896.69 kg
Fixed Duration n/a s

Stagnation data (data at upstream end for long pipe):

- Pressure 1.04 bar
- Temperature 25.00 degC
- Fluid State Non-saturated liquid

CALCULATED QUANTITIES

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Mass Flow of Air (Vent from Vapor Space only)	n/a
Mass Flowrate	n/a kg/s
Release Duration	n/a s
Orifice or pipe exit data (before atmospheric expansion):	
- Pressure	n/a bar
- Temperature	n/a degC
- Vena Contracta Velocity (exit velocity for pipe releases)	n/a m/s
- Discharge Coefficient	n/a
Final data (after atmospheric expansion):	
- Temperature	25.00 degC
- Liquid Mass Fraction	1.00 fraction
- Droplet Diameter	734.74 um
- Expanded Radius	n/a m
- Velocity	1.11 m/s



Consequence Results

Pool Vaporization Results

Path: \Terminal Adonai - Efeitos físicos\Simulações\H150 (A)

N.B. Pool vaporization segments begin when the cloud has left the pool

		Dia	Noite
Liquid Rainout	fraction	0.999251	0.999251
Initial Vapor Cloud	kg	706.581	707.398
Time Pool Left Behind	s	46.39	109.303

Cloud Segment 1

		Dia	Noite
Cloud Segment Duration	s	600	600
Pool Vaporization Rate	kg/s	13.9448	11.2756
Maximum Pool Radius	m	24.85	24.85

Distance to Concentration Results

Path: \Terminal Adonai - Efeitos físicos\Simulações\H150 (A)

The height for user defined concentrations is the user defined height 0 m

All toxic results are reported at the toxic effect height 1 m

All flammable results are reported at the flammable effect height 0 m

Concentration(ppm)	Averaging Time		Dia	Noite	Distance (m)
UFL (128000)	18.75	s	15.57	16.9515	
LFL (26000)	18.75	s	49.4232	52.2701	
LFL Frac (26000)	18.75	s	49.4232	52.2701	
Concentration(ppm)	Averaging Time		Dia	Noite	Heights (m) for above distances
UFL (128000)	18.75	s	0	0	
LFL (26000)	18.75	s	0	0	
LFL Frac (26000)	18.75	s	0	0	

Late Pool Fire Hazard

Path: \Terminal Adonai - Efeitos físicos\Simulações\H150 (A)

	Dia	Noite
Late Pool Fire Status	Hazard	Hazard

Radiation Effects: Late Pool Fire Ellipse

Path: \Terminal Adonai - Efeitos físicos\Simulações\H150 (A)

			Dia	Noite	Distance (m)
Radiation Level	9.83	kW/m2	93.3124	90.9896	
Radiation Level	19.46	kW/m2	70.8452	67.2255	
Radiation Level	35	kW/m2	51.5249	47.6521	

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Radiation Effects: Late Pool Fire Distance

Path: \Terminal Adonai - Efeitos físicos\Simulações\H150 (A)

	Dia	Noite
Radiation Level (kW/m2)		

Fireball Hazard

Path: \Terminal Adonai - Efeitos físicos\Simulações\H150 (A)

	Dia	Noite
Fireball Flame Status	No Hazard	No Hazard

Flash Fire Envelope

Path: \Terminal Adonai - Efeitos físicos\Simulações\H150 (A)

All flammable results are reported at the flammable effect height 0 m

			Dia	Noite
Furthest Extent	26000	ppm	49.4232	52.2701
Furthest Extent	26000	ppm	49.4232	52.2701

			Dia	Noite
Furthest Extent	26000	ppm	0	0
Furthest Extent	26000	ppm	0	0

Explosion Effects: Early Explosion

Path: \Terminal Adonai - Efeitos físicos\Simulações\H150 (A)

Early Explosions are assumed to be centered at the release location
Explosion Model Used : TNT

			Dia	Noite
Supplied Flammable Mass		kg	943897	943897

			Distance (m) at Overpressure Levels	
			Dia	Noite
Overpressure	0.05	bar	No Hazard	No Hazard
Overpressure	0.1	bar	No Hazard	No Hazard
Overpressure	0.3	bar	No Hazard	No Hazard

			Used Mass (kg) at Overpressure Levels	
			Dia	Noite
Overpressure	0.05	bar	0	0
Overpressure	0.1	bar	0	0
Overpressure	0.3	bar	0	0

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Explosion Effects: Late Ignition

Path: \Terminal Adonai - Efeitos físicos\Simulações\H150 (A)

Explosion Model Used : TNT

Explosion Location Criterion: Cloud Center

All distances are measured from the Source

All flammable results are reported at the flammable effect height 0 m

			Maximum Distance (m) at Overpressure Level	
			Dia	Noite
Overpressure	0.05	bar	122.703	122.872
Overpressure	0.1	bar	79.672	80.2618
Overpressure	0.3	bar	44.4036	45.7811
			Supplementary Data at 0.05 bar	
			Dia	Noite
Supplied Flammable Mass		kg	481.762	538.565
Used Flammable Mass		kg	481.762	538.565
Overpressure Radius		m	113.474	117.769
Distance to:				
- Ignition Source		m	40	40
- Cloud Front/Centre		m	9.22882	5.10276
- Explosion Centre		m	9.22882	5.10276
			Supplementary Data at 0.1 bar	
			Dia	Noite
Supplied Flammable Mass		kg	481.762	450.198
Used Flammable Mass		kg	481.762	450.198
Overpressure Radius		m	70.4432	68.8699
Distance to:				
- Ignition Source		m	40	50
- Cloud Front/Centre		m	9.22882	11.392
- Explosion Centre		m	9.22882	11.392
			Supplementary Data at 0.3 bar	
			Dia	Noite
Supplied Flammable Mass		kg	481.762	450.198
Used Flammable Mass		kg	481.762	450.198
Overpressure Radius		m	35.1747	34.3891
Distance to:				
- Ignition Source		m	40	50
- Cloud Front/Centre		m	9.22882	11.392
- Explosion Centre		m	9.22882	11.392

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Weather Conditions

Path: \Terminal Adonai - Efeitos físicos\Simulações\H150 (A)

		Dia	Noite
Wind Speed	m/s	3	2
Pasquill Stability		C	E
Surface Roughness Length	mm	1000	1000
Surface Roughness Parameter		0.173718	0.173718
Atmospheric Temperature	degC	25	20
Surface Temperature	degC	30	20
Relative Humidity	fraction	0.8	0.8

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

H150 (B)

Base Case

CASE Name: Data

Path: \Terminal Adonai - Efeitos físicos\Simulações\H150 (B)

User-Defined Data

Material

Material Identifier	BENZENE
Type of Vessel	Padded Liquid
Pressure Specification	Pressure specified
Storage Pressure - gauge	0.03 bar
Temperature	25 degC
Volume Inventory	1200 m3

Scenario

Scenario Type	Catastrophic rupture
Phase to be Released	Liquid
Building Wake Effect	None

Location

Elevation	0 m
Use ERPG averaging time	ERPG not selected
Use IDLH averaging time	IDLH not selected
Use STEL averaging time	STEL not selected
Supply a user defined averaging time	Not supplied

Bund

Status of Bund	Bund present
Bund Area	1940 m2
[Type of Bund Surface	User-Defined (Land)]
Bund Height	3 m
[Bund Failure Modeling	Bund cannot fail]

Indoor/Outdoor

Location of release	Open air release
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Flammable

Explosion Method	TNT
Jet Fire Method	Cone Model

Dispersion

Late Ignition Location	No ignition location
Mass Inventory of material to Disperse	1.048E6 kg
Use Burst Pressure	No - Use release pressure for fireball

Fireball Parameters

[Mass Modification Factor	3]
[Calculation method for fireball	DNV Recommended]
[TNO model flame temperature	1727 degC]

Toxic Parameters

[Indoor Calculations	Unselected]
[Wind Dependent Exchange Rate	Case Specified]

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

[Building Exchange Rate	4 /hr]
[Tail Time	1800 s]
[Set averaging time equal to exposure time	Use a fixed averaging time]
[Cut-off fraction of toxic load for exposure time calculation	0.05 fraction]
[Cut-off concentration for exposure time calculations	0 fraction]

Geometry

Shape	Point
Dimension	2D
System	Absolute
East(1)	0 m
North(1)	0 m

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Path: \Terminal Adonai - Efeitos físicos\Simulações\H150 (B)

DISCHARGE DATA for Weather: Global Weathers\Dia

Wind Speed: 3.00 m/s
Wind Speed at Height (Calculated) 1.78 m/s
Pasquill Stability: C

USER-DEFINED QUANTITIES

Material BENZENE
Scenario Catastrophic rupture
Inventory 1,047,608.94 kg
Fixed Duration n/a s

Stagnation data (data at upstream end for long pipe):

- Pressure 1.04 bar
- Temperature 25.00 degC
- Fluid State Non-saturated liquid

CALCULATED QUANTITIES

Mass Flow of Air (Vent from Vapor Space only) n/a
Mass Flowrate n/a kg/s
Release Duration n/a s

Orifice or pipe exit data (before atmospheric expansion):

- Pressure n/a bar
- Temperature n/a degC
- Vena Contracta Velocity (exit velocity for pipe releases) n/a m/s
- Discharge Coefficient n/a

Final data (after atmospheric expansion):

- Temperature 25.00 degC
- Liquid Mass Fraction 1.00 fraction
- Droplet Diameter 742.39 um
- Expanded Radius n/a m
- Velocity 0.82 m/s

DISCHARGE DATA for Weather: Global Weathers\Noite

Wind Speed: 2.00 m/s
Wind Speed at Height (Calculated) 0.83 m/s
Pasquill Stability: E

USER-DEFINED QUANTITIES

Material BENZENE
Scenario Catastrophic rupture
Inventory 1,047,608.94 kg
Fixed Duration n/a s

Stagnation data (data at upstream end for long pipe):

- Pressure 1.04 bar
- Temperature 25.00 degC
- Fluid State Non-saturated liquid

CALCULATED QUANTITIES

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Mass Flow of Air (Vent from Vapor Space only)	n/a
Mass Flowrate	n/a kg/s
Release Duration	n/a s
Orifice or pipe exit data (before atmospheric expansion):	
- Pressure	n/a bar
- Temperature	n/a degC
- Vena Contracta Velocity (exit velocity for pipe releases)	n/a m/s
- Discharge Coefficient	n/a
Final data (after atmospheric expansion):	
- Temperature	25.00 degC
- Liquid Mass Fraction	1.00 fraction
- Droplet Diameter	742.39 um
- Expanded Radius	n/a m
- Velocity	0.82 m/s



Consequence Results

Pool Vaporization Results

Path: \Terminal Adonai - Efeitos físicos\Simulações\H150 (B)

N.B. Pool vaporization segments begin when the cloud has left the pool

		Dia	Noite
Liquid Rainout	fraction	0.99995	0.999952
Initial Vapor Cloud	kg	52.2197	50.0589
Time Pool Left Behind	s	33.0545	77.7634

Cloud Segment 1

		Dia	Noite
Cloud Segment Duration	s	600	600
Pool Vaporization Rate	kg/s	6.69803	5.20111
Maximum Pool Radius	m	24.85	24.85

Distance to Concentration Results

Path: \Terminal Adonai - Efeitos físicos\Simulações\H150 (B)

The height for user defined concentrations is the user defined height 0 m

All toxic results are reported at the toxic effect height 1 m

All flammable results are reported at the flammable effect height 0 m

Concentration(ppm)	Averaging Time		Dia	Noite	Distance (m)
UFL (79000)	18.75	s	9.06535	9.05359	
LFL (13000)	18.75	s	28.1792	28.4746	
LFL Frac (13000)	18.75	s	28.1792	28.4746	
Concentration(ppm)	Averaging Time		Dia	Noite	Heights (m) for above distances
UFL (79000)	18.75	s	0	0	
LFL (13000)	18.75	s	0	0	
LFL Frac (13000)	18.75	s	0	0	

Late Pool Fire Hazard

Path: \Terminal Adonai - Efeitos físicos\Simulações\H150 (B)

	Dia	Noite
Late Pool Fire Status	Hazard	Hazard

Radiation Effects: Late Pool Fire Ellipse

Path: \Terminal Adonai - Efeitos físicos\Simulações\H150 (B)

			Dia	Noite	Distance (m)
Radiation Level	9.83	kW/m2	32.3508	30.9618	
Radiation Level	19.46	kW/m2	25.85	25.85	
Radiation Level	35	kW/m2	Not Reached	Not Reached	

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Radiation Effects: Late Pool Fire Distance

Path: \Terminal Adonai - Efeitos físicos\Simulações\H150 (B)

		Radiation Level (kW/m2)
	Dia	Noite

Fireball Hazard

Path: \Terminal Adonai - Efeitos físicos\Simulações\H150 (B)

		Dia	Noite
Fireball Flame Status		No Hazard	No Hazard

Flash Fire Envelope

Path: \Terminal Adonai - Efeitos físicos\Simulações\H150 (B)

All flammable results are reported at the flammable effect height 0 m

				Distance (m)
			Dia	Noite
Furthest Extent	13000	ppm	28.1792	28.4746
Furthest Extent	13000	ppm	28.1792	28.4746
				Heights (m) for above distances
			Dia	Noite
Furthest Extent	13000	ppm	0	0
Furthest Extent	13000	ppm	0	0

Explosion Effects: Early Explosion

Path: \Terminal Adonai - Efeitos físicos\Simulações\H150 (B)

Early Explosions are assumed to be centered at the release location
Explosion Model Used : TNT

			Dia	Noite
Supplied Flammable Mass		kg	1.04761e+006	1.04761e+006
				Distance (m) at Overpressure Levels
			Dia	Noite
Overpressure	0.05	bar	No Hazard	No Hazard
Overpressure	0.1	bar	No Hazard	No Hazard
Overpressure	0.3	bar	No Hazard	No Hazard
				Used Mass (kg) at Overpressure Levels
			Dia	Noite
Overpressure	0.05	bar	0	0
Overpressure	0.1	bar	0	0
Overpressure	0.3	bar	0	0

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Explosion Effects: Late Ignition

Path: \Terminal Adonai - Efeitos físicos\Simulações\H150 (B)

Explosion Model Used : TNT

Explosion Location Criterion: Cloud Center

All distances are measured from the Source

All flammable results are reported at the flammable effect height 0 m

			Maximum Distance (m) at Overpressure Level	
			Dia	Noite
Overpressure	0.05	bar	60.7108	61.7844
Overpressure	0.1	bar	39.4163	39.1758
Overpressure	0.3	bar	21.9633	20.6456

Supplementary Data at 0.05 bar

			Dia	Noite
Supplied Flammable Mass		kg	41.5394	49.7148
Used Flammable Mass		kg	41.5394	49.7148
Overpressure Radius		m	56.1543	59.6199
Distance to:				
- Ignition Source		m	20	20
- Cloud Front/Centre		m	4.55657	2.16459
- Explosion Centre		m	4.55657	2.16459

Supplementary Data at 0.1 bar

			Dia	Noite
Supplied Flammable Mass		kg	41.5394	49.7148
Used Flammable Mass		kg	41.5394	49.7148
Overpressure Radius		m	34.8598	37.0112
Distance to:				
- Ignition Source		m	20	20
- Cloud Front/Centre		m	4.55657	2.16459
- Explosion Centre		m	4.55657	2.16459

Supplementary Data at 0.3 bar

			Dia	Noite
Supplied Flammable Mass		kg	41.5394	49.7148
Used Flammable Mass		kg	41.5394	49.7148
Overpressure Radius		m	17.4067	18.481
Distance to:				
- Ignition Source		m	20	20
- Cloud Front/Centre		m	4.55657	2.16459
- Explosion Centre		m	4.55657	2.16459

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Weather Conditions

Path: \Terminal Adonai - Efeitos físicos\Simulações\H150 (B)

		Dia	Noite
Wind Speed	m/s	3	2
Pasquill Stability		C	E
Surface Roughness Length	mm	1000	1000
Surface Roughness Parameter		0.173718	0.173718
Atmospheric Temperature	degC	25	20
Surface Temperature	degC	30	20
Relative Humidity	fraction	0.8	0.8

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

H150 (E)

Base Case

CASE Name: Data

Path: \Terminal Adonai - Efeitos físicos\Simulações\H150 (E)

User-Defined Data

Material

Material Identifier	ETHANOL
Type of Vessel	Padded Liquid
Pressure Specification	Pressure specified
Storage Pressure - gauge	0.03 bar
Temperature	25 degC
Volume Inventory	1200 m3

Scenario

Scenario Type	Catastrophic rupture
Phase to be Released	Liquid
Building Wake Effect	None

Location

Elevation	0 m
Use ERPG averaging time	ERPG not selected
Use IDLH averaging time	IDLH not selected
Use STEL averaging time	STEL not selected
Supply a user defined averaging time	Not supplied

Bund

Status of Bund	Bund present
Bund Area	1940 m2
[Type of Bund Surface	User-Defined (Land)]
Bund Height	3 m
[Bund Failure Modeling	Bund cannot fail]

Indoor/Outdoor

Location of release	Open air release
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Flammable

Explosion Method	TNT
Jet Fire Method	Cone Model

Dispersion

Late Ignition Location	No ignition location
Mass Inventory of material to Disperse	9.431E5 kg
Use Burst Pressure	No - Use release pressure for fireball

Fireball Parameters

[Mass Modification Factor	3]
[Calculation method for fireball	DNV Recommended]
[TNO model flame temperature	1727 degC]

Toxic Parameters

[Indoor Calculations	Unselected]
[Wind Dependent Exchange Rate	Case Specified]

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

[Building Exchange Rate	4 /hr]
[Tail Time	1800 s]
[Set averaging time equal to exposure time	Use a fixed averaging time]
[Cut-off fraction of toxic load for exposure time calculation	0.05 fraction]
[Cut-off concentration for exposure time calculations	0 fraction]

Geometry

Shape	Point
Dimension	2D
System	Absolute
East(1)	0 m
North(1)	0 m

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Path: \Terminal Adonai - Efeitos físicos\Simulações\H150 (E)

DISCHARGE DATA for Weather: Global Weathers\Dia

Wind Speed: 3.00 m/s
Wind Speed at Height (Calculated) 1.78 m/s
Pasquill Stability: C

USER-DEFINED QUANTITIES

Material ETHANOL
Scenario Catastrophic rupture
Inventory 943,074.00 kg
Fixed Duration n/a s

Stagnation data (data at upstream end for long pipe):

- Pressure 1.04 bar
- Temperature 25.00 degC
- Fluid State Non-saturated liquid

CALCULATED QUANTITIES

Mass Flow of Air (Vent from Vapor Space only) n/a
Mass Flowrate n/a kg/s
Release Duration n/a s
Orifice or pipe exit data (before atmospheric expansion):
- Pressure n/a bar
- Temperature n/a degC
- Vena Contracta Velocity (exit velocity for pipe releases) n/a m/s
- Discharge Coefficient n/a
Final data (after atmospheric expansion):
- Temperature 25.00 degC
- Liquid Mass Fraction 1.00 fraction
- Droplet Diameter 734.68 um
- Expanded Radius n/a m
- Velocity 1.23 m/s

DISCHARGE DATA for Weather: Global Weathers\Noite

Wind Speed: 2.00 m/s
Wind Speed at Height (Calculated) 0.83 m/s
Pasquill Stability: E

USER-DEFINED QUANTITIES

Material ETHANOL
Scenario Catastrophic rupture
Inventory 943,074.00 kg
Fixed Duration n/a s

Stagnation data (data at upstream end for long pipe):

- Pressure 1.04 bar
- Temperature 25.00 degC
- Fluid State Non-saturated liquid

CALCULATED QUANTITIES

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Mass Flow of Air (Vent from Vapor Space only)	n/a
Mass Flowrate	n/a kg/s
Release Duration	n/a s
Orifice or pipe exit data (before atmospheric expansion):	
- Pressure	n/a bar
- Temperature	n/a degC
- Vena Contracta Velocity (exit velocity for pipe releases)	n/a m/s
- Discharge Coefficient	n/a
Final data (after atmospheric expansion):	
- Temperature	25.00 degC
- Liquid Mass Fraction	1.00 fraction
- Droplet Diameter	734.68 um
- Expanded Radius	n/a m
- Velocity	1.23 m/s



Consequence Results

Pool Vaporization Results

Path: \Terminal Adonai - Efeitos físicos\Simulações\H150 (E)

N.B. Pool vaporization segments begin when the cloud has left the pool

		Dia	Noite
Liquid Rainout	fraction	0.999821	0.99982
Initial Vapor Cloud	kg	168.567	169.346
Time Pool Left Behind	s	31.5905	62.0761

Cloud Segment 1

Cloud Segment Duration	s	600	600
Pool Vaporization Rate	kg/s	2.78392	2.23603

Maximum Pool Radius	m	24.85	24.85
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Distance to Concentration Results

Path: \Terminal Adonai - Efeitos físicos\Simulações\H150 (E)

The height for user defined concentrations is the user defined height 0 m

All toxic results are reported at the toxic effect height 1 m

All flammable results are reported at the flammable effect height 0 m

Concentration(ppm)	Averaging Time		Dia	Noite	Distance (m)
UFL (190000)	18.75	s	11.2389	11.1292	
LFL (43000)	18.75	s	11.3682	11.2589	
LFL Frac (43000)	18.75	s	11.3682	11.2589	
Concentration(ppm)	Averaging Time		Dia	Noite	Heights (m) for above distances
UFL (190000)	18.75	s	0	0	
LFL (43000)	18.75	s	0	0	
LFL Frac (43000)	18.75	s	0	0	

Late Pool Fire Hazard

Path: \Terminal Adonai - Efeitos físicos\Simulações\H150 (E)

	Dia	Noite
Late Pool Fire Status	Hazard	Hazard

Radiation Effects: Late Pool Fire Ellipse

Path: \Terminal Adonai - Efeitos físicos\Simulações\H150 (E)

			Dia	Noite	Distance (m)
Radiation Level	9.83	kW/m2	67.9797	66.3273	
Radiation Level	19.46	kW/m2	52.0074	49.3783	
Radiation Level	35	kW/m2	34.6618	32.9576	

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Radiation Effects: Late Pool Fire Distance

Path: \Terminal Adonai - Efeitos físicos\Simulações\H150 (E)

			Radiation Level (kW/m2)
		Dia	Noite

Fireball Hazard

Path: \Terminal Adonai - Efeitos físicos\Simulações\H150 (E)

		Dia	Noite
Fireball Flame Status		No Hazard	No Hazard

Flash Fire Envelope

Path: \Terminal Adonai - Efeitos físicos\Simulações\H150 (E)

All flammable results are reported at the flammable effect height 0 m

				Distance (m)
			Dia	Noite
Furthest Extent	43000	ppm	11.3682	11.2589
Furthest Extent	43000	ppm	11.3682	11.2589
				Heights (m) for above distances
			Dia	Noite
Furthest Extent	43000	ppm	0	0
Furthest Extent	43000	ppm	0	0

Explosion Effects: Early Explosion

Path: \Terminal Adonai - Efeitos físicos\Simulações\H150 (E)

Early Explosions are assumed to be centered at the release location
Explosion Model Used : TNT

			Dia	Noite
Supplied Flammable Mass		kg	943074	943074
				Distance (m) at Overpressure Levels
			Dia	Noite
Overpressure	0.05	bar	No Hazard	No Hazard
Overpressure	0.1	bar	No Hazard	No Hazard
Overpressure	0.3	bar	No Hazard	No Hazard
				Used Mass (kg) at Overpressure Levels
			Dia	Noite
Overpressure	0.05	bar	0	0
Overpressure	0.1	bar	0	0
Overpressure	0.3	bar	0	0

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Explosion Effects: Late Ignition

Path: \Terminal Adonai - Efeitos físicos\Simulações\H150 (E)

Explosion Model Used : TNT

Explosion Location Criterion: Cloud Center

All distances are measured from the Source

All flammable results are reported at the flammable effect height 0 m

			Maximum Distance (m) at Overpressure Level	
			Dia	Noite
Overpressure	0.05	bar	41.9602	40.3693
Overpressure	0.1	bar	26.3552	25.339
Overpressure	0.3	bar	13.5652	13.0201
			Supplementary Data at 0.05 bar	
			Dia	Noite
Supplied Flammable Mass		kg	24.4819	21.8752
Used Flammable Mass		kg	24.4819	21.8752
Overpressure Radius		m	41.151	39.6354
Distance to:				
- Ignition Source		m	10	10
- Cloud Front/Centre		m	0.809235	0.733891
- Explosion Centre		m	0.809235	0.733891
			Supplementary Data at 0.1 bar	
			Dia	Noite
Supplied Flammable Mass		kg	24.4819	21.8752
Used Flammable Mass		kg	24.4819	21.8752
Overpressure Radius		m	25.546	24.6051
Distance to:				
- Ignition Source		m	10	10
- Cloud Front/Centre		m	0.809235	0.733891
- Explosion Centre		m	0.809235	0.733891
			Supplementary Data at 0.3 bar	
			Dia	Noite
Supplied Flammable Mass		kg	24.4819	21.8752
Used Flammable Mass		kg	24.4819	21.8752
Overpressure Radius		m	12.756	12.2862
Distance to:				
- Ignition Source		m	10	10
- Cloud Front/Centre		m	0.809235	0.733891
- Explosion Centre		m	0.809235	0.733891

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Weather Conditions

Path: \Terminal Adonai - Efeitos físicos\Simulações\H150 (E)

		Dia	Noite
Wind Speed	m/s	3	2
Pasquill Stability		C	E
Surface Roughness Length	mm	1000	1000
Surface Roughness Parameter		0.173718	0.173718
Atmospheric Temperature	degC	25	20
Surface Temperature	degC	30	20
Relative Humidity	fraction	0.8	0.8

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

H150 (H)

Base Case

CASE Name: Data

Path: \Terminal Adonai - Efeitos físicos\Simulações\H150 (H)

User-Defined Data

Material

Material Identifier	N-HEXANE
Type of Vessel	Padded Liquid
Pressure Specification	Pressure specified
Storage Pressure - gauge	0.03 bar
Temperature	25 degC
Volume Inventory	1200 m3

Scenario

Scenario Type	Catastrophic rupture
Phase to be Released	Liquid
Building Wake Effect	None

Location

Elevation	0 m
Use ERPG averaging time	ERPG not selected
Use IDLH averaging time	IDLH not selected
Use STEL averaging time	STEL not selected
Supply a user defined averaging time	Not supplied

Bund

Status of Bund	Bund present
Bund Area	1940 m2
[Type of Bund Surface	User-Defined (Land)]
Bund Height	3 m
[Bund Failure Modeling	Bund cannot fail]

Indoor/Outdoor

Location of release	Open air release
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Flammable

Explosion Method	TNT
Jet Fire Method	Cone Model

Dispersion

Late Ignition Location	No ignition location
Mass Inventory of material to Disperse	7.872E5 kg
Use Burst Pressure	No - Use release pressure for fireball

Fireball Parameters

[Mass Modification Factor	3]
[Calculation method for fireball	DNV Recommended]
[TNO model flame temperature	1727 degC]

Toxic Parameters

[Indoor Calculations	Unselected]
[Wind Dependent Exchange Rate	Case Specified]

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

[Building Exchange Rate	4 /hr]
[Tail Time	1800 s]
[Set averaging time equal to exposure time	Use a fixed averaging time]
[Cut-off fraction of toxic load for exposure time calculation	0.05 fraction]
[Cut-off concentration for exposure time calculations	0 fraction]

Geometry

Shape	Point
Dimension	2D
System	Absolute
East(1)	0 m
North(1)	0 m

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Path: \Terminal Adonai - Efeitos físicos\Simulações\H150 (H)

DISCHARGE DATA for Weather: Global Weathers\Dia

Wind Speed: 3.00 m/s
Wind Speed at Height (Calculated) 1.78 m/s
Pasquill Stability: C

USER-DEFINED QUANTITIES

Material N-HEXANE
Scenario Catastrophic rupture
Inventory 787,231.44 kg
Fixed Duration n/a s

Stagnation data (data at upstream end for long pipe):

- Pressure 1.04 bar
- Temperature 25.00 degC
- Fluid State Non-saturated liquid

CALCULATED QUANTITIES

Mass Flow of Air (Vent from Vapor Space only) n/a
Mass Flowrate n/a kg/s
Release Duration n/a s

Orifice or pipe exit data (before atmospheric expansion):

- Pressure n/a bar
- Temperature n/a degC
- Vena Contracta Velocity (exit velocity for pipe releases) n/a m/s
- Discharge Coefficient n/a

Final data (after atmospheric expansion):

- Temperature 25.00 degC
- Liquid Mass Fraction 1.00 fraction
- Droplet Diameter 721.42 um
- Expanded Radius n/a m
- Velocity 1.04 m/s

DISCHARGE DATA for Weather: Global Weathers\Noite

Wind Speed: 2.00 m/s
Wind Speed at Height (Calculated) 0.83 m/s
Pasquill Stability: E

USER-DEFINED QUANTITIES

Material N-HEXANE
Scenario Catastrophic rupture
Inventory 787,231.44 kg
Fixed Duration n/a s

Stagnation data (data at upstream end for long pipe):

- Pressure 1.04 bar
- Temperature 25.00 degC
- Fluid State Non-saturated liquid

CALCULATED QUANTITIES

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Mass Flow of Air (Vent from Vapor Space only)	n/a
Mass Flowrate	n/a kg/s
Release Duration	n/a s
Orifice or pipe exit data (before atmospheric expansion):	
- Pressure	n/a bar
- Temperature	n/a degC
- Vena Contracta Velocity (exit velocity for pipe releases)	n/a m/s
- Discharge Coefficient	n/a
Final data (after atmospheric expansion):	
- Temperature	25.00 degC
- Liquid Mass Fraction	1.00 fraction
- Droplet Diameter	721.42 um
- Expanded Radius	n/a m
- Velocity	1.04 m/s



Consequence Results

Pool Vaporization Results

Path: \Terminal Adonai - Efeitos físicos\Simulações\H150 (H)

N.B. Pool vaporization segments begin when the cloud has left the pool

		Dia	Noite
Liquid Rainout	fraction	0.999751	0.999754
Initial Vapor Cloud	kg	195.773	193.898
Time Pool Left Behind	s	40.768	97.9805

Cloud Segment 1

Cloud Segment Duration	s	600	600
Pool Vaporization Rate	kg/s	10.8168	8.63229

Maximum Pool Radius	m	24.85	24.85
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Distance to Concentration Results

Path: \Terminal Adonai - Efeitos físicos\Simulações\H150 (H)

The height for user defined concentrations is the user defined height 0 m

All toxic results are reported at the toxic effect height 1 m

All flammable results are reported at the flammable effect height 0 m

Concentration(ppm)	Averaging Time		Dia	Noite	Distance (m)
UFL (76800)	18.75	s	12.6545	14.9861	
LFL (10500)	18.75	s	46.4418	48.0774	
LFL Frac (10500)	18.75	s	46.4418	48.0774	

Concentration(ppm)	Averaging Time		Dia	Noite	Heights (m) for above distances
UFL (76800)	18.75	s	0	0	
LFL (10500)	18.75	s	0	0	
LFL Frac (10500)	18.75	s	0	0	

Late Pool Fire Hazard

Path: \Terminal Adonai - Efeitos físicos\Simulações\H150 (H)

	Dia	Noite
Late Pool Fire Status	Hazard	Hazard

Radiation Effects: Late Pool Fire Ellipse

Path: \Terminal Adonai - Efeitos físicos\Simulações\H150 (H)

			Dia	Noite	Distance (m)
Radiation Level	9.83	kW/m2	32.3312	30.9631	
Radiation Level	19.46	kW/m2	25.85	25.85	
Radiation Level	35	kW/m2	Not Reached	Not Reached	

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Radiation Effects: Late Pool Fire Distance

Path: \Terminal Adonai - Efeitos físicos\Simulações\H150 (H)

	Dia	Noite
Radiation Level (kW/m2)		

Fireball Hazard

Path: \Terminal Adonai - Efeitos físicos\Simulações\H150 (H)

	Dia	Noite
Fireball Flame Status	No Hazard	No Hazard

Flash Fire Envelope

Path: \Terminal Adonai - Efeitos físicos\Simulações\H150 (H)

All flammable results are reported at the flammable effect height 0 m

			Dia	Noite
Furthest Extent	10500	ppm	46.4418	48.0774
Furthest Extent	10500	ppm	46.4418	48.0774
				Heights (m) for above distances
			Dia	Noite
Furthest Extent	10500	ppm	0	0
Furthest Extent	10500	ppm	0	0

Explosion Effects: Early Explosion

Path: \Terminal Adonai - Efeitos físicos\Simulações\H150 (H)

Early Explosions are assumed to be centered at the release location
Explosion Model Used : TNT

			Dia	Noite
Supplied Flammable Mass		kg	787231	787231
				Distance (m) at Overpressure Levels
			Dia	Noite
Overpressure	0.05	bar	No Hazard	No Hazard
Overpressure	0.1	bar	No Hazard	No Hazard
Overpressure	0.3	bar	No Hazard	No Hazard
				Used Mass (kg) at Overpressure Levels
			Dia	Noite
Overpressure	0.05	bar	0	0
Overpressure	0.1	bar	0	0
Overpressure	0.3	bar	0	0

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Explosion Effects: Late Ignition

Path: \Terminal Adonai - Efeitos físicos\Simulações\H150 (H)

Explosion Model Used : TNT

Explosion Location Criterion: Cloud Center

All distances are measured from the Source

All flammable results are reported at the flammable effect height 0 m

			Maximum Distance (m) at Overpressure Level	
			Dia	Noite
Overpressure	0.05	bar	103.172	106.489
Overpressure	0.1	bar	69.4304	68.9287
Overpressure	0.3	bar	41.7756	38.1441

			Supplementary Data at 0.05 bar	
			Dia	Noite
Supplied Flammable Mass		kg	148.308	204.575
Used Flammable Mass		kg	148.308	204.575
Overpressure Radius		m	88.9779	99.0477
Distance to:				
- Ignition Source		m	40	40
- Cloud Front/Centre		m	14.1942	7.44126
- Explosion Centre		m	14.1942	7.44126

			Supplementary Data at 0.1 bar	
			Dia	Noite
Supplied Flammable Mass		kg	148.308	204.575
Used Flammable Mass		kg	148.308	204.575
Overpressure Radius		m	55.2362	61.4874
Distance to:				
- Ignition Source		m	40	40
- Cloud Front/Centre		m	14.1942	7.44126
- Explosion Centre		m	14.1942	7.44126

			Supplementary Data at 0.3 bar	
			Dia	Noite
Supplied Flammable Mass		kg	148.308	204.575
Used Flammable Mass		kg	148.308	204.575
Overpressure Radius		m	27.5814	30.7028
Distance to:				
- Ignition Source		m	40	40
- Cloud Front/Centre		m	14.1942	7.44126
- Explosion Centre		m	14.1942	7.44126

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Weather Conditions

Path: \Terminal Adonai - Efeitos físicos\Simulações\H150 (H)

		Dia	Noite
Wind Speed	m/s	3	2
Pasquill Stability		C	E
Surface Roughness Length	mm	1000	1000
Surface Roughness Parameter		0.173718	0.173718
Atmospheric Temperature	degC	25	20
Surface Temperature	degC	30	20
Relative Humidity	fraction	0.8	0.8

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

H150 (M)

Base Case

CASE Name: Data

Path: \Terminal Adonai - Efeitos físicos\Simulações\H150 (M)

User-Defined Data

Material

Material Identifier	METHANOL
Type of Vessel	Padded Liquid
Pressure Specification	Pressure specified
Storage Pressure - gauge	0.03 bar
Temperature	25 degC
Volume Inventory	1200 m3

Scenario

Scenario Type	Catastrophic rupture
Phase to be Released	Liquid
Building Wake Effect	None

Location

Elevation	0 m
Use ERPG averaging time	ERPG not selected
Use IDLH averaging time	IDLH not selected
Use STEL averaging time	STEL not selected
Supply a user defined averaging time	Not supplied

Bund

Status of Bund	Bund present
Bund Area	1940 m2
[Type of Bund Surface	User-Defined (Land)]
Bund Height	3 m
[Bund Failure Modeling	Bund cannot fail]

Indoor/Outdoor

Location of release	Open air release
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Flammable

Explosion Method	TNT
Jet Fire Method	Cone Model

Dispersion

Late Ignition Location	No ignition location
Mass Inventory of material to Disperse	9.475E5 kg
Use Burst Pressure	No - Use release pressure for fireball

Fireball Parameters

[Mass Modification Factor	3]
[Calculation method for fireball	DNV Recommended]
[TNO model flame temperature	1727 degC]

Toxic Parameters

[Indoor Calculations	Unselected]
[Wind Dependent Exchange Rate	Case Specified]

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

[Building Exchange Rate	4 /hr]
[Tail Time	1800 s]
[Set averaging time equal to exposure time	Use a fixed averaging time]
[Cut-off fraction of toxic load for exposure time calculation	0.05 fraction]
[Cut-off concentration for exposure time calculations	0 fraction]

Geometry

Shape	Point
Dimension	2D
System	Absolute
East(1)	0 m
North(1)	0 m

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Path: \Terminal Adonai - Efeitos físicos\Simulações\H150 (M)

DISCHARGE DATA for Weather: Global Weathers\Dia

Wind Speed: 3.00 m/s
Wind Speed at Height (Calculated) 1.78 m/s
Pasquill Stability: C

USER-DEFINED QUANTITIES

Material METHANOL
Scenario Catastrophic rupture
Inventory 947,540.81 kg
Fixed Duration n/a s

Stagnation data (data at upstream end for long pipe):

- Pressure 1.04 bar
- Temperature 25.00 degC
- Fluid State Non-saturated liquid

CALCULATED QUANTITIES

Mass Flow of Air (Vent from Vapor Space only) n/a
Mass Flowrate n/a kg/s
Release Duration n/a s
Orifice or pipe exit data (before atmospheric expansion):
- Pressure n/a bar
- Temperature n/a degC
- Vena Contracta Velocity (exit velocity for pipe releases) n/a m/s
- Discharge Coefficient n/a
Final data (after atmospheric expansion):
- Temperature 25.00 degC
- Liquid Mass Fraction 1.00 fraction
- Droplet Diameter 735.02 um
- Expanded Radius n/a m
- Velocity 1.54 m/s

DISCHARGE DATA for Weather: Global Weathers\Noite

Wind Speed: 2.00 m/s
Wind Speed at Height (Calculated) 0.83 m/s
Pasquill Stability: E

USER-DEFINED QUANTITIES

Material METHANOL
Scenario Catastrophic rupture
Inventory 947,540.81 kg
Fixed Duration n/a s

Stagnation data (data at upstream end for long pipe):

- Pressure 1.04 bar
- Temperature 25.00 degC
- Fluid State Non-saturated liquid

CALCULATED QUANTITIES

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Mass Flow of Air (Vent from Vapor Space only)	n/a
Mass Flowrate	n/a kg/s
Release Duration	n/a s
Orifice or pipe exit data (before atmospheric expansion):	
- Pressure	n/a bar
- Temperature	n/a degC
- Vena Contracta Velocity (exit velocity for pipe releases)	n/a m/s
- Discharge Coefficient	n/a
Final data (after atmospheric expansion):	
- Temperature	25.00 degC
- Liquid Mass Fraction	1.00 fraction
- Droplet Diameter	735.02 um
- Expanded Radius	n/a m
- Velocity	1.54 m/s



Consequence Results

Pool Vaporization Results

Path: \Terminal Adonai - Efeitos físicos\Simulações\H150 (M)

N.B. Pool vaporization segments begin when the cloud has left the pool

		Dia	Noite
Liquid Rainout	fraction	0.999393	0.999389
Initial Vapor Cloud	kg	574.876	579.418
Time Pool Left Behind	s	34.1321	60.5991

Cloud Segment 1

		Dia	Noite
Cloud Segment Duration	s	600	600
Pool Vaporization Rate	kg/s	4.85131	3.93068
Maximum Pool Radius	m	24.85	24.85

Distance to Concentration Results

Path: \Terminal Adonai - Efeitos físicos\Simulações\H150 (M)

The height for user defined concentrations is the user defined height 0 m

All toxic results are reported at the toxic effect height 1 m

All flammable results are reported at the flammable effect height 0 m

Concentration(ppm)	Averaging Time		Dia	Noite
UFL (360000)	18.75	s	13.8123	13.6323
LFL (73000)	18.75	s	21.0829	22.2118
LFL Frac (73000)	18.75	s	21.0829	22.2118

Concentration(ppm)	Averaging Time		Dia	Noite
UFL (360000)	18.75	s	0	0
LFL (73000)	18.75	s	0	0
LFL Frac (73000)	18.75	s	0	0

Late Pool Fire Hazard

Path: \Terminal Adonai - Efeitos físicos\Simulações\H150 (M)

	Dia	Noite
Late Pool Fire Status	Hazard	Hazard

Radiation Effects: Late Pool Fire Ellipse

Path: \Terminal Adonai - Efeitos físicos\Simulações\H150 (M)

			Dia	Noite
Radiation Level	9.83	kW/m2	49.3934	47.73
Radiation Level	19.46	kW/m2	34.8261	33.0732
Radiation Level	35	kW/m2	25.85	25.85

SUMMARY REPORT

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Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Radiation Effects: Late Pool Fire Distance

Path: \Terminal Adonai - Efeitos físicos\Simulações\H150 (M)

	Radiation Level (kW/m2)
Dia	Noite

Fireball Hazard

Path: \Terminal Adonai - Efeitos físicos\Simulações\H150 (M)

	Dia	Noite
Fireball Flame Status	No Hazard	No Hazard

Flash Fire Envelope

Path: \Terminal Adonai - Efeitos físicos\Simulações\H150 (M)

All flammable results are reported at the flammable effect height 0 m

			Dia	Distance (m)
				Noite
Furthest Extent	73000	ppm	21.0829	22.2118
Furthest Extent	73000	ppm	21.0829	22.2118
			Dia	Heights (m) for above distances
				Noite
Furthest Extent	73000	ppm	0	0
Furthest Extent	73000	ppm	0	0

Explosion Effects: Early Explosion

Path: \Terminal Adonai - Efeitos físicos\Simulações\H150 (M)

Early Explosions are assumed to be centered at the release location
Explosion Model Used : TNT

			Dia	Noite
Supplied Flammable Mass		kg	947541	947541
			Distance (m) at Overpressure Levels	
			Dia	Noite
Overpressure	0.05	bar	No Hazard	No Hazard
Overpressure	0.1	bar	No Hazard	No Hazard
Overpressure	0.3	bar	No Hazard	No Hazard
			Used Mass (kg) at Overpressure Levels	
			Dia	Noite
Overpressure	0.05	bar	0	0
Overpressure	0.1	bar	0	0
Overpressure	0.3	bar	0	0

SUMMARY REPORT

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Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Explosion Effects: Late Ignition

Path: \Terminal Adonai - Efeitos físicos\Simulações\H150 (M)

Explosion Model Used : TNT

Explosion Location Criterion: Cloud Center

All distances are measured from the Source

All flammable results are reported at the flammable effect height 0 m

			Maximum Distance (m) at Overpressure Level	
			Dia	Noite
Overpressure	0.05	bar	58.986	67.4365
Overpressure	0.1	bar	40.3805	45.2273
Overpressure	0.3	bar	25.1314	27.0246

Supplementary Data at 0.05 bar

			Dia	Noite
Supplied Flammable Mass		kg	55.8464	94.9886
Used Flammable Mass		kg	55.8464	94.9886
Overpressure Radius		m	49.0632	58.5663
Distance to:				
- Ignition Source		m	20	20
- Cloud Front/Centre		m	9.92275	8.87018
- Explosion Centre		m	9.92275	8.87018

Supplementary Data at 0.1 bar

			Dia	Noite
Supplied Flammable Mass		kg	55.8464	94.9886
Used Flammable Mass		kg	55.8464	94.9886
Overpressure Radius		m	30.4578	36.3572
Distance to:				
- Ignition Source		m	20	20
- Cloud Front/Centre		m	9.92275	8.87018
- Explosion Centre		m	9.92275	8.87018

Supplementary Data at 0.3 bar

			Dia	Noite
Supplied Flammable Mass		kg	55.8464	94.9886
Used Flammable Mass		kg	55.8464	94.9886
Overpressure Radius		m	15.2086	18.1544
Distance to:				
- Ignition Source		m	20	20
- Cloud Front/Centre		m	9.92275	8.87018
- Explosion Centre		m	9.92275	8.87018

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Weather Conditions

Path: \Terminal Adonai - Efeitos físicos\Simulações\H150 (M)

		Dia	Noite
Wind Speed	m/s	3	2
Pasquill Stability		C	E
Surface Roughness Length	mm	1000	1000
Surface Roughness Parameter		0.173718	0.173718
Atmospheric Temperature	degC	25	20
Surface Temperature	degC	30	20
Relative Humidity	fraction	0.8	0.8

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

H150 (N)

Base Case

CASE Name: Data

Path: \Terminal Adonai - Efeitos físicos\Simulações\H150 (N)

User-Defined Data

Material

Material Identifier	N-NONANE
Type of Vessel	Padded Liquid
Pressure Specification	Pressure specified
Storage Pressure - gauge	0.03 bar
Temperature	25 degC
Volume Inventory	1200 m3

Scenario

Scenario Type	Catastrophic rupture
Phase to be Released	Liquid
Building Wake Effect	None

Location

Elevation	0 m
Use ERPG averaging time	ERPG not selected
Use IDLH averaging time	IDLH not selected
Use STEL averaging time	STEL not selected
Supply a user defined averaging time	Not supplied

Bund

Status of Bund	Bund present
Bund Area	1940 m2
[Type of Bund Surface	User-Defined (Land)]
Bund Height	3 m
[Bund Failure Modeling	Bund cannot fail]

Indoor/Outdoor

Location of release	Open air release
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Flammable

Explosion Method	TNT
Jet Fire Method	Cone Model

Dispersion

Late Ignition Location	No ignition location
Mass Inventory of material to Disperse	8.572E5 kg
Use Burst Pressure	No - Use release pressure for fireball

Fireball Parameters

[Mass Modification Factor	3]
[Calculation method for fireball	DNV Recommended]
[TNO model flame temperature	1727 degC]

Toxic Parameters

[Indoor Calculations	Unselected]
[Wind Dependent Exchange Rate	Case Specified]

SUMMARY REPORT

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Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

[Building Exchange Rate	4 /hr]
[Tail Time	1800 s]
[Set averaging time equal to exposure time	Use a fixed averaging time]
[Cut-off fraction of toxic load for exposure time calculation	0.05 fraction]
[Cut-off concentration for exposure time calculations	0 fraction]

Geometry

Shape	Point
Dimension	2D
System	Absolute
East(1)	0 m
North(1)	0 m

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Path: \Terminal Adonai - Efeitos físicos\Simulações\H150 (N)

DISCHARGE DATA for Weather: Global Weathers\Dia

Wind Speed: 3.00 m/s
Wind Speed at Height (Calculated) 1.78 m/s
Pasquill Stability: C

USER-DEFINED QUANTITIES

Material N-NONANE
Scenario Catastrophic rupture
Inventory 857,151.19 kg
Fixed Duration n/a s

Stagnation data (data at upstream end for long pipe):

- Pressure 1.04 bar
- Temperature 25.00 degC
- Fluid State Non-saturated liquid

CALCULATED QUANTITIES

Mass Flow of Air (Vent from Vapor Space only) n/a
Mass Flowrate n/a kg/s
Release Duration n/a s
Orifice or pipe exit data (before atmospheric expansion):
- Pressure n/a bar
- Temperature n/a degC
- Vena Contracta Velocity (exit velocity for pipe releases) n/a m/s
- Discharge Coefficient n/a
Final data (after atmospheric expansion):
- Temperature 25.00 degC
- Liquid Mass Fraction 1.00 fraction
- Droplet Diameter 727.67 um
- Expanded Radius n/a m
- Velocity 0.76 m/s

DISCHARGE DATA for Weather: Global Weathers\Noite

Wind Speed: 2.00 m/s
Wind Speed at Height (Calculated) 0.83 m/s
Pasquill Stability: E

USER-DEFINED QUANTITIES

Material N-NONANE
Scenario Catastrophic rupture
Inventory 857,151.19 kg
Fixed Duration n/a s

Stagnation data (data at upstream end for long pipe):

- Pressure 1.04 bar
- Temperature 25.00 degC
- Fluid State Non-saturated liquid

CALCULATED QUANTITIES

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Mass Flow of Air (Vent from Vapor Space only)	n/a
Mass Flowrate	n/a kg/s
Release Duration	n/a s
Orifice or pipe exit data (before atmospheric expansion):	
- Pressure	n/a bar
- Temperature	n/a degC
- Vena Contracta Velocity (exit velocity for pipe releases)	n/a m/s
- Discharge Coefficient	n/a
Final data (after atmospheric expansion):	
- Temperature	25.00 degC
- Liquid Mass Fraction	1.00 fraction
- Droplet Diameter	727.67 um
- Expanded Radius	n/a m
- Velocity	0.76 m/s



Consequence Results

Pool Vaporization Results

Path: \Terminal Adonai - Efeitos físicos\Simulações\H150 (N)

N.B. Pool vaporization segments begin when the cloud has left the pool

		Dia	Noite
Liquid Rainout	fraction	0.999996	0.999996
Initial Vapor Cloud	kg	3.34755	3.25534
Time Pool Left Behind	s	23.1666	48.87

Cloud Segment 1

Cloud Segment Duration	s	600	600
Pool Vaporization Rate	kg/s	0.36405	0.282505

Maximum Pool Radius	m	24.85	24.85
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Distance to Concentration Results

Path: \Terminal Adonai - Efeitos físicos\Simulações\H150 (N)

The height for user defined concentrations is the user defined height 0 m

All toxic results are reported at the toxic effect height 1 m

All flammable results are reported at the flammable effect height 0 m

Concentration(ppm)	Averaging Time		Dia	Noite	Distance (m)
UFL (56000)	18.75	s	9.06159	9.04932	
LFL (7000)	18.75	s	9.15916	9.14691	
LFL Frac (7000)	18.75	s	9.15916	9.14691	

Concentration(ppm)	Averaging Time		Dia	Noite	Heights (m) for above distances
UFL (56000)	18.75	s	0	0	
LFL (7000)	18.75	s	0	0	
LFL Frac (7000)	18.75	s	0	0	

Late Pool Fire Hazard

Path: \Terminal Adonai - Efeitos físicos\Simulações\H150 (N)

	Dia	Noite
Late Pool Fire Status	Hazard	Hazard

Radiation Effects: Late Pool Fire Ellipse

Path: \Terminal Adonai - Efeitos físicos\Simulações\H150 (N)

			Dia	Noite	Distance (m)
Radiation Level	9.83	kW/m2	32.47	30.9616	
Radiation Level	19.46	kW/m2	25.85	25.85	
Radiation Level	35	kW/m2	Not Reached	Not Reached	

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Radiation Effects: Late Pool Fire Distance

Path: \Terminal Adonai - Efeitos físicos\Simulações\H150 (N)

	Dia	Noite
Radiation Level (kW/m ²)		

Fireball Hazard

Path: \Terminal Adonai - Efeitos físicos\Simulações\H150 (N)

	Dia	Noite
Fireball Flame Status	No Hazard	No Hazard

Flash Fire Envelope

Path: \Terminal Adonai - Efeitos físicos\Simulações\H150 (N)

All flammable results are reported at the flammable effect height 0 m

			Dia	Noite
Furthest Extent	7000	ppm	9.15916	9.14691
Furthest Extent	7000	ppm	9.15916	9.14691

			Dia	Noite
Furthest Extent	7000	ppm	0	0
Furthest Extent	7000	ppm	0	0

Explosion Effects: Early Explosion

Path: \Terminal Adonai - Efeitos físicos\Simulações\H150 (N)

Early Explosions are assumed to be centered at the release location
Explosion Model Used : TNT

			Dia	Noite
Supplied Flammable Mass		kg	857151	857151

			Distance (m) at Overpressure Levels	
			Dia	Noite
Overpressure	0.05	bar	No Hazard	No Hazard
Overpressure	0.1	bar	No Hazard	No Hazard
Overpressure	0.3	bar	No Hazard	No Hazard

			Used Mass (kg) at Overpressure Levels	
			Dia	Noite
Overpressure	0.05	bar	0	0
Overpressure	0.1	bar	0	0
Overpressure	0.3	bar	0	0

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Weather Conditions

Path: \Terminal Adonai - Efeitos físicos\Simulações\H150 (N)

		Dia	Noite
Wind Speed	m/s	3	2
Pasquill Stability		C	E
Surface Roughness Length	mm	1000	1000
Surface Roughness Parameter		0.173718	0.173718
Atmospheric Temperature	degC	25	20
Surface Temperature	degC	30	20
Relative Humidity	fraction	0.8	0.8

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

H150 (P)

Base Case

CASE Name: Data

Path: \Terminal Adonai - Efeitos físicos\Simulações\H150 (P)

User-Defined Data

Material

Material Identifier	N-PENTANE
Type of Vessel	Padded Liquid
Pressure Specification	Pressure specified
Storage Pressure - gauge	0.03 bar
Temperature	25 degC
Volume Inventory	1200 m3

Scenario

Scenario Type	Catastrophic rupture
Phase to be Released	Liquid
Building Wake Effect	None

Location

Elevation	0 m
Use ERPG averaging time	ERPG not selected
Use IDLH averaging time	IDLH not selected
Use STEL averaging time	STEL not selected
Supply a user defined averaging time	Not supplied

Bund

Status of Bund	Bund present
Bund Area	1940 m2
[Type of Bund Surface	User-Defined (Land)]
Bund Height	3 m
[Bund Failure Modeling	Bund cannot fail]

Indoor/Outdoor

Location of release	Open air release
---------------------	------------------

Flammable

Explosion Method	TNT
Jet Fire Method	Cone Model

Dispersion

Late Ignition Location	No ignition location
Mass Inventory of material to Disperse	7.461E5 kg
Use Burst Pressure	No - Use release pressure for fireball

Fireball Parameters

[Mass Modification Factor	3]
[Calculation method for fireball	DNV Recommended]
[TNO model flame temperature	1727 degC]

Toxic Parameters

[Indoor Calculations	Unselected]
[Wind Dependent Exchange Rate	Case Specified]

SUMMARY REPORT

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Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

[Building Exchange Rate	4 /hr]
[Tail Time	1800 s]
[Set averaging time equal to exposure time	Use a fixed averaging time]
[Cut-off fraction of toxic load for exposure time calculation	0.05 fraction]
[Cut-off concentration for exposure time calculations	0 fraction]

Geometry

Shape	Point
Dimension	2D
System	Absolute
East(1)	0 m
North(1)	0 m

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Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Path: \Terminal Adonai - Efeitos físicos\Simulações\H150 (P)

DISCHARGE DATA for Weather: Global Weathers\Dia

Wind Speed: 3.00 m/s
Wind Speed at Height (Calculated) 1.78 m/s
Pasquill Stability: C

USER-DEFINED QUANTITIES

Material N-PENTANE
Scenario Catastrophic rupture
Inventory 746,092.06 kg
Fixed Duration n/a s

Stagnation data (data at upstream end for long pipe):

- Pressure 1.04 bar
- Temperature 25.00 degC
- Fluid State Non-saturated liquid

CALCULATED QUANTITIES

Mass Flow of Air (Vent from Vapor Space only) n/a
Mass Flowrate n/a kg/s
Release Duration n/a s
Orifice or pipe exit data (before atmospheric expansion):
- Pressure n/a bar
- Temperature n/a degC
- Vena Contracta Velocity (exit velocity for pipe releases) n/a m/s
- Discharge Coefficient n/a
Final data (after atmospheric expansion):
- Temperature 25.00 degC
- Liquid Mass Fraction 1.00 fraction
- Droplet Diameter 717.48 um
- Expanded Radius n/a m
- Velocity 0.86 m/s

DISCHARGE DATA for Weather: Global Weathers\Noite

Wind Speed: 2.00 m/s
Wind Speed at Height (Calculated) 0.83 m/s
Pasquill Stability: E

USER-DEFINED QUANTITIES

Material N-PENTANE
Scenario Catastrophic rupture
Inventory 746,092.06 kg
Fixed Duration n/a s

Stagnation data (data at upstream end for long pipe):

- Pressure 1.04 bar
- Temperature 25.00 degC
- Fluid State Non-saturated liquid

CALCULATED QUANTITIES

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Mass Flow of Air (Vent from Vapor Space only)	n/a
Mass Flowrate	n/a kg/s
Release Duration	n/a s
Orifice or pipe exit data (before atmospheric expansion):	
- Pressure	n/a bar
- Temperature	n/a degC
- Vena Contracta Velocity (exit velocity for pipe releases)	n/a m/s
- Discharge Coefficient	n/a
Final data (after atmospheric expansion):	
- Temperature	25.00 degC
- Liquid Mass Fraction	1.00 fraction
- Droplet Diameter	717.48 um
- Expanded Radius	n/a m
- Velocity	0.86 m/s

SUMMARY REPORT

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Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Consequence Results

Pool Vaporization Results

Path: \Terminal Adonai - Efeitos físicos\Simulações\H150 (P)

N.B. Pool vaporization segments begin when the cloud has left the pool

		Dia	Noite
Liquid Rainout	fraction	0.999212	0.999251
Initial Vapor Cloud	kg	588.17	559.103
Time Pool Left Behind	s	57.1939	149.108
Cloud Segment 1			
Cloud Segment Duration	s	176.89	600
Pool Vaporization Rate	kg/s	47.5946	34.5409
Cloud Segment 2			
Cloud Segment Duration	s	423.11	
Pool Vaporization Rate	kg/s	41.136	
Maximum Pool Radius	m	24.85	24.85

Distance to Concentration Results

Path: \Terminal Adonai - Efeitos físicos\Simulações\H150 (P)

The height for user defined concentrations is the user defined height 0 m

All toxic results are reported at the toxic effect height 1 m

All flammable results are reported at the flammable effect height 0 m

Concentration(ppm)	Averaging Time		Dia	Noite
UFL (80000)	18.75	s	33.7789	40.6659
LFL (13000)	18.75	s	94.1649	93.1928
LFL Frac (13000)	18.75	s	94.1649	93.1928
Concentration(ppm)	Averaging Time		Heights (m) for above distances	
			Dia	Noite
UFL (80000)	18.75	s	0	0
LFL (13000)	18.75	s	0	0
LFL Frac (13000)	18.75	s	0	0

Late Pool Fire Hazard

Path: \Terminal Adonai - Efeitos físicos\Simulações\H150 (P)

	Dia	Noite
Late Pool Fire Status	Hazard	Hazard

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Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Radiation Effects: Late Pool Fire Ellipse

Path: \Terminal Adonai - Efeitos físicos\Simulações\H150 (P)

			Distance (m)	
			Dia	Noite
Radiation Level	9.83	kW/m2	32.3709	31.0567
Radiation Level	19.46	kW/m2	25.85	25.85
Radiation Level	35	kW/m2	Not Reached	Not Reached

Radiation Effects: Late Pool Fire Distance

Path: \Terminal Adonai - Efeitos físicos\Simulações\H150 (P)

	Radiation Level (kW/m2)	
	Dia	Noite

Fireball Hazard

Path: \Terminal Adonai - Efeitos físicos\Simulações\H150 (P)

	Dia	Noite
Fireball Flame Status	No Hazard	No Hazard

Flash Fire Envelope

Path: \Terminal Adonai - Efeitos físicos\Simulações\H150 (P)

All flammable results are reported at the flammable effect height 0 m

			Distance (m)	
			Dia	Noite
Furthest Extent	13000	ppm	94.1649	93.1928
Furthest Extent	13000	ppm	94.1649	93.1928

			Heights (m) for above distances	
			Dia	Noite
Furthest Extent	13000	ppm	0	0
Furthest Extent	13000	ppm	0	0

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Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Explosion Effects: Early Explosion

Path: \Terminal Adonai - Efeitos físicos\Simulações\H150 (P)

Early Explosions are assumed to be centered at the release location
Explosion Model Used : TNT

Supplied Flammable Mass			Dia	Noite
		kg	746092	746092
Distance (m) at Overpressure Levels				
			Dia	Noite
Overpressure	0.05	bar	No Hazard	No Hazard
Overpressure	0.1	bar	No Hazard	No Hazard
Overpressure	0.3	bar	No Hazard	No Hazard
Used Mass (kg) at Overpressure Levels				
			Dia	Noite
Overpressure	0.05	bar	0	0
Overpressure	0.1	bar	0	0
Overpressure	0.3	bar	0	0

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Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Explosion Effects: Late Ignition

Path: \Terminal Adonai - Efeitos físicos\Simulações\H150 (P)

Explosion Model Used : TNT

Explosion Location Criterion: Cloud Center

All distances are measured from the Source

All flammable results are reported at the flammable effect height 0 m

			Maximum Distance (m) at Overpressure Level	
			Dia	Noite
Overpressure	0.05	bar	185.878	188.31
Overpressure	0.1	bar	130.246	127.525
Overpressure	0.3	bar	88.5519	77.7053

			Supplementary Data at 0.05 bar	
			Dia	Noite
Supplied Flammable Mass		kg	761.245	862.444
Used Flammable Mass		kg	761.245	862.444
Overpressure Radius		m	153.76	160.292
Distance to:				
- Ignition Source		m	80	90
- Cloud Front/Centre		m	32.1184	28.0179
- Explosion Centre		m	32.1184	28.0179

			Supplementary Data at 0.1 bar	
			Dia	Noite
Supplied Flammable Mass		kg	505.547	862.444
Used Flammable Mass		kg	505.547	862.444
Overpressure Radius		m	83.2782	99.5072
Distance to:				
- Ignition Source		m	90	90
- Cloud Front/Centre		m	46.9682	28.0179
- Explosion Centre		m	46.9682	28.0179

			Supplementary Data at 0.3 bar	
			Dia	Noite
Supplied Flammable Mass		kg	505.547	862.444
Used Flammable Mass		kg	505.547	862.444
Overpressure Radius		m	41.5837	49.6874
Distance to:				
- Ignition Source		m	90	90
- Cloud Front/Centre		m	46.9682	28.0179
- Explosion Centre		m	46.9682	28.0179

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Weather Conditions

Path: \Terminal Adonai - Efeitos físicos\Simulações\H150 (P)

		Dia	Noite
Wind Speed	m/s	3	2
Pasquill Stability		C	E
Surface Roughness Length	mm	1000	1000
Surface Roughness Parameter		0.173718	0.173718
Atmospheric Temperature	degC	25	20
Surface Temperature	degC	30	20
Relative Humidity	fraction	0.8	0.8

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

H151 (A)

Base Case

CASE Name: Data

Path: \Terminal Adonai - Efeitos físicos\Simulações\H151 (A)

User-Defined Data

Toxic Parameters

[Cut-off concentration for exposure time calculations 0 fraction]

Geometry

Shape Point
Dimension 2D
System Absolute
East(1) 0 m
North(1) 0 m

Material

Material Identifier ACETONE
Type of Vessel Padded Liquid
Pressure Specification Pressure specified
Storage Pressure - gauge 0.03 bar
Temperature 25 degC
Volume Inventory 1680 m3

Scenario

Scenario Type Catastrophic rupture
Phase to be Released Liquid
Building Wake Effect None

Location

Elevation 0 m
Use ERPG averaging time ERPG not selected
Use IDLH averaging time IDLH not selected
Use STEL averaging time STEL not selected
Supply a user defined averaging time Not supplied

Bund

Status of Bund Bund present
Bund Area 1940 m2
[Type of Bund Surface User-Defined (Land)]
Bund Height 3 m
[Bund Failure Modeling Bund cannot fail]

Indoor/Outdoor

Location of release Open air release

Flammable

Explosion Method TNT
Jet Fire Method Cone Model

Dispersion

Late Ignition Location No ignition location
Mass Inventory of material to Disperse 1.321E6 kg

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Use Burst Pressure

No - Use release pressure for fireball

Fireball Parameters

[Mass Modification Factor	3]
[Calculation method for fireball	DNV Recommended]
[TNO model flame temperature	1727 degC]

Toxic Parameters

[Indoor Calculations	Unselected]
[Wind Dependent Exchange Rate	Case Specified]
[Building Exchange Rate	4 /hr]
[Tail Time	1800 s]
[Set averaging time equal to exposure time	Use a fixed averaging time]
[Cut-off fraction of toxic load for exposure time calculation	0.05 fraction]

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Path: \Terminal Adonai - Efeitos físicos\Simulações\H151 (A)

DISCHARGE DATA for Weather: Global Weathers\Dia

Wind Speed: 3.00 m/s
Wind Speed at Height (Calculated) 1.78 m/s
Pasquill Stability: C

USER-DEFINED QUANTITIES

Material ACETONE
Scenario Catastrophic rupture
Inventory 1,321,455.38 kg
Fixed Duration n/a s

Stagnation data (data at upstream end for long pipe):

- Pressure 1.04 bar
- Temperature 25.00 degC
- Fluid State Non-saturated liquid

CALCULATED QUANTITIES

Mass Flow of Air (Vent from Vapor Space only) n/a
Mass Flowrate n/a kg/s
Release Duration n/a s
Orifice or pipe exit data (before atmospheric expansion):
- Pressure n/a bar
- Temperature n/a degC
- Vena Contracta Velocity (exit velocity for pipe releases) n/a m/s
- Discharge Coefficient n/a
Final data (after atmospheric expansion):
- Temperature 25.00 degC
- Liquid Mass Fraction 1.00 fraction
- Droplet Diameter 734.74 um
- Expanded Radius n/a m
- Velocity 1.11 m/s

DISCHARGE DATA for Weather: Global Weathers\Noite

Wind Speed: 2.00 m/s
Wind Speed at Height (Calculated) 0.83 m/s
Pasquill Stability: E

USER-DEFINED QUANTITIES

Material ACETONE
Scenario Catastrophic rupture
Inventory 1,321,455.38 kg
Fixed Duration n/a s

Stagnation data (data at upstream end for long pipe):

- Pressure 1.04 bar
- Temperature 25.00 degC
- Fluid State Non-saturated liquid

CALCULATED QUANTITIES

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Mass Flow of Air (Vent from Vapor Space only)	n/a
Mass Flowrate	n/a kg/s
Release Duration	n/a s
Orifice or pipe exit data (before atmospheric expansion):	
- Pressure	n/a bar
- Temperature	n/a degC
- Vena Contracta Velocity (exit velocity for pipe releases)	n/a m/s
- Discharge Coefficient	n/a
Final data (after atmospheric expansion):	
- Temperature	25.00 degC
- Liquid Mass Fraction	1.00 fraction
- Droplet Diameter	734.74 um
- Expanded Radius	n/a m
- Velocity	1.11 m/s



Consequence Results

Pool Vaporization Results

Path: \Terminal Adonai - Efeitos físicos\Simulações\H151 (A)

N.B. Pool vaporization segments begin when the cloud has left the pool

		Dia	Noite
Liquid Rainout	fraction	0.99925	0.999249
Initial Vapor Cloud	kg	991.029	992.651
Time Pool Left Behind	s	49.2176	115.018

Cloud Segment 1

		Dia	Noite
Cloud Segment Duration	s	600	600
Pool Vaporization Rate	kg/s	14.0995	11.4376

		Dia	Noite
Maximum Pool Radius	m	24.85	24.85

Distance to Concentration Results

Path: \Terminal Adonai - Efeitos físicos\Simulações\H151 (A)

The height for user defined concentrations is the user defined height 0 m

All toxic results are reported at the toxic effect height 1 m

All flammable results are reported at the flammable effect height 0 m

Concentration(ppm)	Averaging Time		Dia	Noite	Distance (m)
UFL (128000)	18.75	s	17.522	18.8689	
LFL (26000)	18.75	s	54.6274	57.7824	
LFL Frac (26000)	18.75	s	54.6274	57.7824	

Concentration(ppm)	Averaging Time		Dia	Noite	Heights (m) for above distances
UFL (128000)	18.75	s	0	0	
LFL (26000)	18.75	s	0	0	
LFL Frac (26000)	18.75	s	0	0	

Late Pool Fire Hazard

Path: \Terminal Adonai - Efeitos físicos\Simulações\H151 (A)

	Dia	Noite
Late Pool Fire Status	Hazard	Hazard

Radiation Effects: Late Pool Fire Ellipse

Path: \Terminal Adonai - Efeitos físicos\Simulações\H151 (A)

			Dia	Noite	Distance (m)
Radiation Level	9.83	kW/m2	93.3124	90.9896	
Radiation Level	19.46	kW/m2	70.8452	67.2255	
Radiation Level	35	kW/m2	51.5249	47.6521	

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Radiation Effects: Late Pool Fire Distance

Path: \Terminal Adonai - Efeitos físicos\Simulações\H151 (A)

	Dia	Noite
Radiation Level (kW/m2)		

Fireball Hazard

Path: \Terminal Adonai - Efeitos físicos\Simulações\H151 (A)

	Dia	Noite
Fireball Flame Status	No Hazard	No Hazard

Flash Fire Envelope

Path: \Terminal Adonai - Efeitos físicos\Simulações\H151 (A)

All flammable results are reported at the flammable effect height 0 m

			Dia	Noite
Furthest Extent	26000	ppm	54.6274	57.7824
Furthest Extent	26000	ppm	54.6274	57.7824

			Dia	Noite
Furthest Extent	26000	ppm	0	0
Furthest Extent	26000	ppm	0	0

Explosion Effects: Early Explosion

Path: \Terminal Adonai - Efeitos físicos\Simulações\H151 (A)

Early Explosions are assumed to be centered at the release location
Explosion Model Used : TNT

			Dia	Noite
Supplied Flammable Mass		kg	1.32146e+006	1.32146e+006

			Distance (m) at Overpressure Levels	
			Dia	Noite
Overpressure	0.05	bar	No Hazard	No Hazard
Overpressure	0.1	bar	No Hazard	No Hazard
Overpressure	0.3	bar	No Hazard	No Hazard

			Used Mass (kg) at Overpressure Levels	
			Dia	Noite
Overpressure	0.05	bar	0	0
Overpressure	0.1	bar	0	0
Overpressure	0.3	bar	0	0

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Explosion Effects: Late Ignition

Path: \Terminal Adonai - Efeitos físicos\Simulações\H151 (A)

Explosion Model Used : TNT

Explosion Location Criterion: Cloud Center

All distances are measured from the Source

All flammable results are reported at the flammable effect height 0 m

			Maximum Distance (m) at Overpressure Level	
			Dia	Noite
Overpressure	0.05	bar	136.091	138.102
Overpressure	0.1	bar	88.0633	88.8089
Overpressure	0.3	bar	51.7157	48.4078

Supplementary Data at 0.05 bar

			Dia	Noite
Supplied Flammable Mass		kg	707.795	724.196
Used Flammable Mass		kg	707.795	724.196
Overpressure Radius		m	129	129.988
Distance to:				
- Ignition Source		m	40	50
- Cloud Front/Centre		m	7.09153	8.11392
- Explosion Centre		m	7.09153	8.11392

Supplementary Data at 0.1 bar

			Dia	Noite
Supplied Flammable Mass		kg	527.354	724.196
Used Flammable Mass		kg	527.354	724.196
Overpressure Radius		m	72.5987	80.695
Distance to:				
- Ignition Source		m	50	50
- Cloud Front/Centre		m	15.4646	8.11392
- Explosion Centre		m	15.4646	8.11392

Supplementary Data at 0.3 bar

			Dia	Noite
Supplied Flammable Mass		kg	527.354	724.196
Used Flammable Mass		kg	527.354	724.196
Overpressure Radius		m	36.2511	40.2938
Distance to:				
- Ignition Source		m	50	50
- Cloud Front/Centre		m	15.4646	8.11392
- Explosion Centre		m	15.4646	8.11392

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Weather Conditions

Path: \Terminal Adonai - Efeitos físicos\Simulações\H151 (A)

		Dia	Noite
Wind Speed	m/s	3	2
Pasquill Stability		C	E
Surface Roughness Length	mm	1000	1000
Surface Roughness Parameter		0.173718	0.173718
Atmospheric Temperature	degC	25	20
Surface Temperature	degC	30	20
Relative Humidity	fraction	0.8	0.8

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

H151 (B)

Base Case

CASE Name: Data

Path: \Terminal Adonai - Efeitos físicos\Simulações\H151 (B)

User-Defined Data

Material

Material Identifier	BENZENE
Type of Vessel	Padded Liquid
Pressure Specification	Pressure specified
Storage Pressure - gauge	0.03 bar
Temperature	25 degC
Volume Inventory	1680 m3

Scenario

Scenario Type	Catastrophic rupture
Phase to be Released	Liquid
Building Wake Effect	None

Location

Elevation	0 m
Use ERPG averaging time	ERPG not selected
Use IDLH averaging time	IDLH not selected
Use STEL averaging time	STEL not selected
Supply a user defined averaging time	Not supplied

Bund

Status of Bund	Bund present
Bund Area	1940 m2
[Type of Bund Surface	User-Defined (Land)]
Bund Height	3 m
[Bund Failure Modeling	Bund cannot fail]

Indoor/Outdoor

Location of release	Open air release
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Flammable

Explosion Method	TNT
Jet Fire Method	Cone Model

Dispersion

Late Ignition Location	No ignition location
Mass Inventory of material to Disperse	1.467E6 kg
Use Burst Pressure	No - Use release pressure for fireball

Fireball Parameters

[Mass Modification Factor	3]
[Calculation method for fireball	DNV Recommended]
[TNO model flame temperature	1727 degC]

Toxic Parameters

[Indoor Calculations	Unselected]
[Wind Dependent Exchange Rate	Case Specified]

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

[Building Exchange Rate	4 /hr]
[Tail Time	1800 s]
[Set averaging time equal to exposure time	Use a fixed averaging time]
[Cut-off fraction of toxic load for exposure time calculation	0.05 fraction]
[Cut-off concentration for exposure time calculations	0 fraction]

Geometry

Shape	Point
Dimension	2D
System	Absolute
East(1)	0 m
North(1)	0 m

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Path: \Terminal Adonai - Efeitos físicos\Simulações\H151 (B)

DISCHARGE DATA for Weather: Global Weathers\Dia

Wind Speed: 3.00 m/s
Wind Speed at Height (Calculated) 1.78 m/s
Pasquill Stability: C

USER-DEFINED QUANTITIES

Material BENZENE
Scenario Catastrophic rupture
Inventory 1,466,652.50 kg
Fixed Duration n/a s

Stagnation data (data at upstream end for long pipe):

- Pressure 1.04 bar
- Temperature 25.00 degC
- Fluid State Non-saturated liquid

CALCULATED QUANTITIES

Mass Flow of Air (Vent from Vapor Space only) n/a
Mass Flowrate n/a kg/s
Release Duration n/a s

Orifice or pipe exit data (before atmospheric expansion):

- Pressure n/a bar
- Temperature n/a degC
- Vena Contracta Velocity (exit velocity for pipe releases) n/a m/s
- Discharge Coefficient n/a

Final data (after atmospheric expansion):

- Temperature 25.00 degC
- Liquid Mass Fraction 1.00 fraction
- Droplet Diameter 742.39 um
- Expanded Radius n/a m
- Velocity 0.82 m/s

DISCHARGE DATA for Weather: Global Weathers\Noite

Wind Speed: 2.00 m/s
Wind Speed at Height (Calculated) 0.83 m/s
Pasquill Stability: E

USER-DEFINED QUANTITIES

Material BENZENE
Scenario Catastrophic rupture
Inventory 1,466,652.50 kg
Fixed Duration n/a s

Stagnation data (data at upstream end for long pipe):

- Pressure 1.04 bar
- Temperature 25.00 degC
- Fluid State Non-saturated liquid

CALCULATED QUANTITIES

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Mass Flow of Air (Vent from Vapor Space only)	n/a
Mass Flowrate	n/a kg/s
Release Duration	n/a s
Orifice or pipe exit data (before atmospheric expansion):	
- Pressure	n/a bar
- Temperature	n/a degC
- Vena Contracta Velocity (exit velocity for pipe releases)	n/a m/s
- Discharge Coefficient	n/a
Final data (after atmospheric expansion):	
- Temperature	25.00 degC
- Liquid Mass Fraction	1.00 fraction
- Droplet Diameter	742.39 um
- Expanded Radius	n/a m
- Velocity	0.82 m/s



Consequence Results

Pool Vaporization Results

Path: \Terminal Adonai - Efeitos físicos\Simulações\H151 (B)

N.B. Pool vaporization segments begin when the cloud has left the pool

		Dia	Noite
Liquid Rainout	fraction	0.99995	0.999952
Initial Vapor Cloud	kg	73.6855	70.8056
Time Pool Left Behind	s	34.0261	79.9709

Cloud Segment 1

Cloud Segment Duration	s	600	600
Pool Vaporization Rate	kg/s	6.70861	5.2423

Maximum Pool Radius	m	24.85	24.85
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Distance to Concentration Results

Path: \Terminal Adonai - Efeitos físicos\Simulações\H151 (B)

The height for user defined concentrations is the user defined height 0 m

All toxic results are reported at the toxic effect height 1 m

All flammable results are reported at the flammable effect height 0 m

Concentration(ppm)	Averaging Time		Distance (m)	
			Dia	Noite
UFL (79000)	18.75	s	10.1575	10.1455
LFL (13000)	18.75	s	28.8558	29.768
LFL Frac (13000)	18.75	s	28.8558	29.768

Concentration(ppm)	Averaging Time		Heights (m) for above distances	
			Dia	Noite
UFL (79000)	18.75	s	0	0
LFL (13000)	18.75	s	0	0
LFL Frac (13000)	18.75	s	0	0

Late Pool Fire Hazard

Path: \Terminal Adonai - Efeitos físicos\Simulações\H151 (B)

	Dia	Noite
Late Pool Fire Status	Hazard	Hazard

Radiation Effects: Late Pool Fire Ellipse

Path: \Terminal Adonai - Efeitos físicos\Simulações\H151 (B)

			Distance (m)	
			Dia	Noite
Radiation Level	9.83	kW/m2	32.3508	30.9618
Radiation Level	19.46	kW/m2	25.85	25.85
Radiation Level	35	kW/m2	Not Reached	Not Reached

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Radiation Effects: Late Pool Fire Distance

Path: \Terminal Adonai - Efeitos físicos\Simulações\H151 (B)

	Dia	Noite
Radiation Level (kW/m ²)		

Fireball Hazard

Path: \Terminal Adonai - Efeitos físicos\Simulações\H151 (B)

	Dia	Noite
Fireball Flame Status	No Hazard	No Hazard

Flash Fire Envelope

Path: \Terminal Adonai - Efeitos físicos\Simulações\H151 (B)

All flammable results are reported at the flammable effect height 0 m

			Dia	Noite
Furthest Extent	13000	ppm	28.8558	29.768
Furthest Extent	13000	ppm	28.8558	29.768

			Dia	Noite
Furthest Extent	13000	ppm	0	0
Furthest Extent	13000	ppm	0	0

Explosion Effects: Early Explosion

Path: \Terminal Adonai - Efeitos físicos\Simulações\H151 (B)

Early Explosions are assumed to be centered at the release location
Explosion Model Used : TNT

			Dia	Noite
Supplied Flammable Mass		kg	1.46665e+006	1.46665e+006

			Dia	Noite
Overpressure	0.05	bar	No Hazard	No Hazard
Overpressure	0.1	bar	No Hazard	No Hazard
Overpressure	0.3	bar	No Hazard	No Hazard

			Dia	Noite
Overpressure	0.05	bar	0	0
Overpressure	0.1	bar	0	0
Overpressure	0.3	bar	0	0

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Explosion Effects: Late Ignition

Path: \Terminal Adonai - Efeitos físicos\Simulações\H151 (B)

Explosion Model Used : TNT

Explosion Location Criterion: Cloud Center

All distances are measured from the Source

All flammable results are reported at the flammable effect height 0 m

			Maximum Distance (m) at Overpressure Level	
			Dia	Noite
Overpressure	0.05	bar	65.7664	66.1822
Overpressure	0.1	bar	42.007	41.6353
Overpressure	0.3	bar	22.5338	21.5165

Supplementary Data at 0.05 bar

			Dia	Noite
Supplied Flammable Mass		kg	57.6982	63.6283
Used Flammable Mass		kg	57.6982	63.6283
Overpressure Radius		m	62.6542	64.731
Distance to:				
- Ignition Source		m	20	20
- Cloud Front/Centre		m	3.11221	1.45117
- Explosion Centre		m	3.11221	1.45117

Supplementary Data at 0.1 bar

			Dia	Noite
Supplied Flammable Mass		kg	57.6982	63.6283
Used Flammable Mass		kg	57.6982	63.6283
Overpressure Radius		m	38.8948	40.1841
Distance to:				
- Ignition Source		m	20	20
- Cloud Front/Centre		m	3.11221	1.45117
- Explosion Centre		m	3.11221	1.45117

Supplementary Data at 0.3 bar

			Dia	Noite
Supplied Flammable Mass		kg	57.6982	63.6283
Used Flammable Mass		kg	57.6982	63.6283
Overpressure Radius		m	19.4216	20.0653
Distance to:				
- Ignition Source		m	20	20
- Cloud Front/Centre		m	3.11221	1.45117
- Explosion Centre		m	3.11221	1.45117

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Weather Conditions

Path: \Terminal Adonai - Efeitos físicos\Simulações\H151 (B)

		Dia	Noite
Wind Speed	m/s	3	2
Pasquill Stability		C	E
Surface Roughness Length	mm	1000	1000
Surface Roughness Parameter		0.173718	0.173718
Atmospheric Temperature	degC	25	20
Surface Temperature	degC	30	20
Relative Humidity	fraction	0.8	0.8

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

H151 (E)

Base Case

CASE Name: Data

Path: \Terminal Adonai - Efeitos físicos\Simulações\H151 (E)

User-Defined Data

Material

Material Identifier	ETHANOL
Type of Vessel	Padded Liquid
Pressure Specification	Pressure specified
Storage Pressure - gauge	0.03 bar
Temperature	25 degC
Volume Inventory	1680 m3

Scenario

Scenario Type	Catastrophic rupture
Phase to be Released	Liquid
Building Wake Effect	None

Location

Elevation	0 m
Use ERPG averaging time	ERPG not selected
Use IDLH averaging time	IDLH not selected
Use STEL averaging time	STEL not selected
Supply a user defined averaging time	Not supplied

Bund

Status of Bund	Bund present
Bund Area	1940 m2
[Type of Bund Surface	User-Defined (Land)]
Bund Height	3 m
[Bund Failure Modeling	Bund cannot fail]

Indoor/Outdoor

Location of release	Open air release
---------------------	------------------

Flammable

Explosion Method	TNT
Jet Fire Method	Cone Model

Dispersion

Late Ignition Location	No ignition location
Mass Inventory of material to Disperse	1.32E6 kg
Use Burst Pressure	No - Use release pressure for fireball

Fireball Parameters

[Mass Modification Factor	3]
[Calculation method for fireball	DNV Recommended]
[TNO model flame temperature	1727 degC]

Toxic Parameters

[Indoor Calculations	Unselected]
[Wind Dependent Exchange Rate	Case Specified]

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

[Building Exchange Rate	4 /hr]
[Tail Time	1800 s]
[Set averaging time equal to exposure time	Use a fixed averaging time]
[Cut-off fraction of toxic load for exposure time calculation	0.05 fraction]
[Cut-off concentration for exposure time calculations	0 fraction]

Geometry

Shape	Point
Dimension	2D
System	Absolute
East(1)	0 m
North(1)	0 m

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Path: \Terminal Adonai - Efeitos físicos\Simulações\H151 (E)

DISCHARGE DATA for Weather: Global Weathers\Dia

Wind Speed: 3.00 m/s
Wind Speed at Height (Calculated) 1.78 m/s
Pasquill Stability: C

USER-DEFINED QUANTITIES

Material ETHANOL
Scenario Catastrophic rupture
Inventory 1,320,303.63 kg
Fixed Duration n/a s

Stagnation data (data at upstream end for long pipe):

- Pressure 1.04 bar
- Temperature 25.00 degC
- Fluid State Non-saturated liquid

CALCULATED QUANTITIES

Mass Flow of Air (Vent from Vapor Space only) n/a
Mass Flowrate n/a kg/s
Release Duration n/a s
Orifice or pipe exit data (before atmospheric expansion):
- Pressure n/a bar
- Temperature n/a degC
- Vena Contracta Velocity (exit velocity for pipe releases) n/a m/s
- Discharge Coefficient n/a
Final data (after atmospheric expansion):
- Temperature 25.00 degC
- Liquid Mass Fraction 1.00 fraction
- Droplet Diameter 734.68 um
- Expanded Radius n/a m
- Velocity 1.23 m/s

DISCHARGE DATA for Weather: Global Weathers\Noite

Wind Speed: 2.00 m/s
Wind Speed at Height (Calculated) 0.83 m/s
Pasquill Stability: E

USER-DEFINED QUANTITIES

Material ETHANOL
Scenario Catastrophic rupture
Inventory 1,320,303.63 kg
Fixed Duration n/a s

Stagnation data (data at upstream end for long pipe):

- Pressure 1.04 bar
- Temperature 25.00 degC
- Fluid State Non-saturated liquid

CALCULATED QUANTITIES

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Mass Flow of Air (Vent from Vapor Space only)	n/a
Mass Flowrate	n/a kg/s
Release Duration	n/a s
Orifice or pipe exit data (before atmospheric expansion):	
- Pressure	n/a bar
- Temperature	n/a degC
- Vena Contracta Velocity (exit velocity for pipe releases)	n/a m/s
- Discharge Coefficient	n/a
Final data (after atmospheric expansion):	
- Temperature	25.00 degC
- Liquid Mass Fraction	1.00 fraction
- Droplet Diameter	734.68 um
- Expanded Radius	n/a m
- Velocity	1.23 m/s



Consequence Results

Pool Vaporization Results

Path: \Terminal Adonai - Efeitos físicos\Simulações\H151 (E)

N.B. Pool vaporization segments begin when the cloud has left the pool

		Dia	Noite
Liquid Rainout	fraction	0.999821	0.99982
Initial Vapor Cloud	kg	236.377	237.556
Time Pool Left Behind	s	33.3939	64.7396

Cloud Segment 1

Cloud Segment Duration	s	600	600
Pool Vaporization Rate	kg/s	2.78845	2.2517

Maximum Pool Radius	m	24.85	24.85
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Distance to Concentration Results

Path: \Terminal Adonai - Efeitos físicos\Simulações\H151 (E)

The height for user defined concentrations is the user defined height 0 m

All toxic results are reported at the toxic effect height 1 m

All flammable results are reported at the flammable effect height 0 m

Concentration(ppm)	Averaging Time		Dia	Noite	Distance (m)
UFL (190000)	18.75	s	12.6831		12.5603
LFL (43000)	18.75	s	12.828		12.7055
LFL Frac (43000)	18.75	s	12.828		12.7055

Concentration(ppm)	Averaging Time		Dia	Noite	Heights (m) for above distances
UFL (190000)	18.75	s	0		0
LFL (43000)	18.75	s	0		0
LFL Frac (43000)	18.75	s	0		0

Late Pool Fire Hazard

Path: \Terminal Adonai - Efeitos físicos\Simulações\H151 (E)

	Dia	Noite
Late Pool Fire Status	Hazard	Hazard

Radiation Effects: Late Pool Fire Ellipse

Path: \Terminal Adonai - Efeitos físicos\Simulações\H151 (E)

			Dia	Noite	Distance (m)
Radiation Level	9.83	kW/m2	67.9797		66.3273
Radiation Level	19.46	kW/m2	52.0074		49.3783
Radiation Level	35	kW/m2	34.6618		32.9576

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Radiation Effects: Late Pool Fire Distance

Path: \Terminal Adonai - Efeitos físicos\Simulações\H151 (E)

	Dia	Noite
Radiation Level (kW/m ²)		

Fireball Hazard

Path: \Terminal Adonai - Efeitos físicos\Simulações\H151 (E)

	Dia	Noite
Fireball Flame Status	No Hazard	No Hazard

Flash Fire Envelope

Path: \Terminal Adonai - Efeitos físicos\Simulações\H151 (E)

All flammable results are reported at the flammable effect height 0 m

			Dia	Noite
Furthest Extent	43000	ppm	12.828	12.7055
Furthest Extent	43000	ppm	12.828	12.7055

			Dia	Noite
Furthest Extent	43000	ppm	0	0
Furthest Extent	43000	ppm	0	0

Explosion Effects: Early Explosion

Path: \Terminal Adonai - Efeitos físicos\Simulações\H151 (E)

Early Explosions are assumed to be centered at the release location
Explosion Model Used : TNT

			Dia	Noite
Supplied Flammable Mass		kg	1.3203e+006	1.3203e+006

			Distance (m) at Overpressure Levels	
			Dia	Noite
Overpressure	0.05	bar	No Hazard	No Hazard
Overpressure	0.1	bar	No Hazard	No Hazard
Overpressure	0.3	bar	No Hazard	No Hazard

			Used Mass (kg) at Overpressure Levels	
			Dia	Noite
Overpressure	0.05	bar	0	0
Overpressure	0.1	bar	0	0
Overpressure	0.3	bar	0	0

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Explosion Effects: Late Ignition

Path: \Terminal Adonai - Efeitos físicos\Simulações\H151 (E)

Explosion Model Used : TNT

Explosion Location Criterion: Cloud Center

All distances are measured from the Source

All flammable results are reported at the flammable effect height 0 m

			Maximum Distance (m) at Overpressure Level	
			Dia	Noite
Overpressure	0.05	bar	36.6981	35.2105
Overpressure	0.1	bar	22.9586	22.0179
Overpressure	0.3	bar	11.6976	11.2052

Supplementary Data at 0.05 bar

			Dia	Noite
Supplied Flammable Mass		kg	16.7095	14.7925
Used Flammable Mass		kg	16.7095	14.7925
Overpressure Radius		m	36.2315	34.7893
Distance to:				
- Ignition Source		m	10	10
- Cloud Front/Centre		m	0.466537	0.421198
- Explosion Centre		m	0.466537	0.421198

Supplementary Data at 0.1 bar

			Dia	Noite
Supplied Flammable Mass		kg	16.7095	14.7925
Used Flammable Mass		kg	16.7095	14.7925
Overpressure Radius		m	22.492	21.5967
Distance to:				
- Ignition Source		m	10	10
- Cloud Front/Centre		m	0.466537	0.421198
- Explosion Centre		m	0.466537	0.421198

Supplementary Data at 0.3 bar

			Dia	Noite
Supplied Flammable Mass		kg	16.7095	14.7925
Used Flammable Mass		kg	16.7095	14.7925
Overpressure Radius		m	11.2311	10.784
Distance to:				
- Ignition Source		m	10	10
- Cloud Front/Centre		m	0.466537	0.421198
- Explosion Centre		m	0.466537	0.421198

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Weather Conditions

Path: \Terminal Adonai - Efeitos físicos\Simulações\H151 (E)

		Dia	Noite
Wind Speed	m/s	3	2
Pasquill Stability		C	E
Surface Roughness Length	mm	1000	1000
Surface Roughness Parameter		0.173718	0.173718
Atmospheric Temperature	degC	25	20
Surface Temperature	degC	30	20
Relative Humidity	fraction	0.8	0.8

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

H151 (H)

Base Case

CASE Name: Data

Path: \Terminal Adonai - Efeitos físicos\Simulações\H151 (H)

User-Defined Data

Material

Material Identifier	N-HEXANE
Type of Vessel	Padded Liquid
Pressure Specification	Pressure specified
Storage Pressure - gauge	0.03 bar
Temperature	25 degC
Volume Inventory	1680 m3

Scenario

Scenario Type	Catastrophic rupture
Phase to be Released	Liquid
Building Wake Effect	None

Location

Elevation	0 m
Use ERPG averaging time	ERPG not selected
Use IDLH averaging time	IDLH not selected
Use STEL averaging time	STEL not selected
Supply a user defined averaging time	Not supplied

Bund

Status of Bund	Bund present
Bund Area	1940 m2
[Type of Bund Surface	User-Defined (Land)]
Bund Height	3 m
[Bund Failure Modeling	Bund cannot fail]

Indoor/Outdoor

Location of release	Open air release
---------------------	------------------

Flammable

Explosion Method	TNT
Jet Fire Method	Cone Model

Dispersion

Late Ignition Location	No ignition location
Mass Inventory of material to Disperse	1.102E6 kg
Use Burst Pressure	No - Use release pressure for fireball

Fireball Parameters

[Mass Modification Factor	3]
[Calculation method for fireball	DNV Recommended]
[TNO model flame temperature	1727 degC]

Toxic Parameters

[Indoor Calculations	Unselected]
[Wind Dependent Exchange Rate	Case Specified]

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

[Building Exchange Rate	4 /hr]
[Tail Time	1800 s]
[Set averaging time equal to exposure time	Use a fixed averaging time]
[Cut-off fraction of toxic load for exposure time calculation	0.05 fraction]
[Cut-off concentration for exposure time calculations	0 fraction]

Geometry

Shape	Point
Dimension	2D
System	Absolute
East(1)	0 m
North(1)	0 m

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Path: \Terminal Adonai - Efeitos físicos\Simulações\H151 (H)

DISCHARGE DATA for Weather: Global Weathers\Dia

Wind Speed: 3.00 m/s
Wind Speed at Height (Calculated) 1.78 m/s
Pasquill Stability: C

USER-DEFINED QUANTITIES

Material N-HEXANE
Scenario Catastrophic rupture
Inventory 1,102,124.00 kg
Fixed Duration n/a s

Stagnation data (data at upstream end for long pipe):

- Pressure 1.04 bar
- Temperature 25.00 degC
- Fluid State Non-saturated liquid

CALCULATED QUANTITIES

Mass Flow of Air (Vent from Vapor Space only) n/a
Mass Flowrate n/a kg/s
Release Duration n/a s
Orifice or pipe exit data (before atmospheric expansion):
- Pressure n/a bar
- Temperature n/a degC
- Vena Contracta Velocity (exit velocity for pipe releases) n/a m/s
- Discharge Coefficient n/a
Final data (after atmospheric expansion):
- Temperature 25.00 degC
- Liquid Mass Fraction 1.00 fraction
- Droplet Diameter 721.42 um
- Expanded Radius n/a m
- Velocity 1.04 m/s

DISCHARGE DATA for Weather: Global Weathers\Noite

Wind Speed: 2.00 m/s
Wind Speed at Height (Calculated) 0.83 m/s
Pasquill Stability: E

USER-DEFINED QUANTITIES

Material N-HEXANE
Scenario Catastrophic rupture
Inventory 1,102,124.00 kg
Fixed Duration n/a s

Stagnation data (data at upstream end for long pipe):

- Pressure 1.04 bar
- Temperature 25.00 degC
- Fluid State Non-saturated liquid

CALCULATED QUANTITIES

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Mass Flow of Air (Vent from Vapor Space only)	n/a
Mass Flowrate	n/a kg/s
Release Duration	n/a s
Orifice or pipe exit data (before atmospheric expansion):	
- Pressure	n/a bar
- Temperature	n/a degC
- Vena Contracta Velocity (exit velocity for pipe releases)	n/a m/s
- Discharge Coefficient	n/a
Final data (after atmospheric expansion):	
- Temperature	25.00 degC
- Liquid Mass Fraction	1.00 fraction
- Droplet Diameter	721.42 um
- Expanded Radius	n/a m
- Velocity	1.04 m/s



Consequence Results

Pool Vaporization Results

Path: \Terminal Adonai - Efeitos físicos\Simulações\H151 (H)

N.B. Pool vaporization segments begin when the cloud has left the pool

		Dia	Noite
Liquid Rainout	fraction	0.99975	0.999752
Initial Vapor Cloud	kg	275.971	273.59
Time Pool Left Behind	s	42.6391	101.761

Cloud Segment 1

		Dia	Noite
Cloud Segment Duration	s	600	600
Pool Vaporization Rate	kg/s	10.8652	8.71436

		Dia	Noite
Maximum Pool Radius	m	24.85	24.85

Distance to Concentration Results

Path: \Terminal Adonai - Efeitos físicos\Simulações\H151 (H)

The height for user defined concentrations is the user defined height 0 m

All toxic results are reported at the toxic effect height 1 m

All flammable results are reported at the flammable effect height 0 m

Concentration(ppm)	Averaging Time		Dia	Noite
UFL (76800)	18.75	s	13.9535	16.4573
LFL (10500)	18.75	s	49.1726	51.411
LFL Frac (10500)	18.75	s	49.1726	51.411

Concentration(ppm)	Averaging Time		Dia	Noite
UFL (76800)	18.75	s	0	0
LFL (10500)	18.75	s	0	0
LFL Frac (10500)	18.75	s	0	0

Late Pool Fire Hazard

Path: \Terminal Adonai - Efeitos físicos\Simulações\H151 (H)

	Dia	Noite
Late Pool Fire Status	Hazard	Hazard

Radiation Effects: Late Pool Fire Ellipse

Path: \Terminal Adonai - Efeitos físicos\Simulações\H151 (H)

			Dia	Noite
Radiation Level	9.83	kW/m2	32.3312	30.9631
Radiation Level	19.46	kW/m2	25.85	25.85
Radiation Level	35	kW/m2	Not Reached	Not Reached

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Radiation Effects: Late Pool Fire Distance

Path: \Terminal Adonai - Efeitos físicos\Simulações\H151 (H)

	Dia	Noite
Radiation Level (kW/m2)		

Fireball Hazard

Path: \Terminal Adonai - Efeitos físicos\Simulações\H151 (H)

	Dia	Noite
Fireball Flame Status	No Hazard	No Hazard

Flash Fire Envelope

Path: \Terminal Adonai - Efeitos físicos\Simulações\H151 (H)

All flammable results are reported at the flammable effect height 0 m

			Dia	Noite
Furthest Extent	10500	ppm	49.1726	51.411
Furthest Extent	10500	ppm	49.1726	51.411
			Distances (m)	
			Dia	Noite
Furthest Extent	10500	ppm	0	0
Furthest Extent	10500	ppm	0	0

Explosion Effects: Early Explosion

Path: \Terminal Adonai - Efeitos físicos\Simulações\H151 (H)

Early Explosions are assumed to be centered at the release location
Explosion Model Used : TNT

			Dia	Noite
Supplied Flammable Mass		kg	1.10212e+006	1.10212e+006
			Distance (m) at Overpressure Levels	
			Dia	Noite
Overpressure	0.05	bar	No Hazard	No Hazard
Overpressure	0.1	bar	No Hazard	No Hazard
Overpressure	0.3	bar	No Hazard	No Hazard
			Used Mass (kg) at Overpressure Levels	
			Dia	Noite
Overpressure	0.05	bar	0	0
Overpressure	0.1	bar	0	0
Overpressure	0.3	bar	0	0

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Explosion Effects: Late Ignition

Path: \Terminal Adonai - Efeitos físicos\Simulações\H151 (H)

Explosion Model Used : TNT

Explosion Location Criterion: Cloud Center

All distances are measured from the Source

All flammable results are reported at the flammable effect height 0 m

			Maximum Distance (m) at Overpressure Level	
			Dia	Noite
Overpressure	0.05	bar	112.934	114.59
Overpressure	0.1	bar	74.3029	76.283
Overpressure	0.3	bar	42.6402	45.121

Supplementary Data at 0.05 bar

			Dia	Noite
Supplied Flammable Mass		kg	222.584	271.421
Used Flammable Mass		kg	222.584	271.421
Overpressure Radius		m	101.873	108.837
Distance to:				
- Ignition Source		m	40	40
- Cloud Front/Centre		m	11.0616	5.75311
- Explosion Centre		m	11.0616	5.75311

Supplementary Data at 0.1 bar

			Dia	Noite
Supplied Flammable Mass		kg	222.584	212.192
Used Flammable Mass		kg	222.584	212.192
Overpressure Radius		m	63.2413	62.2413
Distance to:				
- Ignition Source		m	40	50
- Cloud Front/Centre		m	11.0616	14.0417
- Explosion Centre		m	11.0616	14.0417

Supplementary Data at 0.3 bar

			Dia	Noite
Supplied Flammable Mass		kg	222.584	212.192
Used Flammable Mass		kg	222.584	212.192
Overpressure Radius		m	31.5786	31.0793
Distance to:				
- Ignition Source		m	40	50
- Cloud Front/Centre		m	11.0616	14.0417
- Explosion Centre		m	11.0616	14.0417

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Weather Conditions

Path: \Terminal Adonai - Efeitos físicos\Simulações\H151 (H)

		Dia	Noite
Wind Speed	m/s	3	2
Pasquill Stability		C	E
Surface Roughness Length	mm	1000	1000
Surface Roughness Parameter		0.173718	0.173718
Atmospheric Temperature	degC	25	20
Surface Temperature	degC	30	20
Relative Humidity	fraction	0.8	0.8

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

H151 (M)

Base Case

CASE Name: Data

Path: \Terminal Adonai - Efeitos físicos\Simulações\H151 (M)

User-Defined Data

Material

Material Identifier	METHANOL
Type of Vessel	Padded Liquid
Pressure Specification	Pressure specified
Storage Pressure - gauge	0.03 bar
Temperature	25 degC
Volume Inventory	1680 m3

Scenario

Scenario Type	Catastrophic rupture
Phase to be Released	Liquid
Building Wake Effect	None

Location

Elevation	0 m
Use ERPG averaging time	ERPG not selected
Use IDLH averaging time	IDLH not selected
Use STEL averaging time	STEL not selected
Supply a user defined averaging time	Not supplied

Bund

Status of Bund	Bund present
Bund Area	1940 m2
[Type of Bund Surface	User-Defined (Land)]
Bund Height	3 m
[Bund Failure Modeling	Bund cannot fail]

Indoor/Outdoor

Location of release	Open air release
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Flammable

Explosion Method	TNT
Jet Fire Method	Cone Model

Dispersion

Late Ignition Location	No ignition location
Mass Inventory of material to Disperse	1.327E6 kg
Use Burst Pressure	No - Use release pressure for fireball

Fireball Parameters

[Mass Modification Factor	3]
[Calculation method for fireball	DNV Recommended]
[TNO model flame temperature	1727 degC]

Toxic Parameters

[Indoor Calculations	Unselected]
[Wind Dependent Exchange Rate	Case Specified]

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

[Building Exchange Rate	4 /hr]
[Tail Time	1800 s]
[Set averaging time equal to exposure time	Use a fixed averaging time]
[Cut-off fraction of toxic load for exposure time calculation	0.05 fraction]
[Cut-off concentration for exposure time calculations	0 fraction]

Geometry

Shape	Point
Dimension	2D
System	Absolute
East(1)	0 m
North(1)	0 m

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Path: \Terminal Adonai - Efeitos físicos\Simulações\H151 (M)

DISCHARGE DATA for Weather: Global Weathers\Dia

Wind Speed: 3.00 m/s
Wind Speed at Height (Calculated) 1.78 m/s
Pasquill Stability: C

USER-DEFINED QUANTITIES

Material METHANOL
Scenario Catastrophic rupture
Inventory 1,326,557.13 kg
Fixed Duration n/a s

Stagnation data (data at upstream end for long pipe):

- Pressure 1.04 bar
- Temperature 25.00 degC
- Fluid State Non-saturated liquid

CALCULATED QUANTITIES

Mass Flow of Air (Vent from Vapor Space only) n/a
Mass Flowrate n/a kg/s
Release Duration n/a s
Orifice or pipe exit data (before atmospheric expansion):
- Pressure n/a bar
- Temperature n/a degC
- Vena Contracta Velocity (exit velocity for pipe releases) n/a m/s
- Discharge Coefficient n/a
Final data (after atmospheric expansion):
- Temperature 25.00 degC
- Liquid Mass Fraction 1.00 fraction
- Droplet Diameter 735.02 um
- Expanded Radius n/a m
- Velocity 1.54 m/s

DISCHARGE DATA for Weather: Global Weathers\Noite

Wind Speed: 2.00 m/s
Wind Speed at Height (Calculated) 0.83 m/s
Pasquill Stability: E

USER-DEFINED QUANTITIES

Material METHANOL
Scenario Catastrophic rupture
Inventory 1,326,557.13 kg
Fixed Duration n/a s

Stagnation data (data at upstream end for long pipe):

- Pressure 1.04 bar
- Temperature 25.00 degC
- Fluid State Non-saturated liquid

CALCULATED QUANTITIES

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Mass Flow of Air (Vent from Vapor Space only)	n/a
Mass Flowrate	n/a kg/s
Release Duration	n/a s
Orifice or pipe exit data (before atmospheric expansion):	
- Pressure	n/a bar
- Temperature	n/a degC
- Vena Contracta Velocity (exit velocity for pipe releases)	n/a m/s
- Discharge Coefficient	n/a
Final data (after atmospheric expansion):	
- Temperature	25.00 degC
- Liquid Mass Fraction	1.00 fraction
- Droplet Diameter	735.02 um
- Expanded Radius	n/a m
- Velocity	1.54 m/s



Consequence Results

Pool Vaporization Results

Path: \Terminal Adonai - Efeitos físicos\Simulações\H151 (M)

N.B. Pool vaporization segments begin when the cloud has left the pool

		Dia	Noite
Liquid Rainout	fraction	0.999392	0.999387
Initial Vapor Cloud	kg	805.967	812.65
Time Pool Left Behind	s	36.0752	63.1348

Cloud Segment 1

		Dia	Noite
Cloud Segment Duration	s	600	600
Pool Vaporization Rate	kg/s	4.88827	3.97513
Maximum Pool Radius	m	24.85	24.85

Distance to Concentration Results

Path: \Terminal Adonai - Efeitos físicos\Simulações\H151 (M)

The height for user defined concentrations is the user defined height 0 m

All toxic results are reported at the toxic effect height 1 m

All flammable results are reported at the flammable effect height 0 m

Concentration(ppm)	Averaging Time		Dia	Noite	Distance (m)
UFL (360000)	18.75	s	15.6323	15.4348	
LFL (73000)	18.75	s	23.5301	25.2372	
LFL Frac (73000)	18.75	s	23.5301	25.2372	
Concentration(ppm)	Averaging Time		Dia	Noite	Heights (m) for above distances
UFL (360000)	18.75	s	0	0	
LFL (73000)	18.75	s	0	0	
LFL Frac (73000)	18.75	s	0	0	

Late Pool Fire Hazard

Path: \Terminal Adonai - Efeitos físicos\Simulações\H151 (M)

	Dia	Noite
Late Pool Fire Status	Hazard	Hazard

Radiation Effects: Late Pool Fire Ellipse

Path: \Terminal Adonai - Efeitos físicos\Simulações\H151 (M)

			Dia	Noite	Distance (m)
Radiation Level	9.83	kW/m2	49.3934	47.73	
Radiation Level	19.46	kW/m2	34.8261	33.0732	
Radiation Level	35	kW/m2	25.85	25.85	

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Radiation Effects: Late Pool Fire Distance

Path: \Terminal Adonai - Efeitos físicos\Simulações\H151 (M)

	Dia	Noite
Radiation Level (kW/m2)		

Fireball Hazard

Path: \Terminal Adonai - Efeitos físicos\Simulações\H151 (M)

	Dia	Noite
Fireball Flame Status	No Hazard	No Hazard

Flash Fire Envelope

Path: \Terminal Adonai - Efeitos físicos\Simulações\H151 (M)

All flammable results are reported at the flammable effect height 0 m

			Dia	Noite
Furthest Extent	73000	ppm	23.5301	25.2372
Furthest Extent	73000	ppm	23.5301	25.2372

			Dia	Noite
Furthest Extent	73000	ppm	0	0
Furthest Extent	73000	ppm	0	0

Explosion Effects: Early Explosion

Path: \Terminal Adonai - Efeitos físicos\Simulações\H151 (M)

Early Explosions are assumed to be centered at the release location
Explosion Model Used : TNT

			Dia	Noite
Supplied Flammable Mass		kg	1.32656e+006	1.32656e+006

			Distance (m) at Overpressure Levels	
			Dia	Noite
Overpressure	0.05	bar	No Hazard	No Hazard
Overpressure	0.1	bar	No Hazard	No Hazard
Overpressure	0.3	bar	No Hazard	No Hazard

			Used Mass (kg) at Overpressure Levels	
			Dia	Noite
Overpressure	0.05	bar	0	0
Overpressure	0.1	bar	0	0
Overpressure	0.3	bar	0	0

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Explosion Effects: Late Ignition

Path: \Terminal Adonai - Efeitos físicos\Simulações\H151 (M)

Explosion Model Used : TNT

Explosion Location Criterion: Cloud Center

All distances are measured from the Source

All flammable results are reported at the flammable effect height 0 m

			Maximum Distance (m) at Overpressure Level	
			Dia	Noite
Overpressure	0.05	bar	75.2655	80.8189
Overpressure	0.1	bar	49.4469	52.841
Overpressure	0.3	bar	28.2859	29.9102

			Supplementary Data at 0.05 bar	
			Dia	Noite
Supplied Flammable Mass		kg	149.235	189.898
Used Flammable Mass		kg	149.235	189.898
Overpressure Radius		m	68.0844	73.7786
Distance to:				
- Ignition Source		m	20	20
- Cloud Front/Centre		m	7.18111	7.04029
- Explosion Centre		m	7.18111	7.04029

			Supplementary Data at 0.1 bar	
			Dia	Noite
Supplied Flammable Mass		kg	149.235	189.898
Used Flammable Mass		kg	149.235	189.898
Overpressure Radius		m	42.2658	45.8007
Distance to:				
- Ignition Source		m	20	20
- Cloud Front/Centre		m	7.18111	7.04029
- Explosion Centre		m	7.18111	7.04029

			Supplementary Data at 0.3 bar	
			Dia	Noite
Supplied Flammable Mass		kg	149.235	189.898
Used Flammable Mass		kg	149.235	189.898
Overpressure Radius		m	21.1048	22.8699
Distance to:				
- Ignition Source		m	20	20
- Cloud Front/Centre		m	7.18111	7.04029
- Explosion Centre		m	7.18111	7.04029

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Weather Conditions

Path: \Terminal Adonai - Efeitos físicos\Simulações\H151 (M)

		Dia	Noite
Wind Speed	m/s	3	2
Pasquill Stability		C	E
Surface Roughness Length	mm	1000	1000
Surface Roughness Parameter		0.173718	0.173718
Atmospheric Temperature	degC	25	20
Surface Temperature	degC	30	20
Relative Humidity	fraction	0.8	0.8

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

H151 (N)

Base Case

CASE Name: Data

Path: \Terminal Adonai - Efeitos físicos\Simulações\H151 (N)

User-Defined Data

Material

Material Identifier	N-NONANE
Type of Vessel	Padded Liquid
Pressure Specification	Pressure specified
Storage Pressure - gauge	0.03 bar
Temperature	25 degC
Volume Inventory	1680 m3

Scenario

Scenario Type	Catastrophic rupture
Phase to be Released	Liquid
Building Wake Effect	None

Location

Elevation	0 m
Use ERPG averaging time	ERPG not selected
Use IDLH averaging time	IDLH not selected
Use STEL averaging time	STEL not selected
Supply a user defined averaging time	Not supplied

Bund

Status of Bund	Bund present
Bund Area	1940 m2
[Type of Bund Surface	User-Defined (Land)]
Bund Height	3 m
[Bund Failure Modeling	Bund cannot fail]

Indoor/Outdoor

Location of release	Open air release
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Flammable

Explosion Method	TNT
Jet Fire Method	Cone Model

Dispersion

Late Ignition Location	No ignition location
Mass Inventory of material to Disperse	1.2E6 kg
Use Burst Pressure	No - Use release pressure for fireball

Fireball Parameters

[Mass Modification Factor	3]
[Calculation method for fireball	DNV Recommended]
[TNO model flame temperature	1727 degC]

Toxic Parameters

[Indoor Calculations	Unselected]
[Wind Dependent Exchange Rate	Case Specified]

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

[Building Exchange Rate	4 /hr]
[Tail Time	1800 s]
[Set averaging time equal to exposure time	Use a fixed averaging time]
[Cut-off fraction of toxic load for exposure time calculation	0.05 fraction]
[Cut-off concentration for exposure time calculations	0 fraction]

Geometry

Shape	Point
Dimension	2D
System	Absolute
East(1)	0 m
North(1)	0 m

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Path: \Terminal Adonai - Efeitos físicos\Simulações\H151 (N)

DISCHARGE DATA for Weather: Global Weathers\Dia

Wind Speed: 3.00 m/s
Wind Speed at Height (Calculated) 1.78 m/s
Pasquill Stability: C

USER-DEFINED QUANTITIES

Material N-NONANE
Scenario Catastrophic rupture
Inventory 1,200,011.63 kg
Fixed Duration n/a s

Stagnation data (data at upstream end for long pipe):

- Pressure 1.04 bar
- Temperature 25.00 degC
- Fluid State Non-saturated liquid

CALCULATED QUANTITIES

Mass Flow of Air (Vent from Vapor Space only) n/a
Mass Flowrate n/a kg/s
Release Duration n/a s
Orifice or pipe exit data (before atmospheric expansion):
- Pressure n/a bar
- Temperature n/a degC
- Vena Contracta Velocity (exit velocity for pipe releases) n/a m/s
- Discharge Coefficient n/a
Final data (after atmospheric expansion):
- Temperature 25.00 degC
- Liquid Mass Fraction 1.00 fraction
- Droplet Diameter 727.67 um
- Expanded Radius n/a m
- Velocity 0.76 m/s

DISCHARGE DATA for Weather: Global Weathers\Noite

Wind Speed: 2.00 m/s
Wind Speed at Height (Calculated) 0.83 m/s
Pasquill Stability: E

USER-DEFINED QUANTITIES

Material N-NONANE
Scenario Catastrophic rupture
Inventory 1,200,011.63 kg
Fixed Duration n/a s

Stagnation data (data at upstream end for long pipe):

- Pressure 1.04 bar
- Temperature 25.00 degC
- Fluid State Non-saturated liquid

CALCULATED QUANTITIES

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Mass Flow of Air (Vent from Vapor Space only)	n/a
Mass Flowrate	n/a kg/s
Release Duration	n/a s
Orifice or pipe exit data (before atmospheric expansion):	
- Pressure	n/a bar
- Temperature	n/a degC
- Vena Contracta Velocity (exit velocity for pipe releases)	n/a m/s
- Discharge Coefficient	n/a
Final data (after atmospheric expansion):	
- Temperature	25.00 degC
- Liquid Mass Fraction	1.00 fraction
- Droplet Diameter	727.67 um
- Expanded Radius	n/a m
- Velocity	0.76 m/s



Consequence Results

Pool Vaporization Results

Path: \Terminal Adonai - Efeitos físicos\Simulações\H151 (N)

N.B. Pool vaporization segments begin when the cloud has left the pool

		Dia	Noite
Liquid Rainout	fraction	0.999996	0.999996
Initial Vapor Cloud	kg	4.72222	4.59875
Time Pool Left Behind	s	24.1476	50.3321

Cloud Segment 1

Cloud Segment Duration	s	600	600
Pool Vaporization Rate	kg/s	0.362231	0.283618

Maximum Pool Radius	m	24.85	24.85
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Distance to Concentration Results

Path: \Terminal Adonai - Efeitos físicos\Simulações\H151 (N)

The height for user defined concentrations is the user defined height 0 m

All toxic results are reported at the toxic effect height 1 m

All flammable results are reported at the flammable effect height 0 m

Concentration(ppm)	Averaging Time		Dia	Noite	Distance (m)
UFL (56000)	18.75	s	10.152	10.1389	
LFL (7000)	18.75	s	10.2613	10.2482	
LFL Frac (7000)	18.75	s	10.2613	10.2482	
Concentration(ppm)	Averaging Time		Dia	Noite	Heights (m) for above distances
UFL (56000)	18.75	s	0	0	
LFL (7000)	18.75	s	0	0	
LFL Frac (7000)	18.75	s	0	0	

Late Pool Fire Hazard

Path: \Terminal Adonai - Efeitos físicos\Simulações\H151 (N)

	Dia	Noite
Late Pool Fire Status	Hazard	Hazard

Radiation Effects: Late Pool Fire Ellipse

Path: \Terminal Adonai - Efeitos físicos\Simulações\H151 (N)

			Dia	Noite	Distance (m)
Radiation Level	9.83	kW/m2	32.47	30.9616	
Radiation Level	19.46	kW/m2	25.85	25.85	
Radiation Level	35	kW/m2	Not Reached	Not Reached	

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Radiation Effects: Late Pool Fire Distance

Path: \Terminal Adonai - Efeitos físicos\Simulações\H151 (N)

	Dia	Noite
Radiation Level (kW/m ²)		

Fireball Hazard

Path: \Terminal Adonai - Efeitos físicos\Simulações\H151 (N)

	Dia	Noite
Fireball Flame Status	No Hazard	No Hazard

Flash Fire Envelope

Path: \Terminal Adonai - Efeitos físicos\Simulações\H151 (N)

All flammable results are reported at the flammable effect height 0 m

			Dia	Noite
Furthest Extent	7000	ppm	10.2613	10.2482
Furthest Extent	7000	ppm	10.2613	10.2482

			Dia	Noite
Furthest Extent	7000	ppm	0	0
Furthest Extent	7000	ppm	0	0

Explosion Effects: Early Explosion

Path: \Terminal Adonai - Efeitos físicos\Simulações\H151 (N)

Early Explosions are assumed to be centered at the release location
Explosion Model Used : TNT

			Dia	Noite
Supplied Flammable Mass		kg	1.20001e+006	1.20001e+006

			Distance (m) at Overpressure Levels	
			Dia	Noite
Overpressure	0.05	bar	No Hazard	No Hazard
Overpressure	0.1	bar	No Hazard	No Hazard
Overpressure	0.3	bar	No Hazard	No Hazard

			Used Mass (kg) at Overpressure Levels	
			Dia	Noite
Overpressure	0.05	bar	0	0
Overpressure	0.1	bar	0	0
Overpressure	0.3	bar	0	0

SUMMARY REPORT

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Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Explosion Effects: Late Ignition

Path: \Terminal Adonai - Efeitos físicos\Simulações\H151 (N)

Explosion Model Used : TNT

Explosion Location Criterion: Cloud Center

All distances are measured from the Source

All flammable results are reported at the flammable effect height 0 m

			Maximum Distance (m) at Overpressure Level	
			Dia	Noite
Overpressure	0.05	bar	10.2291	9.53757
Overpressure	0.1	bar	6.38602	5.95211
Overpressure	0.3	bar	3.23622	3.01345

Supplementary Data at 0.05 bar

			Dia	Noite
Supplied Flammable Mass		kg	0.221173	0.179611
Used Flammable Mass		kg	0.221173	0.179611
Overpressure Radius		m	10.1343	9.45498
Distance to:				
- Ignition Source		m	10	10
- Cloud Front/Centre		m	0.0947851	0.0825965
- Explosion Centre		m	0.0947851	0.0825965

Supplementary Data at 0.1 bar

			Dia	Noite
Supplied Flammable Mass		kg	0.221173	0.179611
Used Flammable Mass		kg	0.221173	0.179611
Overpressure Radius		m	6.29124	5.86952
Distance to:				
- Ignition Source		m	10	10
- Cloud Front/Centre		m	0.0947851	0.0825965
- Explosion Centre		m	0.0947851	0.0825965

Supplementary Data at 0.3 bar

			Dia	Noite
Supplied Flammable Mass		kg	0.221173	0.179611
Used Flammable Mass		kg	0.221173	0.179611
Overpressure Radius		m	3.14144	2.93086
Distance to:				
- Ignition Source		m	10	10
- Cloud Front/Centre		m	0.0947851	0.0825965
- Explosion Centre		m	0.0947851	0.0825965

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Weather Conditions

Path: \Terminal Adonai - Efeitos físicos\Simulações\H151 (N)

		Dia	Noite
Wind Speed	m/s	3	2
Pasquill Stability		C	E
Surface Roughness Length	mm	1000	1000
Surface Roughness Parameter		0.173718	0.173718
Atmospheric Temperature	degC	25	20
Surface Temperature	degC	30	20
Relative Humidity	fraction	0.8	0.8

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

H151 (P)

Base Case

CASE Name: Data

Path: \Terminal Adonai - Efeitos físicos\Simulações\H151 (P)

User-Defined Data

Material

Material Identifier	N-PENTANE
Type of Vessel	Padded Liquid
Pressure Specification	Pressure specified
Storage Pressure - gauge	0.03 bar
Temperature	25 degC
Volume Inventory	1680 m3

Scenario

Scenario Type	Catastrophic rupture
Phase to be Released	Liquid
Building Wake Effect	None

Location

Elevation	0 m
Use ERPG averaging time	ERPG not selected
Use IDLH averaging time	IDLH not selected
Use STEL averaging time	STEL not selected
Supply a user defined averaging time	Not supplied

Bund

Status of Bund	Bund present
Bund Area	1940 m2
[Type of Bund Surface	User-Defined (Land)]
Bund Height	3 m
[Bund Failure Modeling	Bund cannot fail]

Indoor/Outdoor

Location of release	Open air release
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Flammable

Explosion Method	TNT
Jet Fire Method	Cone Model

Dispersion

Late Ignition Location	No ignition location
Mass Inventory of material to Disperse	1.045E6 kg
Use Burst Pressure	No - Use release pressure for fireball

Fireball Parameters

[Mass Modification Factor	3]
[Calculation method for fireball	DNV Recommended]
[TNO model flame temperature	1727 degC]

Toxic Parameters

[Indoor Calculations	Unselected]
[Wind Dependent Exchange Rate	Case Specified]

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

[Building Exchange Rate	4 /hr]
[Tail Time	1800 s]
[Set averaging time equal to exposure time	Use a fixed averaging time]
[Cut-off fraction of toxic load for exposure time calculation	0.05 fraction]
[Cut-off concentration for exposure time calculations	0 fraction]

Geometry

Shape	Point
Dimension	2D
System	Absolute
East(1)	0 m
North(1)	0 m

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Path: \Terminal Adonai - Efeitos físicos\Simulações\H151 (P)

DISCHARGE DATA for Weather: Global Weathers\Dia

Wind Speed:	3.00 m/s
Wind Speed at Height (Calculated)	1.78 m/s
Pasquill Stability:	C

USER-DEFINED QUANTITIES

Material	N-PENTANE
Scenario	Catastrophic rupture
Inventory	1,044,528.88 kg
Fixed Duration	n/a s

Stagnation data (data at upstream end for long pipe):

- Pressure	1.04 bar
- Temperature	25.00 degC
- Fluid State	Non-saturated liquid

CALCULATED QUANTITIES

Mass Flow of Air (Vent from Vapor Space only)	n/a
Mass Flowrate	n/a kg/s
Release Duration	n/a s
Orifice or pipe exit data (before atmospheric expansion):	
- Pressure	n/a bar
- Temperature	n/a degC
- Vena Contracta Velocity (exit velocity for pipe releases)	n/a m/s
- Discharge Coefficient	n/a
Final data (after atmospheric expansion):	
- Temperature	25.00 degC
- Liquid Mass Fraction	1.00 fraction
- Droplet Diameter	717.48 um
- Expanded Radius	n/a m
- Velocity	0.86 m/s

DISCHARGE DATA for Weather: Global Weathers\Noite

Wind Speed:	2.00 m/s
Wind Speed at Height (Calculated)	0.83 m/s
Pasquill Stability:	E

USER-DEFINED QUANTITIES

Material	N-PENTANE
Scenario	Catastrophic rupture
Inventory	1,044,528.88 kg
Fixed Duration	n/a s

Stagnation data (data at upstream end for long pipe):

- Pressure	1.04 bar
- Temperature	25.00 degC
- Fluid State	Non-saturated liquid

CALCULATED QUANTITIES

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Mass Flow of Air (Vent from Vapor Space only)	n/a
Mass Flowrate	n/a kg/s
Release Duration	n/a s
Orifice or pipe exit data (before atmospheric expansion):	
- Pressure	n/a bar
- Temperature	n/a degC
- Vena Contracta Velocity (exit velocity for pipe releases)	n/a m/s
- Discharge Coefficient	n/a
Final data (after atmospheric expansion):	
- Temperature	25.00 degC
- Liquid Mass Fraction	1.00 fraction
- Droplet Diameter	717.48 um
- Expanded Radius	n/a m
- Velocity	0.86 m/s



Consequence Results

Pool Vaporization Results

Path: \Terminal Adonai - Efeitos físicos\Simulações\H151 (P)

N.B. Pool vaporization segments begin when the cloud has left the pool

		Dia	Noite
Liquid Rainout	fraction	0.999205	0.999242
Initial Vapor Cloud	kg	830.647	792.028
Time Pool Left Behind	s	58.7006	153.657

Cloud Segment 1

		Dia	Noite
Cloud Segment Duration	s	600	600
Pool Vaporization Rate	kg/s	44.7218	35.8996

		Dia	Noite
Maximum Pool Radius	m	24.85	24.85

Distance to Concentration Results

Path: \Terminal Adonai - Efeitos físicos\Simulações\H151 (P)

The height for user defined concentrations is the user defined height 0 m

All toxic results are reported at the toxic effect height 1 m

All flammable results are reported at the flammable effect height 0 m

Concentration(ppm)	Averaging Time		Dia	Noite	Distance (m)
UFL (80000)	18.75	s	36.2491	44.565	
LFL (13000)	18.75	s	94.7982	98.0945	
LFL Frac (13000)	18.75	s	94.7982	98.0945	
Concentration(ppm)	Averaging Time		Dia	Noite	Heights (m) for above distances
UFL (80000)	18.75	s	0	0	
LFL (13000)	18.75	s	0	0	
LFL Frac (13000)	18.75	s	0	0	

Late Pool Fire Hazard

Path: \Terminal Adonai - Efeitos físicos\Simulações\H151 (P)

	Dia	Noite
Late Pool Fire Status	Hazard	Hazard

Radiation Effects: Late Pool Fire Ellipse

Path: \Terminal Adonai - Efeitos físicos\Simulações\H151 (P)

			Dia	Noite	Distance (m)
Radiation Level	9.83	kW/m2	32.3709	31.0567	
Radiation Level	19.46	kW/m2	25.85	25.85	
Radiation Level	35	kW/m2	Not Reached	Not Reached	

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Radiation Effects: Late Pool Fire Distance

Path: \Terminal Adonai - Efeitos físicos\Simulações\H151 (P)

	Dia	Noite
Radiation Level (kW/m2)		

Fireball Hazard

Path: \Terminal Adonai - Efeitos físicos\Simulações\H151 (P)

	Dia	Noite
Fireball Flame Status	No Hazard	No Hazard

Flash Fire Envelope

Path: \Terminal Adonai - Efeitos físicos\Simulações\H151 (P)

All flammable results are reported at the flammable effect height 0 m

			Dia	Noite
Furthest Extent	13000	ppm	94.7982	98.0945
Furthest Extent	13000	ppm	94.7982	98.0945

			Dia	Noite
Furthest Extent	13000	ppm	0	0
Furthest Extent	13000	ppm	0	0

Explosion Effects: Early Explosion

Path: \Terminal Adonai - Efeitos físicos\Simulações\H151 (P)

Early Explosions are assumed to be centered at the release location
Explosion Model Used : TNT

			Dia	Noite
Supplied Flammable Mass		kg	1.04453e+006	1.04453e+006

			Dia	Noite
Overpressure	0.05	bar	No Hazard	No Hazard
Overpressure	0.1	bar	No Hazard	No Hazard
Overpressure	0.3	bar	No Hazard	No Hazard

			Dia	Noite
Overpressure	0.05	bar	0	0
Overpressure	0.1	bar	0	0
Overpressure	0.3	bar	0	0

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Explosion Effects: Late Ignition

Path: \Terminal Adonai - Efeitos físicos\Simulações\H151 (P)

Explosion Model Used : TNT

Explosion Location Criterion: Cloud Center

All distances are measured from the Source

All flammable results are reported at the flammable effect height 0 m

			Maximum Distance (m) at Overpressure Level	
			Dia	Noite
Overpressure	0.05	bar	192.882	200.176
Overpressure	0.1	bar	133.073	132.553
Overpressure	0.3	bar	88.2589	77.1282
			Supplementary Data at 0.05 bar	
			Dia	Noite
Supplied Flammable Mass		kg	924.922	1187.5
Used Flammable Mass		kg	924.922	1187.5
Overpressure Radius		m	164.073	178.325
Distance to:				
- Ignition Source		m	80	90
- Cloud Front/Centre		m	28.8094	21.8508
- Explosion Centre		m	28.8094	21.8508
			Supplementary Data at 0.1 bar	
			Dia	Noite
Supplied Flammable Mass		kg	627.707	1187.5
Used Flammable Mass		kg	627.707	1187.5
Overpressure Radius		m	89.5083	110.702
Distance to:				
- Ignition Source		m	90	90
- Cloud Front/Centre		m	43.5643	21.8508
- Explosion Centre		m	43.5643	21.8508
			Supplementary Data at 0.3 bar	
			Dia	Noite
Supplied Flammable Mass		kg	627.707	1187.5
Used Flammable Mass		kg	627.707	1187.5
Overpressure Radius		m	44.6946	55.2774
Distance to:				
- Ignition Source		m	90	90
- Cloud Front/Centre		m	43.5643	21.8508
- Explosion Centre		m	43.5643	21.8508

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Weather Conditions

Path: \Terminal Adonai - Efeitos físicos\Simulações\H151 (P)

		Dia	Noite
Wind Speed	m/s	3	2
Pasquill Stability		C	E
Surface Roughness Length	mm	1000	1000
Surface Roughness Parameter		0.173718	0.173718
Atmospheric Temperature	degC	25	20
Surface Temperature	degC	30	20
Relative Humidity	fraction	0.8	0.8

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

H152 (A)

Base Case

CASE Name: Data

Path: \Terminal Adonai - Efeitos físicos\Simulações\H152 (A)

User-Defined Data

Material

Material Identifier	ACETONE
Type of Vessel	Padded Liquid
Pressure Specification	Pressure specified
Storage Pressure - gauge	0.03 bar
Temperature	25 degC
Volume Inventory	2560 m3

Scenario

Scenario Type	Catastrophic rupture
Phase to be Released	Liquid
Building Wake Effect	None

Location

Elevation	0 m
Use ERPG averaging time	ERPG not selected
Use IDLH averaging time	IDLH not selected
Use STEL averaging time	STEL not selected
Supply a user defined averaging time	Not supplied

Bund

Status of Bund	Bund present
Bund Area	1940 m2
[Type of Bund Surface	User-Defined (Land)]
Bund Height	3 m
[Bund Failure Modeling	Bund cannot fail]

Indoor/Outdoor

Location of release	Open air release
---------------------	------------------

Flammable

Explosion Method	TNT
Jet Fire Method	Cone Model

Dispersion

Late Ignition Location	No ignition location
Mass Inventory of material to Disperse	2.014E6 kg
Use Burst Pressure	No - Use release pressure for fireball

Fireball Parameters

[Mass Modification Factor	3]
[Calculation method for fireball	DNV Recommended]
[TNO model flame temperature	1727 degC]

Toxic Parameters

[Indoor Calculations	Unselected]
[Wind Dependent Exchange Rate	Case Specified]

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

[Building Exchange Rate	4 /hr]
[Tail Time	1800 s]
[Set averaging time equal to exposure time	Use a fixed averaging time]
[Cut-off fraction of toxic load for exposure time calculation	0.05 fraction]
[Cut-off concentration for exposure time calculations	0 fraction]

Geometry

Shape	Point
Dimension	2D
System	Absolute
East(1)	0 m
North(1)	0 m

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Path: \Terminal Adonai - Efeitos físicos\Simulações\H152 (A)

DISCHARGE DATA for Weather: Global Weathers\Dia

Wind Speed: 3.00 m/s
Wind Speed at Height (Calculated) 1.78 m/s
Pasquill Stability: C

USER-DEFINED QUANTITIES

Material ACETONE
Scenario Catastrophic rupture
Inventory 2,013,646.25 kg
Fixed Duration n/a s

Stagnation data (data at upstream end for long pipe):

- Pressure 1.04 bar
- Temperature 25.00 degC
- Fluid State Non-saturated liquid

CALCULATED QUANTITIES

Mass Flow of Air (Vent from Vapor Space only) n/a
Mass Flowrate n/a kg/s
Release Duration n/a s
Orifice or pipe exit data (before atmospheric expansion):
- Pressure n/a bar
- Temperature n/a degC
- Vena Contracta Velocity (exit velocity for pipe releases) n/a m/s
- Discharge Coefficient n/a
Final data (after atmospheric expansion):
- Temperature 25.00 degC
- Liquid Mass Fraction 1.00 fraction
- Droplet Diameter 734.74 um
- Expanded Radius n/a m
- Velocity 1.11 m/s

DISCHARGE DATA for Weather: Global Weathers\Noite

Wind Speed: 2.00 m/s
Wind Speed at Height (Calculated) 0.83 m/s
Pasquill Stability: E

USER-DEFINED QUANTITIES

Material ACETONE
Scenario Catastrophic rupture
Inventory 2,013,646.25 kg
Fixed Duration n/a s

Stagnation data (data at upstream end for long pipe):

- Pressure 1.04 bar
- Temperature 25.00 degC
- Fluid State Non-saturated liquid

CALCULATED QUANTITIES

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Mass Flow of Air (Vent from Vapor Space only)	n/a
Mass Flowrate	n/a kg/s
Release Duration	n/a s
Orifice or pipe exit data (before atmospheric expansion):	
- Pressure	n/a bar
- Temperature	n/a degC
- Vena Contracta Velocity (exit velocity for pipe releases)	n/a m/s
- Discharge Coefficient	n/a
Final data (after atmospheric expansion):	
- Temperature	25.00 degC
- Liquid Mass Fraction	1.00 fraction
- Droplet Diameter	734.74 um
- Expanded Radius	n/a m
- Velocity	1.11 m/s



Consequence Results

Pool Vaporization Results

Path: \Terminal Adonai - Efeitos físicos\Simulações\H152 (A)

N.B. Pool vaporization segments begin when the cloud has left the pool

		Dia	Noite
Liquid Rainout	fraction	0.999248	0.999246
Initial Vapor Cloud	kg	1514.15	1517.51
Time Pool Left Behind	s	53.3091	124.465

Cloud Segment 1

		Dia	Noite
Cloud Segment Duration	s	600	600
Pool Vaporization Rate	kg/s	14.2371	11.5834
Maximum Pool Radius	m	24.85	24.85

Distance to Concentration Results

Path: \Terminal Adonai - Efeitos físicos\Simulações\H152 (A)

The height for user defined concentrations is the user defined height 0 m

All toxic results are reported at the toxic effect height 1 m

All flammable results are reported at the flammable effect height 0 m

Concentration(ppm)	Averaging Time		Dia	Noite	Distance (m)
UFL (128000)	18.75	s	20.443	21.7641	
LFL (26000)	18.75	s	62.3773	65.843	
LFL Frac (26000)	18.75	s	62.3773	65.843	
Concentration(ppm)	Averaging Time		Dia	Noite	Heights (m) for above distances
UFL (128000)	18.75	s	0	0	
LFL (26000)	18.75	s	0	0	
LFL Frac (26000)	18.75	s	0	0	

Late Pool Fire Hazard

Path: \Terminal Adonai - Efeitos físicos\Simulações\H152 (A)

	Dia	Noite
Late Pool Fire Status	Hazard	Hazard

Radiation Effects: Late Pool Fire Ellipse

Path: \Terminal Adonai - Efeitos físicos\Simulações\H152 (A)

			Dia	Noite	Distance (m)
Radiation Level	9.83	kW/m2	93.3124	90.9896	
Radiation Level	19.46	kW/m2	70.8452	67.2255	
Radiation Level	35	kW/m2	51.5249	47.6521	

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Radiation Effects: Late Pool Fire Distance

Path: \Terminal Adonai - Efeitos físicos\Simulações\H152 (A)

	Dia	Noite
Radiation Level (kW/m ²)		

Fireball Hazard

Path: \Terminal Adonai - Efeitos físicos\Simulações\H152 (A)

	Dia	Noite
Fireball Flame Status	No Hazard	No Hazard

Flash Fire Envelope

Path: \Terminal Adonai - Efeitos físicos\Simulações\H152 (A)

All flammable results are reported at the flammable effect height 0 m

			Dia	Noite
Furthest Extent	26000	ppm	62.3773	65.843
Furthest Extent	26000	ppm	62.3773	65.843
				Heights (m) for above distances
			Dia	Noite
Furthest Extent	26000	ppm	0	0
Furthest Extent	26000	ppm	0	0

Explosion Effects: Early Explosion

Path: \Terminal Adonai - Efeitos físicos\Simulações\H152 (A)

Early Explosions are assumed to be centered at the release location
Explosion Model Used : TNT

			Dia	Noite
Supplied Flammable Mass		kg	2.01365e+006	2.01365e+006
				Distance (m) at Overpressure Levels
			Dia	Noite
Overpressure	0.05	bar	No Hazard	No Hazard
Overpressure	0.1	bar	No Hazard	No Hazard
Overpressure	0.3	bar	No Hazard	No Hazard
				Used Mass (kg) at Overpressure Levels
			Dia	Noite
Overpressure	0.05	bar	0	0
Overpressure	0.1	bar	0	0
Overpressure	0.3	bar	0	0

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Explosion Effects: Late Ignition

Path: \Terminal Adonai - Efeitos físicos\Simulações\H152 (A)

Explosion Model Used : TNT

Explosion Location Criterion: Cloud Center

All distances are measured from the Source

All flammable results are reported at the flammable effect height 0 m

			Maximum Distance (m) at Overpressure Level	
			Dia	Noite
Overpressure	0.05	bar	156.077	156.264
Overpressure	0.1	bar	100.851	101.017
Overpressure	0.3	bar	59.9839	55.7372

			Supplementary Data at 0.05 bar	
			Dia	Noite
Supplied Flammable Mass		kg	1018.4	1019.53
Used Flammable Mass		kg	1018.4	1019.53
Overpressure Radius		m	145.632	145.687
Distance to:				
- Ignition Source		m	50	60
- Cloud Front/Centre		m	10.4441	10.5772
- Explosion Centre		m	10.4441	10.5772

			Supplementary Data at 0.1 bar	
			Dia	Noite
Supplied Flammable Mass		kg	1018.4	1019.53
Used Flammable Mass		kg	1018.4	1019.53
Overpressure Radius		m	90.4066	90.4402
Distance to:				
- Ignition Source		m	50	60
- Cloud Front/Centre		m	10.4441	10.5772
- Explosion Centre		m	10.4441	10.5772

			Supplementary Data at 0.3 bar	
			Dia	Noite
Supplied Flammable Mass		kg	665.194	1019.53
Used Flammable Mass		kg	665.194	1019.53
Overpressure Radius		m	39.1684	45.16
Distance to:				
- Ignition Source		m	60	60
- Cloud Front/Centre		m	20.8155	10.5772
- Explosion Centre		m	20.8155	10.5772

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Weather Conditions

Path: \Terminal Adonai - Efeitos físicos\Simulações\H152 (A)

		Dia	Noite
Wind Speed	m/s	3	2
Pasquill Stability		C	E
Surface Roughness Length	mm	1000	1000
Surface Roughness Parameter		0.173718	0.173718
Atmospheric Temperature	degC	25	20
Surface Temperature	degC	30	20
Relative Humidity	fraction	0.8	0.8

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

H152 (B)

Base Case

CASE Name: Data

Path: \Terminal Adonai - Efeitos físicos\Simulações\H152 (B)

User-Defined Data

Material

Material Identifier	BENZENE
Type of Vessel	Padded Liquid
Pressure Specification	Pressure specified
Storage Pressure - gauge	0.03 bar
Temperature	25 degC
Volume Inventory	2560 m3

Scenario

Scenario Type	Catastrophic rupture
Phase to be Released	Liquid
Building Wake Effect	None

Location

Elevation	0 m
Use ERPG averaging time	ERPG not selected
Use IDLH averaging time	IDLH not selected
Use STEL averaging time	STEL not selected
Supply a user defined averaging time	Not supplied

Bund

Status of Bund	Bund present
Bund Area	1940 m2
[Type of Bund Surface	User-Defined (Land)]
Bund Height	3 m
[Bund Failure Modeling	Bund cannot fail]

Indoor/Outdoor

Location of release	Open air release
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Flammable

Explosion Method	TNT
Jet Fire Method	Cone Model

Dispersion

Late Ignition Location	No ignition location
Mass Inventory of material to Disperse	2.235E6 kg
Use Burst Pressure	No - Use release pressure for fireball

Fireball Parameters

[Mass Modification Factor	3]
[Calculation method for fireball	DNV Recommended]
[TNO model flame temperature	1727 degC]

Toxic Parameters

[Indoor Calculations	Unselected]
[Wind Dependent Exchange Rate	Case Specified]

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

[Building Exchange Rate	4 /hr]
[Tail Time	1800 s]
[Set averaging time equal to exposure time	Use a fixed averaging time]
[Cut-off fraction of toxic load for exposure time calculation	0.05 fraction]
[Cut-off concentration for exposure time calculations	0 fraction]

Geometry

Shape	Point
Dimension	2D
System	Absolute
East(1)	0 m
North(1)	0 m

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Path: \Terminal Adonai - Efeitos físicos\Simulações\H152 (B)

DISCHARGE DATA for Weather: Global Weathers\Dia

Wind Speed: 3.00 m/s
Wind Speed at Height (Calculated) 1.78 m/s
Pasquill Stability: C

USER-DEFINED QUANTITIES

Material BENZENE
Scenario Catastrophic rupture
Inventory 2,234,899.00 kg
Fixed Duration n/a s

Stagnation data (data at upstream end for long pipe):

- Pressure 1.04 bar
- Temperature 25.00 degC
- Fluid State Non-saturated liquid

CALCULATED QUANTITIES

Mass Flow of Air (Vent from Vapor Space only) n/a
Mass Flowrate n/a kg/s
Release Duration n/a s
Orifice or pipe exit data (before atmospheric expansion):
- Pressure n/a bar
- Temperature n/a degC
- Vena Contracta Velocity (exit velocity for pipe releases) n/a m/s
- Discharge Coefficient n/a
Final data (after atmospheric expansion):
- Temperature 25.00 degC
- Liquid Mass Fraction 1.00 fraction
- Droplet Diameter 742.39 um
- Expanded Radius n/a m
- Velocity 0.82 m/s

DISCHARGE DATA for Weather: Global Weathers\Noite

Wind Speed: 2.00 m/s
Wind Speed at Height (Calculated) 0.83 m/s
Pasquill Stability: E

USER-DEFINED QUANTITIES

Material BENZENE
Scenario Catastrophic rupture
Inventory 2,234,899.00 kg
Fixed Duration n/a s

Stagnation data (data at upstream end for long pipe):

- Pressure 1.04 bar
- Temperature 25.00 degC
- Fluid State Non-saturated liquid

CALCULATED QUANTITIES

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Mass Flow of Air (Vent from Vapor Space only)	n/a
Mass Flowrate	n/a kg/s
Release Duration	n/a s
Orifice or pipe exit data (before atmospheric expansion):	
- Pressure	n/a bar
- Temperature	n/a degC
- Vena Contracta Velocity (exit velocity for pipe releases)	n/a m/s
- Discharge Coefficient	n/a
Final data (after atmospheric expansion):	
- Temperature	25.00 degC
- Liquid Mass Fraction	1.00 fraction
- Droplet Diameter	742.39 um
- Expanded Radius	n/a m
- Velocity	0.82 m/s



Consequence Results

Pool Vaporization Results

Path: \Terminal Adonai - Efeitos físicos\Simulações\H152 (B)

N.B. Pool vaporization segments begin when the cloud has left the pool

		Dia	Noite
Liquid Rainout	fraction	0.999949	0.999951
Initial Vapor Cloud	kg	113.613	109.417
Time Pool Left Behind	s	35.5556	83.0818

Cloud Segment 1

Cloud Segment Duration	s	600	600
Pool Vaporization Rate	kg/s	6.71561	5.27993

Maximum Pool Radius	m	24.85	24.85
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Distance to Concentration Results

Path: \Terminal Adonai - Efeitos físicos\Simulações\H152 (B)

The height for user defined concentrations is the user defined height 0 m

All toxic results are reported at the toxic effect height 1 m

All flammable results are reported at the flammable effect height 0 m

Concentration(ppm)	Averaging Time		Distance (m)	
			Dia	Noite
UFL (79000)	18.75	s	11.7146	11.7019
LFL (13000)	18.75	s	30.402	31.9762
LFL Frac (13000)	18.75	s	30.402	31.9762

Concentration(ppm)	Averaging Time		Heights (m) for above distances	
			Dia	Noite
UFL (79000)	18.75	s	0	0
LFL (13000)	18.75	s	0	0
LFL Frac (13000)	18.75	s	0	0

Late Pool Fire Hazard

Path: \Terminal Adonai - Efeitos físicos\Simulações\H152 (B)

	Dia	Noite
Late Pool Fire Status	Hazard	Hazard

Radiation Effects: Late Pool Fire Ellipse

Path: \Terminal Adonai - Efeitos físicos\Simulações\H152 (B)

			Distance (m)	
			Dia	Noite
Radiation Level	9.83	kW/m2	32.3508	30.9618
Radiation Level	19.46	kW/m2	25.85	25.85
Radiation Level	35	kW/m2	Not Reached	Not Reached

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Radiation Effects: Late Pool Fire Distance

Path: \Terminal Adonai - Efeitos físicos\Simulações\H152 (B)

	Dia	Noite
Radiation Level (kW/m ²)		

Fireball Hazard

Path: \Terminal Adonai - Efeitos físicos\Simulações\H152 (B)

	Dia	Noite
Fireball Flame Status	No Hazard	No Hazard

Flash Fire Envelope

Path: \Terminal Adonai - Efeitos físicos\Simulações\H152 (B)

All flammable results are reported at the flammable effect height 0 m

			Dia	Noite
Furthest Extent	13000	ppm	30.402	31.9762
Furthest Extent	13000	ppm	30.402	31.9762
				Heights (m) for above distances
			Dia	Noite
Furthest Extent	13000	ppm	0	0
Furthest Extent	13000	ppm	0	0

Explosion Effects: Early Explosion

Path: \Terminal Adonai - Efeitos físicos\Simulações\H152 (B)

Early Explosions are assumed to be centered at the release location
Explosion Model Used : TNT

			Dia	Noite
Supplied Flammable Mass		kg	2.2349e+006	2.2349e+006
				Distance (m) at Overpressure Levels
			Dia	Noite
Overpressure	0.05	bar	No Hazard	No Hazard
Overpressure	0.1	bar	No Hazard	No Hazard
Overpressure	0.3	bar	No Hazard	No Hazard
				Used Mass (kg) at Overpressure Levels
			Dia	Noite
Overpressure	0.05	bar	0	0
Overpressure	0.1	bar	0	0
Overpressure	0.3	bar	0	0

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Explosion Effects: Late Ignition

Path: \Terminal Adonai - Efeitos físicos\Simulações\H152 (B)

Explosion Model Used : TNT

Explosion Location Criterion: Cloud Center

All distances are measured from the Source

All flammable results are reported at the flammable effect height 0 m

			Maximum Distance (m) at Overpressure Level	
			Dia	Noite
Overpressure	0.05	bar	73.8349	76.343
Overpressure	0.1	bar	46.3509	50.0739
Overpressure	0.3	bar	30.8049	28.5435

			Supplementary Data at 0.05 bar	
			Dia	Noite
Supplied Flammable Mass		kg	89.3095	77.9826
Used Flammable Mass		kg	89.3095	77.9826
Overpressure Radius		m	72.4761	69.2726
Distance to:				
- Ignition Source		m	20	30
- Cloud Front/Centre		m	1.35874	7.07037
- Explosion Centre		m	1.35874	7.07037

			Supplementary Data at 0.1 bar	
			Dia	Noite
Supplied Flammable Mass		kg	89.3095	77.9826
Used Flammable Mass		kg	89.3095	77.9826
Overpressure Radius		m	44.9922	43.0035
Distance to:				
- Ignition Source		m	20	30
- Cloud Front/Centre		m	1.35874	7.07037
- Explosion Centre		m	1.35874	7.07037

			Supplementary Data at 0.3 bar	
			Dia	Noite
Supplied Flammable Mass		kg	28.4034	77.9826
Used Flammable Mass		kg	28.4034	77.9826
Overpressure Radius		m	15.3351	21.4732
Distance to:				
- Ignition Source		m	30	30
- Cloud Front/Centre		m	15.4699	7.07037
- Explosion Centre		m	15.4699	7.07037

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Weather Conditions

Path: \Terminal Adonai - Efeitos físicos\Simulações\H152 (B)

		Dia	Noite
Wind Speed	m/s	3	2
Pasquill Stability		C	E
Surface Roughness Length	mm	1000	1000
Surface Roughness Parameter		0.173718	0.173718
Atmospheric Temperature	degC	25	20
Surface Temperature	degC	30	20
Relative Humidity	fraction	0.8	0.8

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

H152 (E)

Base Case

CASE Name: Data

Path: \Terminal Adonai - Efeitos físicos\Simulações\H152 (E)

User-Defined Data

Material

Material Identifier	ETHANOL
Type of Vessel	Padded Liquid
Pressure Specification	Pressure specified
Storage Pressure - gauge	0.03 bar
Temperature	25 degC
Volume Inventory	2560 m3

Scenario

Scenario Type	Catastrophic rupture
Phase to be Released	Liquid
Building Wake Effect	None

Location

Elevation	0 m
Use ERPG averaging time	ERPG not selected
Use IDLH averaging time	IDLH not selected
Use STEL averaging time	STEL not selected
Supply a user defined averaging time	Not supplied

Bund

Status of Bund	Bund present
Bund Area	1940 m2
[Type of Bund Surface	User-Defined (Land)]
Bund Height	3 m
[Bund Failure Modeling	Bund cannot fail]

Indoor/Outdoor

Location of release	Open air release
---------------------	------------------

Flammable

Explosion Method	TNT
Jet Fire Method	Cone Model

Dispersion

Late Ignition Location	No ignition location
Mass Inventory of material to Disperse	2.012E6 kg
Use Burst Pressure	No - Use release pressure for fireball

Fireball Parameters

[Mass Modification Factor	3]
[Calculation method for fireball	DNV Recommended]
[TNO model flame temperature	1727 degC]

Toxic Parameters

[Indoor Calculations	Unselected]
[Wind Dependent Exchange Rate	Case Specified]

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

[Building Exchange Rate	4 /hr]
[Tail Time	1800 s]
[Set averaging time equal to exposure time	Use a fixed averaging time]
[Cut-off fraction of toxic load for exposure time calculation	0.05 fraction]
[Cut-off concentration for exposure time calculations	0 fraction]

Geometry

Shape	Point
Dimension	2D
System	Absolute
East(1)	0 m
North(1)	0 m

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Path: \Terminal Adonai - Efeitos físicos\Simulações\H152 (E)

DISCHARGE DATA for Weather: Global Weathers\Dia

Wind Speed: 3.00 m/s
Wind Speed at Height (Calculated) 1.78 m/s
Pasquill Stability: C

USER-DEFINED QUANTITIES

Material ETHANOL
Scenario Catastrophic rupture
Inventory 2,011,891.25 kg
Fixed Duration n/a s

Stagnation data (data at upstream end for long pipe):

- Pressure 1.04 bar
- Temperature 25.00 degC
- Fluid State Non-saturated liquid

CALCULATED QUANTITIES

Mass Flow of Air (Vent from Vapor Space only) n/a
Mass Flowrate n/a kg/s
Release Duration n/a s
Orifice or pipe exit data (before atmospheric expansion):
- Pressure n/a bar
- Temperature n/a degC
- Vena Contracta Velocity (exit velocity for pipe releases) n/a m/s
- Discharge Coefficient n/a
Final data (after atmospheric expansion):
- Temperature 25.00 degC
- Liquid Mass Fraction 1.00 fraction
- Droplet Diameter 734.68 um
- Expanded Radius n/a m
- Velocity 1.23 m/s

DISCHARGE DATA for Weather: Global Weathers\Noite

Wind Speed: 2.00 m/s
Wind Speed at Height (Calculated) 0.83 m/s
Pasquill Stability: E

USER-DEFINED QUANTITIES

Material ETHANOL
Scenario Catastrophic rupture
Inventory 2,011,891.25 kg
Fixed Duration n/a s

Stagnation data (data at upstream end for long pipe):

- Pressure 1.04 bar
- Temperature 25.00 degC
- Fluid State Non-saturated liquid

CALCULATED QUANTITIES

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Mass Flow of Air (Vent from Vapor Space only)	n/a
Mass Flowrate	n/a kg/s
Release Duration	n/a s
Orifice or pipe exit data (before atmospheric expansion):	
- Pressure	n/a bar
- Temperature	n/a degC
- Vena Contracta Velocity (exit velocity for pipe releases)	n/a m/s
- Discharge Coefficient	n/a
Final data (after atmospheric expansion):	
- Temperature	25.00 degC
- Liquid Mass Fraction	1.00 fraction
- Droplet Diameter	734.68 um
- Expanded Radius	n/a m
- Velocity	1.23 m/s



Consequence Results

Pool Vaporization Results

Path: \Terminal Adonai - Efeitos físicos\Simulações\H152 (E)

N.B. Pool vaporization segments begin when the cloud has left the pool

		Dia	Noite
Liquid Rainout	fraction	0.999821	0.99982
Initial Vapor Cloud	kg	361.068	363.013
Time Pool Left Behind	s	35.9642	69.0236

Cloud Segment 1

		Dia	Noite
Cloud Segment Duration	s	600	600
Pool Vaporization Rate	kg/s	2.79241	2.26565
Maximum Pool Radius	m	24.85	24.85

Distance to Concentration Results

Path: \Terminal Adonai - Efeitos físicos\Simulações\H152 (E)

The height for user defined concentrations is the user defined height 0 m

All toxic results are reported at the toxic effect height 1 m

All flammable results are reported at the flammable effect height 0 m

Concentration(ppm)	Averaging Time		Dia	Noite	Distance (m)
UFL (190000)	18.75	s	14.7616	14.6226	
LFL (43000)	18.75	s	14.9286	14.7901	
LFL Frac (43000)	18.75	s	14.9286	14.7901	
Concentration(ppm)	Averaging Time		Dia	Noite	Heights (m) for above distances
UFL (190000)	18.75	s	0	0	
LFL (43000)	18.75	s	0	0	
LFL Frac (43000)	18.75	s	0	0	

Late Pool Fire Hazard

Path: \Terminal Adonai - Efeitos físicos\Simulações\H152 (E)

	Dia	Noite
Late Pool Fire Status	Hazard	Hazard

Radiation Effects: Late Pool Fire Ellipse

Path: \Terminal Adonai - Efeitos físicos\Simulações\H152 (E)

			Dia	Noite	Distance (m)
Radiation Level	9.83	kW/m2	67.9797	66.3273	
Radiation Level	19.46	kW/m2	52.0074	49.3783	
Radiation Level	35	kW/m2	34.6618	32.9576	

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Radiation Effects: Late Pool Fire Distance

Path: \Terminal Adonai - Efeitos físicos\Simulações\H152 (E)

	Dia	Noite
Radiation Level (kW/m2)		

Fireball Hazard

Path: \Terminal Adonai - Efeitos físicos\Simulações\H152 (E)

	Dia	Noite
Fireball Flame Status	No Hazard	No Hazard

Flash Fire Envelope

Path: \Terminal Adonai - Efeitos físicos\Simulações\H152 (E)

All flammable results are reported at the flammable effect height 0 m

			Dia	Noite
Furthest Extent	43000	ppm	14.9286	14.7901
Furthest Extent	43000	ppm	14.9286	14.7901

			Dia	Noite
Furthest Extent	43000	ppm	0	0
Furthest Extent	43000	ppm	0	0

Explosion Effects: Early Explosion

Path: \Terminal Adonai - Efeitos físicos\Simulações\H152 (E)

Early Explosions are assumed to be centered at the release location
Explosion Model Used : TNT

			Dia	Noite
Supplied Flammable Mass		kg	2.01189e+006	2.01189e+006

			Dia	Noite
Overpressure	0.05	bar	No Hazard	No Hazard
Overpressure	0.1	bar	No Hazard	No Hazard
Overpressure	0.3	bar	No Hazard	No Hazard

			Dia	Noite
Overpressure	0.05	bar	0	0
Overpressure	0.1	bar	0	0
Overpressure	0.3	bar	0	0

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Explosion Effects: Late Ignition

Path: \Terminal Adonai - Efeitos físicos\Simulações\H152 (E)

Explosion Model Used : TNT

Explosion Location Criterion: Cloud Center

All distances are measured from the Source

All flammable results are reported at the flammable effect height 0 m

			Maximum Distance (m) at Overpressure Level	
			Dia	Noite
Overpressure	0.05	bar	No Hazard	No Hazard
Overpressure	0.1	bar	No Hazard	No Hazard
Overpressure	0.3	bar	No Hazard	No Hazard
			Supplementary Data at 0.05 bar	
			Dia	Noite
Supplied Flammable Mass		kg	No Hazard	No Hazard
Used Flammable Mass		kg	No Hazard	No Hazard
Overpressure Radius		m	0	0
Distance to:				
- Ignition Source		m	No Hazard	No Hazard
- Cloud Front/Centre		m	No Hazard	No Hazard
- Explosion Centre		m	0	0
			Supplementary Data at 0.1 bar	
			Dia	Noite
Supplied Flammable Mass		kg	No Hazard	No Hazard
Used Flammable Mass		kg	No Hazard	No Hazard
Overpressure Radius		m	0	0
Distance to:				
- Ignition Source		m	No Hazard	No Hazard
- Cloud Front/Centre		m	No Hazard	No Hazard
- Explosion Centre		m	0	0
			Supplementary Data at 0.3 bar	
			Dia	Noite
Supplied Flammable Mass		kg	No Hazard	No Hazard
Used Flammable Mass		kg	No Hazard	No Hazard
Overpressure Radius		m	0	0
Distance to:				
- Ignition Source		m	No Hazard	No Hazard
- Cloud Front/Centre		m	No Hazard	No Hazard
- Explosion Centre		m	0	0

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Weather Conditions

Path: \Terminal Adonai - Efeitos físicos\Simulações\H152 (E)

		Dia	Noite
Wind Speed	m/s	3	2
Pasquill Stability		C	E
Surface Roughness Length	mm	1000	1000
Surface Roughness Parameter		0.173718	0.173718
Atmospheric Temperature	degC	25	20
Surface Temperature	degC	30	20
Relative Humidity	fraction	0.8	0.8

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

H152 (H)

Base Case

CASE Name: Data

Path: \Terminal Adonai - Efeitos físicos\Simulações\H152 (H)

User-Defined Data

Material

Material Identifier	N-HEXANE
Type of Vessel	Padded Liquid
Pressure Specification	Pressure specified
Storage Pressure - gauge	0.03 bar
Temperature	25 degC
Volume Inventory	2560 m3

Scenario

Scenario Type	Catastrophic rupture
Phase to be Released	Liquid
Building Wake Effect	None

Location

Elevation	0 m
Use ERPG averaging time	ERPG not selected
Use IDLH averaging time	IDLH not selected
Use STEL averaging time	STEL not selected
Supply a user defined averaging time	Not supplied

Bund

Status of Bund	Bund present
Bund Area	1940 m2
[Type of Bund Surface	User-Defined (Land)]
Bund Height	3 m
[Bund Failure Modeling	Bund cannot fail]

Indoor/Outdoor

Location of release	Open air release
---------------------	------------------

Flammable

Explosion Method	TNT
Jet Fire Method	Cone Model

Dispersion

Late Ignition Location	No ignition location
Mass Inventory of material to Disperse	1.679E6 kg
Use Burst Pressure	No - Use release pressure for fireball

Fireball Parameters

[Mass Modification Factor	3]
[Calculation method for fireball	DNV Recommended]
[TNO model flame temperature	1727 degC]

Toxic Parameters

[Indoor Calculations	Unselected]
[Wind Dependent Exchange Rate	Case Specified]

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

[Building Exchange Rate	4 /hr]
[Tail Time	1800 s]
[Set averaging time equal to exposure time	Use a fixed averaging time]
[Cut-off fraction of toxic load for exposure time calculation	0.05 fraction]
[Cut-off concentration for exposure time calculations	0 fraction]

Geometry

Shape	Point
Dimension	2D
System	Absolute
East(1)	0 m
North(1)	0 m

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Path: \Terminal Adonai - Efeitos físicos\Simulações\H152 (H)

DISCHARGE DATA for Weather: Global Weathers\Dia

Wind Speed: 3.00 m/s
Wind Speed at Height (Calculated) 1.78 m/s
Pasquill Stability: C

USER-DEFINED QUANTITIES

Material N-HEXANE
Scenario Catastrophic rupture
Inventory 1,679,427.13 kg
Fixed Duration n/a s

Stagnation data (data at upstream end for long pipe):

- Pressure 1.04 bar
- Temperature 25.00 degC
- Fluid State Non-saturated liquid

CALCULATED QUANTITIES

Mass Flow of Air (Vent from Vapor Space only) n/a
Mass Flowrate n/a kg/s
Release Duration n/a s
Orifice or pipe exit data (before atmospheric expansion):
- Pressure n/a bar
- Temperature n/a degC
- Vena Contracta Velocity (exit velocity for pipe releases) n/a m/s
- Discharge Coefficient n/a
Final data (after atmospheric expansion):
- Temperature 25.00 degC
- Liquid Mass Fraction 1.00 fraction
- Droplet Diameter 721.42 um
- Expanded Radius n/a m
- Velocity 1.04 m/s

DISCHARGE DATA for Weather: Global Weathers\Noite

Wind Speed: 2.00 m/s
Wind Speed at Height (Calculated) 0.83 m/s
Pasquill Stability: E

USER-DEFINED QUANTITIES

Material N-HEXANE
Scenario Catastrophic rupture
Inventory 1,679,427.13 kg
Fixed Duration n/a s

Stagnation data (data at upstream end for long pipe):

- Pressure 1.04 bar
- Temperature 25.00 degC
- Fluid State Non-saturated liquid

CALCULATED QUANTITIES

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Mass Flow of Air (Vent from Vapor Space only)	n/a
Mass Flowrate	n/a kg/s
Release Duration	n/a s
Orifice or pipe exit data (before atmospheric expansion):	
- Pressure	n/a bar
- Temperature	n/a degC
- Vena Contracta Velocity (exit velocity for pipe releases)	n/a m/s
- Discharge Coefficient	n/a
Final data (after atmospheric expansion):	
- Temperature	25.00 degC
- Liquid Mass Fraction	1.00 fraction
- Droplet Diameter	721.42 um
- Expanded Radius	n/a m
- Velocity	1.04 m/s



Consequence Results

Pool Vaporization Results

Path: \Terminal Adonai - Efeitos físicos\Simulações\H152 (H)

N.B. Pool vaporization segments begin when the cloud has left the pool

		Dia	Noite
Liquid Rainout	fraction	0.999747	0.999749
Initial Vapor Cloud	kg	424.975	421.682
Time Pool Left Behind	s	45.5282	106.922

Cloud Segment 1

		Dia	Noite
Cloud Segment Duration	s	600	600
Pool Vaporization Rate	kg/s	10.9072	8.78777

		Dia	Noite
Maximum Pool Radius	m	24.85	24.85

Distance to Concentration Results

Path: \Terminal Adonai - Efeitos físicos\Simulações\H152 (H)

The height for user defined concentrations is the user defined height 0 m

All toxic results are reported at the toxic effect height 1 m

All flammable results are reported at the flammable effect height 0 m

Concentration(ppm)	Averaging Time		Dia	Noite
UFL (76800)	18.75	s	15.94	18.7128
LFL (10500)	18.75	s	53.92	56.7344
LFL Frac (10500)	18.75	s	53.92	56.7344

Concentration(ppm)	Averaging Time		Dia	Noite
UFL (76800)	18.75	s	0	0
LFL (10500)	18.75	s	0	0
LFL Frac (10500)	18.75	s	0	0

Late Pool Fire Hazard

Path: \Terminal Adonai - Efeitos físicos\Simulações\H152 (H)

	Dia	Noite
Late Pool Fire Status	Hazard	Hazard

Radiation Effects: Late Pool Fire Ellipse

Path: \Terminal Adonai - Efeitos físicos\Simulações\H152 (H)

			Dia	Noite
Radiation Level	9.83	kW/m2	32.3312	30.9631
Radiation Level	19.46	kW/m2	25.85	25.85
Radiation Level	35	kW/m2	Not Reached	Not Reached

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Radiation Effects: Late Pool Fire Distance

Path: \Terminal Adonai - Efeitos físicos\Simulações\H152 (H)

	Dia	Noite
Radiation Level (kW/m2)		

Fireball Hazard

Path: \Terminal Adonai - Efeitos físicos\Simulações\H152 (H)

	Dia	Noite
Fireball Flame Status	No Hazard	No Hazard

Flash Fire Envelope

Path: \Terminal Adonai - Efeitos físicos\Simulações\H152 (H)

All flammable results are reported at the flammable effect height 0 m

			Dia	Noite
Furthest Extent	10500	ppm	53.92	56.7344
Furthest Extent	10500	ppm	53.92	56.7344

			Dia	Noite
Furthest Extent	10500	ppm	0	0
Furthest Extent	10500	ppm	0	0

Explosion Effects: Early Explosion

Path: \Terminal Adonai - Efeitos físicos\Simulações\H152 (H)

Early Explosions are assumed to be centered at the release location
Explosion Model Used : TNT

			Dia	Noite
Supplied Flammable Mass		kg	1.67943e+006	1.67943e+006

			Distance (m) at Overpressure Levels	
			Dia	Noite
Overpressure	0.05	bar	No Hazard	No Hazard
Overpressure	0.1	bar	No Hazard	No Hazard
Overpressure	0.3	bar	No Hazard	No Hazard

			Used Mass (kg) at Overpressure Levels	
			Dia	Noite
Overpressure	0.05	bar	0	0
Overpressure	0.1	bar	0	0
Overpressure	0.3	bar	0	0

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Explosion Effects: Late Ignition

Path: \Terminal Adonai - Efeitos físicos\Simulações\H152 (H)

Explosion Model Used : TNT

Explosion Location Criterion: Cloud Center

All distances are measured from the Source

All flammable results are reported at the flammable effect height 0 m

			Maximum Distance (m) at Overpressure Level	
			Dia	Noite
Overpressure	0.05	bar	127.201	129.955
Overpressure	0.1	bar	83.7145	84.0372
Overpressure	0.3	bar	50.8117	46.4023

			Supplementary Data at 0.05 bar	
			Dia	Noite
Supplied Flammable Mass		kg	359.642	373.785
Used Flammable Mass		kg	359.642	373.785
Overpressure Radius		m	119.541	121.088
Distance to:				
- Ignition Source		m	40	50
- Cloud Front/Centre		m	7.65945	8.86744
- Explosion Centre		m	7.65945	8.86744

			Supplementary Data at 0.1 bar	
			Dia	Noite
Supplied Flammable Mass		kg	249.775	373.785
Used Flammable Mass		kg	249.775	373.785
Overpressure Radius		m	65.7181	75.1697
Distance to:				
- Ignition Source		m	50	50
- Cloud Front/Centre		m	17.9963	8.86744
- Explosion Centre		m	17.9963	8.86744

			Supplementary Data at 0.3 bar	
			Dia	Noite
Supplied Flammable Mass		kg	249.775	373.785
Used Flammable Mass		kg	249.775	373.785
Overpressure Radius		m	32.8154	37.5349
Distance to:				
- Ignition Source		m	50	50
- Cloud Front/Centre		m	17.9963	8.86744
- Explosion Centre		m	17.9963	8.86744

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Weather Conditions

Path: \Terminal Adonai - Efeitos físicos\Simulações\H152 (H)

		Dia	Noite
Wind Speed	m/s	3	2
Pasquill Stability		C	E
Surface Roughness Length	mm	1000	1000
Surface Roughness Parameter		0.173718	0.173718
Atmospheric Temperature	degC	25	20
Surface Temperature	degC	30	20
Relative Humidity	fraction	0.8	0.8

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

H152 (M)

Base Case

CASE Name: Data

Path: \Terminal Adonai - Efeitos físicos\Simulações\H152 (M)

User-Defined Data

Material

Material Identifier	METHANOL
Type of Vessel	Padded Liquid
Pressure Specification	Pressure specified
Storage Pressure - gauge	0.03 bar
Temperature	25 degC
Volume Inventory	2560 m3

Scenario

Scenario Type	Catastrophic rupture
Phase to be Released	Liquid
Building Wake Effect	None

Location

Elevation	0 m
Use ERPG averaging time	ERPG not selected
Use IDLH averaging time	IDLH not selected
Use STEL averaging time	STEL not selected
Supply a user defined averaging time	Not supplied

Bund

Status of Bund	Bund present
Bund Area	1940 m2
[Type of Bund Surface	User-Defined (Land)]
Bund Height	3 m
[Bund Failure Modeling	Bund cannot fail]

Indoor/Outdoor

Location of release	Open air release
---------------------	------------------

Flammable

Explosion Method	TNT
Jet Fire Method	Cone Model

Dispersion

Late Ignition Location	No ignition location
Mass Inventory of material to Disperse	2.021E6 kg
Use Burst Pressure	No - Use release pressure for fireball

Fireball Parameters

[Mass Modification Factor	3]
[Calculation method for fireball	DNV Recommended]
[TNO model flame temperature	1727 degC]

Toxic Parameters

[Indoor Calculations	Unselected]
[Wind Dependent Exchange Rate	Case Specified]

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

[Building Exchange Rate	4 /hr]
[Tail Time	1800 s]
[Set averaging time equal to exposure time	Use a fixed averaging time]
[Cut-off fraction of toxic load for exposure time calculation	0.05 fraction]
[Cut-off concentration for exposure time calculations	0 fraction]

Geometry

Shape	Point
Dimension	2D
System	Absolute
East(1)	0 m
North(1)	0 m

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Path: \Terminal Adonai - Efeitos físicos\Simulações\H152 (M)

DISCHARGE DATA for Weather: Global Weathers\Dia

Wind Speed: 3.00 m/s
Wind Speed at Height (Calculated) 1.78 m/s
Pasquill Stability: C

USER-DEFINED QUANTITIES

Material METHANOL
Scenario Catastrophic rupture
Inventory 2,021,420.38 kg
Fixed Duration n/a s

Stagnation data (data at upstream end for long pipe):

- Pressure 1.04 bar
- Temperature 25.00 degC
- Fluid State Non-saturated liquid

CALCULATED QUANTITIES

Mass Flow of Air (Vent from Vapor Space only) n/a
Mass Flowrate n/a kg/s
Release Duration n/a s
Orifice or pipe exit data (before atmospheric expansion):
- Pressure n/a bar
- Temperature n/a degC
- Vena Contracta Velocity (exit velocity for pipe releases) n/a m/s
- Discharge Coefficient n/a
Final data (after atmospheric expansion):
- Temperature 25.00 degC
- Liquid Mass Fraction 1.00 fraction
- Droplet Diameter 735.02 um
- Expanded Radius n/a m
- Velocity 1.54 m/s

DISCHARGE DATA for Weather: Global Weathers\Noite

Wind Speed: 2.00 m/s
Wind Speed at Height (Calculated) 0.83 m/s
Pasquill Stability: E

USER-DEFINED QUANTITIES

Material METHANOL
Scenario Catastrophic rupture
Inventory 2,021,420.38 kg
Fixed Duration n/a s

Stagnation data (data at upstream end for long pipe):

- Pressure 1.04 bar
- Temperature 25.00 degC
- Fluid State Non-saturated liquid

CALCULATED QUANTITIES

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Mass Flow of Air (Vent from Vapor Space only)	n/a
Mass Flowrate	n/a kg/s
Release Duration	n/a s
Orifice or pipe exit data (before atmospheric expansion):	
- Pressure	n/a bar
- Temperature	n/a degC
- Vena Contracta Velocity (exit velocity for pipe releases)	n/a m/s
- Discharge Coefficient	n/a
Final data (after atmospheric expansion):	
- Temperature	25.00 degC
- Liquid Mass Fraction	1.00 fraction
- Droplet Diameter	735.02 um
- Expanded Radius	n/a m
- Velocity	1.54 m/s



Consequence Results

Pool Vaporization Results

Path: \Terminal Adonai - Efeitos físicos\Simulações\H152 (M)

N.B. Pool vaporization segments begin when the cloud has left the pool

		Dia	Noite
Liquid Rainout	fraction	0.999391	0.999386
Initial Vapor Cloud	kg	1230.67	1241.01
Time Pool Left Behind	s	38.9254	66.9083

Cloud Segment 1

		Dia	Noite
Cloud Segment Duration	s	600	600
Pool Vaporization Rate	kg/s	4.92099	4.01485

		Dia	Noite
Maximum Pool Radius	m	24.85	24.85

Distance to Concentration Results

Path: \Terminal Adonai - Efeitos físicos\Simulações\H152 (M)

The height for user defined concentrations is the user defined height 0 m

All toxic results are reported at the toxic effect height 1 m

All flammable results are reported at the flammable effect height 0 m

Concentration(ppm)	Averaging Time		Dia	Noite	Distance (m)
UFL (360000)	18.75	s	18.2602	18.0375	
LFL (73000)	18.75	s	27.4515	29.6623	
LFL Frac (73000)	18.75	s	27.4515	29.6623	
Concentration(ppm)	Averaging Time		Dia	Noite	Heights (m) for above distances
UFL (360000)	18.75	s	0	0	
LFL (73000)	18.75	s	0	0	
LFL Frac (73000)	18.75	s	0	0	

Late Pool Fire Hazard

Path: \Terminal Adonai - Efeitos físicos\Simulações\H152 (M)

	Dia	Noite
Late Pool Fire Status	Hazard	Hazard

Radiation Effects: Late Pool Fire Ellipse

Path: \Terminal Adonai - Efeitos físicos\Simulações\H152 (M)

			Dia	Noite	Distance (m)
Radiation Level	9.83	kW/m2	49.3934	47.73	
Radiation Level	19.46	kW/m2	34.8261	33.0732	
Radiation Level	35	kW/m2	25.85	25.85	

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Radiation Effects: Late Pool Fire Distance

Path: \Terminal Adonai - Efeitos físicos\Simulações\H152 (M)

	Dia	Noite
Radiation Level (kW/m2)		

Fireball Hazard

Path: \Terminal Adonai - Efeitos físicos\Simulações\H152 (M)

	Dia	Noite
Fireball Flame Status	No Hazard	No Hazard

Flash Fire Envelope

Path: \Terminal Adonai - Efeitos físicos\Simulações\H152 (M)

All flammable results are reported at the flammable effect height 0 m

			Dia	Noite
Furthest Extent	73000	ppm	27.4515	29.6623
Furthest Extent	73000	ppm	27.4515	29.6623

			Dia	Noite
Furthest Extent	73000	ppm	0	0
Furthest Extent	73000	ppm	0	0

Explosion Effects: Early Explosion

Path: \Terminal Adonai - Efeitos físicos\Simulações\H152 (M)

Early Explosions are assumed to be centered at the release location
Explosion Model Used : TNT

			Dia	Noite
Supplied Flammable Mass		kg	2.02142e+006	2.02142e+006

			Dia	Noite
Overpressure	0.05	bar	No Hazard	No Hazard
Overpressure	0.1	bar	No Hazard	No Hazard
Overpressure	0.3	bar	No Hazard	No Hazard

			Dia	Noite
Overpressure	0.05	bar	0	0
Overpressure	0.1	bar	0	0
Overpressure	0.3	bar	0	0

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Explosion Effects: Late Ignition

Path: \Terminal Adonai - Efeitos físicos\Simulações\H152 (M)

Explosion Model Used : TNT

Explosion Location Criterion: Cloud Center

All distances are measured from the Source

All flammable results are reported at the flammable effect height 0 m

			Maximum Distance (m) at Overpressure Level	
			Dia	Noite
Overpressure	0.05	bar	93.4397	97.1343
Overpressure	0.1	bar	59.9884	62.3445
Overpressure	0.3	bar	32.5715	33.8306

Supplementary Data at 0.05 bar

			Dia	Noite
Supplied Flammable Mass		kg	324.575	365.116
Used Flammable Mass		kg	324.575	365.116
Overpressure Radius		m	88.2123	91.7419
Distance to:				
- Ignition Source		m	20	20
- Cloud Front/Centre		m	5.22737	5.39244
- Explosion Centre		m	5.22737	5.39244

Supplementary Data at 0.1 bar

			Dia	Noite
Supplied Flammable Mass		kg	324.575	365.116
Used Flammable Mass		kg	324.575	365.116
Overpressure Radius		m	54.761	56.9521
Distance to:				
- Ignition Source		m	20	20
- Cloud Front/Centre		m	5.22737	5.39244
- Explosion Centre		m	5.22737	5.39244

Supplementary Data at 0.3 bar

			Dia	Noite
Supplied Flammable Mass		kg	324.575	365.116
Used Flammable Mass		kg	324.575	365.116
Overpressure Radius		m	27.3441	28.4382
Distance to:				
- Ignition Source		m	20	20
- Cloud Front/Centre		m	5.22737	5.39244
- Explosion Centre		m	5.22737	5.39244

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Weather Conditions

Path: \Terminal Adonai - Efeitos físicos\Simulações\H152 (M)

		Dia	Noite
Wind Speed	m/s	3	2
Pasquill Stability		C	E
Surface Roughness Length	mm	1000	1000
Surface Roughness Parameter		0.173718	0.173718
Atmospheric Temperature	degC	25	20
Surface Temperature	degC	30	20
Relative Humidity	fraction	0.8	0.8

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

H152 (N)

Base Case

CASE Name: Data

Path: \Terminal Adonai - Efeitos físicos\Simulações\H152 (N)

User-Defined Data

Material

Material Identifier	N-NONANE
Type of Vessel	Padded Liquid
Pressure Specification	Pressure specified
Storage Pressure - gauge	0.03 bar
Temperature	25 degC
Volume Inventory	2560 m3

Scenario

Scenario Type	Catastrophic rupture
Phase to be Released	Liquid
Building Wake Effect	None

Location

Elevation	0 m
Use ERPG averaging time	ERPG not selected
Use IDLH averaging time	IDLH not selected
Use STEL averaging time	STEL not selected
Supply a user defined averaging time	Not supplied

Bund

Status of Bund	Bund present
Bund Area	1940 m2
[Type of Bund Surface	User-Defined (Land)]
Bund Height	3 m
[Bund Failure Modeling	Bund cannot fail]

Indoor/Outdoor

Location of release	Open air release
---------------------	------------------

Flammable

Explosion Method	TNT
Jet Fire Method	Cone Model

Dispersion

Late Ignition Location	No ignition location
Mass Inventory of material to Disperse	1.829E6 kg
Use Burst Pressure	No - Use release pressure for fireball

Fireball Parameters

[Mass Modification Factor	3]
[Calculation method for fireball	DNV Recommended]
[TNO model flame temperature	1727 degC]

Toxic Parameters

[Indoor Calculations	Unselected]
[Wind Dependent Exchange Rate	Case Specified]

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

[Building Exchange Rate	4 /hr]
[Tail Time	1800 s]
[Set averaging time equal to exposure time	Use a fixed averaging time]
[Cut-off fraction of toxic load for exposure time calculation	0.05 fraction]
[Cut-off concentration for exposure time calculations	0 fraction]

Geometry

Shape	Point
Dimension	2D
System	Absolute
East(1)	0 m
North(1)	0 m

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Path: \Terminal Adonai - Efeitos físicos\Simulações\H152 (N)

DISCHARGE DATA for Weather: Global Weathers\Dia

Wind Speed: 3.00 m/s
Wind Speed at Height (Calculated) 1.78 m/s
Pasquill Stability: C

USER-DEFINED QUANTITIES

Material N-NONANE
Scenario Catastrophic rupture
Inventory 1,828,589.13 kg
Fixed Duration n/a s

Stagnation data (data at upstream end for long pipe):

- Pressure 1.04 bar
- Temperature 25.00 degC
- Fluid State Non-saturated liquid

CALCULATED QUANTITIES

Mass Flow of Air (Vent from Vapor Space only) n/a
Mass Flowrate n/a kg/s
Release Duration n/a s
Orifice or pipe exit data (before atmospheric expansion):
- Pressure n/a bar
- Temperature n/a degC
- Vena Contracta Velocity (exit velocity for pipe releases) n/a m/s
- Discharge Coefficient n/a
Final data (after atmospheric expansion):
- Temperature 25.00 degC
- Liquid Mass Fraction 1.00 fraction
- Droplet Diameter 727.67 um
- Expanded Radius n/a m
- Velocity 0.76 m/s

DISCHARGE DATA for Weather: Global Weathers\Noite

Wind Speed: 2.00 m/s
Wind Speed at Height (Calculated) 0.83 m/s
Pasquill Stability: E

USER-DEFINED QUANTITIES

Material N-NONANE
Scenario Catastrophic rupture
Inventory 1,828,589.13 kg
Fixed Duration n/a s

Stagnation data (data at upstream end for long pipe):

- Pressure 1.04 bar
- Temperature 25.00 degC
- Fluid State Non-saturated liquid

CALCULATED QUANTITIES

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Mass Flow of Air (Vent from Vapor Space only)	n/a
Mass Flowrate	n/a kg/s
Release Duration	n/a s
Orifice or pipe exit data (before atmospheric expansion):	
- Pressure	n/a bar
- Temperature	n/a degC
- Vena Contracta Velocity (exit velocity for pipe releases)	n/a m/s
- Discharge Coefficient	n/a
Final data (after atmospheric expansion):	
- Temperature	25.00 degC
- Liquid Mass Fraction	1.00 fraction
- Droplet Diameter	727.67 um
- Expanded Radius	n/a m
- Velocity	0.76 m/s



Consequence Results

Pool Vaporization Results

Path: \Terminal Adonai - Efeitos físicos\Simulações\H152 (N)

N.B. Pool vaporization segments begin when the cloud has left the pool

		Dia	Noite
Liquid Rainout	fraction	0.999996	0.999996
Initial Vapor Cloud	kg	7.27132	7.09494
Time Pool Left Behind	s	25.5409	52.3858

Cloud Segment 1

Cloud Segment Duration	s	600	600
Pool Vaporization Rate	kg/s	0.360561	0.284654

Maximum Pool Radius	m	24.85	24.85
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Distance to Concentration Results

Path: \Terminal Adonai - Efeitos físicos\Simulações\H152 (N)

The height for user defined concentrations is the user defined height 0 m

All toxic results are reported at the toxic effect height 1 m

All flammable results are reported at the flammable effect height 0 m

Concentration(ppm)	Averaging Time		Dia	Noite	Distance (m)
UFL (56000)	18.75	s	11.7049	11.6914	
LFL (7000)	18.75	s	11.8308	11.8174	
LFL Frac (7000)	18.75	s	11.8308	11.8174	

Concentration(ppm)	Averaging Time		Dia	Noite	Heights (m) for above distances
UFL (56000)	18.75	s	0	0	
LFL (7000)	18.75	s	0	0	
LFL Frac (7000)	18.75	s	0	0	

Late Pool Fire Hazard

Path: \Terminal Adonai - Efeitos físicos\Simulações\H152 (N)

	Dia	Noite
Late Pool Fire Status	Hazard	Hazard

Radiation Effects: Late Pool Fire Ellipse

Path: \Terminal Adonai - Efeitos físicos\Simulações\H152 (N)

			Dia	Noite	Distance (m)
Radiation Level	9.83	kW/m2	32.47	30.9616	
Radiation Level	19.46	kW/m2	25.85	25.85	
Radiation Level	35	kW/m2	Not Reached	Not Reached	

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Radiation Effects: Late Pool Fire Distance

Path: \Terminal Adonai - Efeitos físicos\Simulações\H152 (N)

		Radiation Level (kW/m2)
	Dia	Noite

Fireball Hazard

Path: \Terminal Adonai - Efeitos físicos\Simulações\H152 (N)

		Dia	Noite
Fireball Flame Status		No Hazard	No Hazard

Flash Fire Envelope

Path: \Terminal Adonai - Efeitos físicos\Simulações\H152 (N)

All flammable results are reported at the flammable effect height 0 m

				Distance (m)
			Dia	Noite
Furthest Extent	7000	ppm	11.8308	11.8174
Furthest Extent	7000	ppm	11.8308	11.8174
				Heights (m) for above distances
			Dia	Noite
Furthest Extent	7000	ppm	0	0
Furthest Extent	7000	ppm	0	0

Explosion Effects: Early Explosion

Path: \Terminal Adonai - Efeitos físicos\Simulações\H152 (N)

Early Explosions are assumed to be centered at the release location
Explosion Model Used : TNT

			Dia	Noite
Supplied Flammable Mass		kg	1.82859e+006	1.82859e+006
				Distance (m) at Overpressure Levels
			Dia	Noite
Overpressure	0.05	bar	No Hazard	No Hazard
Overpressure	0.1	bar	No Hazard	No Hazard
Overpressure	0.3	bar	No Hazard	No Hazard
				Used Mass (kg) at Overpressure Levels
			Dia	Noite
Overpressure	0.05	bar	0	0
Overpressure	0.1	bar	0	0
Overpressure	0.3	bar	0	0

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Explosion Effects: Late Ignition

Path: \Terminal Adonai - Efeitos físicos\Simulações\H152 (N)

Explosion Model Used : TNT

Explosion Location Criterion: Cloud Center

All distances are measured from the Source

All flammable results are reported at the flammable effect height 0 m

			Maximum Distance (m) at Overpressure Level	
			Dia	Noite
Overpressure	0.05	bar	No Hazard	No Hazard
Overpressure	0.1	bar	No Hazard	No Hazard
Overpressure	0.3	bar	No Hazard	No Hazard
			Supplementary Data at 0.05 bar	
			Dia	Noite
Supplied Flammable Mass		kg	No Hazard	No Hazard
Used Flammable Mass		kg	No Hazard	No Hazard
Overpressure Radius		m	0	0
Distance to:				
- Ignition Source		m	No Hazard	No Hazard
- Cloud Front/Centre		m	No Hazard	No Hazard
- Explosion Centre		m	0	0
			Supplementary Data at 0.1 bar	
			Dia	Noite
Supplied Flammable Mass		kg	No Hazard	No Hazard
Used Flammable Mass		kg	No Hazard	No Hazard
Overpressure Radius		m	0	0
Distance to:				
- Ignition Source		m	No Hazard	No Hazard
- Cloud Front/Centre		m	No Hazard	No Hazard
- Explosion Centre		m	0	0
			Supplementary Data at 0.3 bar	
			Dia	Noite
Supplied Flammable Mass		kg	No Hazard	No Hazard
Used Flammable Mass		kg	No Hazard	No Hazard
Overpressure Radius		m	0	0
Distance to:				
- Ignition Source		m	No Hazard	No Hazard
- Cloud Front/Centre		m	No Hazard	No Hazard
- Explosion Centre		m	0	0

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Weather Conditions

Path: \Terminal Adonai - Efeitos físicos\Simulações\H152 (N)

		Dia	Noite
Wind Speed	m/s	3	2
Pasquill Stability		C	E
Surface Roughness Length	mm	1000	1000
Surface Roughness Parameter		0.173718	0.173718
Atmospheric Temperature	degC	25	20
Surface Temperature	degC	30	20
Relative Humidity	fraction	0.8	0.8

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

H152 (P)

Base Case

CASE Name: Data

Path: \Terminal Adonai - Efeitos físicos\Simulações\H152 (P)

User-Defined Data

Material

Material Identifier	N-PENTANE
Type of Vessel	Padded Liquid
Pressure Specification	Pressure specified
Storage Pressure - gauge	0.03 bar
Temperature	25 degC
Volume Inventory	2560 m3

Scenario

Scenario Type	Catastrophic rupture
Phase to be Released	Liquid
Building Wake Effect	None

Location

Elevation	0 m
Use ERPG averaging time	ERPG not selected
Use IDLH averaging time	IDLH not selected
Use STEL averaging time	STEL not selected
Supply a user defined averaging time	Not supplied

Bund

Status of Bund	Bund present
Bund Area	1940 m2
[Type of Bund Surface	User-Defined (Land)]
Bund Height	3 m
[Bund Failure Modeling	Bund cannot fail]

Indoor/Outdoor

Location of release	Open air release
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Flammable

Explosion Method	TNT
Jet Fire Method	Cone Model

Dispersion

Late Ignition Location	No ignition location
Mass Inventory of material to Disperse	1.592E6 kg
Use Burst Pressure	No - Use release pressure for fireball

Fireball Parameters

[Mass Modification Factor	3]
[Calculation method for fireball	DNV Recommended]
[TNO model flame temperature	1727 degC]

Toxic Parameters

[Indoor Calculations	Unselected]
[Wind Dependent Exchange Rate	Case Specified]

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

[Building Exchange Rate	4 /hr]
[Tail Time	1800 s]
[Set averaging time equal to exposure time	Use a fixed averaging time]
[Cut-off fraction of toxic load for exposure time calculation	0.05 fraction]
[Cut-off concentration for exposure time calculations	0 fraction]

Geometry

Shape	Point
Dimension	2D
System	Absolute
East(1)	0 m
North(1)	0 m

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Path: \Terminal Adonai - Efeitos físicos\Simulações\H152 (P)

DISCHARGE DATA for Weather: Global Weathers\Dia

Wind Speed: 3.00 m/s
Wind Speed at Height (Calculated) 1.78 m/s
Pasquill Stability: C

USER-DEFINED QUANTITIES

Material N-PENTANE
Scenario Catastrophic rupture
Inventory 1,591,663.13 kg
Fixed Duration n/a s

Stagnation data (data at upstream end for long pipe):

- Pressure 1.04 bar
- Temperature 25.00 degC
- Fluid State Non-saturated liquid

CALCULATED QUANTITIES

Mass Flow of Air (Vent from Vapor Space only) n/a
Mass Flowrate n/a kg/s
Release Duration n/a s
Orifice or pipe exit data (before atmospheric expansion):
- Pressure n/a bar
- Temperature n/a degC
- Vena Contracta Velocity (exit velocity for pipe releases) n/a m/s
- Discharge Coefficient n/a
Final data (after atmospheric expansion):
- Temperature 25.00 degC
- Liquid Mass Fraction 1.00 fraction
- Droplet Diameter 717.48 um
- Expanded Radius n/a m
- Velocity 0.86 m/s

DISCHARGE DATA for Weather: Global Weathers\Noite

Wind Speed: 2.00 m/s
Wind Speed at Height (Calculated) 0.83 m/s
Pasquill Stability: E

USER-DEFINED QUANTITIES

Material N-PENTANE
Scenario Catastrophic rupture
Inventory 1,591,663.13 kg
Fixed Duration n/a s

Stagnation data (data at upstream end for long pipe):

- Pressure 1.04 bar
- Temperature 25.00 degC
- Fluid State Non-saturated liquid

CALCULATED QUANTITIES

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Mass Flow of Air (Vent from Vapor Space only)	n/a
Mass Flowrate	n/a kg/s
Release Duration	n/a s
Orifice or pipe exit data (before atmospheric expansion):	
- Pressure	n/a bar
- Temperature	n/a degC
- Vena Contracta Velocity (exit velocity for pipe releases)	n/a m/s
- Discharge Coefficient	n/a
Final data (after atmospheric expansion):	
- Temperature	25.00 degC
- Liquid Mass Fraction	1.00 fraction
- Droplet Diameter	717.48 um
- Expanded Radius	n/a m
- Velocity	0.86 m/s



Consequence Results

Pool Vaporization Results

Path: \Terminal Adonai - Efeitos físicos\Simulações\H152 (P)

N.B. Pool vaporization segments begin when the cloud has left the pool

		Dia	Noite
Liquid Rainout	fraction	0.999195	0.99923
Initial Vapor Cloud	kg	1281.99	1226.33
Time Pool Left Behind	s	62.4655	160.092

Cloud Segment 1

Cloud Segment Duration	s	600	600
Pool Vaporization Rate	kg/s	46.3481	37.2167

Maximum Pool Radius	m	24.85	24.85
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Distance to Concentration Results

Path: \Terminal Adonai - Efeitos físicos\Simulações\H152 (P)

The height for user defined concentrations is the user defined height 0 m

All toxic results are reported at the toxic effect height 1 m

All flammable results are reported at the flammable effect height 0 m

Concentration(ppm)	Averaging Time		Dia	Noite	Distance (m)
UFL (80000)	18.75	s	41.2039	50.3489	
LFL (13000)	18.75	s	101.113	105.47	
LFL Frac (13000)	18.75	s	101.113	105.47	
Concentration(ppm)	Averaging Time		Dia	Noite	Heights (m) for above distances
UFL (80000)	18.75	s	0	0	
LFL (13000)	18.75	s	0	0	
LFL Frac (13000)	18.75	s	0	0	

Late Pool Fire Hazard

Path: \Terminal Adonai - Efeitos físicos\Simulações\H152 (P)

	Dia	Noite
Late Pool Fire Status	Hazard	Hazard

Radiation Effects: Late Pool Fire Ellipse

Path: \Terminal Adonai - Efeitos físicos\Simulações\H152 (P)

			Dia	Noite	Distance (m)
Radiation Level	9.83	kW/m2	32.3709	31.0567	
Radiation Level	19.46	kW/m2	25.85	25.85	
Radiation Level	35	kW/m2	Not Reached	Not Reached	

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Radiation Effects: Late Pool Fire Distance

Path: \Terminal Adonai - Efeitos físicos\Simulações\H152 (P)

	Dia	Noite
Radiation Level (kW/m2)		

Fireball Hazard

Path: \Terminal Adonai - Efeitos físicos\Simulações\H152 (P)

	Dia	Noite
Fireball Flame Status	No Hazard	No Hazard

Flash Fire Envelope

Path: \Terminal Adonai - Efeitos físicos\Simulações\H152 (P)

All flammable results are reported at the flammable effect height 0 m

			Dia	Noite
Furthest Extent	13000	ppm	101.113	105.47
Furthest Extent	13000	ppm	101.113	105.47

			Dia	Noite
Furthest Extent	13000	ppm	0	0
Furthest Extent	13000	ppm	0	0

Explosion Effects: Early Explosion

Path: \Terminal Adonai - Efeitos físicos\Simulações\H152 (P)

Early Explosions are assumed to be centered at the release location
Explosion Model Used : TNT

			Dia	Noite
Supplied Flammable Mass		kg	1.59166e+006	1.59166e+006

			Dia	Noite
Overpressure	0.05	bar	No Hazard	No Hazard
Overpressure	0.1	bar	No Hazard	No Hazard
Overpressure	0.3	bar	No Hazard	No Hazard

			Dia	Noite
Overpressure	0.05	bar	0	0
Overpressure	0.1	bar	0	0
Overpressure	0.3	bar	0	0

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Explosion Effects: Late Ignition

Path: \Terminal Adonai - Efeitos físicos\Simulações\H152 (P)

Explosion Model Used : TNT

Explosion Location Criterion: Cloud Center

All distances are measured from the Source

All flammable results are reported at the flammable effect height 0 m

			Maximum Distance (m) at Overpressure Level	
			Dia	Noite
Overpressure	0.05	bar	210.675	217.44
Overpressure	0.1	bar	143.313	144.102
Overpressure	0.3	bar	97.1551	83.9945

			Supplementary Data at 0.05 bar	
			Dia	Noite
Supplied Flammable Mass		kg	1173.81	1514.67
Used Flammable Mass		kg	1173.81	1514.67
Overpressure Radius		m	177.638	193.393
Distance to:				
- Ignition Source		m	90	100
- Cloud Front/Centre		m	33.0379	24.0464
- Explosion Centre		m	33.0379	24.0464

			Supplementary Data at 0.1 bar	
			Dia	Noite
Supplied Flammable Mass		kg	1173.81	1514.67
Used Flammable Mass		kg	1173.81	1514.67
Overpressure Radius		m	110.275	120.056
Distance to:				
- Ignition Source		m	90	100
- Cloud Front/Centre		m	33.0379	24.0464
- Explosion Centre		m	33.0379	24.0464

			Supplementary Data at 0.3 bar	
			Dia	Noite
Supplied Flammable Mass		kg	577.623	1514.67
Used Flammable Mass		kg	577.623	1514.67
Overpressure Radius		m	43.4728	59.9481
Distance to:				
- Ignition Source		m	100	100
- Cloud Front/Centre		m	53.6823	24.0464
- Explosion Centre		m	53.6823	24.0464

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Weather Conditions

Path: \Terminal Adonai - Efeitos físicos\Simulações\H152 (P)

		Dia	Noite
Wind Speed	m/s	3	2
Pasquill Stability		C	E
Surface Roughness Length	mm	1000	1000
Surface Roughness Parameter		0.173718	0.173718
Atmospheric Temperature	degC	25	20
Surface Temperature	degC	30	20
Relative Humidity	fraction	0.8	0.8

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

H153 (A)

Base Case

CASE Name: Data

Path: \Terminal Adonai - Efeitos físicos\Simulações\H153 (A)

User-Defined Data

Fireball Parameters

[Calculation method for fireball DNV Recommended]
[TNO model flame temperature 1727 degC]

Toxic Parameters

[Indoor Calculations Unselected]
[Wind Dependent Exchange Rate Case Specified]
[Building Exchange Rate 4 /hr]
[Tail Time 1800 s]
[Set averaging time equal to exposure time Use a fixed averaging time]
[Cut-off fraction of toxic load for exposure time calculation 0.05 fraction]
[Cut-off concentration for exposure time calculations 0 fraction]

Geometry

Shape Point
Dimension 2D
System Absolute
East(1) 0 m
North(1) 0 m

Material

Material Identifier ACETONE
Type of Vessel Padded Liquid
Pressure Specification Pressure specified
Storage Pressure - gauge 0.03 bar
Temperature 25 degC
Volume Inventory 960 m3

Scenario

Scenario Type Catastrophic rupture
Phase to be Released Liquid
Building Wake Effect None

Location

Elevation 0 m
Use ERPG averaging time ERPG not selected
Use IDLH averaging time IDLH not selected
Use STEL averaging time STEL not selected
Supply a user defined averaging time Not supplied

Bund

Status of Bund Bund present
Bund Area 1453 m2
[Type of Bund Surface User-Defined (Land)]
Bund Height 3 m
[Bund Failure Modeling Bund cannot fail]

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Indoor/Outdoor

Location of release

Open air release

Flammable

Explosion Method

TNT

Jet Fire Method

Cone Model

Dispersion

Late Ignition Location

No ignition location

Mass Inventory of material to Disperse

7.551E5 kg

Use Burst Pressure

No - Use release pressure for fireball

Fireball Parameters

[Mass Modification Factor

3]

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Path: \Terminal Adonai - Efeitos físicos\Simulações\H153 (A)

DISCHARGE DATA for Weather: Global Weathers\Dia

Wind Speed: 3.00 m/s
Wind Speed at Height (Calculated) 1.78 m/s
Pasquill Stability: C

USER-DEFINED QUANTITIES

Material ACETONE
Scenario Catastrophic rupture
Inventory 755,117.31 kg
Fixed Duration n/a s

Stagnation data (data at upstream end for long pipe):

- Pressure 1.04 bar
- Temperature 25.00 degC
- Fluid State Non-saturated liquid

CALCULATED QUANTITIES

Mass Flow of Air (Vent from Vapor Space only) n/a
Mass Flowrate n/a kg/s
Release Duration n/a s
Orifice or pipe exit data (before atmospheric expansion):
- Pressure n/a bar
- Temperature n/a degC
- Vena Contracta Velocity (exit velocity for pipe releases) n/a m/s
- Discharge Coefficient n/a
Final data (after atmospheric expansion):
- Temperature 25.00 degC
- Liquid Mass Fraction 1.00 fraction
- Droplet Diameter 734.74 um
- Expanded Radius n/a m
- Velocity 1.11 m/s

DISCHARGE DATA for Weather: Global Weathers\Noite

Wind Speed: 2.00 m/s
Wind Speed at Height (Calculated) 0.83 m/s
Pasquill Stability: E

USER-DEFINED QUANTITIES

Material ACETONE
Scenario Catastrophic rupture
Inventory 755,117.31 kg
Fixed Duration n/a s

Stagnation data (data at upstream end for long pipe):

- Pressure 1.04 bar
- Temperature 25.00 degC
- Fluid State Non-saturated liquid

CALCULATED QUANTITIES

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Mass Flow of Air (Vent from Vapor Space only)	n/a
Mass Flowrate	n/a kg/s
Release Duration	n/a s
Orifice or pipe exit data (before atmospheric expansion):	
- Pressure	n/a bar
- Temperature	n/a degC
- Vena Contracta Velocity (exit velocity for pipe releases)	n/a m/s
- Discharge Coefficient	n/a
Final data (after atmospheric expansion):	
- Temperature	25.00 degC
- Liquid Mass Fraction	1.00 fraction
- Droplet Diameter	734.74 um
- Expanded Radius	n/a m
- Velocity	1.11 m/s



Consequence Results

Pool Vaporization Results

Path: \Terminal Adonai - Efeitos físicos\Simulações\H153 (A)

N.B. Pool vaporization segments begin when the cloud has left the pool

		Dia	Noite
Liquid Rainout	fraction	0.999252	0.999252
Initial Vapor Cloud	kg	564.764	565.102
Time Pool Left Behind	s	42.2852	99.6156

Cloud Segment 1

Cloud Segment Duration	s	600	600
Pool Vaporization Rate	kg/s	10.6361	8.60426

Maximum Pool Radius	m	21.5059	21.5059
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Distance to Concentration Results

Path: \Terminal Adonai - Efeitos físicos\Simulações\H153 (A)

The height for user defined concentrations is the user defined height 0 m

All toxic results are reported at the toxic effect height 1 m

All flammable results are reported at the flammable effect height 0 m

Concentration(ppm)	Averaging Time		Dia	Noite	Distance (m)
UFL (128000)	18.75	s	14.1081	15.3361	
LFL (26000)	18.75	s	44.6649	47.2162	
LFL Frac (26000)	18.75	s	44.6649	47.2162	

Concentration(ppm)	Averaging Time		Dia	Noite	Heights (m) for above distances
UFL (128000)	18.75	s	0	0	
LFL (26000)	18.75	s	0	0	
LFL Frac (26000)	18.75	s	0	0	

Late Pool Fire Hazard

Path: \Terminal Adonai - Efeitos físicos\Simulações\H153 (A)

	Dia	Noite
Late Pool Fire Status	Hazard	Hazard

Radiation Effects: Late Pool Fire Ellipse

Path: \Terminal Adonai - Efeitos físicos\Simulações\H153 (A)

			Dia	Noite	Distance (m)
Radiation Level	9.83	kW/m2	81.993	79.8344	
Radiation Level	19.46	kW/m2	62.1405	58.8005	
Radiation Level	35	kW/m2	44.6192	41.191	

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Radiation Effects: Late Pool Fire Distance

Path: \Terminal Adonai - Efeitos físicos\Simulações\H153 (A)

	Dia	Noite
Radiation Level (kW/m2)		

Fireball Hazard

Path: \Terminal Adonai - Efeitos físicos\Simulações\H153 (A)

	Dia	Noite
Fireball Flame Status	No Hazard	No Hazard

Flash Fire Envelope

Path: \Terminal Adonai - Efeitos físicos\Simulações\H153 (A)

All flammable results are reported at the flammable effect height 0 m

			Dia	Noite
Furthest Extent	26000	ppm	44.6649	47.2162
Furthest Extent	26000	ppm	44.6649	47.2162
			Distances (m)	
			Dia	Noite
Furthest Extent	26000	ppm	0	0
Furthest Extent	26000	ppm	0	0
			Heights (m) for above distances	
			Dia	Noite
Furthest Extent	26000	ppm	0	0
Furthest Extent	26000	ppm	0	0

Explosion Effects: Early Explosion

Path: \Terminal Adonai - Efeitos físicos\Simulações\H153 (A)

Early Explosions are assumed to be centered at the release location
Explosion Model Used : TNT

			Dia	Noite
Supplied Flammable Mass		kg	755117	755117
			Distance (m) at Overpressure Levels	
			Dia	Noite
Overpressure	0.05	bar	No Hazard	No Hazard
Overpressure	0.1	bar	No Hazard	No Hazard
Overpressure	0.3	bar	No Hazard	No Hazard
			Used Mass (kg) at Overpressure Levels	
			Dia	Noite
Overpressure	0.05	bar	0	0
Overpressure	0.1	bar	0	0
Overpressure	0.3	bar	0	0

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Explosion Effects: Late Ignition

Path: \Terminal Adonai - Efeitos físicos\Simulações\H153 (A)

Explosion Model Used : TNT

Explosion Location Criterion: Cloud Center

All distances are measured from the Source

All flammable results are reported at the flammable effect height 0 m

			Maximum Distance (m) at Overpressure Level	
			Dia	Noite
Overpressure	0.05	bar	110.931	115.056
Overpressure	0.1	bar	73.3866	73.8404
Overpressure	0.3	bar	42.6154	40.06
			Supplementary Data at 0.05 bar	
			Dia	Noite
Supplied Flammable Mass		kg	319.971	423.321
Used Flammable Mass		kg	319.971	423.321
Overpressure Radius		m	99.0047	108.687
Distance to:				
- Ignition Source		m	40	40
- Cloud Front/Centre		m	11.9259	6.36935
- Explosion Centre		m	11.9259	6.36935
			Supplementary Data at 0.1 bar	
			Dia	Noite
Supplied Flammable Mass		kg	319.971	423.321
Used Flammable Mass		kg	319.971	423.321
Overpressure Radius		m	61.4608	67.4711
Distance to:				
- Ignition Source		m	40	40
- Cloud Front/Centre		m	11.9259	6.36935
- Explosion Centre		m	11.9259	6.36935
			Supplementary Data at 0.3 bar	
			Dia	Noite
Supplied Flammable Mass		kg	319.971	423.321
Used Flammable Mass		kg	319.971	423.321
Overpressure Radius		m	30.6895	33.6907
Distance to:				
- Ignition Source		m	40	40
- Cloud Front/Centre		m	11.9259	6.36935
- Explosion Centre		m	11.9259	6.36935

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Weather Conditions

Path: \Terminal Adonai - Efeitos físicos\Simulações\H153 (A)

		Dia	Noite
Wind Speed	m/s	3	2
Pasquill Stability		C	E
Surface Roughness Length	mm	1000	1000
Surface Roughness Parameter		0.173718	0.173718
Atmospheric Temperature	degC	25	20
Surface Temperature	degC	30	20
Relative Humidity	fraction	0.8	0.8

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

H153 (B)

Base Case

CASE Name: Data

Path: \Terminal Adonai - Efeitos físicos\Simulações\H153 (B)

User-Defined Data

Material

Material Identifier	BENZENE
Type of Vessel	Padded Liquid
Pressure Specification	Pressure specified
Storage Pressure - gauge	0.03 bar
Temperature	25 degC
Volume Inventory	960 m3

Scenario

Scenario Type	Catastrophic rupture
Phase to be Released	Liquid
Building Wake Effect	None

Location

Elevation	0 m
Use ERPG averaging time	ERPG not selected
Use IDLH averaging time	IDLH not selected
Use STEL averaging time	STEL not selected
Supply a user defined averaging time	Not supplied

Bund

Status of Bund	Bund present
Bund Area	1453 m2
[Type of Bund Surface	User-Defined (Land)]
Bund Height	3 m
[Bund Failure Modeling	Bund cannot fail]

Indoor/Outdoor

Location of release	Open air release
---------------------	------------------

Flammable

Explosion Method	TNT
Jet Fire Method	Cone Model

Dispersion

Late Ignition Location	No ignition location
Mass Inventory of material to Disperse	8.381E5 kg
Use Burst Pressure	No - Use release pressure for fireball

Fireball Parameters

[Mass Modification Factor	3]
[Calculation method for fireball	DNV Recommended]
[TNO model flame temperature	1727 degC]

Toxic Parameters

[Indoor Calculations	Unselected]
[Wind Dependent Exchange Rate	Case Specified]

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

[Building Exchange Rate	4 /hr]
[Tail Time	1800 s]
[Set averaging time equal to exposure time	Use a fixed averaging time]
[Cut-off fraction of toxic load for exposure time calculation	0.05 fraction]
[Cut-off concentration for exposure time calculations	0 fraction]

Geometry

Shape	Point
Dimension	2D
System	Absolute
East(1)	0 m
North(1)	0 m

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Path: \Terminal Adonai - Efeitos físicos\Simulações\H153 (B)

DISCHARGE DATA for Weather: Global Weathers\Dia

Wind Speed: 3.00 m/s
Wind Speed at Height (Calculated) 1.78 m/s
Pasquill Stability: C

USER-DEFINED QUANTITIES

Material BENZENE
Scenario Catastrophic rupture
Inventory 838,087.13 kg
Fixed Duration n/a s

Stagnation data (data at upstream end for long pipe):

- Pressure 1.04 bar
- Temperature 25.00 degC
- Fluid State Non-saturated liquid

CALCULATED QUANTITIES

Mass Flow of Air (Vent from Vapor Space only) n/a
Mass Flowrate n/a kg/s
Release Duration n/a s
Orifice or pipe exit data (before atmospheric expansion):
- Pressure n/a bar
- Temperature n/a degC
- Vena Contracta Velocity (exit velocity for pipe releases) n/a m/s
- Discharge Coefficient n/a
Final data (after atmospheric expansion):
- Temperature 25.00 degC
- Liquid Mass Fraction 1.00 fraction
- Droplet Diameter 742.39 um
- Expanded Radius n/a m
- Velocity 0.82 m/s

DISCHARGE DATA for Weather: Global Weathers\Noite

Wind Speed: 2.00 m/s
Wind Speed at Height (Calculated) 0.83 m/s
Pasquill Stability: E

USER-DEFINED QUANTITIES

Material BENZENE
Scenario Catastrophic rupture
Inventory 838,087.13 kg
Fixed Duration n/a s

Stagnation data (data at upstream end for long pipe):

- Pressure 1.04 bar
- Temperature 25.00 degC
- Fluid State Non-saturated liquid

CALCULATED QUANTITIES

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Mass Flow of Air (Vent from Vapor Space only)	n/a
Mass Flowrate	n/a kg/s
Release Duration	n/a s
Orifice or pipe exit data (before atmospheric expansion):	
- Pressure	n/a bar
- Temperature	n/a degC
- Vena Contracta Velocity (exit velocity for pipe releases)	n/a m/s
- Discharge Coefficient	n/a
Final data (after atmospheric expansion):	
- Temperature	25.00 degC
- Liquid Mass Fraction	1.00 fraction
- Droplet Diameter	742.39 um
- Expanded Radius	n/a m
- Velocity	0.82 m/s



Consequence Results

Pool Vaporization Results

Path: \Terminal Adonai - Efeitos físicos\Simulações\H153 (B)

N.B. Pool vaporization segments begin when the cloud has left the pool

		Dia	Noite
Liquid Rainout	fraction	0.99995	0.999953
Initial Vapor Cloud	kg	41.5676	39.7943
Time Pool Left Behind	s	29.6929	70.0424

Cloud Segment 1

		Dia	Noite
Cloud Segment Duration	s	600	600
Pool Vaporization Rate	kg/s	5.10481	3.96291
Maximum Pool Radius	m	21.5059	21.5059

Distance to Concentration Results

Path: \Terminal Adonai - Efeitos físicos\Simulações\H153 (B)

The height for user defined concentrations is the user defined height 0 m

All toxic results are reported at the toxic effect height 1 m

All flammable results are reported at the flammable effect height 0 m

Concentration(ppm)	Averaging Time		Dia	Noite	Distance (m)
UFL (79000)	18.75	s	8.4067	8.3956	
LFL (13000)	18.75	s	25.2519	25.1313	
LFL Frac (13000)	18.75	s	25.2519	25.1313	
Concentration(ppm)	Averaging Time		Dia	Noite	Heights (m) for above distances
UFL (79000)	18.75	s	0	0	
LFL (13000)	18.75	s	0	0	
LFL Frac (13000)	18.75	s	0	0	

Late Pool Fire Hazard

Path: \Terminal Adonai - Efeitos físicos\Simulações\H153 (B)

	Dia	Noite
Late Pool Fire Status	Hazard	Hazard

Radiation Effects: Late Pool Fire Ellipse

Path: \Terminal Adonai - Efeitos físicos\Simulações\H153 (B)

			Dia	Noite	Distance (m)
Radiation Level	9.83	kW/m2	29.2004	22.885	
Radiation Level	19.46	kW/m2	22.5059	22.5059	
Radiation Level	35	kW/m2	Not Reached	Not Reached	

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Radiation Effects: Late Pool Fire Distance

Path: \Terminal Adonai - Efeitos físicos\Simulações\H153 (B)

	Dia	Noite
Radiation Level (kW/m ²)		

Fireball Hazard

Path: \Terminal Adonai - Efeitos físicos\Simulações\H153 (B)

	Dia	Noite
Fireball Flame Status	No Hazard	No Hazard

Flash Fire Envelope

Path: \Terminal Adonai - Efeitos físicos\Simulações\H153 (B)

All flammable results are reported at the flammable effect height 0 m

			Dia	Noite
Furthest Extent	13000	ppm	25.2519	25.1313
Furthest Extent	13000	ppm	25.2519	25.1313

			Dia	Noite
Furthest Extent	13000	ppm	0	0
Furthest Extent	13000	ppm	0	0

Explosion Effects: Early Explosion

Path: \Terminal Adonai - Efeitos físicos\Simulações\H153 (B)

Early Explosions are assumed to be centered at the release location
Explosion Model Used : TNT

			Dia	Noite
Supplied Flammable Mass		kg	838087	838087

			Distance (m) at Overpressure Levels	
			Dia	Noite
Overpressure	0.05	bar	No Hazard	No Hazard
Overpressure	0.1	bar	No Hazard	No Hazard
Overpressure	0.3	bar	No Hazard	No Hazard

			Used Mass (kg) at Overpressure Levels	
			Dia	Noite
Overpressure	0.05	bar	0	0
Overpressure	0.1	bar	0	0
Overpressure	0.3	bar	0	0

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Explosion Effects: Late Ignition

Path: \Terminal Adonai - Efeitos físicos\Simulações\H153 (B)

Explosion Model Used : TNT

Explosion Location Criterion: Cloud Center

All distances are measured from the Source

All flammable results are reported at the flammable effect height 0 m

			Maximum Distance (m) at Overpressure Level	
			Dia	Noite
Overpressure	0.05	bar	55.6324	57.7097
Overpressure	0.1	bar	36.9752	37.0792
Overpressure	0.3	bar	21.6836	20.1702

			Supplementary Data at 0.05 bar	
			Dia	Noite
Supplied Flammable Mass		kg	27.9384	37.7741
Used Flammable Mass		kg	27.9384	37.7741
Overpressure Radius		m	49.1998	54.4035
Distance to:				
- Ignition Source		m	20	20
- Cloud Front/Centre		m	6.43266	3.30622
- Explosion Centre		m	6.43266	3.30622

			Supplementary Data at 0.1 bar	
			Dia	Noite
Supplied Flammable Mass		kg	27.9384	37.7741
Used Flammable Mass		kg	27.9384	37.7741
Overpressure Radius		m	30.5425	33.7729
Distance to:				
- Ignition Source		m	20	20
- Cloud Front/Centre		m	6.43266	3.30622
- Explosion Centre		m	6.43266	3.30622

			Supplementary Data at 0.3 bar	
			Dia	Noite
Supplied Flammable Mass		kg	27.9384	37.7741
Used Flammable Mass		kg	27.9384	37.7741
Overpressure Radius		m	15.251	16.864
Distance to:				
- Ignition Source		m	20	20
- Cloud Front/Centre		m	6.43266	3.30622
- Explosion Centre		m	6.43266	3.30622

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Weather Conditions

Path: \Terminal Adonai - Efeitos físicos\Simulações\H153 (B)

		Dia	Noite
Wind Speed	m/s	3	2
Pasquill Stability		C	E
Surface Roughness Length	mm	1000	1000
Surface Roughness Parameter		0.173718	0.173718
Atmospheric Temperature	degC	25	20
Surface Temperature	degC	30	20
Relative Humidity	fraction	0.8	0.8

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

H153 (E)

Base Case

CASE Name: Data

Path: \Terminal Adonai - Efeitos físicos\Simulações\H153 (E)

User-Defined Data

Material

Material Identifier	ETHANOL
Type of Vessel	Padded Liquid
Pressure Specification	Pressure specified
Storage Pressure - gauge	0.03 bar
Temperature	25 degC
Volume Inventory	960 m3

Scenario

Scenario Type	Catastrophic rupture
Phase to be Released	Liquid
Building Wake Effect	None

Location

Elevation	0 m
Use ERPG averaging time	ERPG not selected
Use IDLH averaging time	IDLH not selected
Use STEL averaging time	STEL not selected
Supply a user defined averaging time	Not supplied

Bund

Status of Bund	Bund present
Bund Area	1453 m2
[Type of Bund Surface	User-Defined (Land)]
Bund Height	3 m
[Bund Failure Modeling	Bund cannot fail]

Indoor/Outdoor

Location of release	Open air release
---------------------	------------------

Flammable

Explosion Method	TNT
Jet Fire Method	Cone Model

Dispersion

Late Ignition Location	No ignition location
Mass Inventory of material to Disperse	7.545E5 kg
Use Burst Pressure	No - Use release pressure for fireball

Fireball Parameters

[Mass Modification Factor	3]
[Calculation method for fireball	DNV Recommended]
[TNO model flame temperature	1727 degC]

Toxic Parameters

[Indoor Calculations	Unselected]
[Wind Dependent Exchange Rate	Case Specified]

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

[Building Exchange Rate	4 /hr]
[Tail Time	1800 s]
[Set averaging time equal to exposure time	Use a fixed averaging time]
[Cut-off fraction of toxic load for exposure time calculation	0.05 fraction]
[Cut-off concentration for exposure time calculations	0 fraction]

Geometry

Shape	Point
Dimension	2D
System	Absolute
East(1)	0 m
North(1)	0 m

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Path: \Terminal Adonai - Efeitos físicos\Simulações\H153 (E)

DISCHARGE DATA for Weather: Global Weathers\Dia

Wind Speed: 3.00 m/s
Wind Speed at Height (Calculated) 1.78 m/s
Pasquill Stability: C

USER-DEFINED QUANTITIES

Material ETHANOL
Scenario Catastrophic rupture
Inventory 754,459.19 kg
Fixed Duration n/a s

Stagnation data (data at upstream end for long pipe):

- Pressure 1.04 bar
- Temperature 25.00 degC
- Fluid State Non-saturated liquid

CALCULATED QUANTITIES

Mass Flow of Air (Vent from Vapor Space only) n/a
Mass Flowrate n/a kg/s
Release Duration n/a s
Orifice or pipe exit data (before atmospheric expansion):
- Pressure n/a bar
- Temperature n/a degC
- Vena Contracta Velocity (exit velocity for pipe releases) n/a m/s
- Discharge Coefficient n/a
Final data (after atmospheric expansion):
- Temperature 25.00 degC
- Liquid Mass Fraction 1.00 fraction
- Droplet Diameter 734.68 um
- Expanded Radius n/a m
- Velocity 1.23 m/s

DISCHARGE DATA for Weather: Global Weathers\Noite

Wind Speed: 2.00 m/s
Wind Speed at Height (Calculated) 0.83 m/s
Pasquill Stability: E

USER-DEFINED QUANTITIES

Material ETHANOL
Scenario Catastrophic rupture
Inventory 754,459.19 kg
Fixed Duration n/a s

Stagnation data (data at upstream end for long pipe):

- Pressure 1.04 bar
- Temperature 25.00 degC
- Fluid State Non-saturated liquid

CALCULATED QUANTITIES

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Mass Flow of Air (Vent from Vapor Space only)	n/a
Mass Flowrate	n/a kg/s
Release Duration	n/a s
Orifice or pipe exit data (before atmospheric expansion):	
- Pressure	n/a bar
- Temperature	n/a degC
- Vena Contracta Velocity (exit velocity for pipe releases)	n/a m/s
- Discharge Coefficient	n/a
Final data (after atmospheric expansion):	
- Temperature	25.00 degC
- Liquid Mass Fraction	1.00 fraction
- Droplet Diameter	734.68 um
- Expanded Radius	n/a m
- Velocity	1.23 m/s



Consequence Results

Pool Vaporization Results

Path: \Terminal Adonai - Efeitos físicos\Simulações\H153 (E)

N.B. Pool vaporization segments begin when the cloud has left the pool

		Dia	Noite
Liquid Rainout	fraction	0.999821	0.999821
Initial Vapor Cloud	kg	134.71	135.299
Time Pool Left Behind	s	28.9951	57.0245

Cloud Segment 1

		Dia	Noite
Cloud Segment Duration	s	600	600
Pool Vaporization Rate	kg/s	2.11988	1.70425
Maximum Pool Radius	m	21.5059	21.5059

Distance to Concentration Results

Path: \Terminal Adonai - Efeitos físicos\Simulações\H153 (E)

The height for user defined concentrations is the user defined height 0 m

All toxic results are reported at the toxic effect height 1 m

All flammable results are reported at the flammable effect height 0 m

Concentration(ppm)	Averaging Time		Dia	Noite	Distance (m)
UFL (190000)	18.75	s	10.3737	10.2727	
LFL (43000)	18.75	s	10.4936	10.393	
LFL Frac (43000)	18.75	s	10.4936	10.393	
Concentration(ppm)	Averaging Time		Dia	Noite	Heights (m) for above distances
UFL (190000)	18.75	s	0	0	
LFL (43000)	18.75	s	0	0	
LFL Frac (43000)	18.75	s	0	0	

Late Pool Fire Hazard

Path: \Terminal Adonai - Efeitos físicos\Simulações\H153 (E)

	Dia	Noite
Late Pool Fire Status	Hazard	Hazard

Radiation Effects: Late Pool Fire Ellipse

Path: \Terminal Adonai - Efeitos físicos\Simulações\H153 (E)

			Dia	Noite	Distance (m)
Radiation Level	9.83	kW/m2	59.6907	58.1655	
Radiation Level	19.46	kW/m2	45.5201	43.1019	
Radiation Level	35	kW/m2	29.6316	28.2203	

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Radiation Effects: Late Pool Fire Distance

Path: \Terminal Adonai - Efeitos físicos\Simulações\H153 (E)

	Dia	Noite
Radiation Level (kW/m2)		

Fireball Hazard

Path: \Terminal Adonai - Efeitos físicos\Simulações\H153 (E)

	Dia	Noite
Fireball Flame Status	No Hazard	No Hazard

Flash Fire Envelope

Path: \Terminal Adonai - Efeitos físicos\Simulações\H153 (E)

All flammable results are reported at the flammable effect height 0 m

			Dia	Noite
Furthest Extent	43000	ppm	10.4936	10.393
Furthest Extent	43000	ppm	10.4936	10.393

			Dia	Noite
Furthest Extent	43000	ppm	0	0
Furthest Extent	43000	ppm	0	0

Explosion Effects: Early Explosion

Path: \Terminal Adonai - Efeitos físicos\Simulações\H153 (E)

Early Explosions are assumed to be centered at the release location
Explosion Model Used : TNT

			Dia	Noite
Supplied Flammable Mass		kg	754459	754459

			Dia	Noite
Overpressure	0.05	bar	No Hazard	No Hazard
Overpressure	0.1	bar	No Hazard	No Hazard
Overpressure	0.3	bar	No Hazard	No Hazard

			Dia	Noite
Overpressure	0.05	bar	0	0
Overpressure	0.1	bar	0	0
Overpressure	0.3	bar	0	0

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Explosion Effects: Late Ignition

Path: \Terminal Adonai - Efeitos físicos\Simulações\H153 (E)

Explosion Model Used : TNT

Explosion Location Criterion: Cloud Center

All distances are measured from the Source

All flammable results are reported at the flammable effect height 0 m

			Maximum Distance (m) at Overpressure Level	
			Dia	Noite
Overpressure	0.05	bar	43.2276	41.1882
Overpressure	0.1	bar	27.2022	25.8909
Overpressure	0.3	bar	14.0676	13.3533

Supplementary Data at 0.05 bar

			Dia	Noite
Supplied Flammable Mass		kg	26.5144	23.0616
Used Flammable Mass		kg	26.5144	23.0616
Overpressure Radius		m	42.2597	40.3393
Distance to:				
- Ignition Source		m	10	10
- Cloud Front/Centre		m	0.967949	0.848855
- Explosion Centre		m	0.967949	0.848855

Supplementary Data at 0.1 bar

			Dia	Noite
Supplied Flammable Mass		kg	26.5144	23.0616
Used Flammable Mass		kg	26.5144	23.0616
Overpressure Radius		m	26.2342	25.0421
Distance to:				
- Ignition Source		m	10	10
- Cloud Front/Centre		m	0.967949	0.848855
- Explosion Centre		m	0.967949	0.848855

Supplementary Data at 0.3 bar

			Dia	Noite
Supplied Flammable Mass		kg	26.5144	23.0616
Used Flammable Mass		kg	26.5144	23.0616
Overpressure Radius		m	13.0997	12.5044
Distance to:				
- Ignition Source		m	10	10
- Cloud Front/Centre		m	0.967949	0.848855
- Explosion Centre		m	0.967949	0.848855

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Weather Conditions

Path: \Terminal Adonai - Efeitos físicos\Simulações\H153 (E)

		Dia	Noite
Wind Speed	m/s	3	2
Pasquill Stability		C	E
Surface Roughness Length	mm	1000	1000
Surface Roughness Parameter		0.173718	0.173718
Atmospheric Temperature	degC	25	20
Surface Temperature	degC	30	20
Relative Humidity	fraction	0.8	0.8

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

H153 (H)

Base Case

CASE Name: Data

Path: \Terminal Adonai - Efeitos físicos\Simulações\H153 (H)

User-Defined Data

Material

Material Identifier	N-HEXANE
Type of Vessel	Padded Liquid
Pressure Specification	Pressure specified
Storage Pressure - gauge	0.03 bar
Temperature	25 degC
Volume Inventory	960 m3

Scenario

Scenario Type	Catastrophic rupture
Phase to be Released	Liquid
Building Wake Effect	None

Location

Elevation	0 m
Use ERPG averaging time	ERPG not selected
Use IDLH averaging time	IDLH not selected
Use STEL averaging time	STEL not selected
Supply a user defined averaging time	Not supplied

Bund

Status of Bund	Bund present
Bund Area	1453 m2
[Type of Bund Surface	User-Defined (Land)]
Bund Height	3 m
[Bund Failure Modeling	Bund cannot fail]

Indoor/Outdoor

Location of release	Open air release
---------------------	------------------

Flammable

Explosion Method	TNT
Jet Fire Method	Cone Model

Dispersion

Late Ignition Location	No ignition location
Mass Inventory of material to Disperse	6.298E5 kg
Use Burst Pressure	No - Use release pressure for fireball

Fireball Parameters

[Mass Modification Factor	3]
[Calculation method for fireball	DNV Recommended]
[TNO model flame temperature	1727 degC]

Toxic Parameters

[Indoor Calculations	Unselected]
[Wind Dependent Exchange Rate	Case Specified]

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

[Building Exchange Rate	4 /hr]
[Tail Time	1800 s]
[Set averaging time equal to exposure time	Use a fixed averaging time]
[Cut-off fraction of toxic load for exposure time calculation	0.05 fraction]
[Cut-off concentration for exposure time calculations	0 fraction]

Geometry

Shape	Point
Dimension	2D
System	Absolute
East(1)	0 m
North(1)	0 m

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Path: \Terminal Adonai - Efeitos físicos\Simulações\H153 (H)

DISCHARGE DATA for Weather: Global Weathers\Dia

Wind Speed: 3.00 m/s
Wind Speed at Height (Calculated) 1.78 m/s
Pasquill Stability: C

USER-DEFINED QUANTITIES

Material N-HEXANE
Scenario Catastrophic rupture
Inventory 629,785.13 kg
Fixed Duration n/a s

Stagnation data (data at upstream end for long pipe):

- Pressure 1.04 bar
- Temperature 25.00 degC
- Fluid State Non-saturated liquid

CALCULATED QUANTITIES

Mass Flow of Air (Vent from Vapor Space only) n/a
Mass Flowrate n/a kg/s
Release Duration n/a s
Orifice or pipe exit data (before atmospheric expansion):
- Pressure n/a bar
- Temperature n/a degC
- Vena Contracta Velocity (exit velocity for pipe releases) n/a m/s
- Discharge Coefficient n/a
Final data (after atmospheric expansion):
- Temperature 25.00 degC
- Liquid Mass Fraction 1.00 fraction
- Droplet Diameter 721.42 um
- Expanded Radius n/a m
- Velocity 1.04 m/s

DISCHARGE DATA for Weather: Global Weathers\Noite

Wind Speed: 2.00 m/s
Wind Speed at Height (Calculated) 0.83 m/s
Pasquill Stability: E

USER-DEFINED QUANTITIES

Material N-HEXANE
Scenario Catastrophic rupture
Inventory 629,785.13 kg
Fixed Duration n/a s

Stagnation data (data at upstream end for long pipe):

- Pressure 1.04 bar
- Temperature 25.00 degC
- Fluid State Non-saturated liquid

CALCULATED QUANTITIES

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Mass Flow of Air (Vent from Vapor Space only)	n/a
Mass Flowrate	n/a kg/s
Release Duration	n/a s
Orifice or pipe exit data (before atmospheric expansion):	
- Pressure	n/a bar
- Temperature	n/a degC
- Vena Contracta Velocity (exit velocity for pipe releases)	n/a m/s
- Discharge Coefficient	n/a
Final data (after atmospheric expansion):	
- Temperature	25.00 degC
- Liquid Mass Fraction	1.00 fraction
- Droplet Diameter	721.42 um
- Expanded Radius	n/a m
- Velocity	1.04 m/s



Consequence Results

Pool Vaporization Results

Path: \Terminal Adonai - Efeitos físicos\Simulações\H153 (H)

N.B. Pool vaporization segments begin when the cloud has left the pool

		Dia	Noite
Liquid Rainout	fraction	0.999753	0.999755
Initial Vapor Cloud	kg	155.849	154.33
Time Pool Left Behind	s	36.8024	88.2463

Cloud Segment 1

		Dia	Noite
Cloud Segment Duration	s	600	600
Pool Vaporization Rate	kg/s	8.24197	6.58151
Maximum Pool Radius	m	21.5059	21.5059

Distance to Concentration Results

Path: \Terminal Adonai - Efeitos físicos\Simulações\H153 (H)

The height for user defined concentrations is the user defined height 0 m

All toxic results are reported at the toxic effect height 1 m

All flammable results are reported at the flammable effect height 0 m

Concentration(ppm)	Averaging Time		Dia	Noite	Distance (m)
UFL (76800)	18.75	s	11.4255	13.3705	
LFL (10500)	18.75	s	42.0611	42.8804	
LFL Frac (10500)	18.75	s	42.0611	42.8804	

Concentration(ppm)	Averaging Time		Dia	Noite	Heights (m) for above distances
UFL (76800)	18.75	s	0	0	
LFL (10500)	18.75	s	0	0	
LFL Frac (10500)	18.75	s	0	0	

Late Pool Fire Hazard

Path: \Terminal Adonai - Efeitos físicos\Simulações\H153 (H)

	Dia	Noite
Late Pool Fire Status	Hazard	Hazard

Radiation Effects: Late Pool Fire Ellipse

Path: \Terminal Adonai - Efeitos físicos\Simulações\H153 (H)

			Dia	Noite	Distance (m)
Radiation Level	9.83	kW/m2	29.071	27.6755	
Radiation Level	19.46	kW/m2	22.5059	22.5059	
Radiation Level	35	kW/m2	Not Reached	Not Reached	

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Radiation Effects: Late Pool Fire Distance

Path: \Terminal Adonai - Efeitos físicos\Simulações\H153 (H)

	Dia	Noite
Radiation Level (kW/m2)		

Fireball Hazard

Path: \Terminal Adonai - Efeitos físicos\Simulações\H153 (H)

	Dia	Noite
Fireball Flame Status	No Hazard	No Hazard

Flash Fire Envelope

Path: \Terminal Adonai - Efeitos físicos\Simulações\H153 (H)

All flammable results are reported at the flammable effect height 0 m

			Dia	Noite
Furthest Extent	10500	ppm	42.0611	42.8804
Furthest Extent	10500	ppm	42.0611	42.8804
			Distances (m)	
			Dia	Noite
Furthest Extent	10500	ppm	0	0
Furthest Extent	10500	ppm	0	0

Explosion Effects: Early Explosion

Path: \Terminal Adonai - Efeitos físicos\Simulações\H153 (H)

Early Explosions are assumed to be centered at the release location
Explosion Model Used : TNT

			Dia	Noite
Supplied Flammable Mass		kg	629785	629785
			Distance (m) at Overpressure Levels	
			Dia	Noite
Overpressure	0.05	bar	No Hazard	No Hazard
Overpressure	0.1	bar	No Hazard	No Hazard
Overpressure	0.3	bar	No Hazard	No Hazard
			Used Mass (kg) at Overpressure Levels	
			Dia	Noite
Overpressure	0.05	bar	0	0
Overpressure	0.1	bar	0	0
Overpressure	0.3	bar	0	0

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Explosion Effects: Late Ignition

Path: \Terminal Adonai - Efeitos físicos\Simulações\H153 (H)

Explosion Model Used : TNT

Explosion Location Criterion: Cloud Center

All distances are measured from the Source

All flammable results are reported at the flammable effect height 0 m

			Maximum Distance (m) at Overpressure Level	
			Dia	Noite
Overpressure	0.05	bar	94.1468	97.383
Overpressure	0.1	bar	62.8831	64.3457
Overpressure	0.3	bar	41.1229	37.2682

			Supplementary Data at 0.05 bar	
			Dia	Noite
Supplied Flammable Mass		kg	140.268	139.213
Used Flammable Mass		kg	140.268	139.213
Overpressure Radius		m	87.34	87.1205
Distance to:				
- Ignition Source		m	30	40
- Cloud Front/Centre		m	6.80681	10.2625
- Explosion Centre		m	6.80681	10.2625

			Supplementary Data at 0.1 bar	
			Dia	Noite
Supplied Flammable Mass		kg	72.2509	139.213
Used Flammable Mass		kg	72.2509	139.213
Overpressure Radius		m	43.4627	54.0832
Distance to:				
- Ignition Source		m	40	40
- Cloud Front/Centre		m	19.4204	10.2625
- Explosion Centre		m	19.4204	10.2625

			Supplementary Data at 0.3 bar	
			Dia	Noite
Supplied Flammable Mass		kg	72.2509	139.213
Used Flammable Mass		kg	72.2509	139.213
Overpressure Radius		m	21.7025	27.0056
Distance to:				
- Ignition Source		m	40	40
- Cloud Front/Centre		m	19.4204	10.2625
- Explosion Centre		m	19.4204	10.2625

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Weather Conditions

Path: \Terminal Adonai - Efeitos físicos\Simulações\H153 (H)

		Dia	Noite
Wind Speed	m/s	3	2
Pasquill Stability		C	E
Surface Roughness Length	mm	1000	1000
Surface Roughness Parameter		0.173718	0.173718
Atmospheric Temperature	degC	25	20
Surface Temperature	degC	30	20
Relative Humidity	fraction	0.8	0.8

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

H153 (M)

Base Case

CASE Name: Data

Path: \Terminal Adonai - Efeitos físicos\Simulações\H153 (M)

User-Defined Data

Material

Material Identifier	METHANOL
Type of Vessel	Padded Liquid
Pressure Specification	Pressure specified
Storage Pressure - gauge	0.03 bar
Temperature	25 degC
Volume Inventory	960 m3

Scenario

Scenario Type	Catastrophic rupture
Phase to be Released	Liquid
Building Wake Effect	None

Location

Elevation	0 m
Use ERPG averaging time	ERPG not selected
Use IDLH averaging time	IDLH not selected
Use STEL averaging time	STEL not selected
Supply a user defined averaging time	Not supplied

Bund

Status of Bund	Bund present
Bund Area	1453 m2
[Type of Bund Surface	User-Defined (Land)]
Bund Height	3 m
[Bund Failure Modeling	Bund cannot fail]

Indoor/Outdoor

Location of release	Open air release
---------------------	------------------

Flammable

Explosion Method	TNT
Jet Fire Method	Cone Model

Dispersion

Late Ignition Location	No ignition location
Mass Inventory of material to Disperse	7.58E5 kg
Use Burst Pressure	No - Use release pressure for fireball

Fireball Parameters

[Mass Modification Factor	3]
[Calculation method for fireball	DNV Recommended]
[TNO model flame temperature	1727 degC]

Toxic Parameters

[Indoor Calculations	Unselected]
[Wind Dependent Exchange Rate	Case Specified]

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

[Building Exchange Rate	4 /hr]
[Tail Time	1800 s]
[Set averaging time equal to exposure time	Use a fixed averaging time]
[Cut-off fraction of toxic load for exposure time calculation	0.05 fraction]
[Cut-off concentration for exposure time calculations	0 fraction]

Geometry

Shape	Point
Dimension	2D
System	Absolute
East(1)	0 m
North(1)	0 m

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Path: \Terminal Adonai - Efeitos físicos\Simulações\H153 (M)

DISCHARGE DATA for Weather: Global Weathers\Dia

Wind Speed: 3.00 m/s
Wind Speed at Height (Calculated) 1.78 m/s
Pasquill Stability: C

USER-DEFINED QUANTITIES

Material METHANOL
Scenario Catastrophic rupture
Inventory 758,032.63 kg
Fixed Duration n/a s

Stagnation data (data at upstream end for long pipe):

- Pressure 1.04 bar
- Temperature 25.00 degC
- Fluid State Non-saturated liquid

CALCULATED QUANTITIES

Mass Flow of Air (Vent from Vapor Space only) n/a
Mass Flowrate n/a kg/s
Release Duration n/a s
Orifice or pipe exit data (before atmospheric expansion):
- Pressure n/a bar
- Temperature n/a degC
- Vena Contracta Velocity (exit velocity for pipe releases) n/a m/s
- Discharge Coefficient n/a
Final data (after atmospheric expansion):
- Temperature 25.00 degC
- Liquid Mass Fraction 1.00 fraction
- Droplet Diameter 735.02 um
- Expanded Radius n/a m
- Velocity 1.54 m/s

DISCHARGE DATA for Weather: Global Weathers\Noite

Wind Speed: 2.00 m/s
Wind Speed at Height (Calculated) 0.83 m/s
Pasquill Stability: E

USER-DEFINED QUANTITIES

Material METHANOL
Scenario Catastrophic rupture
Inventory 758,032.63 kg
Fixed Duration n/a s

Stagnation data (data at upstream end for long pipe):

- Pressure 1.04 bar
- Temperature 25.00 degC
- Fluid State Non-saturated liquid

CALCULATED QUANTITIES

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Mass Flow of Air (Vent from Vapor Space only)	n/a
Mass Flowrate	n/a kg/s
Release Duration	n/a s
Orifice or pipe exit data (before atmospheric expansion):	
- Pressure	n/a bar
- Temperature	n/a degC
- Vena Contracta Velocity (exit velocity for pipe releases)	n/a m/s
- Discharge Coefficient	n/a
Final data (after atmospheric expansion):	
- Temperature	25.00 degC
- Liquid Mass Fraction	1.00 fraction
- Droplet Diameter	735.02 um
- Expanded Radius	n/a m
- Velocity	1.54 m/s



Consequence Results

Pool Vaporization Results

Path: \Terminal Adonai - Efeitos físicos\Simulações\H153 (M)

N.B. Pool vaporization segments begin when the cloud has left the pool

		Dia	Noite
Liquid Rainout	fraction	0.999394	0.999389
Initial Vapor Cloud	kg	459.482	463.001
Time Pool Left Behind	s	31.3675	55.9735

Cloud Segment 1

		Dia	Noite
Cloud Segment Duration	s	600	600
Pool Vaporization Rate	kg/s	3.69769	2.9981
Maximum Pool Radius	m	21.5059	21.5059

Distance to Concentration Results

Path: \Terminal Adonai - Efeitos físicos\Simulações\H153 (M)

The height for user defined concentrations is the user defined height 0 m

All toxic results are reported at the toxic effect height 1 m

All flammable results are reported at the flammable effect height 0 m

Concentration(ppm)	Averaging Time		Dia	Noite	Distance (m)
UFL (360000)	18.75	s	12.7249		12.5573
LFL (73000)	18.75	s	19.0789		20.0837
LFL Frac (73000)	18.75	s	19.0789		20.0837

Concentration(ppm)	Averaging Time		Dia	Noite	Heights (m) for above distances
UFL (360000)	18.75	s	0		0
LFL (73000)	18.75	s	0		0
LFL Frac (73000)	18.75	s	0		0

Late Pool Fire Hazard

Path: \Terminal Adonai - Efeitos físicos\Simulações\H153 (M)

	Dia	Noite
Late Pool Fire Status	Hazard	Hazard

Radiation Effects: Late Pool Fire Ellipse

Path: \Terminal Adonai - Efeitos físicos\Simulações\H153 (M)

			Dia	Noite	Distance (m)
Radiation Level	9.83	kW/m2	43.2932		41.7638
Radiation Level	19.46	kW/m2	29.8456		28.3784
Radiation Level	35	kW/m2	22.5059		22.5059

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Radiation Effects: Late Pool Fire Distance

Path: \Terminal Adonai - Efeitos físicos\Simulações\H153 (M)

	Dia	Noite
Radiation Level (kW/m2)		

Fireball Hazard

Path: \Terminal Adonai - Efeitos físicos\Simulações\H153 (M)

	Dia	Noite
Fireball Flame Status	No Hazard	No Hazard

Flash Fire Envelope

Path: \Terminal Adonai - Efeitos físicos\Simulações\H153 (M)

All flammable results are reported at the flammable effect height 0 m

			Dia	Noite
Furthest Extent	73000	ppm	19.0789	20.0837
Furthest Extent	73000	ppm	19.0789	20.0837
				Heights (m) for above distances
			Dia	Noite
Furthest Extent	73000	ppm	0	0
Furthest Extent	73000	ppm	0	0

Explosion Effects: Early Explosion

Path: \Terminal Adonai - Efeitos físicos\Simulações\H153 (M)

Early Explosions are assumed to be centered at the release location
Explosion Model Used : TNT

			Dia	Noite
Supplied Flammable Mass		kg	758033	758033
				Distance (m) at Overpressure Levels
			Dia	Noite
Overpressure	0.05	bar	No Hazard	No Hazard
Overpressure	0.1	bar	No Hazard	No Hazard
Overpressure	0.3	bar	No Hazard	No Hazard
				Used Mass (kg) at Overpressure Levels
			Dia	Noite
Overpressure	0.05	bar	0	0
Overpressure	0.1	bar	0	0
Overpressure	0.3	bar	0	0

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Explosion Effects: Late Ignition

Path: \Terminal Adonai - Efeitos físicos\Simulações\H153 (M)

Explosion Model Used : TNT

Explosion Location Criterion: Cloud Center

All distances are measured from the Source

All flammable results are reported at the flammable effect height 0 m

			Maximum Distance (m) at Overpressure Level	
			Dia	Noite
Overpressure	0.05	bar	61.5346	59.5686
Overpressure	0.1	bar	38.5232	37.2704
Overpressure	0.3	bar	19.6631	23.8767
			Supplementary Data at 0.05 bar	
			Dia	Noite
Supplied Flammable Mass		kg	105.657	96.1363
Used Flammable Mass		kg	105.657	96.1363
Overpressure Radius		m	60.6816	58.8013
Distance to:				
- Ignition Source		m	10	10
- Cloud Front/Centre		m	0.852957	0.767368
- Explosion Centre		m	0.852957	0.767368
			Supplementary Data at 0.1 bar	
			Dia	Noite
Supplied Flammable Mass		kg	105.657	96.1363
Used Flammable Mass		kg	105.657	96.1363
Overpressure Radius		m	37.6703	36.503
Distance to:				
- Ignition Source		m	10	10
- Cloud Front/Centre		m	0.852957	0.767368
- Explosion Centre		m	0.852957	0.767368
			Supplementary Data at 0.3 bar	
			Dia	Noite
Supplied Flammable Mass		kg	105.657	22.7456
Used Flammable Mass		kg	105.657	22.7456
Overpressure Radius		m	18.8101	11.2735
Distance to:				
- Ignition Source		m	10	20
- Cloud Front/Centre		m	0.852957	12.6032
- Explosion Centre		m	0.852957	12.6032

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Weather Conditions

Path: \Terminal Adonai - Efeitos físicos\Simulações\H153 (M)

		Dia	Noite
Wind Speed	m/s	3	2
Pasquill Stability		C	E
Surface Roughness Length	mm	1000	1000
Surface Roughness Parameter		0.173718	0.173718
Atmospheric Temperature	degC	25	20
Surface Temperature	degC	30	20
Relative Humidity	fraction	0.8	0.8

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

H153 (N)

Base Case

CASE Name: Data

Path: \Terminal Adonai - Efeitos físicos\Simulações\H153 (N)

User-Defined Data

Material

Material Identifier	N-NONANE
Type of Vessel	Padded Liquid
Pressure Specification	Pressure specified
Storage Pressure - gauge	0.03 bar
Temperature	25 degC
Volume Inventory	960 m3

Scenario

Scenario Type	Catastrophic rupture
Phase to be Released	Liquid
Building Wake Effect	None

Location

Elevation	0 m
Use ERPG averaging time	ERPG not selected
Use IDLH averaging time	IDLH not selected
Use STEL averaging time	STEL not selected
Supply a user defined averaging time	Not supplied

Bund

Status of Bund	Bund present
Bund Area	1453 m2
[Type of Bund Surface	User-Defined (Land)]
Bund Height	3 m
[Bund Failure Modeling	Bund cannot fail]

Indoor/Outdoor

Location of release	Open air release
---------------------	------------------

Flammable

Explosion Method	TNT
Jet Fire Method	Cone Model

Dispersion

Late Ignition Location	No ignition location
Mass Inventory of material to Disperse	6.857E5 kg
Use Burst Pressure	No - Use release pressure for fireball

Fireball Parameters

[Mass Modification Factor	3]
[Calculation method for fireball	DNV Recommended]
[TNO model flame temperature	1727 degC]

Toxic Parameters

[Indoor Calculations	Unselected]
[Wind Dependent Exchange Rate	Case Specified]

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

[Building Exchange Rate	4 /hr]
[Tail Time	1800 s]
[Set averaging time equal to exposure time	Use a fixed averaging time]
[Cut-off fraction of toxic load for exposure time calculation	0.05 fraction]
[Cut-off concentration for exposure time calculations	0 fraction]

Geometry

Shape	Point
Dimension	2D
System	Absolute
East(1)	0 m
North(1)	0 m

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Path: \Terminal Adonai - Efeitos físicos\Simulações\H153 (N)

DISCHARGE DATA for Weather: Global Weathers\Dia

Wind Speed: 3.00 m/s
Wind Speed at Height (Calculated) 1.78 m/s
Pasquill Stability: C

USER-DEFINED QUANTITIES

Material N-NONANE
Scenario Catastrophic rupture
Inventory 685,720.94 kg
Fixed Duration n/a s

Stagnation data (data at upstream end for long pipe):

- Pressure 1.04 bar
- Temperature 25.00 degC
- Fluid State Non-saturated liquid

CALCULATED QUANTITIES

Mass Flow of Air (Vent from Vapor Space only) n/a
Mass Flowrate n/a kg/s
Release Duration n/a s

Orifice or pipe exit data (before atmospheric expansion):

- Pressure n/a bar
- Temperature n/a degC
- Vena Contracta Velocity (exit velocity for pipe releases) n/a m/s
- Discharge Coefficient n/a

Final data (after atmospheric expansion):

- Temperature 25.00 degC
- Liquid Mass Fraction 1.00 fraction
- Droplet Diameter 727.67 um
- Expanded Radius n/a m
- Velocity 0.76 m/s

DISCHARGE DATA for Weather: Global Weathers\Noite

Wind Speed: 2.00 m/s
Wind Speed at Height (Calculated) 0.83 m/s
Pasquill Stability: E

USER-DEFINED QUANTITIES

Material N-NONANE
Scenario Catastrophic rupture
Inventory 685,720.94 kg
Fixed Duration n/a s

Stagnation data (data at upstream end for long pipe):

- Pressure 1.04 bar
- Temperature 25.00 degC
- Fluid State Non-saturated liquid

CALCULATED QUANTITIES

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Mass Flow of Air (Vent from Vapor Space only)	n/a
Mass Flowrate	n/a kg/s
Release Duration	n/a s
Orifice or pipe exit data (before atmospheric expansion):	
- Pressure	n/a bar
- Temperature	n/a degC
- Vena Contracta Velocity (exit velocity for pipe releases)	n/a m/s
- Discharge Coefficient	n/a
Final data (after atmospheric expansion):	
- Temperature	25.00 degC
- Liquid Mass Fraction	1.00 fraction
- Droplet Diameter	727.67 um
- Expanded Radius	n/a m
- Velocity	0.76 m/s



Consequence Results

Pool Vaporization Results

Path: \Terminal Adonai - Efeitos físicos\Simulações\H153 (N)

N.B. Pool vaporization segments begin when the cloud has left the pool

		Dia	Noite
Liquid Rainout	fraction	0.999996	0.999996
Initial Vapor Cloud	kg	2.6661	2.58942
Time Pool Left Behind	s	21.0553	44.5887

Cloud Segment 1

Cloud Segment Duration	s	600	600
Pool Vaporization Rate	kg/s	0.277087	0.215136

Maximum Pool Radius	m	21.5059	21.5059
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Distance to Concentration Results

Path: \Terminal Adonai - Efeitos físicos\Simulações\H153 (N)

The height for user defined concentrations is the user defined height 0 m

All toxic results are reported at the toxic effect height 1 m

All flammable results are reported at the flammable effect height 0 m

Concentration(ppm)	Averaging Time		Dia	Noite	Distance (m)
UFL (56000)	18.75	s	8.40428	8.39235	
LFL (7000)	18.75	s	8.4948	8.48287	
LFL Frac (7000)	18.75	s	8.4948	8.48287	
Concentration(ppm)	Averaging Time		Dia	Noite	Heights (m) for above distances
UFL (56000)	18.75	s	0	0	
LFL (7000)	18.75	s	0	0	
LFL Frac (7000)	18.75	s	0	0	

Late Pool Fire Hazard

Path: \Terminal Adonai - Efeitos físicos\Simulações\H153 (N)

	Dia	Noite
Late Pool Fire Status	Hazard	Hazard

Radiation Effects: Late Pool Fire Ellipse

Path: \Terminal Adonai - Efeitos físicos\Simulações\H153 (N)

			Dia	Noite	Distance (m)
Radiation Level	9.83	kW/m2	29.0238	27.7277	
Radiation Level	19.46	kW/m2	22.5059	22.5059	
Radiation Level	35	kW/m2	Not Reached	Not Reached	

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Radiation Effects: Late Pool Fire Distance

Path: \Terminal Adonai - Efeitos físicos\Simulações\H153 (N)

	Dia	Noite
Radiation Level (kW/m2)		

Fireball Hazard

Path: \Terminal Adonai - Efeitos físicos\Simulações\H153 (N)

	Dia	Noite
Fireball Flame Status	No Hazard	No Hazard

Flash Fire Envelope

Path: \Terminal Adonai - Efeitos físicos\Simulações\H153 (N)

All flammable results are reported at the flammable effect height 0 m

			Dia	Noite
Furthest Extent	7000	ppm	8.4948	8.48287
Furthest Extent	7000	ppm	8.4948	8.48287
			Heights (m) for above distances	
			Dia	Noite
Furthest Extent	7000	ppm	0	0
Furthest Extent	7000	ppm	0	0

Explosion Effects: Early Explosion

Path: \Terminal Adonai - Efeitos físicos\Simulações\H153 (N)

Early Explosions are assumed to be centered at the release location
Explosion Model Used : TNT

			Dia	Noite
Supplied Flammable Mass		kg	685721	685721
			Distance (m) at Overpressure Levels	
			Dia	Noite
Overpressure	0.05	bar	No Hazard	No Hazard
Overpressure	0.1	bar	No Hazard	No Hazard
Overpressure	0.3	bar	No Hazard	No Hazard
			Used Mass (kg) at Overpressure Levels	
			Dia	Noite
Overpressure	0.05	bar	0	0
Overpressure	0.1	bar	0	0
Overpressure	0.3	bar	0	0

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Weather Conditions

Path: \Terminal Adonai - Efeitos físicos\Simulações\H153 (N)

		Dia	Noite
Wind Speed	m/s	3	2
Pasquill Stability		C	E
Surface Roughness Length	mm	1000	1000
Surface Roughness Parameter		0.173718	0.173718
Atmospheric Temperature	degC	25	20
Surface Temperature	degC	30	20
Relative Humidity	fraction	0.8	0.8

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

H153 (P)

Base Case

CASE Name: Data

Path: \Terminal Adonai - Efeitos físicos\Simulações\H153 (P)

User-Defined Data

Material

Material Identifier	N-PENTANE
Type of Vessel	Padded Liquid
Pressure Specification	Pressure specified
Storage Pressure - gauge	0.03 bar
Temperature	25 degC
Volume Inventory	960 m3

Scenario

Scenario Type	Catastrophic rupture
Phase to be Released	Liquid
Building Wake Effect	None

Location

Elevation	0 m
Use ERPG averaging time	ERPG not selected
Use IDLH averaging time	IDLH not selected
Use STEL averaging time	STEL not selected
Supply a user defined averaging time	Not supplied

Bund

Status of Bund	Bund present
Bund Area	1453 m2
[Type of Bund Surface	User-Defined (Land)]
Bund Height	3 m
[Bund Failure Modeling	Bund cannot fail]

Indoor/Outdoor

Location of release	Open air release
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Flammable

Explosion Method	TNT
Jet Fire Method	Cone Model

Dispersion

Late Ignition Location	No ignition location
Mass Inventory of material to Disperse	5.969E5 kg
Use Burst Pressure	No - Use release pressure for fireball

Fireball Parameters

[Mass Modification Factor	3]
[Calculation method for fireball	DNV Recommended]
[TNO model flame temperature	1727 degC]

Toxic Parameters

[Indoor Calculations	Unselected]
[Wind Dependent Exchange Rate	Case Specified]

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

[Building Exchange Rate	4 /hr]
[Tail Time	1800 s]
[Set averaging time equal to exposure time	Use a fixed averaging time]
[Cut-off fraction of toxic load for exposure time calculation	0.05 fraction]
[Cut-off concentration for exposure time calculations	0 fraction]

Geometry

Shape	Point
Dimension	2D
System	Absolute
East(1)	0 m
North(1)	0 m

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Path: \Terminal Adonai - Efeitos físicos\Simulações\H153 (P)

DISCHARGE DATA for Weather: Global Weathers\Dia

Wind Speed: 3.00 m/s
Wind Speed at Height (Calculated) 1.78 m/s
Pasquill Stability: C

USER-DEFINED QUANTITIES

Material N-PENTANE
Scenario Catastrophic rupture
Inventory 596,873.63 kg
Fixed Duration n/a s

Stagnation data (data at upstream end for long pipe):

- Pressure 1.04 bar
- Temperature 25.00 degC
- Fluid State Non-saturated liquid

CALCULATED QUANTITIES

Mass Flow of Air (Vent from Vapor Space only) n/a
Mass Flowrate n/a kg/s
Release Duration n/a s
Orifice or pipe exit data (before atmospheric expansion):
- Pressure n/a bar
- Temperature n/a degC
- Vena Contracta Velocity (exit velocity for pipe releases) n/a m/s
- Discharge Coefficient n/a
Final data (after atmospheric expansion):
- Temperature 25.00 degC
- Liquid Mass Fraction 1.00 fraction
- Droplet Diameter 717.48 um
- Expanded Radius n/a m
- Velocity 0.86 m/s

DISCHARGE DATA for Weather: Global Weathers\Noite

Wind Speed: 2.00 m/s
Wind Speed at Height (Calculated) 0.83 m/s
Pasquill Stability: E

USER-DEFINED QUANTITIES

Material N-PENTANE
Scenario Catastrophic rupture
Inventory 596,873.63 kg
Fixed Duration n/a s

Stagnation data (data at upstream end for long pipe):

- Pressure 1.04 bar
- Temperature 25.00 degC
- Fluid State Non-saturated liquid

CALCULATED QUANTITIES

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Mass Flow of Air (Vent from Vapor Space only)	n/a
Mass Flowrate	n/a kg/s
Release Duration	n/a s
Orifice or pipe exit data (before atmospheric expansion):	
- Pressure	n/a bar
- Temperature	n/a degC
- Vena Contracta Velocity (exit velocity for pipe releases)	n/a m/s
- Discharge Coefficient	n/a
Final data (after atmospheric expansion):	
- Temperature	25.00 degC
- Liquid Mass Fraction	1.00 fraction
- Droplet Diameter	717.48 um
- Expanded Radius	n/a m
- Velocity	0.86 m/s



Consequence Results

Pool Vaporization Results

Path: \Terminal Adonai - Efeitos físicos\Simulações\H153 (P)

N.B. Pool vaporization segments begin when the cloud has left the pool

		Dia	Noite
Liquid Rainout	fraction	0.999216	0.999256
Initial Vapor Cloud	kg	467.769	444.043
Time Pool Left Behind	s	50.0468	132.958

Cloud Segment 1

		Dia	Noite
Cloud Segment Duration	s	600	600
Pool Vaporization Rate	kg/s	32.9874	26.4561

		Dia	Noite
Maximum Pool Radius	m	21.5059	21.5059

Distance to Concentration Results

Path: \Terminal Adonai - Efeitos físicos\Simulações\H153 (P)

The height for user defined concentrations is the user defined height 0 m

All toxic results are reported at the toxic effect height 1 m

All flammable results are reported at the flammable effect height 0 m

Concentration(ppm)	Averaging Time		Dia	Noite	Distance (m)
UFL (80000)	18.75	s	29.6934	35.9816	
LFL (13000)	18.75	s	79.8779	82.0614	
LFL Frac (13000)	18.75	s	79.8779	82.0614	

Concentration(ppm)	Averaging Time		Dia	Noite	Heights (m) for above distances
UFL (80000)	18.75	s	0	0	
LFL (13000)	18.75	s	0	0	
LFL Frac (13000)	18.75	s	0	0	

Late Pool Fire Hazard

Path: \Terminal Adonai - Efeitos físicos\Simulações\H153 (P)

	Dia	Noite
Late Pool Fire Status	Hazard	Hazard

Radiation Effects: Late Pool Fire Ellipse

Path: \Terminal Adonai - Efeitos físicos\Simulações\H153 (P)

			Dia	Noite	Distance (m)
Radiation Level	9.83	kW/m2	29.0294	27.7158	
Radiation Level	19.46	kW/m2	22.5059	22.5059	
Radiation Level	35	kW/m2	Not Reached	Not Reached	

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Radiation Effects: Late Pool Fire Distance

Path: \Terminal Adonai - Efeitos físicos\Simulações\H153 (P)

	Dia	Noite
Radiation Level (kW/m2)		

Fireball Hazard

Path: \Terminal Adonai - Efeitos físicos\Simulações\H153 (P)

	Dia	Noite
Fireball Flame Status	No Hazard	No Hazard

Flash Fire Envelope

Path: \Terminal Adonai - Efeitos físicos\Simulações\H153 (P)

All flammable results are reported at the flammable effect height 0 m

			Dia	Noite
Furthest Extent	13000	ppm	79.8779	82.0614
Furthest Extent	13000	ppm	79.8779	82.0614
				Heights (m) for above distances
			Dia	Noite
Furthest Extent	13000	ppm	0	0
Furthest Extent	13000	ppm	0	0

Explosion Effects: Early Explosion

Path: \Terminal Adonai - Efeitos físicos\Simulações\H153 (P)

Early Explosions are assumed to be centered at the release location
Explosion Model Used : TNT

			Dia	Noite
Supplied Flammable Mass		kg	596874	596874
				Distance (m) at Overpressure Levels
			Dia	Noite
Overpressure	0.05	bar	No Hazard	No Hazard
Overpressure	0.1	bar	No Hazard	No Hazard
Overpressure	0.3	bar	No Hazard	No Hazard
				Used Mass (kg) at Overpressure Levels
			Dia	Noite
Overpressure	0.05	bar	0	0
Overpressure	0.1	bar	0	0
Overpressure	0.3	bar	0	0

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Explosion Effects: Late Ignition

Path: \Terminal Adonai - Efeitos físicos\Simulações\H153 (P)

Explosion Model Used : TNT

Explosion Location Criterion: Cloud Center

All distances are measured from the Source

All flammable results are reported at the flammable effect height 0 m

			Maximum Distance (m) at Overpressure Level	
			Dia	Noite
Overpressure	0.05	bar	162.91	169.061
Overpressure	0.1	bar	112.129	114.587
Overpressure	0.3	bar	70.5087	69.9397
			Supplementary Data at 0.05 bar	
			Dia	Noite
Supplied Flammable Mass		kg	502.852	620.737
Used Flammable Mass		kg	502.852	620.737
Overpressure Radius		m	133.911	143.65
Distance to:				
- Ignition Source		m	70	80
- Cloud Front/Centre		m	28.9991	25.4112
- Explosion Centre		m	28.9991	25.4112
			Supplementary Data at 0.1 bar	
			Dia	Noite
Supplied Flammable Mass		kg	502.852	620.737
Used Flammable Mass		kg	502.852	620.737
Overpressure Radius		m	83.1299	89.1757
Distance to:				
- Ignition Source		m	70	80
- Cloud Front/Centre		m	28.9991	25.4112
- Explosion Centre		m	28.9991	25.4112
			Supplementary Data at 0.3 bar	
			Dia	Noite
Supplied Flammable Mass		kg	502.852	620.737
Used Flammable Mass		kg	502.852	620.737
Overpressure Radius		m	41.5097	44.5286
Distance to:				
- Ignition Source		m	70	80
- Cloud Front/Centre		m	28.9991	25.4112
- Explosion Centre		m	28.9991	25.4112

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Weather Conditions

Path: \Terminal Adonai - Efeitos físicos\Simulações\H153 (P)

		Dia	Noite
Wind Speed	m/s	3	2
Pasquill Stability		C	E
Surface Roughness Length	mm	1000	1000
Surface Roughness Parameter		0.173718	0.173718
Atmospheric Temperature	degC	25	20
Surface Temperature	degC	30	20
Relative Humidity	fraction	0.8	0.8

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

H154 (A)

Base Case

CASE Name: Data

Path: \Terminal Adonai - Efeitos físicos\Simulações\H154 (A)

User-Defined Data

Dispersion

Late Ignition Location	No ignition location
Mass Inventory of material to Disperse	9.439E5 kg
Use Burst Pressure	No - Use release pressure for fireball

Fireball Parameters

[Mass Modification Factor	3]
[Calculation method for fireball	DNV Recommended]
[TNO model flame temperature	1727 degC]

Toxic Parameters

[Indoor Calculations	Unselected]
[Wind Dependent Exchange Rate	Case Specified]
[Building Exchange Rate	4 /hr]
[Tail Time	1800 s]
[Set averaging time equal to exposure time	Use a fixed averaging time]
[Cut-off fraction of toxic load for exposure time calculation	0.05 fraction]
[Cut-off concentration for exposure time calculations	0 fraction]

Geometry

Shape	Point
Dimension	2D
System	Absolute
East(1)	0 m
North(1)	0 m

Material

Material Identifier	ACETONE
Type of Vessel	Padded Liquid
Pressure Specification	Pressure specified
Storage Pressure - gauge	0.03 bar
Temperature	25 degC
Volume Inventory	1200 m3

Scenario

Scenario Type	Catastrophic rupture
Phase to be Released	Liquid
Building Wake Effect	None

Location

Elevation	0 m
Use ERPG averaging time	ERPG not selected
Use IDLH averaging time	IDLH not selected
Use STEL averaging time	STEL not selected
Supply a user defined averaging time	Not supplied

Bund

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Status of Bund	Bund present
Bund Area	1453 m2
[Type of Bund Surface	User-Defined (Land)]
Bund Height	3 m
[Bund Failure Modeling	Bund cannot fail]

Indoor/Outdoor

Location of release	Open air release
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Flammable

Explosion Method	TNT
Jet Fire Method	Cone Model

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Path: \Terminal Adonai - Efeitos físicos\Simulações\H154 (A)

DISCHARGE DATA for Weather: Global Weathers\Dia

Wind Speed: 3.00 m/s
Wind Speed at Height (Calculated) 1.78 m/s
Pasquill Stability: C

USER-DEFINED QUANTITIES

Material ACETONE
Scenario Catastrophic rupture
Inventory 943,896.69 kg
Fixed Duration n/a s

Stagnation data (data at upstream end for long pipe):

- Pressure 1.04 bar
- Temperature 25.00 degC
- Fluid State Non-saturated liquid

CALCULATED QUANTITIES

Mass Flow of Air (Vent from Vapor Space only) n/a
Mass Flowrate n/a kg/s
Release Duration n/a s
Orifice or pipe exit data (before atmospheric expansion):
- Pressure n/a bar
- Temperature n/a degC
- Vena Contracta Velocity (exit velocity for pipe releases) n/a m/s
- Discharge Coefficient n/a
Final data (after atmospheric expansion):
- Temperature 25.00 degC
- Liquid Mass Fraction 1.00 fraction
- Droplet Diameter 734.74 um
- Expanded Radius n/a m
- Velocity 1.11 m/s

DISCHARGE DATA for Weather: Global Weathers\Noite

Wind Speed: 2.00 m/s
Wind Speed at Height (Calculated) 0.83 m/s
Pasquill Stability: E

USER-DEFINED QUANTITIES

Material ACETONE
Scenario Catastrophic rupture
Inventory 943,896.69 kg
Fixed Duration n/a s

Stagnation data (data at upstream end for long pipe):

- Pressure 1.04 bar
- Temperature 25.00 degC
- Fluid State Non-saturated liquid

CALCULATED QUANTITIES

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Mass Flow of Air (Vent from Vapor Space only)	n/a
Mass Flowrate	n/a kg/s
Release Duration	n/a s
Orifice or pipe exit data (before atmospheric expansion):	
- Pressure	n/a bar
- Temperature	n/a degC
- Vena Contracta Velocity (exit velocity for pipe releases)	n/a m/s
- Discharge Coefficient	n/a
Final data (after atmospheric expansion):	
- Temperature	25.00 degC
- Liquid Mass Fraction	1.00 fraction
- Droplet Diameter	734.74 um
- Expanded Radius	n/a m
- Velocity	1.11 m/s



Consequence Results

Pool Vaporization Results

Path: \Terminal Adonai - Efeitos físicos\Simulações\H154 (A)

N.B. Pool vaporization segments begin when the cloud has left the pool

		Dia	Noite
Liquid Rainout	fraction	0.999251	0.999251
Initial Vapor Cloud	kg	706.581	707.398
Time Pool Left Behind	s	44.0139	103.112

Cloud Segment 1

Cloud Segment Duration	s	600	600
Pool Vaporization Rate	kg/s	10.7143	8.68595

Maximum Pool Radius	m	21.5059	21.5059
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Distance to Concentration Results

Path: \Terminal Adonai - Efeitos físicos\Simulações\H154 (A)

The height for user defined concentrations is the user defined height 0 m

All toxic results are reported at the toxic effect height 1 m

All flammable results are reported at the flammable effect height 0 m

Concentration(ppm)	Averaging Time		Dia	Noite	Distance (m)
UFL (128000)	18.75	s	15.271	16.4682	
LFL (26000)	18.75	s	47.6701	50.3646	
LFL Frac (26000)	18.75	s	47.6701	50.3646	

Concentration(ppm)	Averaging Time		Dia	Noite	Heights (m) for above distances
UFL (128000)	18.75	s	0	0	
LFL (26000)	18.75	s	0	0	
LFL Frac (26000)	18.75	s	0	0	

Late Pool Fire Hazard

Path: \Terminal Adonai - Efeitos físicos\Simulações\H154 (A)

	Dia	Noite
Late Pool Fire Status	Hazard	Hazard

Radiation Effects: Late Pool Fire Ellipse

Path: \Terminal Adonai - Efeitos físicos\Simulações\H154 (A)

			Dia	Noite	Distance (m)
Radiation Level	9.83	kW/m2	81.993	79.8344	
Radiation Level	19.46	kW/m2	62.1405	58.8005	
Radiation Level	35	kW/m2	44.6192	41.191	

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Radiation Effects: Late Pool Fire Distance

Path: \Terminal Adonai - Efeitos físicos\Simulações\H154 (A)

	Dia	Noite
Radiation Level (kW/m2)		

Fireball Hazard

Path: \Terminal Adonai - Efeitos físicos\Simulações\H154 (A)

	Dia	Noite
Fireball Flame Status	No Hazard	No Hazard

Flash Fire Envelope

Path: \Terminal Adonai - Efeitos físicos\Simulações\H154 (A)

All flammable results are reported at the flammable effect height 0 m

			Dia	Noite
Furthest Extent	26000	ppm	47.6701	50.3646
Furthest Extent	26000	ppm	47.6701	50.3646
				Heights (m) for above distances
			Dia	Noite
Furthest Extent	26000	ppm	0	0
Furthest Extent	26000	ppm	0	0

Explosion Effects: Early Explosion

Path: \Terminal Adonai - Efeitos físicos\Simulações\H154 (A)

Early Explosions are assumed to be centered at the release location
Explosion Model Used : TNT

			Dia	Noite
Supplied Flammable Mass		kg	943897	943897
				Distance (m) at Overpressure Levels
			Dia	Noite
Overpressure	0.05	bar	No Hazard	No Hazard
Overpressure	0.1	bar	No Hazard	No Hazard
Overpressure	0.3	bar	No Hazard	No Hazard
				Used Mass (kg) at Overpressure Levels
			Dia	Noite
Overpressure	0.05	bar	0	0
Overpressure	0.1	bar	0	0
Overpressure	0.3	bar	0	0

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Explosion Effects: Late Ignition

Path: \Terminal Adonai - Efeitos físicos\Simulações\H154 (A)

Explosion Model Used : TNT

Explosion Location Criterion: Cloud Center

All distances are measured from the Source

All flammable results are reported at the flammable effect height 0 m

			Maximum Distance (m) at Overpressure Level	
			Dia	Noite
Overpressure	0.05	bar	120.727	122.18
Overpressure	0.1	bar	78.6117	77.8624
Overpressure	0.3	bar	44.0936	45.1855

Supplementary Data at 0.05 bar

			Dia	Noite
Supplied Flammable Mass		kg	451.662	526.27
Used Flammable Mass		kg	451.662	526.27
Overpressure Radius		m	111.06	116.866
Distance to:				
- Ignition Source		m	40	40
- Cloud Front/Centre		m	9.66726	5.3135
- Explosion Centre		m	9.66726	5.3135

Supplementary Data at 0.1 bar

			Dia	Noite
Supplied Flammable Mass		kg	451.662	526.27
Used Flammable Mass		kg	451.662	526.27
Overpressure Radius		m	68.9444	72.5489
Distance to:				
- Ignition Source		m	40	40
- Cloud Front/Centre		m	9.66726	5.3135
- Explosion Centre		m	9.66726	5.3135

Supplementary Data at 0.3 bar

			Dia	Noite
Supplied Flammable Mass		kg	451.662	354.687
Used Flammable Mass		kg	451.662	354.687
Overpressure Radius		m	34.4264	31.7615
Distance to:				
- Ignition Source		m	40	50
- Cloud Front/Centre		m	9.66726	13.4239
- Explosion Centre		m	9.66726	13.4239

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Weather Conditions

Path: \Terminal Adonai - Efeitos físicos\Simulações\H154 (A)

		Dia	Noite
Wind Speed	m/s	3	2
Pasquill Stability		C	E
Surface Roughness Length	mm	1000	1000
Surface Roughness Parameter		0.173718	0.173718
Atmospheric Temperature	degC	25	20
Surface Temperature	degC	30	20
Relative Humidity	fraction	0.8	0.8

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

H154 (B)

Base Case

CASE Name: Data

Path: \Terminal Adonai - Efeitos físicos\Simulações\H154 (B)

User-Defined Data

Material

Material Identifier	BENZENE
Type of Vessel	Padded Liquid
Pressure Specification	Pressure specified
Storage Pressure - gauge	0.03 bar
Temperature	25 degC
Volume Inventory	1200 m3

Scenario

Scenario Type	Catastrophic rupture
Phase to be Released	Liquid
Building Wake Effect	None

Location

Elevation	0 m
Use ERPG averaging time	ERPG not selected
Use IDLH averaging time	IDLH not selected
Use STEL averaging time	STEL not selected
Supply a user defined averaging time	Not supplied

Bund

Status of Bund	Bund present
Bund Area	1453 m2
[Type of Bund Surface	User-Defined (Land)]
Bund Height	3 m
[Bund Failure Modeling	Bund cannot fail]

Indoor/Outdoor

Location of release	Open air release
---------------------	------------------

Flammable

Explosion Method	TNT
Jet Fire Method	Cone Model

Dispersion

Late Ignition Location	No ignition location
Mass Inventory of material to Disperse	1.048E6 kg
Use Burst Pressure	No - Use release pressure for fireball

Fireball Parameters

[Mass Modification Factor	3]
[Calculation method for fireball	DNV Recommended]
[TNO model flame temperature	1727 degC]

Toxic Parameters

[Indoor Calculations	Unselected]
[Wind Dependent Exchange Rate	Case Specified]

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

[Building Exchange Rate	4 /hr]
[Tail Time	1800 s]
[Set averaging time equal to exposure time	Use a fixed averaging time]
[Cut-off fraction of toxic load for exposure time calculation	0.05 fraction]
[Cut-off concentration for exposure time calculations	0 fraction]

Geometry

Shape	Point
Dimension	2D
System	Absolute
East(1)	0 m
North(1)	0 m

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Path: \Terminal Adonai - Efeitos físicos\Simulações\H154 (B)

DISCHARGE DATA for Weather: Global Weathers\Noite

Wind Speed: 2.00 m/s
Wind Speed at Height (Calculated) 0.83 m/s
Pasquill Stability: E

USER-DEFINED QUANTITIES

Material BENZENE
Scenario Catastrophic rupture
Inventory 1,047,608.94 kg
Fixed Duration n/a s

Stagnation data (data at upstream end for long pipe):

- Pressure 1.04 bar
- Temperature 25.00 degC
- Fluid State Non-saturated liquid

CALCULATED QUANTITIES

Mass Flow of Air (Vent from Vapor Space only) n/a
Mass Flowrate n/a kg/s
Release Duration n/a s

Orifice or pipe exit data (before atmospheric expansion):

- Pressure n/a bar
- Temperature n/a degC
- Vena Contracta Velocity (exit velocity for pipe releases) n/a m/s
- Discharge Coefficient n/a

Final data (after atmospheric expansion):

- Temperature 25.00 degC
- Liquid Mass Fraction 1.00 fraction
- Droplet Diameter 742.39 um
- Expanded Radius n/a m
- Velocity 0.82 m/s

DISCHARGE DATA for Weather: Global Weathers\Dia

Wind Speed: 3.00 m/s
Wind Speed at Height (Calculated) 1.78 m/s
Pasquill Stability: C

USER-DEFINED QUANTITIES

Material BENZENE
Scenario Catastrophic rupture
Inventory 1,047,608.94 kg
Fixed Duration n/a s

Stagnation data (data at upstream end for long pipe):

- Pressure 1.04 bar
- Temperature 25.00 degC
- Fluid State Non-saturated liquid

CALCULATED QUANTITIES

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Mass Flow of Air (Vent from Vapor Space only)	n/a
Mass Flowrate	n/a kg/s
Release Duration	n/a s
Orifice or pipe exit data (before atmospheric expansion):	
- Pressure	n/a bar
- Temperature	n/a degC
- Vena Contracta Velocity (exit velocity for pipe releases)	n/a m/s
- Discharge Coefficient	n/a
Final data (after atmospheric expansion):	
- Temperature	25.00 degC
- Liquid Mass Fraction	1.00 fraction
- Droplet Diameter	742.39 um
- Expanded Radius	n/a m
- Velocity	0.82 m/s



Consequence Results

Pool Vaporization Results

Path: \Terminal Adonai - Efeitos físicos\Simulações\H154 (B)

N.B. Pool vaporization segments begin when the cloud has left the pool

		Dia	Noite
Liquid Rainout	fraction	0.99995	0.999952
Initial Vapor Cloud	kg	52.2197	50.0589
Time Pool Left Behind	s	30.3282	71.2043

Cloud Segment 1

Cloud Segment Duration	s	600	600
Pool Vaporization Rate	kg/s	5.11006	3.98361

Maximum Pool Radius	m	21.5059	21.5059
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Distance to Concentration Results

Path: \Terminal Adonai - Efeitos físicos\Simulações\H154 (B)

The height for user defined concentrations is the user defined height 0 m

All toxic results are reported at the toxic effect height 1 m

All flammable results are reported at the flammable effect height 0 m

Concentration(ppm)	Averaging Time		Dia	Noite	Distance (m)
UFL (79000)	18.75	s	9.06535	9.05359	
LFL (13000)	18.75	s	25.6659	25.9248	
LFL Frac (13000)	18.75	s	25.6659	25.9248	

Concentration(ppm)	Averaging Time		Dia	Noite	Heights (m) for above distances
UFL (79000)	18.75	s	0	0	
LFL (13000)	18.75	s	0	0	
LFL Frac (13000)	18.75	s	0	0	

Late Pool Fire Hazard

Path: \Terminal Adonai - Efeitos físicos\Simulações\H154 (B)

	Dia	Noite
Late Pool Fire Status	Hazard	Hazard

Radiation Effects: Late Pool Fire Ellipse

Path: \Terminal Adonai - Efeitos físicos\Simulações\H154 (B)

			Dia	Noite	Distance (m)
Radiation Level	9.83	kW/m2	29.2004	22.885	
Radiation Level	19.46	kW/m2	22.5059	22.5059	
Radiation Level	35	kW/m2	Not Reached	Not Reached	

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Radiation Effects: Late Pool Fire Distance

Path: \Terminal Adonai - Efeitos físicos\Simulações\H154 (B)

	Dia	Noite
Radiation Level (kW/m2)		

Fireball Hazard

Path: \Terminal Adonai - Efeitos físicos\Simulações\H154 (B)

	Dia	Noite
Fireball Flame Status	No Hazard	No Hazard

Flash Fire Envelope

Path: \Terminal Adonai - Efeitos físicos\Simulações\H154 (B)

All flammable results are reported at the flammable effect height 0 m

			Dia	Noite
Furthest Extent	13000	ppm	25.6659	25.9248
Furthest Extent	13000	ppm	25.6659	25.9248
			Heights (m) for above distances	
			Dia	Noite
Furthest Extent	13000	ppm	0	0
Furthest Extent	13000	ppm	0	0

Explosion Effects: Early Explosion

Path: \Terminal Adonai - Efeitos físicos\Simulações\H154 (B)

Early Explosions are assumed to be centered at the release location
Explosion Model Used : TNT

			Dia	Noite
Supplied Flammable Mass		kg	1.04761e+006	1.04761e+006
			Distance (m) at Overpressure Levels	
			Dia	Noite
Overpressure	0.05	bar	No Hazard	No Hazard
Overpressure	0.1	bar	No Hazard	No Hazard
Overpressure	0.3	bar	No Hazard	No Hazard
			Used Mass (kg) at Overpressure Levels	
			Dia	Noite
Overpressure	0.05	bar	0	0
Overpressure	0.1	bar	0	0
Overpressure	0.3	bar	0	0

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Explosion Effects: Late Ignition

Path: \Terminal Adonai - Efeitos físicos\Simulações\H154 (B)

Explosion Model Used : TNT

Explosion Location Criterion: Cloud Center

All distances are measured from the Source

All flammable results are reported at the flammable effect height 0 m

			Maximum Distance (m) at Overpressure Level	
			Dia	Noite
Overpressure	0.05	bar	58.5709	60.3824
Overpressure	0.1	bar	38.4239	38.4903
Overpressure	0.3	bar	21.9113	20.5475

Supplementary Data at 0.05 bar

			Dia	Noite
Supplied Flammable Mass		kg	35.1794	45.1356
Used Flammable Mass		kg	35.1794	45.1356
Overpressure Radius		m	53.1282	57.7301
Distance to:				
- Ignition Source		m	20	20
- Cloud Front/Centre		m	5.44264	2.65231
- Explosion Centre		m	5.44264	2.65231

Supplementary Data at 0.1 bar

			Dia	Noite
Supplied Flammable Mass		kg	35.1794	45.1356
Used Flammable Mass		kg	35.1794	45.1356
Overpressure Radius		m	32.9813	35.838
Distance to:				
- Ignition Source		m	20	20
- Cloud Front/Centre		m	5.44264	2.65231
- Explosion Centre		m	5.44264	2.65231

Supplementary Data at 0.3 bar

			Dia	Noite
Supplied Flammable Mass		kg	35.1794	45.1356
Used Flammable Mass		kg	35.1794	45.1356
Overpressure Radius		m	16.4687	17.8952
Distance to:				
- Ignition Source		m	20	20
- Cloud Front/Centre		m	5.44264	2.65231
- Explosion Centre		m	5.44264	2.65231

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Weather Conditions

Path: \Terminal Adonai - Efeitos físicos\Simulações\H154 (B)

		Dia	Noite
Wind Speed	m/s	3	2
Pasquill Stability		C	E
Surface Roughness Length	mm	1000	1000
Surface Roughness Parameter		0.173718	0.173718
Atmospheric Temperature	degC	25	20
Surface Temperature	degC	30	20
Relative Humidity	fraction	0.8	0.8

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

H154 (E)

Base Case

CASE Name: Data

Path: \Terminal Adonai - Efeitos físicos\Simulações\H154 (E)

User-Defined Data

Material

Material Identifier	ETHANOL
Type of Vessel	Padded Liquid
Pressure Specification	Pressure specified
Storage Pressure - gauge	0.03 bar
Temperature	25 degC
Volume Inventory	1200 m3

Scenario

Scenario Type	Catastrophic rupture
Phase to be Released	Liquid
Building Wake Effect	None

Location

Elevation	0 m
Use ERPG averaging time	ERPG not selected
Use IDLH averaging time	IDLH not selected
Use STEL averaging time	STEL not selected
Supply a user defined averaging time	Not supplied

Bund

Status of Bund	Bund present
Bund Area	1453 m2
[Type of Bund Surface	User-Defined (Land)]
Bund Height	3 m
[Bund Failure Modeling	Bund cannot fail]

Indoor/Outdoor

Location of release	Open air release
---------------------	------------------

Flammable

Explosion Method	TNT
Jet Fire Method	Cone Model

Dispersion

Late Ignition Location	No ignition location
Mass Inventory of material to Disperse	9.431E5 kg
Use Burst Pressure	No - Use release pressure for fireball

Fireball Parameters

[Mass Modification Factor	3]
[Calculation method for fireball	DNV Recommended]
[TNO model flame temperature	1727 degC]

Toxic Parameters

[Indoor Calculations	Unselected]
[Wind Dependent Exchange Rate	Case Specified]

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

[Building Exchange Rate	4 /hr]
[Tail Time	1800 s]
[Set averaging time equal to exposure time	Use a fixed averaging time]
[Cut-off fraction of toxic load for exposure time calculation	0.05 fraction]
[Cut-off concentration for exposure time calculations	0 fraction]

Geometry

Shape	Point
Dimension	2D
System	Absolute
East(1)	0 m
North(1)	0 m

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Path: \Terminal Adonai - Efeitos físicos\Simulações\H154 (E)

DISCHARGE DATA for Weather: Global Weathers\Dia

Wind Speed: 3.00 m/s
Wind Speed at Height (Calculated) 1.78 m/s
Pasquill Stability: C

USER-DEFINED QUANTITIES

Material ETHANOL
Scenario Catastrophic rupture
Inventory 943,074.00 kg
Fixed Duration n/a s

Stagnation data (data at upstream end for long pipe):

- Pressure 1.04 bar
- Temperature 25.00 degC
- Fluid State Non-saturated liquid

CALCULATED QUANTITIES

Mass Flow of Air (Vent from Vapor Space only) n/a
Mass Flowrate n/a kg/s
Release Duration n/a s
Orifice or pipe exit data (before atmospheric expansion):
- Pressure n/a bar
- Temperature n/a degC
- Vena Contracta Velocity (exit velocity for pipe releases) n/a m/s
- Discharge Coefficient n/a
Final data (after atmospheric expansion):
- Temperature 25.00 degC
- Liquid Mass Fraction 1.00 fraction
- Droplet Diameter 734.68 um
- Expanded Radius n/a m
- Velocity 1.23 m/s

DISCHARGE DATA for Weather: Global Weathers\Noite

Wind Speed: 2.00 m/s
Wind Speed at Height (Calculated) 0.83 m/s
Pasquill Stability: E

USER-DEFINED QUANTITIES

Material ETHANOL
Scenario Catastrophic rupture
Inventory 943,074.00 kg
Fixed Duration n/a s

Stagnation data (data at upstream end for long pipe):

- Pressure 1.04 bar
- Temperature 25.00 degC
- Fluid State Non-saturated liquid

CALCULATED QUANTITIES

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Mass Flow of Air (Vent from Vapor Space only)	n/a
Mass Flowrate	n/a kg/s
Release Duration	n/a s
Orifice or pipe exit data (before atmospheric expansion):	
- Pressure	n/a bar
- Temperature	n/a degC
- Vena Contracta Velocity (exit velocity for pipe releases)	n/a m/s
- Discharge Coefficient	n/a
Final data (after atmospheric expansion):	
- Temperature	25.00 degC
- Liquid Mass Fraction	1.00 fraction
- Droplet Diameter	734.68 um
- Expanded Radius	n/a m
- Velocity	1.23 m/s



Consequence Results

Pool Vaporization Results

Path: \Terminal Adonai - Efeitos físicos\Simulações\H154 (E)

N.B. Pool vaporization segments begin when the cloud has left the pool

		Dia	Noite
Liquid Rainout	fraction	0.999821	0.99982
Initial Vapor Cloud	kg	168.567	169.346
Time Pool Left Behind	s	30.0635	58.8443

Cloud Segment 1

		Dia	Noite
Cloud Segment Duration	s	600	600
Pool Vaporization Rate	kg/s	2.12217	1.71209
Maximum Pool Radius	m	21.5059	21.5059

Distance to Concentration Results

Path: \Terminal Adonai - Efeitos físicos\Simulações\H154 (E)

The height for user defined concentrations is the user defined height 0 m

All toxic results are reported at the toxic effect height 1 m

All flammable results are reported at the flammable effect height 0 m

Concentration(ppm)	Averaging Time		Dia	Noite
UFL (190000)	18.75	s	11.2389	11.1292
LFL (43000)	18.75	s	11.3682	11.2589
LFL Frac (43000)	18.75	s	11.3682	11.2589

Concentration(ppm)	Averaging Time		Dia	Noite
UFL (190000)	18.75	s	0	0
LFL (43000)	18.75	s	0	0
LFL Frac (43000)	18.75	s	0	0

Late Pool Fire Hazard

Path: \Terminal Adonai - Efeitos físicos\Simulações\H154 (E)

	Dia	Noite
Late Pool Fire Status	Hazard	Hazard

Radiation Effects: Late Pool Fire Ellipse

Path: \Terminal Adonai - Efeitos físicos\Simulações\H154 (E)

			Dia	Noite
Radiation Level	9.83	kW/m2	59.6907	58.1655
Radiation Level	19.46	kW/m2	45.5201	43.1019
Radiation Level	35	kW/m2	29.6316	28.2203

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Radiation Effects: Late Pool Fire Distance

Path: \Terminal Adonai - Efeitos físicos\Simulações\H154 (E)

	Dia	Noite
Radiation Level (kW/m2)		

Fireball Hazard

Path: \Terminal Adonai - Efeitos físicos\Simulações\H154 (E)

	Dia	Noite
Fireball Flame Status	No Hazard	No Hazard

Flash Fire Envelope

Path: \Terminal Adonai - Efeitos físicos\Simulações\H154 (E)

All flammable results are reported at the flammable effect height 0 m

			Dia	Noite
Furthest Extent	43000	ppm	11.3682	11.2589
Furthest Extent	43000	ppm	11.3682	11.2589

			Dia	Noite
Furthest Extent	43000	ppm	0	0
Furthest Extent	43000	ppm	0	0

Explosion Effects: Early Explosion

Path: \Terminal Adonai - Efeitos físicos\Simulações\H154 (E)

Early Explosions are assumed to be centered at the release location
Explosion Model Used : TNT

			Dia	Noite
Supplied Flammable Mass		kg	943074	943074

			Distance (m) at Overpressure Levels	
			Dia	Noite
Overpressure	0.05	bar	No Hazard	No Hazard
Overpressure	0.1	bar	No Hazard	No Hazard
Overpressure	0.3	bar	No Hazard	No Hazard

			Used Mass (kg) at Overpressure Levels	
			Dia	Noite
Overpressure	0.05	bar	0	0
Overpressure	0.1	bar	0	0
Overpressure	0.3	bar	0	0

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Explosion Effects: Late Ignition

Path: \Terminal Adonai - Efeitos físicos\Simulações\H154 (E)

Explosion Model Used : TNT

Explosion Location Criterion: Cloud Center

All distances are measured from the Source

All flammable results are reported at the flammable effect height 0 m

			Maximum Distance (m) at Overpressure Level	
			Dia	Noite
Overpressure	0.05	bar	41.9602	40.3693
Overpressure	0.1	bar	26.3552	25.339
Overpressure	0.3	bar	13.5652	13.0201

Supplementary Data at 0.05 bar

			Dia	Noite
Supplied Flammable Mass		kg	24.4819	21.8752
Used Flammable Mass		kg	24.4819	21.8752
Overpressure Radius		m	41.151	39.6354
Distance to:				
- Ignition Source		m	10	10
- Cloud Front/Centre		m	0.809235	0.733891
- Explosion Centre		m	0.809235	0.733891

Supplementary Data at 0.1 bar

			Dia	Noite
Supplied Flammable Mass		kg	24.4819	21.8752
Used Flammable Mass		kg	24.4819	21.8752
Overpressure Radius		m	25.546	24.6051
Distance to:				
- Ignition Source		m	10	10
- Cloud Front/Centre		m	0.809235	0.733891
- Explosion Centre		m	0.809235	0.733891

Supplementary Data at 0.3 bar

			Dia	Noite
Supplied Flammable Mass		kg	24.4819	21.8752
Used Flammable Mass		kg	24.4819	21.8752
Overpressure Radius		m	12.756	12.2862
Distance to:				
- Ignition Source		m	10	10
- Cloud Front/Centre		m	0.809235	0.733891
- Explosion Centre		m	0.809235	0.733891

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Weather Conditions

Path: \Terminal Adonai - Efeitos físicos\Simulações\H154 (E)

		Dia	Noite
Wind Speed	m/s	3	2
Pasquill Stability		C	E
Surface Roughness Length	mm	1000	1000
Surface Roughness Parameter		0.173718	0.173718
Atmospheric Temperature	degC	25	20
Surface Temperature	degC	30	20
Relative Humidity	fraction	0.8	0.8

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

H154 (H)

Base Case

CASE Name: Data

Path: \Terminal Adonai - Efeitos físicos\Simulações\H154 (H)

User-Defined Data

Material

Material Identifier	N-HEXANE
Type of Vessel	Padded Liquid
Pressure Specification	Pressure specified
Storage Pressure - gauge	0.03 bar
Temperature	25 degC
Volume Inventory	1200 m3

Scenario

Scenario Type	Catastrophic rupture
Phase to be Released	Liquid
Building Wake Effect	None

Location

Elevation	0 m
Use ERPG averaging time	ERPG not selected
Use IDLH averaging time	IDLH not selected
Use STEL averaging time	STEL not selected
Supply a user defined averaging time	Not supplied

Bund

Status of Bund	Bund present
Bund Area	1453 m2
[Type of Bund Surface	User-Defined (Land)]
Bund Height	3 m
[Bund Failure Modeling	Bund cannot fail]

Indoor/Outdoor

Location of release	Open air release
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Flammable

Explosion Method	TNT
Jet Fire Method	Cone Model

Dispersion

Late Ignition Location	No ignition location
Mass Inventory of material to Disperse	7.872E5 kg
Use Burst Pressure	No - Use release pressure for fireball

Fireball Parameters

[Mass Modification Factor	3]
[Calculation method for fireball	DNV Recommended]
[TNO model flame temperature	1727 degC]

Toxic Parameters

[Indoor Calculations	Unselected]
[Wind Dependent Exchange Rate	Case Specified]

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

[Building Exchange Rate	4 /hr]
[Tail Time	1800 s]
[Set averaging time equal to exposure time	Use a fixed averaging time]
[Cut-off fraction of toxic load for exposure time calculation	0.05 fraction]
[Cut-off concentration for exposure time calculations	0 fraction]

Geometry

Shape	Point
Dimension	2D
System	Absolute
East(1)	0 m
North(1)	0 m

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Path: \Terminal Adonai - Efeitos físicos\Simulações\H154 (H)

DISCHARGE DATA for Weather: Global Weathers\Dia

Wind Speed:	3.00 m/s
Wind Speed at Height (Calculated)	1.78 m/s
Pasquill Stability:	C

USER-DEFINED QUANTITIES

Material	N-HEXANE
Scenario	Catastrophic rupture
Inventory	787,231.44 kg
Fixed Duration	n/a s

Stagnation data (data at upstream end for long pipe):

- Pressure	1.04 bar
- Temperature	25.00 degC
- Fluid State	Non-saturated liquid

CALCULATED QUANTITIES

Mass Flow of Air (Vent from Vapor Space only)	n/a
Mass Flowrate	n/a kg/s
Release Duration	n/a s
Orifice or pipe exit data (before atmospheric expansion):	
- Pressure	n/a bar
- Temperature	n/a degC
- Vena Contracta Velocity (exit velocity for pipe releases)	n/a m/s
- Discharge Coefficient	n/a
Final data (after atmospheric expansion):	
- Temperature	25.00 degC
- Liquid Mass Fraction	1.00 fraction
- Droplet Diameter	721.42 um
- Expanded Radius	n/a m
- Velocity	1.04 m/s

DISCHARGE DATA for Weather: Global Weathers\Noite

Wind Speed:	2.00 m/s
Wind Speed at Height (Calculated)	0.83 m/s
Pasquill Stability:	E

USER-DEFINED QUANTITIES

Material	N-HEXANE
Scenario	Catastrophic rupture
Inventory	787,231.44 kg
Fixed Duration	n/a s

Stagnation data (data at upstream end for long pipe):

- Pressure	1.04 bar
- Temperature	25.00 degC
- Fluid State	Non-saturated liquid

CALCULATED QUANTITIES

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Mass Flow of Air (Vent from Vapor Space only)	n/a
Mass Flowrate	n/a kg/s
Release Duration	n/a s
Orifice or pipe exit data (before atmospheric expansion):	
- Pressure	n/a bar
- Temperature	n/a degC
- Vena Contracta Velocity (exit velocity for pipe releases)	n/a m/s
- Discharge Coefficient	n/a
Final data (after atmospheric expansion):	
- Temperature	25.00 degC
- Liquid Mass Fraction	1.00 fraction
- Droplet Diameter	721.42 um
- Expanded Radius	n/a m
- Velocity	1.04 m/s



Consequence Results

Pool Vaporization Results

Path: \Terminal Adonai - Efeitos físicos\Simulações\H154 (H)

N.B. Pool vaporization segments begin when the cloud has left the pool

		Dia	Noite
Liquid Rainout	fraction	0.999751	0.999754
Initial Vapor Cloud	kg	195.773	193.898
Time Pool Left Behind	s	37.946	90.6027

Cloud Segment 1

Cloud Segment Duration	s	600	600
Pool Vaporization Rate	kg/s	8.26661	6.62274

Maximum Pool Radius	m	21.5059	21.5059
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Distance to Concentration Results

Path: \Terminal Adonai - Efeitos físicos\Simulações\H154 (H)

The height for user defined concentrations is the user defined height 0 m

All toxic results are reported at the toxic effect height 1 m

All flammable results are reported at the flammable effect height 0 m

Concentration(ppm)	Averaging Time		Dia	Noite
UFL (76800)	18.75	s	12.2105	14.2637
LFL (10500)	18.75	s	43.7272	44.9194
LFL Frac (10500)	18.75	s	43.7272	44.9194

Concentration(ppm)	Averaging Time		Dia	Noite
UFL (76800)	18.75	s	0	0
LFL (10500)	18.75	s	0	0
LFL Frac (10500)	18.75	s	0	0

Late Pool Fire Hazard

Path: \Terminal Adonai - Efeitos físicos\Simulações\H154 (H)

	Dia	Noite
Late Pool Fire Status	Hazard	Hazard

Radiation Effects: Late Pool Fire Ellipse

Path: \Terminal Adonai - Efeitos físicos\Simulações\H154 (H)

			Dia	Noite
Radiation Level	9.83	kW/m2	29.071	27.6755
Radiation Level	19.46	kW/m2	22.5059	22.5059
Radiation Level	35	kW/m2	Not Reached	Not Reached

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Radiation Effects: Late Pool Fire Distance

Path: \Terminal Adonai - Efeitos físicos\Simulações\H154 (H)

	Dia	Noite
Radiation Level (kW/m2)		

Fireball Hazard

Path: \Terminal Adonai - Efeitos físicos\Simulações\H154 (H)

	Dia	Noite
Fireball Flame Status	No Hazard	No Hazard

Flash Fire Envelope

Path: \Terminal Adonai - Efeitos físicos\Simulações\H154 (H)

All flammable results are reported at the flammable effect height 0 m

			Dia	Noite
Furthest Extent	10500	ppm	43.7272	44.9194
Furthest Extent	10500	ppm	43.7272	44.9194

			Dia	Noite
Furthest Extent	10500	ppm	0	0
Furthest Extent	10500	ppm	0	0

Explosion Effects: Early Explosion

Path: \Terminal Adonai - Efeitos físicos\Simulações\H154 (H)

Early Explosions are assumed to be centered at the release location
Explosion Model Used : TNT

			Dia	Noite
Supplied Flammable Mass		kg	787231	787231

			Distance (m) at Overpressure Levels	
			Dia	Noite
Overpressure	0.05	bar	No Hazard	No Hazard
Overpressure	0.1	bar	No Hazard	No Hazard
Overpressure	0.3	bar	No Hazard	No Hazard

			Used Mass (kg) at Overpressure Levels	
			Dia	Noite
Overpressure	0.05	bar	0	0
Overpressure	0.1	bar	0	0
Overpressure	0.3	bar	0	0

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Explosion Effects: Late Ignition

Path: \Terminal Adonai - Efeitos físicos\Simulações\H154 (H)

Explosion Model Used : TNT

Explosion Location Criterion: Cloud Center

All distances are measured from the Source

All flammable results are reported at the flammable effect height 0 m

			Maximum Distance (m) at Overpressure Level	
			Dia	Noite
Overpressure	0.05	bar	99.7915	103.072
Overpressure	0.1	bar	66.8506	67.1657
Overpressure	0.3	bar	41.4564	37.737

			Supplementary Data at 0.05 bar	
			Dia	Noite
Supplied Flammable Mass		kg	175.452	178.717
Used Flammable Mass		kg	175.452	178.717
Overpressure Radius		m	94.1051	94.6852
Distance to:				
- Ignition Source		m	30	40
- Cloud Front/Centre		m	5.68641	8.38642
- Explosion Centre		m	5.68641	8.38642

			Supplementary Data at 0.1 bar	
			Dia	Noite
Supplied Flammable Mass		kg	114.83	178.717
Used Flammable Mass		kg	114.83	178.717
Overpressure Radius		m	50.7209	58.7793
Distance to:				
- Ignition Source		m	40	40
- Cloud Front/Centre		m	16.1297	8.38642
- Explosion Centre		m	16.1297	8.38642

			Supplementary Data at 0.3 bar	
			Dia	Noite
Supplied Flammable Mass		kg	114.83	178.717
Used Flammable Mass		kg	114.83	178.717
Overpressure Radius		m	25.3267	29.3505
Distance to:				
- Ignition Source		m	40	40
- Cloud Front/Centre		m	16.1297	8.38642
- Explosion Centre		m	16.1297	8.38642

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Weather Conditions

Path: \Terminal Adonai - Efeitos físicos\Simulações\H154 (H)

		Dia	Noite
Wind Speed	m/s	3	2
Pasquill Stability		C	E
Surface Roughness Length	mm	1000	1000
Surface Roughness Parameter		0.173718	0.173718
Atmospheric Temperature	degC	25	20
Surface Temperature	degC	30	20
Relative Humidity	fraction	0.8	0.8

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

H154 (M)

Base Case

CASE Name: Data

Path: \Terminal Adonai - Efeitos físicos\Simulações\H154 (M)

User-Defined Data

Material

Material Identifier	METHANOL
Type of Vessel	Padded Liquid
Pressure Specification	Pressure specified
Storage Pressure - gauge	0.03 bar
Temperature	25 degC
Volume Inventory	1200 m3

Scenario

Scenario Type	Catastrophic rupture
Phase to be Released	Liquid
Building Wake Effect	None

Location

Elevation	0 m
Use ERPG averaging time	ERPG not selected
Use IDLH averaging time	IDLH not selected
Use STEL averaging time	STEL not selected
Supply a user defined averaging time	Not supplied

Bund

Status of Bund	Bund present
Bund Area	1453 m2
[Type of Bund Surface	User-Defined (Land)]
Bund Height	3 m
[Bund Failure Modeling	Bund cannot fail]

Indoor/Outdoor

Location of release	Open air release
---------------------	------------------

Flammable

Explosion Method	TNT
Jet Fire Method	Cone Model

Dispersion

Late Ignition Location	No ignition location
Mass Inventory of material to Disperse	9.475E5 kg
Use Burst Pressure	No - Use release pressure for fireball

Fireball Parameters

[Mass Modification Factor	3]
[Calculation method for fireball	DNV Recommended]
[TNO model flame temperature	1727 degC]

Toxic Parameters

[Indoor Calculations	Unselected]
[Wind Dependent Exchange Rate	Case Specified]

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

[Building Exchange Rate	4 /hr]
[Tail Time	1800 s]
[Set averaging time equal to exposure time	Use a fixed averaging time]
[Cut-off fraction of toxic load for exposure time calculation	0.05 fraction]
[Cut-off concentration for exposure time calculations	0 fraction]

Geometry

Shape	Point
Dimension	2D
System	Absolute
East(1)	0 m
North(1)	0 m

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Path: \Terminal Adonai - Efeitos físicos\Simulações\H154 (M)

DISCHARGE DATA for Weather: Global Weathers\Dia

Wind Speed: 3.00 m/s
Wind Speed at Height (Calculated) 1.78 m/s
Pasquill Stability: C

USER-DEFINED QUANTITIES

Material METHANOL
Scenario Catastrophic rupture
Inventory 947,540.81 kg
Fixed Duration n/a s

Stagnation data (data at upstream end for long pipe):

- Pressure 1.04 bar
- Temperature 25.00 degC
- Fluid State Non-saturated liquid

CALCULATED QUANTITIES

Mass Flow of Air (Vent from Vapor Space only) n/a
Mass Flowrate n/a kg/s
Release Duration n/a s
Orifice or pipe exit data (before atmospheric expansion):
- Pressure n/a bar
- Temperature n/a degC
- Vena Contracta Velocity (exit velocity for pipe releases) n/a m/s
- Discharge Coefficient n/a
Final data (after atmospheric expansion):
- Temperature 25.00 degC
- Liquid Mass Fraction 1.00 fraction
- Droplet Diameter 735.02 um
- Expanded Radius n/a m
- Velocity 1.54 m/s

DISCHARGE DATA for Weather: Global Weathers\Noite

Wind Speed: 2.00 m/s
Wind Speed at Height (Calculated) 0.83 m/s
Pasquill Stability: E

USER-DEFINED QUANTITIES

Material METHANOL
Scenario Catastrophic rupture
Inventory 947,540.81 kg
Fixed Duration n/a s

Stagnation data (data at upstream end for long pipe):

- Pressure 1.04 bar
- Temperature 25.00 degC
- Fluid State Non-saturated liquid

CALCULATED QUANTITIES

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Mass Flow of Air (Vent from Vapor Space only)	n/a
Mass Flowrate	n/a kg/s
Release Duration	n/a s
Orifice or pipe exit data (before atmospheric expansion):	
- Pressure	n/a bar
- Temperature	n/a degC
- Vena Contracta Velocity (exit velocity for pipe releases)	n/a m/s
- Discharge Coefficient	n/a
Final data (after atmospheric expansion):	
- Temperature	25.00 degC
- Liquid Mass Fraction	1.00 fraction
- Droplet Diameter	735.02 um
- Expanded Radius	n/a m
- Velocity	1.54 m/s

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Consequence Results

Pool Vaporization Results

Path: \Terminal Adonai - Efeitos físicos\Simulações\H154 (M)

N.B. Pool vaporization segments begin when the cloud has left the pool

		Dia	Noite
Liquid Rainout	fraction	0.999393	0.999389
Initial Vapor Cloud	kg	574.876	579.418
Time Pool Left Behind	s	32.6069	57.6762

Cloud Segment 1

Cloud Segment Duration	s	600	600
Pool Vaporization Rate	kg/s	3.71641	3.02048
Maximum Pool Radius	m	21.5059	21.5059

Distance to Concentration Results

Path: \Terminal Adonai - Efeitos físicos\Simulações\H154 (M)

The height for user defined concentrations is the user defined height 0 m

All toxic results are reported at the toxic effect height 1 m

All flammable results are reported at the flammable effect height 0 m

Concentration(ppm)	Averaging Time		Dia	Noite
UFL (360000)	18.75	s	13.8123	13.6323
LFL (73000)	18.75	s	20.6697	21.7886
LFL Frac (73000)	18.75	s	20.6697	21.7886

Concentration(ppm)	Averaging Time		Dia	Heights (m) for above distances
UFL (360000)	18.75	s	0	Noite
LFL (73000)	18.75	s	0	0
LFL Frac (73000)	18.75	s	0	0

Late Pool Fire Hazard

Path: \Terminal Adonai - Efeitos físicos\Simulações\H154 (M)

	Dia	Noite
Late Pool Fire Status	Hazard	Hazard

Radiation Effects: Late Pool Fire Ellipse

Path: \Terminal Adonai - Efeitos físicos\Simulações\H154 (M)

			Dia	Distance (m)
Radiation Level	9.83	kW/m2	43.2932	Noite
Radiation Level	19.46	kW/m2	29.8456	41.7638
Radiation Level	35	kW/m2	22.5059	28.3784
				22.5059

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Radiation Effects: Late Pool Fire Distance

Path: \Terminal Adonai - Efeitos físicos\Simulações\H154 (M)

	Dia	Noite
Radiation Level (kW/m2)		

Fireball Hazard

Path: \Terminal Adonai - Efeitos físicos\Simulações\H154 (M)

	Dia	Noite
Fireball Flame Status	No Hazard	No Hazard

Flash Fire Envelope

Path: \Terminal Adonai - Efeitos físicos\Simulações\H154 (M)

All flammable results are reported at the flammable effect height 0 m

			Dia	Noite
Furthest Extent	73000	ppm	20.6697	21.7886
Furthest Extent	73000	ppm	20.6697	21.7886
				Heights (m) for above distances
			Dia	Noite
Furthest Extent	73000	ppm	0	0
Furthest Extent	73000	ppm	0	0

Explosion Effects: Early Explosion

Path: \Terminal Adonai - Efeitos físicos\Simulações\H154 (M)

Early Explosions are assumed to be centered at the release location
Explosion Model Used : TNT

			Dia	Noite
Supplied Flammable Mass		kg	947541	947541
				Distance (m) at Overpressure Levels
			Dia	Noite
Overpressure	0.05	bar	No Hazard	No Hazard
Overpressure	0.1	bar	No Hazard	No Hazard
Overpressure	0.3	bar	No Hazard	No Hazard
				Used Mass (kg) at Overpressure Levels
			Dia	Noite
Overpressure	0.05	bar	0	0
Overpressure	0.1	bar	0	0
Overpressure	0.3	bar	0	0

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Explosion Effects: Late Ignition

Path: \Terminal Adonai - Efeitos físicos\Simulações\H154 (M)

Explosion Model Used : TNT

Explosion Location Criterion: Cloud Center

All distances are measured from the Source

All flammable results are reported at the flammable effect height 0 m

			Maximum Distance (m) at Overpressure Level	
			Dia	Noite
Overpressure	0.05	bar	58.8787	65.8141
Overpressure	0.1	bar	39.0895	44.3445
Overpressure	0.3	bar	24.7697	26.7478

			Supplementary Data at 0.05 bar	
			Dia	Noite
Supplied Flammable Mass		kg	93.2495	85.812
Used Flammable Mass		kg	93.2495	85.812
Overpressure Radius		m	58.2067	56.6161
Distance to:				
- Ignition Source		m	10	20
- Cloud Front/Centre		m	0.671953	9.19796
- Explosion Centre		m	0.671953	9.19796

			Supplementary Data at 0.1 bar	
			Dia	Noite
Supplied Flammable Mass		kg	46.2463	85.812
Used Flammable Mass		kg	46.2463	85.812
Overpressure Radius		m	28.6017	35.1465
Distance to:				
- Ignition Source		m	20	20
- Cloud Front/Centre		m	10.4878	9.19796
- Explosion Centre		m	10.4878	9.19796

			Supplementary Data at 0.3 bar	
			Dia	Noite
Supplied Flammable Mass		kg	46.2463	85.812
Used Flammable Mass		kg	46.2463	85.812
Overpressure Radius		m	14.2818	17.5499
Distance to:				
- Ignition Source		m	20	20
- Cloud Front/Centre		m	10.4878	9.19796
- Explosion Centre		m	10.4878	9.19796

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Weather Conditions

Path: \Terminal Adonai - Efeitos físicos\Simulações\H154 (M)

		Dia	Noite
Wind Speed	m/s	3	2
Pasquill Stability		C	E
Surface Roughness Length	mm	1000	1000
Surface Roughness Parameter		0.173718	0.173718
Atmospheric Temperature	degC	25	20
Surface Temperature	degC	30	20
Relative Humidity	fraction	0.8	0.8

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

H154 (N)

Base Case

CASE Name: Data

Path: \Terminal Adonai - Efeitos físicos\Simulações\H154 (N)

User-Defined Data

Material

Material Identifier	N-NONANE
Type of Vessel	Padded Liquid
Pressure Specification	Pressure specified
Storage Pressure - gauge	0.03 bar
Temperature	25 degC
Volume Inventory	1200 m3

Scenario

Scenario Type	Catastrophic rupture
Phase to be Released	Liquid
Building Wake Effect	None

Location

Elevation	0 m
Use ERPG averaging time	ERPG not selected
Use IDLH averaging time	IDLH not selected
Use STEL averaging time	STEL not selected
Supply a user defined averaging time	Not supplied

Bund

Status of Bund	Bund present
Bund Area	1453 m2
[Type of Bund Surface	User-Defined (Land)]
Bund Height	3 m
[Bund Failure Modeling	Bund cannot fail]

Indoor/Outdoor

Location of release	Open air release
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Flammable

Explosion Method	TNT
Jet Fire Method	Cone Model

Dispersion

Late Ignition Location	No ignition location
Mass Inventory of material to Disperse	8.572E5 kg
Use Burst Pressure	No - Use release pressure for fireball

Fireball Parameters

[Mass Modification Factor	3]
[Calculation method for fireball	DNV Recommended]
[TNO model flame temperature	1727 degC]

Toxic Parameters

[Indoor Calculations	Unselected]
[Wind Dependent Exchange Rate	Case Specified]

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

[Building Exchange Rate	4 /hr]
[Tail Time	1800 s]
[Set averaging time equal to exposure time	Use a fixed averaging time]
[Cut-off fraction of toxic load for exposure time calculation	0.05 fraction]
[Cut-off concentration for exposure time calculations	0 fraction]

Geometry

Shape	Point
Dimension	2D
System	Absolute
East(1)	0 m
North(1)	0 m

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Path: \Terminal Adonai - Efeitos físicos\Simulações\H154 (N)

DISCHARGE DATA for Weather: Global Weathers\Dia

Wind Speed: 3.00 m/s
Wind Speed at Height (Calculated) 1.78 m/s
Pasquill Stability: C

USER-DEFINED QUANTITIES

Material N-NONANE
Scenario Catastrophic rupture
Inventory 857,151.19 kg
Fixed Duration n/a s

Stagnation data (data at upstream end for long pipe):

- Pressure 1.04 bar
- Temperature 25.00 degC
- Fluid State Non-saturated liquid

CALCULATED QUANTITIES

Mass Flow of Air (Vent from Vapor Space only) n/a
Mass Flowrate n/a kg/s
Release Duration n/a s
Orifice or pipe exit data (before atmospheric expansion):
- Pressure n/a bar
- Temperature n/a degC
- Vena Contracta Velocity (exit velocity for pipe releases) n/a m/s
- Discharge Coefficient n/a
Final data (after atmospheric expansion):
- Temperature 25.00 degC
- Liquid Mass Fraction 1.00 fraction
- Droplet Diameter 727.67 um
- Expanded Radius n/a m
- Velocity 0.76 m/s

DISCHARGE DATA for Weather: Global Weathers\Noite

Wind Speed: 2.00 m/s
Wind Speed at Height (Calculated) 0.83 m/s
Pasquill Stability: E

USER-DEFINED QUANTITIES

Material N-NONANE
Scenario Catastrophic rupture
Inventory 857,151.19 kg
Fixed Duration n/a s

Stagnation data (data at upstream end for long pipe):

- Pressure 1.04 bar
- Temperature 25.00 degC
- Fluid State Non-saturated liquid

CALCULATED QUANTITIES

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Mass Flow of Air (Vent from Vapor Space only)	n/a
Mass Flowrate	n/a kg/s
Release Duration	n/a s
Orifice or pipe exit data (before atmospheric expansion):	
- Pressure	n/a bar
- Temperature	n/a degC
- Vena Contracta Velocity (exit velocity for pipe releases)	n/a m/s
- Discharge Coefficient	n/a
Final data (after atmospheric expansion):	
- Temperature	25.00 degC
- Liquid Mass Fraction	1.00 fraction
- Droplet Diameter	727.67 um
- Expanded Radius	n/a m
- Velocity	0.76 m/s



Consequence Results

Pool Vaporization Results

Path: \Terminal Adonai - Efeitos físicos\Simulações\H154 (N)

N.B. Pool vaporization segments begin when the cloud has left the pool

		Dia	Noite
Liquid Rainout	fraction	0.999996	0.999996
Initial Vapor Cloud	kg	3.34755	3.25534
Time Pool Left Behind	s	21.6647	45.5621

Cloud Segment 1

Cloud Segment Duration	s	600	600
Pool Vaporization Rate	kg/s	0.276157	0.215688
Maximum Pool Radius	m	21.5059	21.5059

Distance to Concentration Results

Path: \Terminal Adonai - Efeitos físicos\Simulações\H154 (N)

The height for user defined concentrations is the user defined height 0 m

All toxic results are reported at the toxic effect height 1 m

All flammable results are reported at the flammable effect height 0 m

Concentration(ppm)	Averaging Time		Dia	Noite	Distance (m)
UFL (56000)	18.75	s	9.06159	9.04932	
LFL (7000)	18.75	s	9.15916	9.14691	
LFL Frac (7000)	18.75	s	9.15916	9.14691	
Concentration(ppm)	Averaging Time		Dia	Noite	Heights (m) for above distances
UFL (56000)	18.75	s	0	0	
LFL (7000)	18.75	s	0	0	
LFL Frac (7000)	18.75	s	0	0	

Late Pool Fire Hazard

Path: \Terminal Adonai - Efeitos físicos\Simulações\H154 (N)

	Dia	Noite
Late Pool Fire Status	Hazard	Hazard

Radiation Effects: Late Pool Fire Ellipse

Path: \Terminal Adonai - Efeitos físicos\Simulações\H154 (N)

			Dia	Noite	Distance (m)
Radiation Level	9.83	kW/m2	29.0238	27.7277	
Radiation Level	19.46	kW/m2	22.5059	22.5059	
Radiation Level	35	kW/m2	Not Reached	Not Reached	

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Radiation Effects: Late Pool Fire Distance

Path: \Terminal Adonai - Efeitos físicos\Simulações\H154 (N)

	Dia	Noite
Radiation Level (kW/m2)		

Fireball Hazard

Path: \Terminal Adonai - Efeitos físicos\Simulações\H154 (N)

	Dia	Noite
Fireball Flame Status	No Hazard	No Hazard

Flash Fire Envelope

Path: \Terminal Adonai - Efeitos físicos\Simulações\H154 (N)

All flammable results are reported at the flammable effect height 0 m

			Dia	Noite
Furthest Extent	7000	ppm	9.15916	9.14691
Furthest Extent	7000	ppm	9.15916	9.14691

			Dia	Noite
Furthest Extent	7000	ppm	0	0
Furthest Extent	7000	ppm	0	0

Explosion Effects: Early Explosion

Path: \Terminal Adonai - Efeitos físicos\Simulações\H154 (N)

Early Explosions are assumed to be centered at the release location
Explosion Model Used : TNT

			Dia	Noite
Supplied Flammable Mass		kg	857151	857151

			Distance (m) at Overpressure Levels	
			Dia	Noite
Overpressure	0.05	bar	No Hazard	No Hazard
Overpressure	0.1	bar	No Hazard	No Hazard
Overpressure	0.3	bar	No Hazard	No Hazard

			Used Mass (kg) at Overpressure Levels	
			Dia	Noite
Overpressure	0.05	bar	0	0
Overpressure	0.1	bar	0	0
Overpressure	0.3	bar	0	0

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Weather Conditions

Path: \Terminal Adonai - Efeitos físicos\Simulações\H154 (N)

		Dia	Noite
Wind Speed	m/s	3	2
Pasquill Stability		C	E
Surface Roughness Length	mm	1000	1000
Surface Roughness Parameter		0.173718	0.173718
Atmospheric Temperature	degC	25	20
Surface Temperature	degC	30	20
Relative Humidity	fraction	0.8	0.8

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

H154 (P)

Base Case

CASE Name: Data

Path: \Terminal Adonai - Efeitos físicos\Simulações\H154 (P)

User-Defined Data

Material

Material Identifier	N-PENTANE
Type of Vessel	Padded Liquid
Pressure Specification	Pressure specified
Storage Pressure - gauge	0.03 bar
Temperature	25 degC
Volume Inventory	1200 m3

Scenario

Scenario Type	Catastrophic rupture
Phase to be Released	Liquid
Building Wake Effect	None

Location

Elevation	0 m
Use ERPG averaging time	ERPG not selected
Use IDLH averaging time	IDLH not selected
Use STEL averaging time	STEL not selected
Supply a user defined averaging time	Not supplied

Bund

Status of Bund	Bund present
Bund Area	1453 m2
[Type of Bund Surface	User-Defined (Land)]
Bund Height	3 m
[Bund Failure Modeling	Bund cannot fail]

Indoor/Outdoor

Location of release	Open air release
---------------------	------------------

Flammable

Explosion Method	TNT
Jet Fire Method	Cone Model

Dispersion

Late Ignition Location	No ignition location
Mass Inventory of material to Disperse	7.461E5 kg
Use Burst Pressure	No - Use release pressure for fireball

Fireball Parameters

[Mass Modification Factor	3]
[Calculation method for fireball	DNV Recommended]
[TNO model flame temperature	1727 degC]

Toxic Parameters

[Indoor Calculations	Unselected]
[Wind Dependent Exchange Rate	Case Specified]

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

[Building Exchange Rate	4 /hr]
[Tail Time	1800 s]
[Set averaging time equal to exposure time	Use a fixed averaging time]
[Cut-off fraction of toxic load for exposure time calculation	0.05 fraction]
[Cut-off concentration for exposure time calculations	0 fraction]

Geometry

Shape	Point
Dimension	2D
System	Absolute
East(1)	0 m
North(1)	0 m

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Path: \Terminal Adonai - Efeitos físicos\Simulações\H154 (P)

DISCHARGE DATA for Weather: Global Weathers\Dia

Wind Speed: 3.00 m/s
Wind Speed at Height (Calculated) 1.78 m/s
Pasquill Stability: C

USER-DEFINED QUANTITIES

Material N-PENTANE
Scenario Catastrophic rupture
Inventory 746,092.06 kg
Fixed Duration n/a s

Stagnation data (data at upstream end for long pipe):

- Pressure 1.04 bar
- Temperature 25.00 degC
- Fluid State Non-saturated liquid

CALCULATED QUANTITIES

Mass Flow of Air (Vent from Vapor Space only) n/a
Mass Flowrate n/a kg/s
Release Duration n/a s
Orifice or pipe exit data (before atmospheric expansion):
- Pressure n/a bar
- Temperature n/a degC
- Vena Contracta Velocity (exit velocity for pipe releases) n/a m/s
- Discharge Coefficient n/a
Final data (after atmospheric expansion):
- Temperature 25.00 degC
- Liquid Mass Fraction 1.00 fraction
- Droplet Diameter 717.48 um
- Expanded Radius n/a m
- Velocity 0.86 m/s

DISCHARGE DATA for Weather: Global Weathers\Noite

Wind Speed: 2.00 m/s
Wind Speed at Height (Calculated) 0.83 m/s
Pasquill Stability: E

USER-DEFINED QUANTITIES

Material N-PENTANE
Scenario Catastrophic rupture
Inventory 746,092.06 kg
Fixed Duration n/a s

Stagnation data (data at upstream end for long pipe):

- Pressure 1.04 bar
- Temperature 25.00 degC
- Fluid State Non-saturated liquid

CALCULATED QUANTITIES

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Mass Flow of Air (Vent from Vapor Space only)	n/a
Mass Flowrate	n/a kg/s
Release Duration	n/a s
Orifice or pipe exit data (before atmospheric expansion):	
- Pressure	n/a bar
- Temperature	n/a degC
- Vena Contracta Velocity (exit velocity for pipe releases)	n/a m/s
- Discharge Coefficient	n/a
Final data (after atmospheric expansion):	
- Temperature	25.00 degC
- Liquid Mass Fraction	1.00 fraction
- Droplet Diameter	717.48 um
- Expanded Radius	n/a m
- Velocity	0.86 m/s



Consequence Results

Pool Vaporization Results

Path: \Terminal Adonai - Efeitos físicos\Simulações\H154 (P)

N.B. Pool vaporization segments begin when the cloud has left the pool

		Dia	Noite
Liquid Rainout	fraction	0.999212	0.999251
Initial Vapor Cloud	kg	588.17	559.103
Time Pool Left Behind	s	51.7261	136.217

Cloud Segment 1

		Dia	Noite
Cloud Segment Duration	s	600	600
Pool Vaporization Rate	kg/s	33.8413	27.1435
Maximum Pool Radius	m	21.5059	21.5059

Distance to Concentration Results

Path: \Terminal Adonai - Efeitos físicos\Simulações\H154 (P)

The height for user defined concentrations is the user defined height 0 m

All toxic results are reported at the toxic effect height 1 m

All flammable results are reported at the flammable effect height 0 m

Concentration(ppm)	Averaging Time		Dia	Noite	Distance (m)
UFL (80000)	18.75	s	31.7684	38.4242	
LFL (13000)	18.75	s	82.3531	85.0172	
LFL Frac (13000)	18.75	s	82.3531	85.0172	
Concentration(ppm)	Averaging Time		Dia	Noite	Heights (m) for above distances
UFL (80000)	18.75	s	0	0	
LFL (13000)	18.75	s	0	0	
LFL Frac (13000)	18.75	s	0	0	

Late Pool Fire Hazard

Path: \Terminal Adonai - Efeitos físicos\Simulações\H154 (P)

	Dia	Noite
Late Pool Fire Status	Hazard	Hazard

Radiation Effects: Late Pool Fire Ellipse

Path: \Terminal Adonai - Efeitos físicos\Simulações\H154 (P)

			Dia	Noite	Distance (m)
Radiation Level	9.83	kW/m2	29.0294	27.7158	
Radiation Level	19.46	kW/m2	22.5059	22.5059	
Radiation Level	35	kW/m2	Not Reached	Not Reached	

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Radiation Effects: Late Pool Fire Distance

Path: \Terminal Adonai - Efeitos físicos\Simulações\H154 (P)

	Dia	Noite
Radiation Level (kW/m2)		

Fireball Hazard

Path: \Terminal Adonai - Efeitos físicos\Simulações\H154 (P)

	Dia	Noite
Fireball Flame Status	No Hazard	No Hazard

Flash Fire Envelope

Path: \Terminal Adonai - Efeitos físicos\Simulações\H154 (P)

All flammable results are reported at the flammable effect height 0 m

			Dia	Noite
Furthest Extent	13000	ppm	82.3531	85.0172
Furthest Extent	13000	ppm	82.3531	85.0172
			Distances (m)	
			Dia	Noite
Furthest Extent	13000	ppm	0	0
Furthest Extent	13000	ppm	0	0

Explosion Effects: Early Explosion

Path: \Terminal Adonai - Efeitos físicos\Simulações\H154 (P)

Early Explosions are assumed to be centered at the release location
Explosion Model Used : TNT

			Dia	Noite
Supplied Flammable Mass		kg	746092	746092
			Distance (m) at Overpressure Levels	
			Dia	Noite
Overpressure	0.05	bar	No Hazard	No Hazard
Overpressure	0.1	bar	No Hazard	No Hazard
Overpressure	0.3	bar	No Hazard	No Hazard
			Used Mass (kg) at Overpressure Levels	
			Dia	Noite
Overpressure	0.05	bar	0	0
Overpressure	0.1	bar	0	0
Overpressure	0.3	bar	0	0

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Explosion Effects: Late Ignition

Path: \Terminal Adonai - Efeitos físicos\Simulações\H154 (P)

Explosion Model Used : TNT

Explosion Location Criterion: Cloud Center

All distances are measured from the Source

All flammable results are reported at the flammable effect height 0 m

			Maximum Distance (m) at Overpressure Level	
			Dia	Noite
Overpressure	0.05	bar	170.781	176.823
Overpressure	0.1	bar	117.135	117.883
Overpressure	0.3	bar	79.3212	69.576
			Supplementary Data at 0.05 bar	
			Dia	Noite
Supplied Flammable Mass		kg	639.544	786.255
Used Flammable Mass		kg	639.544	786.255
Overpressure Radius		m	145.086	155.426
Distance to:				
- Ignition Source		m	70	80
- Cloud Front/Centre		m	25.6952	21.397
- Explosion Centre		m	25.6952	21.397
			Supplementary Data at 0.1 bar	
			Dia	Noite
Supplied Flammable Mass		kg	377.102	786.255
Used Flammable Mass		kg	377.102	786.255
Overpressure Radius		m	75.5261	96.4862
Distance to:				
- Ignition Source		m	80	80
- Cloud Front/Centre		m	41.6084	21.397
- Explosion Centre		m	41.6084	21.397
			Supplementary Data at 0.3 bar	
			Dia	Noite
Supplied Flammable Mass		kg	377.102	786.255
Used Flammable Mass		kg	377.102	786.255
Overpressure Radius		m	37.7128	48.1789
Distance to:				
- Ignition Source		m	80	80
- Cloud Front/Centre		m	41.6084	21.397
- Explosion Centre		m	41.6084	21.397

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Weather Conditions

Path: \Terminal Adonai - Efeitos físicos\Simulações\H154 (P)

		Dia	Noite
Wind Speed	m/s	3	2
Pasquill Stability		C	E
Surface Roughness Length	mm	1000	1000
Surface Roughness Parameter		0.173718	0.173718
Atmospheric Temperature	degC	25	20
Surface Temperature	degC	30	20
Relative Humidity	fraction	0.8	0.8

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

H155 (A)

Base Case

CASE Name: Data

Path: \Terminal Adonai - Efeitos físicos\Simulações\H155 (A)

User-Defined Data

Material

Material Identifier	ACETONE
Type of Vessel	Padded Liquid
Pressure Specification	Pressure specified
Storage Pressure - gauge	0.03 bar
Temperature	25 degC
Volume Inventory	1680 m3

Scenario

Scenario Type	Catastrophic rupture
Phase to be Released	Liquid
Building Wake Effect	None

Location

Elevation	0 m
Use ERPG averaging time	ERPG not selected
Use IDLH averaging time	IDLH not selected
Use STEL averaging time	STEL not selected
Supply a user defined averaging time	Not supplied

Bund

Status of Bund	Bund present
Bund Area	1453 m2
[Type of Bund Surface	User-Defined (Land)]
Bund Height	3 m
[Bund Failure Modeling	Bund cannot fail]

Indoor/Outdoor

Location of release	Open air release
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Flammable

Explosion Method	TNT
Jet Fire Method	Cone Model

Dispersion

Late Ignition Location	No ignition location
Mass Inventory of material to Disperse	1.321E6 kg
Use Burst Pressure	No - Use release pressure for fireball

Fireball Parameters

[Mass Modification Factor	3]
[Calculation method for fireball	DNV Recommended]
[TNO model flame temperature	1727 degC]

Toxic Parameters

[Indoor Calculations	Unselected]
[Wind Dependent Exchange Rate	Case Specified]

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

[Building Exchange Rate	4 /hr]
[Tail Time	1800 s]
[Set averaging time equal to exposure time	Use a fixed averaging time]
[Cut-off fraction of toxic load for exposure time calculation	0.05 fraction]
[Cut-off concentration for exposure time calculations	0 fraction]

Geometry

Shape	Point
Dimension	2D
System	Absolute
East(1)	0 m
North(1)	0 m

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Path: \Terminal Adonai - Efeitos físicos\Simulações\H155 (A)

DISCHARGE DATA for Weather: Global Weathers\Dia

Wind Speed: 3.00 m/s
Wind Speed at Height (Calculated) 1.78 m/s
Pasquill Stability: C

USER-DEFINED QUANTITIES

Material ACETONE
Scenario Catastrophic rupture
Inventory 1,321,455.38 kg
Fixed Duration n/a s

Stagnation data (data at upstream end for long pipe):

- Pressure 1.04 bar
- Temperature 25.00 degC
- Fluid State Non-saturated liquid

CALCULATED QUANTITIES

Mass Flow of Air (Vent from Vapor Space only) n/a
Mass Flowrate n/a kg/s
Release Duration n/a s
Orifice or pipe exit data (before atmospheric expansion):
- Pressure n/a bar
- Temperature n/a degC
- Vena Contracta Velocity (exit velocity for pipe releases) n/a m/s
- Discharge Coefficient n/a
Final data (after atmospheric expansion):
- Temperature 25.00 degC
- Liquid Mass Fraction 1.00 fraction
- Droplet Diameter 734.74 um
- Expanded Radius n/a m
- Velocity 1.11 m/s

DISCHARGE DATA for Weather: Global Weathers\Noite

Wind Speed: 2.00 m/s
Wind Speed at Height (Calculated) 0.83 m/s
Pasquill Stability: E

USER-DEFINED QUANTITIES

Material ACETONE
Scenario Catastrophic rupture
Inventory 1,321,455.38 kg
Fixed Duration n/a s

Stagnation data (data at upstream end for long pipe):

- Pressure 1.04 bar
- Temperature 25.00 degC
- Fluid State Non-saturated liquid

CALCULATED QUANTITIES

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Mass Flow of Air (Vent from Vapor Space only)	n/a
Mass Flowrate	n/a kg/s
Release Duration	n/a s
Orifice or pipe exit data (before atmospheric expansion):	
- Pressure	n/a bar
- Temperature	n/a degC
- Vena Contracta Velocity (exit velocity for pipe releases)	n/a m/s
- Discharge Coefficient	n/a
Final data (after atmospheric expansion):	
- Temperature	25.00 degC
- Liquid Mass Fraction	1.00 fraction
- Droplet Diameter	734.74 um
- Expanded Radius	n/a m
- Velocity	1.11 m/s



Consequence Results

Pool Vaporization Results

Path: \Terminal Adonai - Efeitos físicos\Simulações\H155 (A)

N.B. Pool vaporization segments begin when the cloud has left the pool

		Dia	Noite
Liquid Rainout	fraction	0.99925	0.999249
Initial Vapor Cloud	kg	991.029	992.651
Time Pool Left Behind	s	46.9388	109.903

Cloud Segment 1

Cloud Segment Duration	s	600	600
Pool Vaporization Rate	kg/s	10.8061	8.78259

Maximum Pool Radius	m	21.5059	21.5059
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Distance to Concentration Results

Path: \Terminal Adonai - Efeitos físicos\Simulações\H155 (A)

The height for user defined concentrations is the user defined height 0 m

All toxic results are reported at the toxic effect height 1 m

All flammable results are reported at the flammable effect height 0 m

Concentration(ppm)	Averaging Time		Dia	Noite	Distance (m)
UFL (128000)	18.75	s	17.2735	18.4767	
LFL (26000)	18.75	s	53.2808	56.1639	
LFL Frac (26000)	18.75	s	53.2808	56.1639	

Concentration(ppm)	Averaging Time		Dia	Noite	Heights (m) for above distances
UFL (128000)	18.75	s	0	0	
LFL (26000)	18.75	s	0	0	
LFL Frac (26000)	18.75	s	0	0	

Late Pool Fire Hazard

Path: \Terminal Adonai - Efeitos físicos\Simulações\H155 (A)

	Dia	Noite
Late Pool Fire Status	Hazard	Hazard

Radiation Effects: Late Pool Fire Ellipse

Path: \Terminal Adonai - Efeitos físicos\Simulações\H155 (A)

			Dia	Noite	Distance (m)
Radiation Level	9.83	kW/m2	81.993	79.8344	
Radiation Level	19.46	kW/m2	62.1405	58.8005	
Radiation Level	35	kW/m2	44.6192	41.191	

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Radiation Effects: Late Pool Fire Distance

Path: \Terminal Adonai - Efeitos físicos\Simulações\H155 (A)

	Dia	Noite
Radiation Level (kW/m2)		

Fireball Hazard

Path: \Terminal Adonai - Efeitos físicos\Simulações\H155 (A)

	Dia	Noite
Fireball Flame Status	No Hazard	No Hazard

Flash Fire Envelope

Path: \Terminal Adonai - Efeitos físicos\Simulações\H155 (A)

All flammable results are reported at the flammable effect height 0 m

			Dia	Noite
Furthest Extent	26000	ppm	53.2808	56.1639
Furthest Extent	26000	ppm	53.2808	56.1639

			Dia	Noite
Furthest Extent	26000	ppm	0	0
Furthest Extent	26000	ppm	0	0

Explosion Effects: Early Explosion

Path: \Terminal Adonai - Efeitos físicos\Simulações\H155 (A)

Early Explosions are assumed to be centered at the release location
Explosion Model Used : TNT

			Dia	Noite
Supplied Flammable Mass		kg	1.32146e+006	1.32146e+006

			Distance (m) at Overpressure Levels	
			Dia	Noite
Overpressure	0.05	bar	No Hazard	No Hazard
Overpressure	0.1	bar	No Hazard	No Hazard
Overpressure	0.3	bar	No Hazard	No Hazard

			Used Mass (kg) at Overpressure Levels	
			Dia	Noite
Overpressure	0.05	bar	0	0
Overpressure	0.1	bar	0	0
Overpressure	0.3	bar	0	0

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Explosion Effects: Late Ignition

Path: \Terminal Adonai - Efeitos físicos\Simulações\H155 (A)

Explosion Model Used : TNT

Explosion Location Criterion: Cloud Center

All distances are measured from the Source

All flammable results are reported at the flammable effect height 0 m

			Maximum Distance (m) at Overpressure Level	
			Dia	Noite
Overpressure	0.05	bar	135.43	135.907
Overpressure	0.1	bar	86.8263	87.5862
Overpressure	0.3	bar	51.3147	47.9819

			Supplementary Data at 0.05 bar	
			Dia	Noite
Supplied Flammable Mass		kg	694.212	682.18
Used Flammable Mass		kg	694.212	682.18
Overpressure Radius		m	128.169	127.424
Distance to:				
- Ignition Source		m	40	50
- Cloud Front/Centre		m	7.26075	8.48294
- Explosion Centre		m	7.26075	8.48294

			Supplementary Data at 0.1 bar	
			Dia	Noite
Supplied Flammable Mass		kg	694.212	682.18
Used Flammable Mass		kg	694.212	682.18
Overpressure Radius		m	79.5656	79.1032
Distance to:				
- Ignition Source		m	40	50
- Cloud Front/Centre		m	7.26075	8.48294
- Explosion Centre		m	7.26075	8.48294

			Supplementary Data at 0.3 bar	
			Dia	Noite
Supplied Flammable Mass		kg	474.53	682.18
Used Flammable Mass		kg	474.53	682.18
Overpressure Radius		m	34.9978	39.499
Distance to:				
- Ignition Source		m	50	50
- Cloud Front/Centre		m	16.3168	8.48294
- Explosion Centre		m	16.3168	8.48294

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Weather Conditions

Path: \Terminal Adonai - Efeitos físicos\Simulações\H155 (A)

		Dia	Noite
Wind Speed	m/s	3	2
Pasquill Stability		C	E
Surface Roughness Length	mm	1000	1000
Surface Roughness Parameter		0.173718	0.173718
Atmospheric Temperature	degC	25	20
Surface Temperature	degC	30	20
Relative Humidity	fraction	0.8	0.8

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

H155 (B)

Base Case

CASE Name: Data

Path: \Terminal Adonai - Efeitos físicos\Simulações\H155 (B)

User-Defined Data

Material

Material Identifier	BENZENE
Type of Vessel	Padded Liquid
Pressure Specification	Pressure specified
Storage Pressure - gauge	0.03 bar
Temperature	25 degC
Volume Inventory	1680 m3

Scenario

Scenario Type	Catastrophic rupture
Phase to be Released	Liquid
Building Wake Effect	None

Location

Elevation	0 m
Use ERPG averaging time	ERPG not selected
Use IDLH averaging time	IDLH not selected
Use STEL averaging time	STEL not selected
Supply a user defined averaging time	Not supplied

Bund

Status of Bund	Bund present
Bund Area	1453 m2
[Type of Bund Surface	User-Defined (Land)]
Bund Height	3 m
[Bund Failure Modeling	Bund cannot fail]

Indoor/Outdoor

Location of release	Open air release
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Flammable

Explosion Method	TNT
Jet Fire Method	Cone Model

Dispersion

Late Ignition Location	No ignition location
Mass Inventory of material to Disperse	1.467E6 kg
Use Burst Pressure	No - Use release pressure for fireball

Fireball Parameters

[Mass Modification Factor	3]
[Calculation method for fireball	DNV Recommended]
[TNO model flame temperature	1727 degC]

Toxic Parameters

[Indoor Calculations	Unselected]
[Wind Dependent Exchange Rate	Case Specified]

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

[Building Exchange Rate	4 /hr]
[Tail Time	1800 s]
[Set averaging time equal to exposure time	Use a fixed averaging time]
[Cut-off fraction of toxic load for exposure time calculation	0.05 fraction]
[Cut-off concentration for exposure time calculations	0 fraction]

Geometry

Shape	Point
Dimension	2D
System	Absolute
East(1)	0 m
North(1)	0 m

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Path: \Terminal Adonai - Efeitos físicos\Simulações\H155 (B)

DISCHARGE DATA for Weather: Global Weathers\Dia

Wind Speed: 3.00 m/s
Wind Speed at Height (Calculated) 1.78 m/s
Pasquill Stability: C

USER-DEFINED QUANTITIES

Material BENZENE
Scenario Catastrophic rupture
Inventory 1,466,652.50 kg
Fixed Duration n/a s

Stagnation data (data at upstream end for long pipe):

- Pressure 1.04 bar
- Temperature 25.00 degC
- Fluid State Non-saturated liquid

CALCULATED QUANTITIES

Mass Flow of Air (Vent from Vapor Space only) n/a
Mass Flowrate n/a kg/s
Release Duration n/a s

Orifice or pipe exit data (before atmospheric expansion):

- Pressure n/a bar
- Temperature n/a degC
- Vena Contracta Velocity (exit velocity for pipe releases) n/a m/s
- Discharge Coefficient n/a

Final data (after atmospheric expansion):

- Temperature 25.00 degC
- Liquid Mass Fraction 1.00 fraction
- Droplet Diameter 742.39 um
- Expanded Radius n/a m
- Velocity 0.82 m/s

DISCHARGE DATA for Weather: Global Weathers\Noite

Wind Speed: 2.00 m/s
Wind Speed at Height (Calculated) 0.83 m/s
Pasquill Stability: E

USER-DEFINED QUANTITIES

Material BENZENE
Scenario Catastrophic rupture
Inventory 1,466,652.50 kg
Fixed Duration n/a s

Stagnation data (data at upstream end for long pipe):

- Pressure 1.04 bar
- Temperature 25.00 degC
- Fluid State Non-saturated liquid

CALCULATED QUANTITIES

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Mass Flow of Air (Vent from Vapor Space only)	n/a
Mass Flowrate	n/a kg/s
Release Duration	n/a s
Orifice or pipe exit data (before atmospheric expansion):	
- Pressure	n/a bar
- Temperature	n/a degC
- Vena Contracta Velocity (exit velocity for pipe releases)	n/a m/s
- Discharge Coefficient	n/a
Final data (after atmospheric expansion):	
- Temperature	25.00 degC
- Liquid Mass Fraction	1.00 fraction
- Droplet Diameter	742.39 um
- Expanded Radius	n/a m
- Velocity	0.82 m/s



Consequence Results

Pool Vaporization Results

Path: \Terminal Adonai - Efeitos físicos\Simulações\H155 (B)

N.B. Pool vaporization segments begin when the cloud has left the pool

		Dia	Noite
Liquid Rainout	fraction	0.99995	0.999952
Initial Vapor Cloud	kg	73.6855	70.8056
Time Pool Left Behind	s	31.4061	73.5136

Cloud Segment 1

Cloud Segment Duration	s	600	600
Pool Vaporization Rate	kg/s	5.11487	4.00836

Maximum Pool Radius	m	21.5059	21.5059
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Distance to Concentration Results

Path: \Terminal Adonai - Efeitos físicos\Simulações\H155 (B)

The height for user defined concentrations is the user defined height 0 m

All toxic results are reported at the toxic effect height 1 m

All flammable results are reported at the flammable effect height 0 m

Concentration(ppm)	Averaging Time		Dia	Noite	Distance (m)
UFL (79000)	18.75	s	10.1575	10.1455	
LFL (13000)	18.75	s	26.647	27.4319	
LFL Frac (13000)	18.75	s	26.647	27.4319	

Concentration(ppm)	Averaging Time		Dia	Noite	Heights (m) for above distances
UFL (79000)	18.75	s	0	0	
LFL (13000)	18.75	s	0	0	
LFL Frac (13000)	18.75	s	0	0	

Late Pool Fire Hazard

Path: \Terminal Adonai - Efeitos físicos\Simulações\H155 (B)

	Dia	Noite
Late Pool Fire Status	Hazard	Hazard

Radiation Effects: Late Pool Fire Ellipse

Path: \Terminal Adonai - Efeitos físicos\Simulações\H155 (B)

			Dia	Noite	Distance (m)
Radiation Level	9.83	kW/m2	29.2004	22.885	
Radiation Level	19.46	kW/m2	22.5059	22.5059	
Radiation Level	35	kW/m2	Not Reached	Not Reached	

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Radiation Effects: Late Pool Fire Distance

Path: \Terminal Adonai - Efeitos físicos\Simulações\H155 (B)

	Dia	Noite
Radiation Level (kW/m2)		

Fireball Hazard

Path: \Terminal Adonai - Efeitos físicos\Simulações\H155 (B)

	Dia	Noite
Fireball Flame Status	No Hazard	No Hazard

Flash Fire Envelope

Path: \Terminal Adonai - Efeitos físicos\Simulações\H155 (B)

All flammable results are reported at the flammable effect height 0 m

			Dia	Noite
Furthest Extent	13000	ppm	26.647	27.4319
Furthest Extent	13000	ppm	26.647	27.4319

			Dia	Noite
Furthest Extent	13000	ppm	0	0
Furthest Extent	13000	ppm	0	0

Explosion Effects: Early Explosion

Path: \Terminal Adonai - Efeitos físicos\Simulações\H155 (B)

Early Explosions are assumed to be centered at the release location
Explosion Model Used : TNT

			Dia	Noite
Supplied Flammable Mass		kg	1.46665e+006	1.46665e+006

			Distance (m) at Overpressure Levels	
			Dia	Noite
Overpressure	0.05	bar	No Hazard	No Hazard
Overpressure	0.1	bar	No Hazard	No Hazard
Overpressure	0.3	bar	No Hazard	No Hazard

			Used Mass (kg) at Overpressure Levels	
			Dia	Noite
Overpressure	0.05	bar	0	0
Overpressure	0.1	bar	0	0
Overpressure	0.3	bar	0	0

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Explosion Effects: Late Ignition

Path: \Terminal Adonai - Efeitos físicos\Simulações\H155 (B)

Explosion Model Used : TNT

Explosion Location Criterion: Cloud Center

All distances are measured from the Source

All flammable results are reported at the flammable effect height 0 m

			Maximum Distance (m) at Overpressure Level	
			Dia	Noite
Overpressure	0.05	bar	64.2713	65.3704
Overpressure	0.1	bar	41.2812	41.2259
Overpressure	0.3	bar	22.4385	21.4369

Supplementary Data at 0.05 bar

			Dia	Noite
Supplied Flammable Mass		kg	52.2733	60.5499
Used Flammable Mass		kg	52.2733	60.5499
Overpressure Radius		m	60.6256	63.6698
Distance to:				
- Ignition Source		m	20	20
- Cloud Front/Centre		m	3.64572	1.70055
- Explosion Centre		m	3.64572	1.70055

Supplementary Data at 0.1 bar

			Dia	Noite
Supplied Flammable Mass		kg	52.2733	60.5499
Used Flammable Mass		kg	52.2733	60.5499
Overpressure Radius		m	37.6355	39.5253
Distance to:				
- Ignition Source		m	20	20
- Cloud Front/Centre		m	3.64572	1.70055
- Explosion Centre		m	3.64572	1.70055

Supplementary Data at 0.3 bar

			Dia	Noite
Supplied Flammable Mass		kg	52.2733	60.5499
Used Flammable Mass		kg	52.2733	60.5499
Overpressure Radius		m	18.7927	19.7364
Distance to:				
- Ignition Source		m	20	20
- Cloud Front/Centre		m	3.64572	1.70055
- Explosion Centre		m	3.64572	1.70055

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Weather Conditions

Path: \Terminal Adonai - Efeitos físicos\Simulações\H155 (B)

		Dia	Noite
Wind Speed	m/s	3	2
Pasquill Stability		C	E
Surface Roughness Length	mm	1000	1000
Surface Roughness Parameter		0.173718	0.173718
Atmospheric Temperature	degC	25	20
Surface Temperature	degC	30	20
Relative Humidity	fraction	0.8	0.8

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

H155 (E)

Base Case

CASE Name: Data

Path: \Terminal Adonai - Efeitos físicos\Simulações\H155 (E)

User-Defined Data

Material

Material Identifier	ETHANOL
Type of Vessel	Padded Liquid
Pressure Specification	Pressure specified
Storage Pressure - gauge	0.03 bar
Temperature	25 degC
Volume Inventory	1680 m3

Scenario

Scenario Type	Catastrophic rupture
Phase to be Released	Liquid
Building Wake Effect	None

Location

Elevation	0 m
Use ERPG averaging time	ERPG not selected
Use IDLH averaging time	IDLH not selected
Use STEL averaging time	STEL not selected
Supply a user defined averaging time	Not supplied

Bund

Status of Bund	Bund present
Bund Area	1453 m2
[Type of Bund Surface	User-Defined (Land)]
Bund Height	3 m
[Bund Failure Modeling	Bund cannot fail]

Indoor/Outdoor

Location of release	Open air release
---------------------	------------------

Flammable

Explosion Method	TNT
Jet Fire Method	Cone Model

Dispersion

Late Ignition Location	No ignition location
Mass Inventory of material to Disperse	1.32E6 kg
Use Burst Pressure	No - Use release pressure for fireball

Fireball Parameters

[Mass Modification Factor	3]
[Calculation method for fireball	DNV Recommended]
[TNO model flame temperature	1727 degC]

Toxic Parameters

[Indoor Calculations	Unselected]
[Wind Dependent Exchange Rate	Case Specified]

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

[Building Exchange Rate	4 /hr]
[Tail Time	1800 s]
[Set averaging time equal to exposure time	Use a fixed averaging time]
[Cut-off fraction of toxic load for exposure time calculation	0.05 fraction]
[Cut-off concentration for exposure time calculations	0 fraction]

Geometry

Shape	Point
Dimension	2D
System	Absolute
East(1)	0 m
North(1)	0 m

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Path: \Terminal Adonai - Efeitos físicos\Simulações\H155 (E)

DISCHARGE DATA for Weather: Global Weathers\Dia

Wind Speed: 3.00 m/s
Wind Speed at Height (Calculated) 1.78 m/s
Pasquill Stability: C

USER-DEFINED QUANTITIES

Material ETHANOL
Scenario Catastrophic rupture
Inventory 1,320,303.63 kg
Fixed Duration n/a s

Stagnation data (data at upstream end for long pipe):

- Pressure 1.04 bar
- Temperature 25.00 degC
- Fluid State Non-saturated liquid

CALCULATED QUANTITIES

Mass Flow of Air (Vent from Vapor Space only) n/a
Mass Flowrate n/a kg/s
Release Duration n/a s
Orifice or pipe exit data (before atmospheric expansion):
- Pressure n/a bar
- Temperature n/a degC
- Vena Contracta Velocity (exit velocity for pipe releases) n/a m/s
- Discharge Coefficient n/a
Final data (after atmospheric expansion):
- Temperature 25.00 degC
- Liquid Mass Fraction 1.00 fraction
- Droplet Diameter 734.68 um
- Expanded Radius n/a m
- Velocity 1.23 m/s

DISCHARGE DATA for Weather: Global Weathers\Noite

Wind Speed: 2.00 m/s
Wind Speed at Height (Calculated) 0.83 m/s
Pasquill Stability: E

USER-DEFINED QUANTITIES

Material ETHANOL
Scenario Catastrophic rupture
Inventory 1,320,303.63 kg
Fixed Duration n/a s

Stagnation data (data at upstream end for long pipe):

- Pressure 1.04 bar
- Temperature 25.00 degC
- Fluid State Non-saturated liquid

CALCULATED QUANTITIES

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Mass Flow of Air (Vent from Vapor Space only)	n/a
Mass Flowrate	n/a kg/s
Release Duration	n/a s
Orifice or pipe exit data (before atmospheric expansion):	
- Pressure	n/a bar
- Temperature	n/a degC
- Vena Contracta Velocity (exit velocity for pipe releases)	n/a m/s
- Discharge Coefficient	n/a
Final data (after atmospheric expansion):	
- Temperature	25.00 degC
- Liquid Mass Fraction	1.00 fraction
- Droplet Diameter	734.68 um
- Expanded Radius	n/a m
- Velocity	1.23 m/s

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Consequence Results

Pool Vaporization Results

Path: \Terminal Adonai - Efeitos físicos\Simulações\H155 (E)

N.B. Pool vaporization segments begin when the cloud has left the pool

		Dia	Noite
Liquid Rainout	fraction	0.999821	0.99982
Initial Vapor Cloud	kg	236.377	237.556
Time Pool Left Behind	s	31.9215	61.8444

Cloud Segment 1

Cloud Segment Duration	s	600	600
Pool Vaporization Rate	kg/s	2.12477	1.72129
Maximum Pool Radius	m	21.5059	21.5059

Distance to Concentration Results

Path: \Terminal Adonai - Efeitos físicos\Simulações\H155 (E)

The height for user defined concentrations is the user defined height 0 m

All toxic results are reported at the toxic effect height 1 m

All flammable results are reported at the flammable effect height 0 m

Concentration(ppm)	Averaging Time		Dia	Noite
UFL (190000)	18.75	s	12.6831	12.5603
LFL (43000)	18.75	s	12.828	12.7055
LFL Frac (43000)	18.75	s	12.828	12.7055

Concentration(ppm)	Averaging Time		Dia	Noite
UFL (190000)	18.75	s	0	0
LFL (43000)	18.75	s	0	0
LFL Frac (43000)	18.75	s	0	0

Late Pool Fire Hazard

Path: \Terminal Adonai - Efeitos físicos\Simulações\H155 (E)

	Dia	Noite
Late Pool Fire Status	Hazard	Hazard

Radiation Effects: Late Pool Fire Ellipse

Path: \Terminal Adonai - Efeitos físicos\Simulações\H155 (E)

			Dia	Noite
Radiation Level	9.83	kW/m2	59.6907	58.1655
Radiation Level	19.46	kW/m2	45.5201	43.1019
Radiation Level	35	kW/m2	29.6316	28.2203

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Radiation Effects: Late Pool Fire Distance

Path: \Terminal Adonai - Efeitos físicos\Simulações\H155 (E)

	Dia	Noite
Radiation Level (kW/m ²)		

Fireball Hazard

Path: \Terminal Adonai - Efeitos físicos\Simulações\H155 (E)

	Dia	Noite
Fireball Flame Status	No Hazard	No Hazard

Flash Fire Envelope

Path: \Terminal Adonai - Efeitos físicos\Simulações\H155 (E)

All flammable results are reported at the flammable effect height 0 m

			Dia	Noite
Furthest Extent	43000	ppm	12.828	12.7055
Furthest Extent	43000	ppm	12.828	12.7055

			Dia	Noite
Furthest Extent	43000	ppm	0	0
Furthest Extent	43000	ppm	0	0

Explosion Effects: Early Explosion

Path: \Terminal Adonai - Efeitos físicos\Simulações\H155 (E)

Early Explosions are assumed to be centered at the release location
Explosion Model Used : TNT

			Dia	Noite
Supplied Flammable Mass		kg	1.3203e+006	1.3203e+006

			Dia	Noite
Overpressure	0.05	bar	No Hazard	No Hazard
Overpressure	0.1	bar	No Hazard	No Hazard
Overpressure	0.3	bar	No Hazard	No Hazard

			Dia	Noite
Overpressure	0.05	bar	0	0
Overpressure	0.1	bar	0	0
Overpressure	0.3	bar	0	0

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Explosion Effects: Late Ignition

Path: \Terminal Adonai - Efeitos físicos\Simulações\H155 (E)

Explosion Model Used : TNT

Explosion Location Criterion: Cloud Center

All distances are measured from the Source

All flammable results are reported at the flammable effect height 0 m

			Maximum Distance (m) at Overpressure Level	
			Dia	Noite
Overpressure	0.05	bar	36.6981	35.2105
Overpressure	0.1	bar	22.9586	22.0179
Overpressure	0.3	bar	11.6976	11.2052
			Supplementary Data at 0.05 bar	
			Dia	Noite
Supplied Flammable Mass		kg	16.7095	14.7925
Used Flammable Mass		kg	16.7095	14.7925
Overpressure Radius		m	36.2315	34.7893
Distance to:				
- Ignition Source		m	10	10
- Cloud Front/Centre		m	0.466537	0.421198
- Explosion Centre		m	0.466537	0.421198
			Supplementary Data at 0.1 bar	
			Dia	Noite
Supplied Flammable Mass		kg	16.7095	14.7925
Used Flammable Mass		kg	16.7095	14.7925
Overpressure Radius		m	22.492	21.5967
Distance to:				
- Ignition Source		m	10	10
- Cloud Front/Centre		m	0.466537	0.421198
- Explosion Centre		m	0.466537	0.421198
			Supplementary Data at 0.3 bar	
			Dia	Noite
Supplied Flammable Mass		kg	16.7095	14.7925
Used Flammable Mass		kg	16.7095	14.7925
Overpressure Radius		m	11.2311	10.784
Distance to:				
- Ignition Source		m	10	10
- Cloud Front/Centre		m	0.466537	0.421198
- Explosion Centre		m	0.466537	0.421198

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Weather Conditions

Path: \Terminal Adonai - Efeitos físicos\Simulações\H155 (E)

		Dia	Noite
Wind Speed	m/s	3	2
Pasquill Stability		C	E
Surface Roughness Length	mm	1000	1000
Surface Roughness Parameter		0.173718	0.173718
Atmospheric Temperature	degC	25	20
Surface Temperature	degC	30	20
Relative Humidity	fraction	0.8	0.8

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

H155 (H)

Base Case

CASE Name: Data

Path: \Terminal Adonai - Efeitos físicos\Simulações\H155 (H)

User-Defined Data

Material

Material Identifier	N-HEXANE
Type of Vessel	Padded Liquid
Pressure Specification	Pressure specified
Storage Pressure - gauge	0.03 bar
Temperature	25 degC
Volume Inventory	1680 m3

Scenario

Scenario Type	Catastrophic rupture
Phase to be Released	Liquid
Building Wake Effect	None

Location

Elevation	0 m
Use ERPG averaging time	ERPG not selected
Use IDLH averaging time	IDLH not selected
Use STEL averaging time	STEL not selected
Supply a user defined averaging time	Not supplied

Bund

Status of Bund	Bund present
Bund Area	1453 m2
[Type of Bund Surface	User-Defined (Land)]
Bund Height	3 m
[Bund Failure Modeling	Bund cannot fail]

Indoor/Outdoor

Location of release	Open air release
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Flammable

Explosion Method	TNT
Jet Fire Method	Cone Model

Dispersion

Late Ignition Location	No ignition location
Mass Inventory of material to Disperse	1.102E6 kg
Use Burst Pressure	No - Use release pressure for fireball

Fireball Parameters

[Mass Modification Factor	3]
[Calculation method for fireball	DNV Recommended]
[TNO model flame temperature	1727 degC]

Toxic Parameters

[Indoor Calculations	Unselected]
[Wind Dependent Exchange Rate	Case Specified]

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

[Building Exchange Rate	4 /hr]
[Tail Time	1800 s]
[Set averaging time equal to exposure time	Use a fixed averaging time]
[Cut-off fraction of toxic load for exposure time calculation	0.05 fraction]
[Cut-off concentration for exposure time calculations	0 fraction]

Geometry

Shape	Point
Dimension	2D
System	Absolute
East(1)	0 m
North(1)	0 m

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Path: \Terminal Adonai - Efeitos físicos\Simulações\H155 (H)

DISCHARGE DATA for Weather: Global Weathers\Dia

Wind Speed: 3.00 m/s
Wind Speed at Height (Calculated) 1.78 m/s
Pasquill Stability: C

USER-DEFINED QUANTITIES

Material N-HEXANE
Scenario Catastrophic rupture
Inventory 1,102,124.00 kg
Fixed Duration n/a s

Stagnation data (data at upstream end for long pipe):

- Pressure 1.04 bar
- Temperature 25.00 degC
- Fluid State Non-saturated liquid

CALCULATED QUANTITIES

Mass Flow of Air (Vent from Vapor Space only) n/a
Mass Flowrate n/a kg/s
Release Duration n/a s
Orifice or pipe exit data (before atmospheric expansion):
- Pressure n/a bar
- Temperature n/a degC
- Vena Contracta Velocity (exit velocity for pipe releases) n/a m/s
- Discharge Coefficient n/a
Final data (after atmospheric expansion):
- Temperature 25.00 degC
- Liquid Mass Fraction 1.00 fraction
- Droplet Diameter 721.42 um
- Expanded Radius n/a m
- Velocity 1.04 m/s

DISCHARGE DATA for Weather: Global Weathers\Noite

Wind Speed: 2.00 m/s
Wind Speed at Height (Calculated) 0.83 m/s
Pasquill Stability: E

USER-DEFINED QUANTITIES

Material N-HEXANE
Scenario Catastrophic rupture
Inventory 1,102,124.00 kg
Fixed Duration n/a s

Stagnation data (data at upstream end for long pipe):

- Pressure 1.04 bar
- Temperature 25.00 degC
- Fluid State Non-saturated liquid

CALCULATED QUANTITIES

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Mass Flow of Air (Vent from Vapor Space only)	n/a
Mass Flowrate	n/a kg/s
Release Duration	n/a s
Orifice or pipe exit data (before atmospheric expansion):	
- Pressure	n/a bar
- Temperature	n/a degC
- Vena Contracta Velocity (exit velocity for pipe releases)	n/a m/s
- Discharge Coefficient	n/a
Final data (after atmospheric expansion):	
- Temperature	25.00 degC
- Liquid Mass Fraction	1.00 fraction
- Droplet Diameter	721.42 um
- Expanded Radius	n/a m
- Velocity	1.04 m/s



Consequence Results

Pool Vaporization Results

Path: \Terminal Adonai - Efeitos físicos\Simulações\H155 (H)

N.B. Pool vaporization segments begin when the cloud has left the pool

		Dia	Noite
Liquid Rainout	fraction	0.99975	0.999752
Initial Vapor Cloud	kg	275.971	273.59
Time Pool Left Behind	s	39.9879	94.6433

Cloud Segment 1

Cloud Segment Duration	s	600	600
Pool Vaporization Rate	kg/s	8.29453	6.67136

Maximum Pool Radius	m	21.5059	21.5059
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Distance to Concentration Results

Path: \Terminal Adonai - Efeitos físicos\Simulações\H155 (H)

The height for user defined concentrations is the user defined height 0 m

All toxic results are reported at the toxic effect height 1 m

All flammable results are reported at the flammable effect height 0 m

Concentration(ppm)	Averaging Time		Dia	Noite	Distance (m)
UFL (76800)	18.75	s	13.5816	15.8354	
LFL (10500)	18.75	s	46.7923	48.6334	
LFL Frac (10500)	18.75	s	46.7923	48.6334	

Concentration(ppm)	Averaging Time		Dia	Noite	Heights (m) for above distances
UFL (76800)	18.75	s	0	0	
LFL (10500)	18.75	s	0	0	
LFL Frac (10500)	18.75	s	0	0	

Late Pool Fire Hazard

Path: \Terminal Adonai - Efeitos físicos\Simulações\H155 (H)

	Dia	Noite
Late Pool Fire Status	Hazard	Hazard

Radiation Effects: Late Pool Fire Ellipse

Path: \Terminal Adonai - Efeitos físicos\Simulações\H155 (H)

			Dia	Noite	Distance (m)
Radiation Level	9.83	kW/m2	29.071	27.6755	
Radiation Level	19.46	kW/m2	22.5059	22.5059	
Radiation Level	35	kW/m2	Not Reached	Not Reached	

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Radiation Effects: Late Pool Fire Distance

Path: \Terminal Adonai - Efeitos físicos\Simulações\H155 (H)

	Dia	Noite
Radiation Level (kW/m ²)		

Fireball Hazard

Path: \Terminal Adonai - Efeitos físicos\Simulações\H155 (H)

	Dia	Noite
Fireball Flame Status	No Hazard	No Hazard

Flash Fire Envelope

Path: \Terminal Adonai - Efeitos físicos\Simulações\H155 (H)

All flammable results are reported at the flammable effect height 0 m

			Dia	Noite
Furthest Extent	10500	ppm	46.7923	48.6334
Furthest Extent	10500	ppm	46.7923	48.6334
				Heights (m) for above distances
			Dia	Noite
Furthest Extent	10500	ppm	0	0
Furthest Extent	10500	ppm	0	0

Explosion Effects: Early Explosion

Path: \Terminal Adonai - Efeitos físicos\Simulações\H155 (H)

Early Explosions are assumed to be centered at the release location
Explosion Model Used : TNT

			Dia	Noite
Supplied Flammable Mass		kg	1.10212e+006	1.10212e+006
				Distance (m) at Overpressure Levels
			Dia	Noite
Overpressure	0.05	bar	No Hazard	No Hazard
Overpressure	0.1	bar	No Hazard	No Hazard
Overpressure	0.3	bar	No Hazard	No Hazard
				Used Mass (kg) at Overpressure Levels
			Dia	Noite
Overpressure	0.05	bar	0	0
Overpressure	0.1	bar	0	0
Overpressure	0.3	bar	0	0

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Explosion Effects: Late Ignition

Path: \Terminal Adonai - Efeitos físicos\Simulações\H155 (H)

Explosion Model Used : TNT

Explosion Location Criterion: Cloud Center

All distances are measured from the Source

All flammable results are reported at the flammable effect height 0 m

			Maximum Distance (m) at Overpressure Level	
			Dia	Noite
Overpressure	0.05	bar	109.767	112.504
Overpressure	0.1	bar	72.6829	72.1883
Overpressure	0.3	bar	42.2886	39.1458

Supplementary Data at 0.05 bar

			Dia	Noite
Supplied Flammable Mass		kg	196.892	252.972
Used Flammable Mass		kg	196.892	252.972
Overpressure Radius		m	97.792	106.313
Distance to:				
- Ignition Source		m	40	40
- Cloud Front/Centre		m	11.975	6.191
- Explosion Centre		m	11.975	6.191

Supplementary Data at 0.1 bar

			Dia	Noite
Supplied Flammable Mass		kg	196.892	252.972
Used Flammable Mass		kg	196.892	252.972
Overpressure Radius		m	60.7079	65.9973
Distance to:				
- Ignition Source		m	40	40
- Cloud Front/Centre		m	11.975	6.191
- Explosion Centre		m	11.975	6.191

Supplementary Data at 0.3 bar

			Dia	Noite
Supplied Flammable Mass		kg	196.892	252.972
Used Flammable Mass		kg	196.892	252.972
Overpressure Radius		m	30.3136	32.9548
Distance to:				
- Ignition Source		m	40	40
- Cloud Front/Centre		m	11.975	6.191
- Explosion Centre		m	11.975	6.191

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Weather Conditions

Path: \Terminal Adonai - Efeitos físicos\Simulações\H155 (H)

		Dia	Noite
Wind Speed	m/s	3	2
Pasquill Stability		C	E
Surface Roughness Length	mm	1000	1000
Surface Roughness Parameter		0.173718	0.173718
Atmospheric Temperature	degC	25	20
Surface Temperature	degC	30	20
Relative Humidity	fraction	0.8	0.8

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

H155 (M)

Base Case

CASE Name: Data

Path: \Terminal Adonai - Efeitos físicos\Simulações\H155 (M)

User-Defined Data

Material

Material Identifier	METHANOL
Type of Vessel	Padded Liquid
Pressure Specification	Pressure specified
Storage Pressure - gauge	0.03 bar
Temperature	25 degC
Volume Inventory	1680 m3

Scenario

Scenario Type	Catastrophic rupture
Phase to be Released	Liquid
Building Wake Effect	None

Location

Elevation	0 m
Use ERPG averaging time	ERPG not selected
Use IDLH averaging time	IDLH not selected
Use STEL averaging time	STEL not selected
Supply a user defined averaging time	Not supplied

Bund

Status of Bund	Bund present
Bund Area	1453 m2
[Type of Bund Surface	User-Defined (Land)]
Bund Height	3 m
[Bund Failure Modeling	Bund cannot fail]

Indoor/Outdoor

Location of release	Open air release
---------------------	------------------

Flammable

Explosion Method	TNT
Jet Fire Method	Cone Model

Dispersion

Late Ignition Location	No ignition location
Mass Inventory of material to Disperse	1.327E6 kg
Use Burst Pressure	No - Use release pressure for fireball

Fireball Parameters

[Mass Modification Factor	3]
[Calculation method for fireball	DNV Recommended]
[TNO model flame temperature	1727 degC]

Toxic Parameters

[Indoor Calculations	Unselected]
[Wind Dependent Exchange Rate	Case Specified]

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

[Building Exchange Rate	4 /hr]
[Tail Time	1800 s]
[Set averaging time equal to exposure time	Use a fixed averaging time]
[Cut-off fraction of toxic load for exposure time calculation	0.05 fraction]
[Cut-off concentration for exposure time calculations	0 fraction]

Geometry

Shape	Point
Dimension	2D
System	Absolute
East(1)	0 m
North(1)	0 m

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Path: \Terminal Adonai - Efeitos físicos\Simulações\H155 (M)

DISCHARGE DATA for Weather: Global Weathers\Dia

Wind Speed:	3.00 m/s
Wind Speed at Height (Calculated)	1.78 m/s
Pasquill Stability:	C

USER-DEFINED QUANTITIES

Material	METHANOL
Scenario	Catastrophic rupture
Inventory	1,326,557.13 kg
Fixed Duration	n/a s

Stagnation data (data at upstream end for long pipe):

- Pressure	1.04 bar
- Temperature	25.00 degC
- Fluid State	Non-saturated liquid

CALCULATED QUANTITIES

Mass Flow of Air (Vent from Vapor Space only)	n/a
Mass Flowrate	n/a kg/s
Release Duration	n/a s
Orifice or pipe exit data (before atmospheric expansion):	
- Pressure	n/a bar
- Temperature	n/a degC
- Vena Contracta Velocity (exit velocity for pipe releases)	n/a m/s
- Discharge Coefficient	n/a
Final data (after atmospheric expansion):	
- Temperature	25.00 degC
- Liquid Mass Fraction	1.00 fraction
- Droplet Diameter	735.02 um
- Expanded Radius	n/a m
- Velocity	1.54 m/s

DISCHARGE DATA for Weather: Global Weathers\Noite

Wind Speed:	2.00 m/s
Wind Speed at Height (Calculated)	0.83 m/s
Pasquill Stability:	E

USER-DEFINED QUANTITIES

Material	METHANOL
Scenario	Catastrophic rupture
Inventory	1,326,557.13 kg
Fixed Duration	n/a s

Stagnation data (data at upstream end for long pipe):

- Pressure	1.04 bar
- Temperature	25.00 degC
- Fluid State	Non-saturated liquid

CALCULATED QUANTITIES

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Mass Flow of Air (Vent from Vapor Space only)	n/a
Mass Flowrate	n/a kg/s
Release Duration	n/a s
Orifice or pipe exit data (before atmospheric expansion):	
- Pressure	n/a bar
- Temperature	n/a degC
- Vena Contracta Velocity (exit velocity for pipe releases)	n/a m/s
- Discharge Coefficient	n/a
Final data (after atmospheric expansion):	
- Temperature	25.00 degC
- Liquid Mass Fraction	1.00 fraction
- Droplet Diameter	735.02 um
- Expanded Radius	n/a m
- Velocity	1.54 m/s



Consequence Results

Pool Vaporization Results

Path: \Terminal Adonai - Efeitos físicos\Simulações\H155 (M)

N.B. Pool vaporization segments begin when the cloud has left the pool

		Dia	Noite
Liquid Rainout	fraction	0.999392	0.999387
Initial Vapor Cloud	kg	805.967	812.65
Time Pool Left Behind	s	34.5855	60.2983

Cloud Segment 1

Cloud Segment Duration	s	600	600
Pool Vaporization Rate	kg/s	3.73824	3.04677

Maximum Pool Radius	m	21.5059	21.5059
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Distance to Concentration Results

Path: \Terminal Adonai - Efeitos físicos\Simulações\H155 (M)

The height for user defined concentrations is the user defined height 0 m

All toxic results are reported at the toxic effect height 1 m

All flammable results are reported at the flammable effect height 0 m

Concentration(ppm)	Averaging Time		Dia	Noite	Distance (m)
UFL (360000)	18.75	s	15.6323	15.4348	
LFL (73000)	18.75	s	23.2368	24.7171	
LFL Frac (73000)	18.75	s	23.2368	24.7171	

Concentration(ppm)	Averaging Time		Dia	Noite	Heights (m) for above distances
UFL (360000)	18.75	s	0	0	
LFL (73000)	18.75	s	0	0	
LFL Frac (73000)	18.75	s	0	0	

Late Pool Fire Hazard

Path: \Terminal Adonai - Efeitos físicos\Simulações\H155 (M)

	Dia	Noite
Late Pool Fire Status	Hazard	Hazard

Radiation Effects: Late Pool Fire Ellipse

Path: \Terminal Adonai - Efeitos físicos\Simulações\H155 (M)

			Dia	Noite	Distance (m)
Radiation Level	9.83	kW/m2	43.2932	41.7638	
Radiation Level	19.46	kW/m2	29.8456	28.3784	
Radiation Level	35	kW/m2	22.5059	22.5059	

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Radiation Effects: Late Pool Fire Distance

Path: \Terminal Adonai - Efeitos físicos\Simulações\H155 (M)

	Dia	Noite
Radiation Level (kW/m2)		

Fireball Hazard

Path: \Terminal Adonai - Efeitos físicos\Simulações\H155 (M)

	Dia	Noite
Fireball Flame Status	No Hazard	No Hazard

Flash Fire Envelope

Path: \Terminal Adonai - Efeitos físicos\Simulações\H155 (M)

All flammable results are reported at the flammable effect height 0 m

			Dia	Noite
Furthest Extent	73000	ppm	23.2368	24.7171
Furthest Extent	73000	ppm	23.2368	24.7171
			Distances (m)	
			Dia	Noite
Furthest Extent	73000	ppm	0	0
Furthest Extent	73000	ppm	0	0

Explosion Effects: Early Explosion

Path: \Terminal Adonai - Efeitos físicos\Simulações\H155 (M)

Early Explosions are assumed to be centered at the release location
Explosion Model Used : TNT

			Dia	Noite
Supplied Flammable Mass		kg	1.32656e+006	1.32656e+006
			Distance (m) at Overpressure Levels	
			Dia	Noite
Overpressure	0.05	bar	No Hazard	No Hazard
Overpressure	0.1	bar	No Hazard	No Hazard
Overpressure	0.3	bar	No Hazard	No Hazard
			Used Mass (kg) at Overpressure Levels	
			Dia	Noite
Overpressure	0.05	bar	0	0
Overpressure	0.1	bar	0	0
Overpressure	0.3	bar	0	0

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Explosion Effects: Late Ignition

Path: \Terminal Adonai - Efeitos físicos\Simulações\H155 (M)

Explosion Model Used : TNT

Explosion Location Criterion: Cloud Center

All distances are measured from the Source

All flammable results are reported at the flammable effect height 0 m

			Maximum Distance (m) at Overpressure Level	
			Dia	Noite
Overpressure	0.05	bar	74.5866	80.1939
Overpressure	0.1	bar	49.0664	52.4914
Overpressure	0.3	bar	28.15	29.7863

Supplementary Data at 0.05 bar

			Dia	Noite
Supplied Flammable Mass		kg	144.12	184.345
Used Flammable Mass		kg	144.12	184.345
Overpressure Radius		m	67.2975	73.0524
Distance to:				
- Ignition Source		m	20	20
- Cloud Front/Centre		m	7.28907	7.14149
- Explosion Centre		m	7.28907	7.14149

Supplementary Data at 0.1 bar

			Dia	Noite
Supplied Flammable Mass		kg	144.12	184.345
Used Flammable Mass		kg	144.12	184.345
Overpressure Radius		m	41.7774	45.3499
Distance to:				
- Ignition Source		m	20	20
- Cloud Front/Centre		m	7.28907	7.14149
- Explosion Centre		m	7.28907	7.14149

Supplementary Data at 0.3 bar

			Dia	Noite
Supplied Flammable Mass		kg	144.12	184.345
Used Flammable Mass		kg	144.12	184.345
Overpressure Radius		m	20.8609	22.6448
Distance to:				
- Ignition Source		m	20	20
- Cloud Front/Centre		m	7.28907	7.14149
- Explosion Centre		m	7.28907	7.14149

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Weather Conditions

Path: \Terminal Adonai - Efeitos físicos\Simulações\H155 (M)

		Dia	Noite
Wind Speed	m/s	3	2
Pasquill Stability		C	E
Surface Roughness Length	mm	1000	1000
Surface Roughness Parameter		0.173718	0.173718
Atmospheric Temperature	degC	25	20
Surface Temperature	degC	30	20
Relative Humidity	fraction	0.8	0.8

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

H155 (N)

Base Case

CASE Name: Data

Path: \Terminal Adonai - Efeitos físicos\Simulações\H155 (N)

User-Defined Data

Material

Material Identifier	N-NONANE
Type of Vessel	Padded Liquid
Pressure Specification	Pressure specified
Storage Pressure - gauge	0.03 bar
Temperature	25 degC
Volume Inventory	1680 m3

Scenario

Scenario Type	Catastrophic rupture
Phase to be Released	Liquid
Building Wake Effect	None

Location

Elevation	0 m
Use ERPG averaging time	ERPG not selected
Use IDLH averaging time	IDLH not selected
Use STEL averaging time	STEL not selected
Supply a user defined averaging time	Not supplied

Bund

Status of Bund	Bund present
Bund Area	1453 m2
[Type of Bund Surface	User-Defined (Land)]
Bund Height	3 m
[Bund Failure Modeling	Bund cannot fail]

Indoor/Outdoor

Location of release	Open air release
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Flammable

Explosion Method	TNT
Jet Fire Method	Cone Model

Dispersion

Late Ignition Location	No ignition location
Mass Inventory of material to Disperse	1.2E6 kg
Use Burst Pressure	No - Use release pressure for fireball

Fireball Parameters

[Mass Modification Factor	3]
[Calculation method for fireball	DNV Recommended]
[TNO model flame temperature	1727 degC]

Toxic Parameters

[Indoor Calculations	Unselected]
[Wind Dependent Exchange Rate	Case Specified]

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

[Building Exchange Rate	4 /hr]
[Tail Time	1800 s]
[Set averaging time equal to exposure time	Use a fixed averaging time]
[Cut-off fraction of toxic load for exposure time calculation	0.05 fraction]
[Cut-off concentration for exposure time calculations	0 fraction]

Geometry

Shape	Point
Dimension	2D
System	Absolute
East(1)	0 m
North(1)	0 m

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Path: \Terminal Adonai - Efeitos físicos\Simulações\H155 (N)

DISCHARGE DATA for Weather: Global Weathers\Dia

Wind Speed: 3.00 m/s
Wind Speed at Height (Calculated) 1.78 m/s
Pasquill Stability: C

USER-DEFINED QUANTITIES

Material N-NONANE
Scenario Catastrophic rupture
Inventory 1,200,011.63 kg
Fixed Duration n/a s

Stagnation data (data at upstream end for long pipe):

- Pressure 1.04 bar
- Temperature 25.00 degC
- Fluid State Non-saturated liquid

CALCULATED QUANTITIES

Mass Flow of Air (Vent from Vapor Space only) n/a
Mass Flowrate n/a kg/s
Release Duration n/a s
Orifice or pipe exit data (before atmospheric expansion):
- Pressure n/a bar
- Temperature n/a degC
- Vena Contracta Velocity (exit velocity for pipe releases) n/a m/s
- Discharge Coefficient n/a
Final data (after atmospheric expansion):
- Temperature 25.00 degC
- Liquid Mass Fraction 1.00 fraction
- Droplet Diameter 727.67 um
- Expanded Radius n/a m
- Velocity 0.76 m/s

DISCHARGE DATA for Weather: Global Weathers\Noite

Wind Speed: 2.00 m/s
Wind Speed at Height (Calculated) 0.83 m/s
Pasquill Stability: E

USER-DEFINED QUANTITIES

Material N-NONANE
Scenario Catastrophic rupture
Inventory 1,200,011.63 kg
Fixed Duration n/a s

Stagnation data (data at upstream end for long pipe):

- Pressure 1.04 bar
- Temperature 25.00 degC
- Fluid State Non-saturated liquid

CALCULATED QUANTITIES

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Mass Flow of Air (Vent from Vapor Space only)	n/a
Mass Flowrate	n/a kg/s
Release Duration	n/a s
Orifice or pipe exit data (before atmospheric expansion):	
- Pressure	n/a bar
- Temperature	n/a degC
- Vena Contracta Velocity (exit velocity for pipe releases)	n/a m/s
- Discharge Coefficient	n/a
Final data (after atmospheric expansion):	
- Temperature	25.00 degC
- Liquid Mass Fraction	1.00 fraction
- Droplet Diameter	727.67 um
- Expanded Radius	n/a m
- Velocity	0.76 m/s



Consequence Results

Pool Vaporization Results

Path: \Terminal Adonai - Efeitos físicos\Simulações\H155 (N)

N.B. Pool vaporization segments begin when the cloud has left the pool

		Dia	Noite
Liquid Rainout	fraction	0.999996	0.999996
Initial Vapor Cloud	kg	4.72222	4.59875
Time Pool Left Behind	s	22.6682	47.15

Cloud Segment 1

Cloud Segment Duration	s	600	600
Pool Vaporization Rate	kg/s	0.27504	0.216357

Maximum Pool Radius	m	21.5059	21.5059
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Distance to Concentration Results

Path: \Terminal Adonai - Efeitos físicos\Simulações\H155 (N)

The height for user defined concentrations is the user defined height 0 m

All toxic results are reported at the toxic effect height 1 m

All flammable results are reported at the flammable effect height 0 m

Concentration(ppm)	Averaging Time		Dia	Noite	Distance (m)
UFL (56000)	18.75	s	10.152		10.1389
LFL (7000)	18.75	s	10.2613		10.2482
LFL Frac (7000)	18.75	s	10.2613		10.2482

Concentration(ppm)	Averaging Time		Dia	Noite	Heights (m) for above distances
UFL (56000)	18.75	s	0		0
LFL (7000)	18.75	s	0		0
LFL Frac (7000)	18.75	s	0		0

Late Pool Fire Hazard

Path: \Terminal Adonai - Efeitos físicos\Simulações\H155 (N)

	Dia	Noite
Late Pool Fire Status	Hazard	Hazard

Radiation Effects: Late Pool Fire Ellipse

Path: \Terminal Adonai - Efeitos físicos\Simulações\H155 (N)

			Dia	Noite	Distance (m)
Radiation Level	9.83	kW/m2	29.0238		27.7277
Radiation Level	19.46	kW/m2	22.5059		22.5059
Radiation Level	35	kW/m2	Not Reached		Not Reached

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Radiation Effects: Late Pool Fire Distance

Path: \Terminal Adonai - Efeitos físicos\Simulações\H155 (N)

	Dia	Noite
Radiation Level (kW/m2)		

Fireball Hazard

Path: \Terminal Adonai - Efeitos físicos\Simulações\H155 (N)

	Dia	Noite
Fireball Flame Status	No Hazard	No Hazard

Flash Fire Envelope

Path: \Terminal Adonai - Efeitos físicos\Simulações\H155 (N)

All flammable results are reported at the flammable effect height 0 m

			Dia	Noite
Furthest Extent	7000	ppm	10.2613	10.2482
Furthest Extent	7000	ppm	10.2613	10.2482

			Dia	Noite
Furthest Extent	7000	ppm	0	0
Furthest Extent	7000	ppm	0	0

Explosion Effects: Early Explosion

Path: \Terminal Adonai - Efeitos físicos\Simulações\H155 (N)

Early Explosions are assumed to be centered at the release location
Explosion Model Used : TNT

			Dia	Noite
Supplied Flammable Mass		kg	1.20001e+006	1.20001e+006

			Distance (m) at Overpressure Levels	
			Dia	Noite
Overpressure	0.05	bar	No Hazard	No Hazard
Overpressure	0.1	bar	No Hazard	No Hazard
Overpressure	0.3	bar	No Hazard	No Hazard

			Used Mass (kg) at Overpressure Levels	
			Dia	Noite
Overpressure	0.05	bar	0	0
Overpressure	0.1	bar	0	0
Overpressure	0.3	bar	0	0

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Explosion Effects: Late Ignition

Path: \Terminal Adonai - Efeitos físicos\Simulações\H155 (N)

Explosion Model Used : TNT

Explosion Location Criterion: Cloud Center

All distances are measured from the Source

All flammable results are reported at the flammable effect height 0 m

			Maximum Distance (m) at Overpressure Level	
			Dia	Noite
Overpressure	0.05	bar	10.2291	9.53757
Overpressure	0.1	bar	6.38602	5.95211
Overpressure	0.3	bar	3.23622	3.01345
			Supplementary Data at 0.05 bar	
			Dia	Noite
Supplied Flammable Mass		kg	0.221173	0.179611
Used Flammable Mass		kg	0.221173	0.179611
Overpressure Radius		m	10.1343	9.45498
Distance to:				
- Ignition Source		m	10	10
- Cloud Front/Centre		m	0.0947851	0.0825965
- Explosion Centre		m	0.0947851	0.0825965
			Supplementary Data at 0.1 bar	
			Dia	Noite
Supplied Flammable Mass		kg	0.221173	0.179611
Used Flammable Mass		kg	0.221173	0.179611
Overpressure Radius		m	6.29124	5.86952
Distance to:				
- Ignition Source		m	10	10
- Cloud Front/Centre		m	0.0947851	0.0825965
- Explosion Centre		m	0.0947851	0.0825965
			Supplementary Data at 0.3 bar	
			Dia	Noite
Supplied Flammable Mass		kg	0.221173	0.179611
Used Flammable Mass		kg	0.221173	0.179611
Overpressure Radius		m	3.14144	2.93086
Distance to:				
- Ignition Source		m	10	10
- Cloud Front/Centre		m	0.0947851	0.0825965
- Explosion Centre		m	0.0947851	0.0825965

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Weather Conditions

Path: \Terminal Adonai - Efeitos físicos\Simulações\H155 (N)

		Dia	Noite
Wind Speed	m/s	3	2
Pasquill Stability		C	E
Surface Roughness Length	mm	1000	1000
Surface Roughness Parameter		0.173718	0.173718
Atmospheric Temperature	degC	25	20
Surface Temperature	degC	30	20
Relative Humidity	fraction	0.8	0.8

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

H155 (P)

Base Case

CASE Name: Data

Path: \Terminal Adonai - Efeitos físicos\Simulações\H155 (P)

User-Defined Data

Material

Material Identifier	N-PENTANE
Type of Vessel	Padded Liquid
Pressure Specification	Pressure specified
Storage Pressure - gauge	0.03 bar
Temperature	25 degC
Volume Inventory	1680 m3

Scenario

Scenario Type	Catastrophic rupture
Phase to be Released	Liquid
Building Wake Effect	None

Location

Elevation	0 m
Use ERPG averaging time	ERPG not selected
Use IDLH averaging time	IDLH not selected
Use STEL averaging time	STEL not selected
Supply a user defined averaging time	Not supplied

Bund

Status of Bund	Bund present
Bund Area	1453 m2
[Type of Bund Surface	User-Defined (Land)]
Bund Height	3 m
[Bund Failure Modeling	Bund cannot fail]

Indoor/Outdoor

Location of release	Open air release
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Flammable

Explosion Method	TNT
Jet Fire Method	Cone Model

Dispersion

Late Ignition Location	No ignition location
Mass Inventory of material to Disperse	1.045E6 kg
Use Burst Pressure	No - Use release pressure for fireball

Fireball Parameters

[Mass Modification Factor	3]
[Calculation method for fireball	DNV Recommended]
[TNO model flame temperature	1727 degC]

Toxic Parameters

[Indoor Calculations	Unselected]
[Wind Dependent Exchange Rate	Case Specified]

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

[Building Exchange Rate	4 /hr]
[Tail Time	1800 s]
[Set averaging time equal to exposure time	Use a fixed averaging time]
[Cut-off fraction of toxic load for exposure time calculation	0.05 fraction]
[Cut-off concentration for exposure time calculations	0 fraction]

Geometry

Shape	Point
Dimension	2D
System	Absolute
East(1)	0 m
North(1)	0 m

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Path: \Terminal Adonai - Efeitos físicos\Simulações\H155 (P)

DISCHARGE DATA for Weather: Global Weathers\Dia

Wind Speed: 3.00 m/s
Wind Speed at Height (Calculated) 1.78 m/s
Pasquill Stability: C

USER-DEFINED QUANTITIES

Material N-PENTANE
Scenario Catastrophic rupture
Inventory 1,044,528.88 kg
Fixed Duration n/a s

Stagnation data (data at upstream end for long pipe):

- Pressure 1.04 bar
- Temperature 25.00 degC
- Fluid State Non-saturated liquid

CALCULATED QUANTITIES

Mass Flow of Air (Vent from Vapor Space only) n/a
Mass Flowrate n/a kg/s
Release Duration n/a s
Orifice or pipe exit data (before atmospheric expansion):
- Pressure n/a bar
- Temperature n/a degC
- Vena Contracta Velocity (exit velocity for pipe releases) n/a m/s
- Discharge Coefficient n/a
Final data (after atmospheric expansion):
- Temperature 25.00 degC
- Liquid Mass Fraction 1.00 fraction
- Droplet Diameter 717.48 um
- Expanded Radius n/a m
- Velocity 0.86 m/s

DISCHARGE DATA for Weather: Global Weathers\Noite

Wind Speed: 2.00 m/s
Wind Speed at Height (Calculated) 0.83 m/s
Pasquill Stability: E

USER-DEFINED QUANTITIES

Material N-PENTANE
Scenario Catastrophic rupture
Inventory 1,044,528.88 kg
Fixed Duration n/a s

Stagnation data (data at upstream end for long pipe):

- Pressure 1.04 bar
- Temperature 25.00 degC
- Fluid State Non-saturated liquid

CALCULATED QUANTITIES

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Mass Flow of Air (Vent from Vapor Space only)	n/a
Mass Flowrate	n/a kg/s
Release Duration	n/a s
Orifice or pipe exit data (before atmospheric expansion):	
- Pressure	n/a bar
- Temperature	n/a degC
- Vena Contracta Velocity (exit velocity for pipe releases)	n/a m/s
- Discharge Coefficient	n/a
Final data (after atmospheric expansion):	
- Temperature	25.00 degC
- Liquid Mass Fraction	1.00 fraction
- Droplet Diameter	717.48 um
- Expanded Radius	n/a m
- Velocity	0.86 m/s



Consequence Results

Pool Vaporization Results

Path: \Terminal Adonai - Efeitos físicos\Simulações\H155 (P)

N.B. Pool vaporization segments begin when the cloud has left the pool

		Dia	Noite
Liquid Rainout	fraction	0.999205	0.999242
Initial Vapor Cloud	kg	830.647	792.028
Time Pool Left Behind	s	54.3885	140.712

Cloud Segment 1

Cloud Segment Duration	s	600	600
Pool Vaporization Rate	kg/s	34.9087	28.0043

Maximum Pool Radius	m	21.5059	21.5059
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Distance to Concentration Results

Path: \Terminal Adonai - Efeitos físicos\Simulações\H155 (P)

The height for user defined concentrations is the user defined height 0 m

All toxic results are reported at the toxic effect height 1 m

All flammable results are reported at the flammable effect height 0 m

Concentration(ppm)	Averaging Time		Distance (m)	
			Dia	Noite
UFL (80000)	18.75	s	34.9822	42.2655
LFL (13000)	18.75	s	86.7204	90.1237
LFL Frac (13000)	18.75	s	86.7204	90.1237

Concentration(ppm)	Averaging Time		Heights (m) for above distances	
			Dia	Noite
UFL (80000)	18.75	s	0	0
LFL (13000)	18.75	s	0	0
LFL Frac (13000)	18.75	s	0	0

Late Pool Fire Hazard

Path: \Terminal Adonai - Efeitos físicos\Simulações\H155 (P)

	Dia	Noite
Late Pool Fire Status	Hazard	Hazard

Radiation Effects: Late Pool Fire Ellipse

Path: \Terminal Adonai - Efeitos físicos\Simulações\H155 (P)

			Distance (m)	
			Dia	Noite
Radiation Level	9.83	kW/m2	29.0294	27.7158
Radiation Level	19.46	kW/m2	22.5059	22.5059
Radiation Level	35	kW/m2	Not Reached	Not Reached

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Radiation Effects: Late Pool Fire Distance

Path: \Terminal Adonai - Efeitos físicos\Simulações\H155 (P)

	Dia	Noite
Radiation Level (kW/m ²)		

Fireball Hazard

Path: \Terminal Adonai - Efeitos físicos\Simulações\H155 (P)

	Dia	Noite
Fireball Flame Status	No Hazard	No Hazard

Flash Fire Envelope

Path: \Terminal Adonai - Efeitos físicos\Simulações\H155 (P)

All flammable results are reported at the flammable effect height 0 m

			Dia	Noite
Furthest Extent	13000	ppm	86.7204	90.1237
Furthest Extent	13000	ppm	86.7204	90.1237
				Heights (m) for above distances
			Dia	Noite
Furthest Extent	13000	ppm	0	0
Furthest Extent	13000	ppm	0	0

Explosion Effects: Early Explosion

Path: \Terminal Adonai - Efeitos físicos\Simulações\H155 (P)

Early Explosions are assumed to be centered at the release location
Explosion Model Used : TNT

			Dia	Noite
Supplied Flammable Mass		kg	1.04453e+006	1.04453e+006
				Distance (m) at Overpressure Levels
			Dia	Noite
Overpressure	0.05	bar	No Hazard	No Hazard
Overpressure	0.1	bar	No Hazard	No Hazard
Overpressure	0.3	bar	No Hazard	No Hazard
				Used Mass (kg) at Overpressure Levels
			Dia	Noite
Overpressure	0.05	bar	0	0
Overpressure	0.1	bar	0	0
Overpressure	0.3	bar	0	0

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Explosion Effects: Late Ignition

Path: \Terminal Adonai - Efeitos físicos\Simulações\H155 (P)

Explosion Model Used : TNT

Explosion Location Criterion: Cloud Center

All distances are measured from the Source

All flammable results are reported at the flammable effect height 0 m

			Maximum Distance (m) at Overpressure Level	
			Dia	Noite
Overpressure	0.05	bar	183.399	187.887
Overpressure	0.1	bar	125.333	124.597
Overpressure	0.3	bar	79.1448	77.3536

Supplementary Data at 0.05 bar

			Dia	Noite
Supplied Flammable Mass		kg	894.883	1050.98
Used Flammable Mass		kg	894.883	1050.98
Overpressure Radius		m	162.277	171.212
Distance to:				
- Ignition Source		m	70	80
- Cloud Front/Centre		m	21.1214	16.6756
- Explosion Centre		m	21.1214	16.6756

Supplementary Data at 0.1 bar

			Dia	Noite
Supplied Flammable Mass		kg	687.236	735.464
Used Flammable Mass		kg	687.236	735.464
Overpressure Radius		m	92.2528	94.3622
Distance to:				
- Ignition Source		m	80	90
- Cloud Front/Centre		m	33.0797	30.2352
- Explosion Centre		m	33.0797	30.2352

Supplementary Data at 0.3 bar

			Dia	Noite
Supplied Flammable Mass		kg	687.236	735.464
Used Flammable Mass		kg	687.236	735.464
Overpressure Radius		m	46.0651	47.1184
Distance to:				
- Ignition Source		m	80	90
- Cloud Front/Centre		m	33.0797	30.2352
- Explosion Centre		m	33.0797	30.2352

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Weather Conditions

Path: \Terminal Adonai - Efeitos físicos\Simulações\H155 (P)

		Dia	Noite
Wind Speed	m/s	3	2
Pasquill Stability		C	E
Surface Roughness Length	mm	1000	1000
Surface Roughness Parameter		0.173718	0.173718
Atmospheric Temperature	degC	25	20
Surface Temperature	degC	30	20
Relative Humidity	fraction	0.8	0.8

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

H156 (A)

Base Case

CASE Name: Data

Path: \Terminal Adonai - Efeitos físicos\Simulações\H156 (A)

User-Defined Data

Material

Material Identifier	ACETONE
Type of Vessel	Padded Liquid
Pressure Specification	Pressure specified
Storage Pressure - gauge	0.03 bar
Temperature	25 degC
Volume Inventory	2560 m3

Scenario

Scenario Type	Catastrophic rupture
Phase to be Released	Liquid
Building Wake Effect	None

Location

Elevation	0 m
Use ERPG averaging time	ERPG not selected
Use IDLH averaging time	IDLH not selected
Use STEL averaging time	STEL not selected
Supply a user defined averaging time	Not supplied

Bund

Status of Bund	Bund present
Bund Area	1453 m2
[Type of Bund Surface	User-Defined (Land)]
Bund Height	3 m
[Bund Failure Modeling	Bund cannot fail]

Indoor/Outdoor

Location of release	Open air release
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Flammable

Explosion Method	TNT
Jet Fire Method	Cone Model

Dispersion

Late Ignition Location	No ignition location
Mass Inventory of material to Disperse	2.014E6 kg
Use Burst Pressure	No - Use release pressure for fireball

Fireball Parameters

[Mass Modification Factor	3]
[Calculation method for fireball	DNV Recommended]
[TNO model flame temperature	1727 degC]

Toxic Parameters

[Indoor Calculations	Unselected]
[Wind Dependent Exchange Rate	Case Specified]

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

[Building Exchange Rate	4 /hr]
[Tail Time	1800 s]
[Set averaging time equal to exposure time	Use a fixed averaging time]
[Cut-off fraction of toxic load for exposure time calculation	0.05 fraction]
[Cut-off concentration for exposure time calculations	0 fraction]

Geometry

Shape	Point
Dimension	2D
System	Absolute
East(1)	0 m
North(1)	0 m

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Path: \Terminal Adonai - Efeitos físicos\Simulações\H156 (A)

DISCHARGE DATA for Weather: Global Weathers\Dia

Wind Speed: 3.00 m/s
Wind Speed at Height (Calculated) 1.78 m/s
Pasquill Stability: C

USER-DEFINED QUANTITIES

Material ACETONE
Scenario Catastrophic rupture
Inventory 2,013,646.25 kg
Fixed Duration n/a s

Stagnation data (data at upstream end for long pipe):

- Pressure 1.04 bar
- Temperature 25.00 degC
- Fluid State Non-saturated liquid

CALCULATED QUANTITIES

Mass Flow of Air (Vent from Vapor Space only) n/a
Mass Flowrate n/a kg/s
Release Duration n/a s
Orifice or pipe exit data (before atmospheric expansion):
- Pressure n/a bar
- Temperature n/a degC
- Vena Contracta Velocity (exit velocity for pipe releases) n/a m/s
- Discharge Coefficient n/a
Final data (after atmospheric expansion):
- Temperature 25.00 degC
- Liquid Mass Fraction 1.00 fraction
- Droplet Diameter 734.74 um
- Expanded Radius n/a m
- Velocity 1.11 m/s

DISCHARGE DATA for Weather: Global Weathers\Noite

Wind Speed: 2.00 m/s
Wind Speed at Height (Calculated) 0.83 m/s
Pasquill Stability: E

USER-DEFINED QUANTITIES

Material ACETONE
Scenario Catastrophic rupture
Inventory 2,013,646.25 kg
Fixed Duration n/a s

Stagnation data (data at upstream end for long pipe):

- Pressure 1.04 bar
- Temperature 25.00 degC
- Fluid State Non-saturated liquid

CALCULATED QUANTITIES

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Mass Flow of Air (Vent from Vapor Space only)	n/a
Mass Flowrate	n/a kg/s
Release Duration	n/a s
Orifice or pipe exit data (before atmospheric expansion):	
- Pressure	n/a bar
- Temperature	n/a degC
- Vena Contracta Velocity (exit velocity for pipe releases)	n/a m/s
- Discharge Coefficient	n/a
Final data (after atmospheric expansion):	
- Temperature	25.00 degC
- Liquid Mass Fraction	1.00 fraction
- Droplet Diameter	734.74 um
- Expanded Radius	n/a m
- Velocity	1.11 m/s



Consequence Results

Pool Vaporization Results

Path: \Terminal Adonai - Efeitos físicos\Simulações\H156 (A)

N.B. Pool vaporization segments begin when the cloud has left the pool

		Dia	Noite
Liquid Rainout	fraction	0.999248	0.999246
Initial Vapor Cloud	kg	1514.15	1517.51
Time Pool Left Behind	s	51.1809	119.464

Cloud Segment 1

Cloud Segment Duration	s	600	600
Pool Vaporization Rate	kg/s	10.8869	8.86883

Maximum Pool Radius	m	21.5059	21.5059
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Distance to Concentration Results

Path: \Terminal Adonai - Efeitos físicos\Simulações\H156 (A)

The height for user defined concentrations is the user defined height 0 m

All toxic results are reported at the toxic effect height 1 m

All flammable results are reported at the flammable effect height 0 m

Concentration(ppm)	Averaging Time		Dia	Noite	Distance (m)
UFL (128000)	18.75	s	20.2497	21.4058	
LFL (26000)	18.75	s	61.1067	64.6445	
LFL Frac (26000)	18.75	s	61.1067	64.6445	
Concentration(ppm)	Averaging Time		Dia	Noite	Heights (m) for above distances
UFL (128000)	18.75	s	0	0	
LFL (26000)	18.75	s	0	0	
LFL Frac (26000)	18.75	s	0	0	

Late Pool Fire Hazard

Path: \Terminal Adonai - Efeitos físicos\Simulações\H156 (A)

	Dia	Noite
Late Pool Fire Status	Hazard	Hazard

Radiation Effects: Late Pool Fire Ellipse

Path: \Terminal Adonai - Efeitos físicos\Simulações\H156 (A)

			Dia	Noite	Distance (m)
Radiation Level	9.83	kW/m2	81.993	79.8344	
Radiation Level	19.46	kW/m2	62.1405	58.8005	
Radiation Level	35	kW/m2	44.6192	41.191	

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Radiation Effects: Late Pool Fire Distance

Path: \Terminal Adonai - Efeitos físicos\Simulações\H156 (A)

	Dia	Noite
Radiation Level (kW/m ²)		

Fireball Hazard

Path: \Terminal Adonai - Efeitos físicos\Simulações\H156 (A)

	Dia	Noite
Fireball Flame Status	No Hazard	No Hazard

Flash Fire Envelope

Path: \Terminal Adonai - Efeitos físicos\Simulações\H156 (A)

All flammable results are reported at the flammable effect height 0 m

			Dia	Noite
Furthest Extent	26000	ppm	61.1067	64.6445
Furthest Extent	26000	ppm	61.1067	64.6445
				Heights (m) for above distances
			Dia	Noite
Furthest Extent	26000	ppm	0	0
Furthest Extent	26000	ppm	0	0

Explosion Effects: Early Explosion

Path: \Terminal Adonai - Efeitos físicos\Simulações\H156 (A)

Early Explosions are assumed to be centered at the release location
Explosion Model Used : TNT

			Dia	Noite
Supplied Flammable Mass		kg	2.01365e+006	2.01365e+006
				Distance (m) at Overpressure Levels
			Dia	Noite
Overpressure	0.05	bar	No Hazard	No Hazard
Overpressure	0.1	bar	No Hazard	No Hazard
Overpressure	0.3	bar	No Hazard	No Hazard
				Used Mass (kg) at Overpressure Levels
			Dia	Noite
Overpressure	0.05	bar	0	0
Overpressure	0.1	bar	0	0
Overpressure	0.3	bar	0	0

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Explosion Effects: Late Ignition

Path: \Terminal Adonai - Efeitos físicos\Simulações\H156 (A)

Explosion Model Used : TNT

Explosion Location Criterion: Cloud Center

All distances are measured from the Source

All flammable results are reported at the flammable effect height 0 m

			Maximum Distance (m) at Overpressure Level	
			Dia	Noite
Overpressure	0.05	bar	154.751	153.937
Overpressure	0.1	bar	100.105	99.7301
Overpressure	0.3	bar	59.6539	55.3017

Supplementary Data at 0.05 bar

			Dia	Noite
Supplied Flammable Mass		kg	986.661	963.066
Used Flammable Mass		kg	986.661	963.066
Overpressure Radius		m	144.104	142.946
Distance to:				
- Ignition Source		m	50	60
- Cloud Front/Centre		m	10.6471	10.9914
- Explosion Centre		m	10.6471	10.9914

Supplementary Data at 0.1 bar

			Dia	Noite
Supplied Flammable Mass		kg	986.661	963.066
Used Flammable Mass		kg	986.661	963.066
Overpressure Radius		m	89.4576	88.7387
Distance to:				
- Ignition Source		m	50	60
- Cloud Front/Centre		m	10.6471	10.9914
- Explosion Centre		m	10.6471	10.9914

Supplementary Data at 0.3 bar

			Dia	Noite
Supplied Flammable Mass		kg	555.97	963.066
Used Flammable Mass		kg	555.97	963.066
Overpressure Radius		m	36.8953	44.3104
Distance to:				
- Ignition Source		m	60	60
- Cloud Front/Centre		m	22.7587	10.9914
- Explosion Centre		m	22.7587	10.9914

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Weather Conditions

Path: \Terminal Adonai - Efeitos físicos\Simulações\H156 (A)

		Dia	Noite
Wind Speed	m/s	3	2
Pasquill Stability		C	E
Surface Roughness Length	mm	1000	1000
Surface Roughness Parameter		0.173718	0.173718
Atmospheric Temperature	degC	25	20
Surface Temperature	degC	30	20
Relative Humidity	fraction	0.8	0.8

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

H156 (B)

Base Case

CASE Name: Data

Path: \Terminal Adonai - Efeitos físicos\Simulações\H156 (B)

User-Defined Data

Material

Material Identifier	BENZENE
Type of Vessel	Padded Liquid
Pressure Specification	Pressure specified
Storage Pressure - gauge	0.03 bar
Temperature	25 degC
Volume Inventory	2560 m3

Scenario

Scenario Type	Catastrophic rupture
Phase to be Released	Liquid
Building Wake Effect	None

Location

Elevation	0 m
Use ERPG averaging time	ERPG not selected
Use IDLH averaging time	IDLH not selected
Use STEL averaging time	STEL not selected
Supply a user defined averaging time	Not supplied

Bund

Status of Bund	Bund present
Bund Area	1453 m2
[Type of Bund Surface	User-Defined (Land)]
Bund Height	3 m
[Bund Failure Modeling	Bund cannot fail]

Indoor/Outdoor

Location of release	Open air release
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Flammable

Explosion Method	TNT
Jet Fire Method	Cone Model

Dispersion

Late Ignition Location	No ignition location
Mass Inventory of material to Disperse	2.235E6 kg
Use Burst Pressure	No - Use release pressure for fireball

Fireball Parameters

[Mass Modification Factor	3]
[Calculation method for fireball	DNV Recommended]
[TNO model flame temperature	1727 degC]

Toxic Parameters

[Indoor Calculations	Unselected]
[Wind Dependent Exchange Rate	Case Specified]

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

[Building Exchange Rate	4 /hr]
[Tail Time	1800 s]
[Set averaging time equal to exposure time	Use a fixed averaging time]
[Cut-off fraction of toxic load for exposure time calculation	0.05 fraction]
[Cut-off concentration for exposure time calculations	0 fraction]

Geometry

Shape	Point
Dimension	2D
System	Absolute
East(1)	0 m
North(1)	0 m

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Path: \Terminal Adonai - Efeitos físicos\Simulações\H156 (B)

DISCHARGE DATA for Weather: Global Weathers\Dia

Wind Speed: 3.00 m/s
Wind Speed at Height (Calculated) 1.78 m/s
Pasquill Stability: C

USER-DEFINED QUANTITIES

Material BENZENE
Scenario Catastrophic rupture
Inventory 2,234,899.00 kg
Fixed Duration n/a s

Stagnation data (data at upstream end for long pipe):

- Pressure 1.04 bar
- Temperature 25.00 degC
- Fluid State Non-saturated liquid

CALCULATED QUANTITIES

Mass Flow of Air (Vent from Vapor Space only) n/a
Mass Flowrate n/a kg/s
Release Duration n/a s
Orifice or pipe exit data (before atmospheric expansion):
- Pressure n/a bar
- Temperature n/a degC
- Vena Contracta Velocity (exit velocity for pipe releases) n/a m/s
- Discharge Coefficient n/a
Final data (after atmospheric expansion):
- Temperature 25.00 degC
- Liquid Mass Fraction 1.00 fraction
- Droplet Diameter 742.39 um
- Expanded Radius n/a m
- Velocity 0.82 m/s

DISCHARGE DATA for Weather: Global Weathers\Noite

Wind Speed: 2.00 m/s
Wind Speed at Height (Calculated) 0.83 m/s
Pasquill Stability: E

USER-DEFINED QUANTITIES

Material BENZENE
Scenario Catastrophic rupture
Inventory 2,234,899.00 kg
Fixed Duration n/a s

Stagnation data (data at upstream end for long pipe):

- Pressure 1.04 bar
- Temperature 25.00 degC
- Fluid State Non-saturated liquid

CALCULATED QUANTITIES

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Mass Flow of Air (Vent from Vapor Space only)	n/a
Mass Flowrate	n/a kg/s
Release Duration	n/a s
Orifice or pipe exit data (before atmospheric expansion):	
- Pressure	n/a bar
- Temperature	n/a degC
- Vena Contracta Velocity (exit velocity for pipe releases)	n/a m/s
- Discharge Coefficient	n/a
Final data (after atmospheric expansion):	
- Temperature	25.00 degC
- Liquid Mass Fraction	1.00 fraction
- Droplet Diameter	742.39 um
- Expanded Radius	n/a m
- Velocity	0.82 m/s



Consequence Results

Pool Vaporization Results

Path: \Terminal Adonai - Efeitos físicos\Simulações\H156 (B)

N.B. Pool vaporization segments begin when the cloud has left the pool

		Dia	Noite
Liquid Rainout	fraction	0.999949	0.999951
Initial Vapor Cloud	kg	113.613	109.417
Time Pool Left Behind	s	33.1887	76.9678

Cloud Segment 1

Cloud Segment Duration	s	600	600
Pool Vaporization Rate	kg/s	5.11728	4.03102

Maximum Pool Radius	m	21.5059	21.5059
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Distance to Concentration Results

Path: \Terminal Adonai - Efeitos físicos\Simulações\H156 (B)

The height for user defined concentrations is the user defined height 0 m

All toxic results are reported at the toxic effect height 1 m

All flammable results are reported at the flammable effect height 0 m

Concentration(ppm)	Averaging Time		Dia	Noite	Distance (m)
UFL (79000)	18.75	s	11.7146	11.7019	
LFL (13000)	18.75	s	28.5599	29.9681	
LFL Frac (13000)	18.75	s	28.5599	29.9681	
Concentration(ppm)	Averaging Time		Dia	Noite	Heights (m) for above distances
UFL (79000)	18.75	s	0	0	
LFL (13000)	18.75	s	0	0	
LFL Frac (13000)	18.75	s	0	0	

Late Pool Fire Hazard

Path: \Terminal Adonai - Efeitos físicos\Simulações\H156 (B)

	Dia	Noite
Late Pool Fire Status	Hazard	Hazard

Radiation Effects: Late Pool Fire Ellipse

Path: \Terminal Adonai - Efeitos físicos\Simulações\H156 (B)

			Dia	Noite	Distance (m)
Radiation Level	9.83	kW/m2	29.2004	22.885	
Radiation Level	19.46	kW/m2	22.5059	22.5059	
Radiation Level	35	kW/m2	Not Reached	Not Reached	

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Radiation Effects: Late Pool Fire Distance

Path: \Terminal Adonai - Efeitos físicos\Simulações\H156 (B)

	Dia	Noite
Radiation Level (kW/m ²)		

Fireball Hazard

Path: \Terminal Adonai - Efeitos físicos\Simulações\H156 (B)

	Dia	Noite
Fireball Flame Status	No Hazard	No Hazard

Flash Fire Envelope

Path: \Terminal Adonai - Efeitos físicos\Simulações\H156 (B)

All flammable results are reported at the flammable effect height 0 m

			Dia	Noite
Furthest Extent	13000	ppm	28.5599	29.9681
Furthest Extent	13000	ppm	28.5599	29.9681
				Heights (m) for above distances
			Dia	Noite
Furthest Extent	13000	ppm	0	0
Furthest Extent	13000	ppm	0	0

Explosion Effects: Early Explosion

Path: \Terminal Adonai - Efeitos físicos\Simulações\H156 (B)

Early Explosions are assumed to be centered at the release location
Explosion Model Used : TNT

			Dia	Noite
Supplied Flammable Mass		kg	2.2349e+006	2.2349e+006
				Distance (m) at Overpressure Levels
			Dia	Noite
Overpressure	0.05	bar	No Hazard	No Hazard
Overpressure	0.1	bar	No Hazard	No Hazard
Overpressure	0.3	bar	No Hazard	No Hazard
				Used Mass (kg) at Overpressure Levels
			Dia	Noite
Overpressure	0.05	bar	0	0
Overpressure	0.1	bar	0	0
Overpressure	0.3	bar	0	0

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Explosion Effects: Late Ignition

Path: \Terminal Adonai - Efeitos físicos\Simulações\H156 (B)

Explosion Model Used : TNT

Explosion Location Criterion: Cloud Center

All distances are measured from the Source

All flammable results are reported at the flammable effect height 0 m

			Maximum Distance (m) at Overpressure Level	
			Dia	Noite
Overpressure	0.05	bar	73.3128	71.2194
Overpressure	0.1	bar	46.0905	44.4911
Overpressure	0.3	bar	23.7789	22.5843

Supplementary Data at 0.05 bar

			Dia	Noite
Supplied Flammable Mass		kg	86.783	82.1442
Used Flammable Mass		kg	86.783	82.1442
Overpressure Radius		m	71.7862	70.4836
Distance to:				
- Ignition Source		m	20	20
- Cloud Front/Centre		m	1.52662	0.735819
- Explosion Centre		m	1.52662	0.735819

Supplementary Data at 0.1 bar

			Dia	Noite
Supplied Flammable Mass		kg	86.783	82.1442
Used Flammable Mass		kg	86.783	82.1442
Overpressure Radius		m	44.5638	43.7552
Distance to:				
- Ignition Source		m	20	20
- Cloud Front/Centre		m	1.52662	0.735819
- Explosion Centre		m	1.52662	0.735819

Supplementary Data at 0.3 bar

			Dia	Noite
Supplied Flammable Mass		kg	86.783	82.1442
Used Flammable Mass		kg	86.783	82.1442
Overpressure Radius		m	22.2523	21.8485
Distance to:				
- Ignition Source		m	20	20
- Cloud Front/Centre		m	1.52662	0.735819
- Explosion Centre		m	1.52662	0.735819

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Weather Conditions

Path: \Terminal Adonai - Efeitos físicos\Simulações\H156 (B)

		Dia	Noite
Wind Speed	m/s	3	2
Pasquill Stability		C	E
Surface Roughness Length	mm	1000	1000
Surface Roughness Parameter		0.173718	0.173718
Atmospheric Temperature	degC	25	20
Surface Temperature	degC	30	20
Relative Humidity	fraction	0.8	0.8

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

H156 (E)

Base Case

CASE Name: Data

Path: \Terminal Adonai - Efeitos físicos\Simulações\H156 (E)

User-Defined Data

Material

Material Identifier	ETHANOL
Type of Vessel	Padded Liquid
Pressure Specification	Pressure specified
Storage Pressure - gauge	0.03 bar
Temperature	25 degC
Volume Inventory	2560 m3

Scenario

Scenario Type	Catastrophic rupture
Phase to be Released	Liquid
Building Wake Effect	None

Location

Elevation	0 m
Use ERPG averaging time	ERPG not selected
Use IDLH averaging time	IDLH not selected
Use STEL averaging time	STEL not selected
Supply a user defined averaging time	Not supplied

Bund

Status of Bund	Bund present
Bund Area	1453 m2
[Type of Bund Surface	User-Defined (Land)]
Bund Height	3 m
[Bund Failure Modeling	Bund cannot fail]

Indoor/Outdoor

Location of release	Open air release
---------------------	------------------

Flammable

Explosion Method	TNT
Jet Fire Method	Cone Model

Dispersion

Late Ignition Location	No ignition location
Mass Inventory of material to Disperse	2.012E6 kg
Use Burst Pressure	No - Use release pressure for fireball

Fireball Parameters

[Mass Modification Factor	3]
[Calculation method for fireball	DNV Recommended]
[TNO model flame temperature	1727 degC]

Toxic Parameters

[Indoor Calculations	Unselected]
[Wind Dependent Exchange Rate	Case Specified]

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

[Building Exchange Rate	4 /hr]
[Tail Time	1800 s]
[Set averaging time equal to exposure time	Use a fixed averaging time]
[Cut-off fraction of toxic load for exposure time calculation	0.05 fraction]
[Cut-off concentration for exposure time calculations	0 fraction]

Geometry

Shape	Point
Dimension	2D
System	Absolute
East(1)	0 m
North(1)	0 m

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Path: \Terminal Adonai - Efeitos físicos\Simulações\H156 (E)

DISCHARGE DATA for Weather: Global Weathers\Dia

Wind Speed: 3.00 m/s
Wind Speed at Height (Calculated) 1.78 m/s
Pasquill Stability: C

USER-DEFINED QUANTITIES

Material ETHANOL
Scenario Catastrophic rupture
Inventory 2,011,891.25 kg
Fixed Duration n/a s

Stagnation data (data at upstream end for long pipe):

- Pressure 1.04 bar
- Temperature 25.00 degC
- Fluid State Non-saturated liquid

CALCULATED QUANTITIES

Mass Flow of Air (Vent from Vapor Space only) n/a
Mass Flowrate n/a kg/s
Release Duration n/a s
Orifice or pipe exit data (before atmospheric expansion):
- Pressure n/a bar
- Temperature n/a degC
- Vena Contracta Velocity (exit velocity for pipe releases) n/a m/s
- Discharge Coefficient n/a
Final data (after atmospheric expansion):
- Temperature 25.00 degC
- Liquid Mass Fraction 1.00 fraction
- Droplet Diameter 734.68 um
- Expanded Radius n/a m
- Velocity 1.23 m/s

DISCHARGE DATA for Weather: Global Weathers\Noite

Wind Speed: 2.00 m/s
Wind Speed at Height (Calculated) 0.83 m/s
Pasquill Stability: E

USER-DEFINED QUANTITIES

Material ETHANOL
Scenario Catastrophic rupture
Inventory 2,011,891.25 kg
Fixed Duration n/a s

Stagnation data (data at upstream end for long pipe):

- Pressure 1.04 bar
- Temperature 25.00 degC
- Fluid State Non-saturated liquid

CALCULATED QUANTITIES

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Mass Flow of Air (Vent from Vapor Space only)	n/a
Mass Flowrate	n/a kg/s
Release Duration	n/a s
Orifice or pipe exit data (before atmospheric expansion):	
- Pressure	n/a bar
- Temperature	n/a degC
- Vena Contracta Velocity (exit velocity for pipe releases)	n/a m/s
- Discharge Coefficient	n/a
Final data (after atmospheric expansion):	
- Temperature	25.00 degC
- Liquid Mass Fraction	1.00 fraction
- Droplet Diameter	734.68 um
- Expanded Radius	n/a m
- Velocity	1.23 m/s



Consequence Results

Pool Vaporization Results

Path: \Terminal Adonai - Efeitos físicos\Simulações\H156 (E)

N.B. Pool vaporization segments begin when the cloud has left the pool

		Dia	Noite
Liquid Rainout	fraction	0.999821	0.99982
Initial Vapor Cloud	kg	361.068	363.013
Time Pool Left Behind	s	34.5591	66.247

Cloud Segment 1

		Dia	Noite
Cloud Segment Duration	s	600	600
Pool Vaporization Rate	kg/s	2.127	1.72945

		Dia	Noite
Maximum Pool Radius	m	21.5059	21.5059

Distance to Concentration Results

Path: \Terminal Adonai - Efeitos físicos\Simulações\H156 (E)

The height for user defined concentrations is the user defined height 0 m

All toxic results are reported at the toxic effect height 1 m

All flammable results are reported at the flammable effect height 0 m

Concentration(ppm)	Averaging Time		Dia	Noite	Distance (m)
UFL (190000)	18.75	s	14.7616	14.6226	
LFL (43000)	18.75	s	14.9286	14.7901	
LFL Frac (43000)	18.75	s	14.9286	14.7901	

Concentration(ppm)	Averaging Time		Dia	Noite	Heights (m) for above distances
UFL (190000)	18.75	s	0	0	
LFL (43000)	18.75	s	0	0	
LFL Frac (43000)	18.75	s	0	0	

Late Pool Fire Hazard

Path: \Terminal Adonai - Efeitos físicos\Simulações\H156 (E)

	Dia	Noite
Late Pool Fire Status	Hazard	Hazard

Radiation Effects: Late Pool Fire Ellipse

Path: \Terminal Adonai - Efeitos físicos\Simulações\H156 (E)

			Dia	Noite	Distance (m)
Radiation Level	9.83	kW/m2	59.6907	58.1655	
Radiation Level	19.46	kW/m2	45.5201	43.1019	
Radiation Level	35	kW/m2	29.6316	28.2203	

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Radiation Effects: Late Pool Fire Distance

Path: \Terminal Adonai - Efeitos físicos\Simulações\H156 (E)

	Dia	Noite
Radiation Level (kW/m2)		

Fireball Hazard

Path: \Terminal Adonai - Efeitos físicos\Simulações\H156 (E)

	Dia	Noite
Fireball Flame Status	No Hazard	No Hazard

Flash Fire Envelope

Path: \Terminal Adonai - Efeitos físicos\Simulações\H156 (E)

All flammable results are reported at the flammable effect height 0 m

			Dia	Noite
Furthest Extent	43000	ppm	14.9286	14.7901
Furthest Extent	43000	ppm	14.9286	14.7901

			Dia	Noite
Furthest Extent	43000	ppm	0	0
Furthest Extent	43000	ppm	0	0

Explosion Effects: Early Explosion

Path: \Terminal Adonai - Efeitos físicos\Simulações\H156 (E)

Early Explosions are assumed to be centered at the release location
Explosion Model Used : TNT

			Dia	Noite
Supplied Flammable Mass		kg	2.01189e+006	2.01189e+006

			Dia	Noite
Overpressure	0.05	bar	No Hazard	No Hazard
Overpressure	0.1	bar	No Hazard	No Hazard
Overpressure	0.3	bar	No Hazard	No Hazard

			Dia	Noite
Overpressure	0.05	bar	0	0
Overpressure	0.1	bar	0	0
Overpressure	0.3	bar	0	0

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Explosion Effects: Late Ignition

Path: \Terminal Adonai - Efeitos físicos\Simulações\H156 (E)

Explosion Model Used : TNT

Explosion Location Criterion: Cloud Center

All distances are measured from the Source

All flammable results are reported at the flammable effect height 0 m

			Maximum Distance (m) at Overpressure Level	
			Dia	Noite
Overpressure	0.05	bar	No Hazard	No Hazard
Overpressure	0.1	bar	No Hazard	No Hazard
Overpressure	0.3	bar	No Hazard	No Hazard
			Supplementary Data at 0.05 bar	
			Dia	Noite
Supplied Flammable Mass		kg	No Hazard	No Hazard
Used Flammable Mass		kg	No Hazard	No Hazard
Overpressure Radius		m	0	0
Distance to:				
- Ignition Source		m	No Hazard	No Hazard
- Cloud Front/Centre		m	No Hazard	No Hazard
- Explosion Centre		m	0	0
			Supplementary Data at 0.1 bar	
			Dia	Noite
Supplied Flammable Mass		kg	No Hazard	No Hazard
Used Flammable Mass		kg	No Hazard	No Hazard
Overpressure Radius		m	0	0
Distance to:				
- Ignition Source		m	No Hazard	No Hazard
- Cloud Front/Centre		m	No Hazard	No Hazard
- Explosion Centre		m	0	0
			Supplementary Data at 0.3 bar	
			Dia	Noite
Supplied Flammable Mass		kg	No Hazard	No Hazard
Used Flammable Mass		kg	No Hazard	No Hazard
Overpressure Radius		m	0	0
Distance to:				
- Ignition Source		m	No Hazard	No Hazard
- Cloud Front/Centre		m	No Hazard	No Hazard
- Explosion Centre		m	0	0

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Weather Conditions

Path: \Terminal Adonai - Efeitos físicos\Simulações\H156 (E)

		Dia	Noite
Wind Speed	m/s	3	2
Pasquill Stability		C	E
Surface Roughness Length	mm	1000	1000
Surface Roughness Parameter		0.173718	0.173718
Atmospheric Temperature	degC	25	20
Surface Temperature	degC	30	20
Relative Humidity	fraction	0.8	0.8

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

H156 (H)

Base Case

CASE Name: Data

Path: \Terminal Adonai - Efeitos físicos\Simulações\H156 (H)

User-Defined Data

Material

Material Identifier	N-HEXANE
Type of Vessel	Padded Liquid
Pressure Specification	Pressure specified
Storage Pressure - gauge	0.03 bar
Temperature	25 degC
Volume Inventory	2560 m3

Scenario

Scenario Type	Catastrophic rupture
Phase to be Released	Liquid
Building Wake Effect	None

Location

Elevation	0 m
Use ERPG averaging time	ERPG not selected
Use IDLH averaging time	IDLH not selected
Use STEL averaging time	STEL not selected
Supply a user defined averaging time	Not supplied

Bund

Status of Bund	Bund present
Bund Area	1453 m2
[Type of Bund Surface	User-Defined (Land)]
Bund Height	3 m
[Bund Failure Modeling	Bund cannot fail]

Indoor/Outdoor

Location of release	Open air release
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Flammable

Explosion Method	TNT
Jet Fire Method	Cone Model

Dispersion

Late Ignition Location	No ignition location
Mass Inventory of material to Disperse	1.679E6 kg
Use Burst Pressure	No - Use release pressure for fireball

Fireball Parameters

[Mass Modification Factor	3]
[Calculation method for fireball	DNV Recommended]
[TNO model flame temperature	1727 degC]

Toxic Parameters

[Indoor Calculations	Unselected]
[Wind Dependent Exchange Rate	Case Specified]

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

[Building Exchange Rate	4 /hr]
[Tail Time	1800 s]
[Set averaging time equal to exposure time	Use a fixed averaging time]
[Cut-off fraction of toxic load for exposure time calculation	0.05 fraction]
[Cut-off concentration for exposure time calculations	0 fraction]

Geometry

Shape	Point
Dimension	2D
System	Absolute
East(1)	0 m
North(1)	0 m

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Path: \Terminal Adonai - Efeitos físicos\Simulações\H156 (H)

DISCHARGE DATA for Weather: Global Weathers\Dia

Wind Speed: 3.00 m/s
Wind Speed at Height (Calculated) 1.78 m/s
Pasquill Stability: C

USER-DEFINED QUANTITIES

Material N-HEXANE
Scenario Catastrophic rupture
Inventory 1,679,427.13 kg
Fixed Duration n/a s

Stagnation data (data at upstream end for long pipe):

- Pressure 1.04 bar
- Temperature 25.00 degC
- Fluid State Non-saturated liquid

CALCULATED QUANTITIES

Mass Flow of Air (Vent from Vapor Space only) n/a
Mass Flowrate n/a kg/s
Release Duration n/a s
Orifice or pipe exit data (before atmospheric expansion):
- Pressure n/a bar
- Temperature n/a degC
- Vena Contracta Velocity (exit velocity for pipe releases) n/a m/s
- Discharge Coefficient n/a
Final data (after atmospheric expansion):
- Temperature 25.00 degC
- Liquid Mass Fraction 1.00 fraction
- Droplet Diameter 721.42 um
- Expanded Radius n/a m
- Velocity 1.04 m/s

DISCHARGE DATA for Weather: Global Weathers\Noite

Wind Speed: 2.00 m/s
Wind Speed at Height (Calculated) 0.83 m/s
Pasquill Stability: E

USER-DEFINED QUANTITIES

Material N-HEXANE
Scenario Catastrophic rupture
Inventory 1,679,427.13 kg
Fixed Duration n/a s

Stagnation data (data at upstream end for long pipe):

- Pressure 1.04 bar
- Temperature 25.00 degC
- Fluid State Non-saturated liquid

CALCULATED QUANTITIES

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Mass Flow of Air (Vent from Vapor Space only)	n/a
Mass Flowrate	n/a kg/s
Release Duration	n/a s
Orifice or pipe exit data (before atmospheric expansion):	
- Pressure	n/a bar
- Temperature	n/a degC
- Vena Contracta Velocity (exit velocity for pipe releases)	n/a m/s
- Discharge Coefficient	n/a
Final data (after atmospheric expansion):	
- Temperature	25.00 degC
- Liquid Mass Fraction	1.00 fraction
- Droplet Diameter	721.42 um
- Expanded Radius	n/a m
- Velocity	1.04 m/s



Consequence Results

Pool Vaporization Results

Path: \Terminal Adonai - Efeitos físicos\Simulações\H156 (H)

N.B. Pool vaporization segments begin when the cloud has left the pool

		Dia	Noite
Liquid Rainout	fraction	0.999747	0.999749
Initial Vapor Cloud	kg	424.975	421.682
Time Pool Left Behind	s	43.0329	100.908

Cloud Segment 1

Cloud Segment Duration	s	600	600
Pool Vaporization Rate	kg/s	8.31837	6.71463

Maximum Pool Radius	m	21.5059	21.5059
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Distance to Concentration Results

Path: \Terminal Adonai - Efeitos físicos\Simulações\H156 (H)

The height for user defined concentrations is the user defined height 0 m

All toxic results are reported at the toxic effect height 1 m

All flammable results are reported at the flammable effect height 0 m

Concentration(ppm)	Averaging Time		Dia	Noite	Distance (m)
UFL (76800)	18.75	s	15.646	18.2043	
LFL (10500)	18.75	s	51.7774	54.481	
LFL Frac (10500)	18.75	s	51.7774	54.481	

Concentration(ppm)	Averaging Time		Dia	Noite	Heights (m) for above distances
UFL (76800)	18.75	s	0	0	
LFL (10500)	18.75	s	0	0	
LFL Frac (10500)	18.75	s	0	0	

Late Pool Fire Hazard

Path: \Terminal Adonai - Efeitos físicos\Simulações\H156 (H)

	Dia	Noite
Late Pool Fire Status	Hazard	Hazard

Radiation Effects: Late Pool Fire Ellipse

Path: \Terminal Adonai - Efeitos físicos\Simulações\H156 (H)

			Dia	Noite	Distance (m)
Radiation Level	9.83	kW/m2	29.071	27.6755	
Radiation Level	19.46	kW/m2	22.5059	22.5059	
Radiation Level	35	kW/m2	Not Reached	Not Reached	

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Radiation Effects: Late Pool Fire Distance

Path: \Terminal Adonai - Efeitos físicos\Simulações\H156 (H)

	Dia	Noite
Radiation Level (kW/m2)		

Fireball Hazard

Path: \Terminal Adonai - Efeitos físicos\Simulações\H156 (H)

	Dia	Noite
Fireball Flame Status	No Hazard	No Hazard

Flash Fire Envelope

Path: \Terminal Adonai - Efeitos físicos\Simulações\H156 (H)

All flammable results are reported at the flammable effect height 0 m

			Dia	Noite
Furthest Extent	10500	ppm	51.7774	54.481
Furthest Extent	10500	ppm	51.7774	54.481

			Dia	Noite
Furthest Extent	10500	ppm	0	0
Furthest Extent	10500	ppm	0	0

Explosion Effects: Early Explosion

Path: \Terminal Adonai - Efeitos físicos\Simulações\H156 (H)

Early Explosions are assumed to be centered at the release location
Explosion Model Used : TNT

			Dia	Noite
Supplied Flammable Mass		kg	1.67943e+006	1.67943e+006

			Distance (m) at Overpressure Levels	
			Dia	Noite
Overpressure	0.05	bar	No Hazard	No Hazard
Overpressure	0.1	bar	No Hazard	No Hazard
Overpressure	0.3	bar	No Hazard	No Hazard

			Used Mass (kg) at Overpressure Levels	
			Dia	Noite
Overpressure	0.05	bar	0	0
Overpressure	0.1	bar	0	0
Overpressure	0.3	bar	0	0

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Explosion Effects: Late Ignition

Path: \Terminal Adonai - Efeitos físicos\Simulações\H156 (H)

Explosion Model Used : TNT

Explosion Location Criterion: Cloud Center

All distances are measured from the Source

All flammable results are reported at the flammable effect height 0 m

			Maximum Distance (m) at Overpressure Level	
			Dia	Noite
Overpressure	0.05	bar	125.326	126.744
Overpressure	0.1	bar	80.8522	82.307
Overpressure	0.3	bar	50.4185	45.8864

Supplementary Data at 0.05 bar

			Dia	Noite
Supplied Flammable Mass		kg	339.607	338.762
Used Flammable Mass		kg	339.607	338.762
Overpressure Radius		m	117.279	117.181
Distance to:				
- Ignition Source		m	40	50
- Cloud Front/Centre		m	8.04719	9.56247
- Explosion Centre		m	8.04719	9.56247

Supplementary Data at 0.1 bar

			Dia	Noite
Supplied Flammable Mass		kg	339.607	338.762
Used Flammable Mass		kg	339.607	338.762
Overpressure Radius		m	72.805	72.7446
Distance to:				
- Ignition Source		m	40	50
- Cloud Front/Centre		m	8.04719	9.56247
- Explosion Centre		m	8.04719	9.56247

Supplementary Data at 0.3 bar

			Dia	Noite
Supplied Flammable Mass		kg	192.85	338.762
Used Flammable Mass		kg	192.85	338.762
Overpressure Radius		m	30.1047	36.3239
Distance to:				
- Ignition Source		m	50	50
- Cloud Front/Centre		m	20.3138	9.56247
- Explosion Centre		m	20.3138	9.56247

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Weather Conditions

Path: \Terminal Adonai - Efeitos físicos\Simulações\H156 (H)

		Dia	Noite
Wind Speed	m/s	3	2
Pasquill Stability		C	E
Surface Roughness Length	mm	1000	1000
Surface Roughness Parameter		0.173718	0.173718
Atmospheric Temperature	degC	25	20
Surface Temperature	degC	30	20
Relative Humidity	fraction	0.8	0.8

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

H156 (M)

Base Case

CASE Name: Data

Path: \Terminal Adonai - Efeitos físicos\Simulações\H156 (M)

User-Defined Data

Material

Material Identifier	METHANOL
Type of Vessel	Padded Liquid
Pressure Specification	Pressure specified
Storage Pressure - gauge	0.03 bar
Temperature	25 degC
Volume Inventory	2560 m3

Scenario

Scenario Type	Catastrophic rupture
Phase to be Released	Liquid
Building Wake Effect	None

Location

Elevation	0 m
Use ERPG averaging time	ERPG not selected
Use IDLH averaging time	IDLH not selected
Use STEL averaging time	STEL not selected
Supply a user defined averaging time	Not supplied

Bund

Status of Bund	Bund present
Bund Area	1453 m2
[Type of Bund Surface	User-Defined (Land)]
Bund Height	3 m
[Bund Failure Modeling	Bund cannot fail]

Indoor/Outdoor

Location of release	Open air release
---------------------	------------------

Flammable

Explosion Method	TNT
Jet Fire Method	Cone Model

Dispersion

Late Ignition Location	No ignition location
Mass Inventory of material to Disperse	2.021E6 kg
Use Burst Pressure	No - Use release pressure for fireball

Fireball Parameters

[Mass Modification Factor	3]
[Calculation method for fireball	DNV Recommended]
[TNO model flame temperature	1727 degC]

Toxic Parameters

[Indoor Calculations	Unselected]
[Wind Dependent Exchange Rate	Case Specified]

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

[Building Exchange Rate	4 /hr]
[Tail Time	1800 s]
[Set averaging time equal to exposure time	Use a fixed averaging time]
[Cut-off fraction of toxic load for exposure time calculation	0.05 fraction]
[Cut-off concentration for exposure time calculations	0 fraction]

Geometry

Shape	Point
Dimension	2D
System	Absolute
East(1)	0 m
North(1)	0 m

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Path: \Terminal Adonai - Efeitos físicos\Simulações\H156 (M)

DISCHARGE DATA for Weather: Global Weathers\Dia

Wind Speed: 3.00 m/s
Wind Speed at Height (Calculated) 1.78 m/s
Pasquill Stability: C

USER-DEFINED QUANTITIES

Material METHANOL
Scenario Catastrophic rupture
Inventory 2,021,420.38 kg
Fixed Duration n/a s

Stagnation data (data at upstream end for long pipe):

- Pressure 1.04 bar
- Temperature 25.00 degC
- Fluid State Non-saturated liquid

CALCULATED QUANTITIES

Mass Flow of Air (Vent from Vapor Space only) n/a
Mass Flowrate n/a kg/s
Release Duration n/a s
Orifice or pipe exit data (before atmospheric expansion):
- Pressure n/a bar
- Temperature n/a degC
- Vena Contracta Velocity (exit velocity for pipe releases) n/a m/s
- Discharge Coefficient n/a
Final data (after atmospheric expansion):
- Temperature 25.00 degC
- Liquid Mass Fraction 1.00 fraction
- Droplet Diameter 735.02 um
- Expanded Radius n/a m
- Velocity 1.54 m/s

DISCHARGE DATA for Weather: Global Weathers\Noite

Wind Speed: 2.00 m/s
Wind Speed at Height (Calculated) 0.83 m/s
Pasquill Stability: E

USER-DEFINED QUANTITIES

Material METHANOL
Scenario Catastrophic rupture
Inventory 2,021,420.38 kg
Fixed Duration n/a s

Stagnation data (data at upstream end for long pipe):

- Pressure 1.04 bar
- Temperature 25.00 degC
- Fluid State Non-saturated liquid

CALCULATED QUANTITIES

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Mass Flow of Air (Vent from Vapor Space only)	n/a
Mass Flowrate	n/a kg/s
Release Duration	n/a s
Orifice or pipe exit data (before atmospheric expansion):	
- Pressure	n/a bar
- Temperature	n/a degC
- Vena Contracta Velocity (exit velocity for pipe releases)	n/a m/s
- Discharge Coefficient	n/a
Final data (after atmospheric expansion):	
- Temperature	25.00 degC
- Liquid Mass Fraction	1.00 fraction
- Droplet Diameter	735.02 um
- Expanded Radius	n/a m
- Velocity	1.54 m/s



Consequence Results

Pool Vaporization Results

Path: \Terminal Adonai - Efeitos físicos\Simulações\H156 (M)

N.B. Pool vaporization segments begin when the cloud has left the pool

		Dia	Noite
Liquid Rainout	fraction	0.999391	0.999386
Initial Vapor Cloud	kg	1230.67	1241.01
Time Pool Left Behind	s	37.4747	64.3679

Cloud Segment 1

		Dia	Noite
Cloud Segment Duration	s	600	600
Pool Vaporization Rate	kg/s	3.7574	3.07011

		Dia	Noite
Maximum Pool Radius	m	21.5059	21.5059

Distance to Concentration Results

Path: \Terminal Adonai - Efeitos físicos\Simulações\H156 (M)

The height for user defined concentrations is the user defined height 0 m

All toxic results are reported at the toxic effect height 1 m

All flammable results are reported at the flammable effect height 0 m

Concentration(ppm)	Averaging Time		Dia	Noite	Distance (m)
UFL (360000)	18.75	s	18.2602	18.0375	
LFL (73000)	18.75	s	27.1474	29.3191	
LFL Frac (73000)	18.75	s	27.1474	29.3191	

Concentration(ppm)	Averaging Time		Dia	Noite	Heights (m) for above distances
UFL (360000)	18.75	s	0	0	
LFL (73000)	18.75	s	0	0	
LFL Frac (73000)	18.75	s	0	0	

Late Pool Fire Hazard

Path: \Terminal Adonai - Efeitos físicos\Simulações\H156 (M)

	Dia	Noite
Late Pool Fire Status	Hazard	Hazard

Radiation Effects: Late Pool Fire Ellipse

Path: \Terminal Adonai - Efeitos físicos\Simulações\H156 (M)

			Dia	Noite	Distance (m)
Radiation Level	9.83	kW/m2	43.2932	41.7638	
Radiation Level	19.46	kW/m2	29.8456	28.3784	
Radiation Level	35	kW/m2	22.5059	22.5059	

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Radiation Effects: Late Pool Fire Distance

Path: \Terminal Adonai - Efeitos físicos\Simulações\H156 (M)

	Dia	Noite
Radiation Level (kW/m2)		

Fireball Hazard

Path: \Terminal Adonai - Efeitos físicos\Simulações\H156 (M)

	Dia	Noite
Fireball Flame Status	No Hazard	No Hazard

Flash Fire Envelope

Path: \Terminal Adonai - Efeitos físicos\Simulações\H156 (M)

All flammable results are reported at the flammable effect height 0 m

			Dia	Noite
Furthest Extent	73000	ppm	27.1474	29.3191
Furthest Extent	73000	ppm	27.1474	29.3191

			Dia	Noite
Furthest Extent	73000	ppm	0	0
Furthest Extent	73000	ppm	0	0

Explosion Effects: Early Explosion

Path: \Terminal Adonai - Efeitos físicos\Simulações\H156 (M)

Early Explosions are assumed to be centered at the release location
Explosion Model Used : TNT

			Dia	Noite
Supplied Flammable Mass		kg	2.02142e+006	2.02142e+006

			Distance (m) at Overpressure Levels	
			Dia	Noite
Overpressure	0.05	bar	No Hazard	No Hazard
Overpressure	0.1	bar	No Hazard	No Hazard
Overpressure	0.3	bar	No Hazard	No Hazard

			Used Mass (kg) at Overpressure Levels	
			Dia	Noite
Overpressure	0.05	bar	0	0
Overpressure	0.1	bar	0	0
Overpressure	0.3	bar	0	0

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Explosion Effects: Late Ignition

Path: \Terminal Adonai - Efeitos físicos\Simulações\H156 (M)

Explosion Model Used : TNT

Explosion Location Criterion: Cloud Center

All distances are measured from the Source

All flammable results are reported at the flammable effect height 0 m

			Maximum Distance (m) at Overpressure Level	
			Dia	Noite
Overpressure	0.05	bar	93.2494	96.9289
Overpressure	0.1	bar	59.8779	62.2267
Overpressure	0.3	bar	32.5264	33.7846

Supplementary Data at 0.05 bar

			Dia	Noite
Supplied Flammable Mass		kg	322.257	362.365
Used Flammable Mass		kg	322.257	362.365
Overpressure Radius		m	88.0018	91.5109
Distance to:				
- Ignition Source		m	20	20
- Cloud Front/Centre		m	5.24758	5.41802
- Explosion Centre		m	5.24758	5.41802

Supplementary Data at 0.1 bar

			Dia	Noite
Supplied Flammable Mass		kg	322.257	362.365
Used Flammable Mass		kg	322.257	362.365
Overpressure Radius		m	54.6303	56.8087
Distance to:				
- Ignition Source		m	20	20
- Cloud Front/Centre		m	5.24758	5.41802
- Explosion Centre		m	5.24758	5.41802

Supplementary Data at 0.3 bar

			Dia	Noite
Supplied Flammable Mass		kg	322.257	362.365
Used Flammable Mass		kg	322.257	362.365
Overpressure Radius		m	27.2788	28.3666
Distance to:				
- Ignition Source		m	20	20
- Cloud Front/Centre		m	5.24758	5.41802
- Explosion Centre		m	5.24758	5.41802

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Weather Conditions

Path: \Terminal Adonai - Efeitos físicos\Simulações\H156 (M)

		Dia	Noite
Wind Speed	m/s	3	2
Pasquill Stability		C	E
Surface Roughness Length	mm	1000	1000
Surface Roughness Parameter		0.173718	0.173718
Atmospheric Temperature	degC	25	20
Surface Temperature	degC	30	20
Relative Humidity	fraction	0.8	0.8

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

H156 (N)

Base Case

CASE Name: Data

Path: \Terminal Adonai - Efeitos físicos\Simulações\H156 (N)

User-Defined Data

Material

Material Identifier	N-NONANE
Type of Vessel	Padded Liquid
Pressure Specification	Pressure specified
Storage Pressure - gauge	0.03 bar
Temperature	25 degC
Volume Inventory	2560 m3

Scenario

Scenario Type	Catastrophic rupture
Phase to be Released	Liquid
Building Wake Effect	None

Location

Elevation	0 m
Use ERPG averaging time	ERPG not selected
Use IDLH averaging time	IDLH not selected
Use STEL averaging time	STEL not selected
Supply a user defined averaging time	Not supplied

Bund

Status of Bund	Bund present
Bund Area	1453 m2
[Type of Bund Surface	User-Defined (Land)]
Bund Height	3 m
[Bund Failure Modeling	Bund cannot fail]

Indoor/Outdoor

Location of release	Open air release
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Flammable

Explosion Method	TNT
Jet Fire Method	Cone Model

Dispersion

Late Ignition Location	No ignition location
Mass Inventory of material to Disperse	1.829E6 kg
Use Burst Pressure	No - Use release pressure for fireball

Fireball Parameters

[Mass Modification Factor	3]
[Calculation method for fireball	DNV Recommended]
[TNO model flame temperature	1727 degC]

Toxic Parameters

[Indoor Calculations	Unselected]
[Wind Dependent Exchange Rate	Case Specified]

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

[Building Exchange Rate	4 /hr]
[Tail Time	1800 s]
[Set averaging time equal to exposure time	Use a fixed averaging time]
[Cut-off fraction of toxic load for exposure time calculation	0.05 fraction]
[Cut-off concentration for exposure time calculations	0 fraction]

Geometry

Shape	Point
Dimension	2D
System	Absolute
East(1)	0 m
North(1)	0 m

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Path: \Terminal Adonai - Efeitos físicos\Simulações\H156 (N)

DISCHARGE DATA for Weather: Global Weathers\Dia

Wind Speed: 3.00 m/s
Wind Speed at Height (Calculated) 1.78 m/s
Pasquill Stability: C

USER-DEFINED QUANTITIES

Material N-NONANE
Scenario Catastrophic rupture
Inventory 1,828,589.13 kg
Fixed Duration n/a s

Stagnation data (data at upstream end for long pipe):

- Pressure 1.04 bar
- Temperature 25.00 degC
- Fluid State Non-saturated liquid

CALCULATED QUANTITIES

Mass Flow of Air (Vent from Vapor Space only) n/a
Mass Flowrate n/a kg/s
Release Duration n/a s
Orifice or pipe exit data (before atmospheric expansion):
- Pressure n/a bar
- Temperature n/a degC
- Vena Contracta Velocity (exit velocity for pipe releases) n/a m/s
- Discharge Coefficient n/a
Final data (after atmospheric expansion):
- Temperature 25.00 degC
- Liquid Mass Fraction 1.00 fraction
- Droplet Diameter 727.67 um
- Expanded Radius n/a m
- Velocity 0.76 m/s

DISCHARGE DATA for Weather: Global Weathers\Noite

Wind Speed: 2.00 m/s
Wind Speed at Height (Calculated) 0.83 m/s
Pasquill Stability: E

USER-DEFINED QUANTITIES

Material N-NONANE
Scenario Catastrophic rupture
Inventory 1,828,589.13 kg
Fixed Duration n/a s

Stagnation data (data at upstream end for long pipe):

- Pressure 1.04 bar
- Temperature 25.00 degC
- Fluid State Non-saturated liquid

CALCULATED QUANTITIES

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Mass Flow of Air (Vent from Vapor Space only)	n/a
Mass Flowrate	n/a kg/s
Release Duration	n/a s
Orifice or pipe exit data (before atmospheric expansion):	
- Pressure	n/a bar
- Temperature	n/a degC
- Vena Contracta Velocity (exit velocity for pipe releases)	n/a m/s
- Discharge Coefficient	n/a
Final data (after atmospheric expansion):	
- Temperature	25.00 degC
- Liquid Mass Fraction	1.00 fraction
- Droplet Diameter	727.67 um
- Expanded Radius	n/a m
- Velocity	0.76 m/s



Consequence Results

Pool Vaporization Results

Path: \Terminal Adonai - Efeitos físicos\Simulações\H156 (N)

N.B. Pool vaporization segments begin when the cloud has left the pool

		Dia	Noite
Liquid Rainout	fraction	0.999996	0.999996
Initial Vapor Cloud	kg	7.27132	7.09494
Time Pool Left Behind	s	24.0996	49.3401

Cloud Segment 1

Cloud Segment Duration	s	600	600
Pool Vaporization Rate	kg/s	0.273997	0.216986

Maximum Pool Radius	m	21.5059	21.5059
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Distance to Concentration Results

Path: \Terminal Adonai - Efeitos físicos\Simulações\H156 (N)

The height for user defined concentrations is the user defined height 0 m

All toxic results are reported at the toxic effect height 1 m

All flammable results are reported at the flammable effect height 0 m

Concentration(ppm)	Averaging Time		Dia	Noite	Distance (m)
UFL (56000)	18.75	s	11.7049	11.6914	
LFL (7000)	18.75	s	11.8308	11.8174	
LFL Frac (7000)	18.75	s	11.8308	11.8174	
Concentration(ppm)	Averaging Time		Dia	Noite	Heights (m) for above distances
UFL (56000)	18.75	s	0	0	
LFL (7000)	18.75	s	0	0	
LFL Frac (7000)	18.75	s	0	0	

Late Pool Fire Hazard

Path: \Terminal Adonai - Efeitos físicos\Simulações\H156 (N)

	Dia	Noite
Late Pool Fire Status	Hazard	Hazard

Radiation Effects: Late Pool Fire Ellipse

Path: \Terminal Adonai - Efeitos físicos\Simulações\H156 (N)

			Dia	Noite	Distance (m)
Radiation Level	9.83	kW/m2	29.0238	27.7277	
Radiation Level	19.46	kW/m2	22.5059	22.5059	
Radiation Level	35	kW/m2	Not Reached	Not Reached	

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Radiation Effects: Late Pool Fire Distance

Path: \Terminal Adonai - Efeitos físicos\Simulações\H156 (N)

	Dia	Noite
Radiation Level (kW/m2)		

Fireball Hazard

Path: \Terminal Adonai - Efeitos físicos\Simulações\H156 (N)

	Dia	Noite
Fireball Flame Status	No Hazard	No Hazard

Flash Fire Envelope

Path: \Terminal Adonai - Efeitos físicos\Simulações\H156 (N)

All flammable results are reported at the flammable effect height 0 m

			Dia	Noite
Furthest Extent	7000	ppm	11.8308	11.8174
Furthest Extent	7000	ppm	11.8308	11.8174

			Dia	Noite
Furthest Extent	7000	ppm	0	0
Furthest Extent	7000	ppm	0	0

Explosion Effects: Early Explosion

Path: \Terminal Adonai - Efeitos físicos\Simulações\H156 (N)

Early Explosions are assumed to be centered at the release location
Explosion Model Used : TNT

			Dia	Noite
Supplied Flammable Mass		kg	1.82859e+006	1.82859e+006

			Distance (m) at Overpressure Levels	
			Dia	Noite
Overpressure	0.05	bar	No Hazard	No Hazard
Overpressure	0.1	bar	No Hazard	No Hazard
Overpressure	0.3	bar	No Hazard	No Hazard

			Used Mass (kg) at Overpressure Levels	
			Dia	Noite
Overpressure	0.05	bar	0	0
Overpressure	0.1	bar	0	0
Overpressure	0.3	bar	0	0

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Explosion Effects: Late Ignition

Path: \Terminal Adonai - Efeitos físicos\Simulações\H156 (N)

Explosion Model Used : TNT

Explosion Location Criterion: Cloud Center

All distances are measured from the Source

All flammable results are reported at the flammable effect height 0 m

			Maximum Distance (m) at Overpressure Level	
			Dia	Noite
Overpressure	0.05	bar	No Hazard	No Hazard
Overpressure	0.1	bar	No Hazard	No Hazard
Overpressure	0.3	bar	No Hazard	No Hazard
			Supplementary Data at 0.05 bar	
			Dia	Noite
Supplied Flammable Mass		kg	No Hazard	No Hazard
Used Flammable Mass		kg	No Hazard	No Hazard
Overpressure Radius		m	0	0
Distance to:				
- Ignition Source		m	No Hazard	No Hazard
- Cloud Front/Centre		m	No Hazard	No Hazard
- Explosion Centre		m	0	0
			Supplementary Data at 0.1 bar	
			Dia	Noite
Supplied Flammable Mass		kg	No Hazard	No Hazard
Used Flammable Mass		kg	No Hazard	No Hazard
Overpressure Radius		m	0	0
Distance to:				
- Ignition Source		m	No Hazard	No Hazard
- Cloud Front/Centre		m	No Hazard	No Hazard
- Explosion Centre		m	0	0
			Supplementary Data at 0.3 bar	
			Dia	Noite
Supplied Flammable Mass		kg	No Hazard	No Hazard
Used Flammable Mass		kg	No Hazard	No Hazard
Overpressure Radius		m	0	0
Distance to:				
- Ignition Source		m	No Hazard	No Hazard
- Cloud Front/Centre		m	No Hazard	No Hazard
- Explosion Centre		m	0	0

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Weather Conditions

Path: \Terminal Adonai - Efeitos físicos\Simulações\H156 (N)

		Dia	Noite
Wind Speed	m/s	3	2
Pasquill Stability		C	E
Surface Roughness Length	mm	1000	1000
Surface Roughness Parameter		0.173718	0.173718
Atmospheric Temperature	degC	25	20
Surface Temperature	degC	30	20
Relative Humidity	fraction	0.8	0.8

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

H156 (P)

Base Case

CASE Name: Data

Path: \Terminal Adonai - Efeitos físicos\Simulações\H156 (P)

User-Defined Data

Material

Material Identifier	N-PENTANE
Type of Vessel	Padded Liquid
Pressure Specification	Pressure specified
Storage Pressure - gauge	0.03 bar
Temperature	25 degC
Volume Inventory	2560 m3

Scenario

Scenario Type	Catastrophic rupture
Phase to be Released	Liquid
Building Wake Effect	None

Location

Elevation	0 m
Use ERPG averaging time	ERPG not selected
Use IDLH averaging time	IDLH not selected
Use STEL averaging time	STEL not selected
Supply a user defined averaging time	Not supplied

Bund

Status of Bund	Bund present
Bund Area	1453 m2
[Type of Bund Surface	User-Defined (Land)]
Bund Height	3 m
[Bund Failure Modeling	Bund cannot fail]

Indoor/Outdoor

Location of release	Open air release
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Flammable

Explosion Method	TNT
Jet Fire Method	Cone Model

Dispersion

Late Ignition Location	No ignition location
Mass Inventory of material to Disperse	1.592E6 kg
Use Burst Pressure	No - Use release pressure for fireball

Fireball Parameters

[Mass Modification Factor	3]
[Calculation method for fireball	DNV Recommended]
[TNO model flame temperature	1727 degC]

Toxic Parameters

[Indoor Calculations	Unselected]
[Wind Dependent Exchange Rate	Case Specified]

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

[Building Exchange Rate	4 /hr]
[Tail Time	1800 s]
[Set averaging time equal to exposure time	Use a fixed averaging time]
[Cut-off fraction of toxic load for exposure time calculation	0.05 fraction]
[Cut-off concentration for exposure time calculations	0 fraction]

Geometry

Shape	Point
Dimension	2D
System	Absolute
East(1)	0 m
North(1)	0 m

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Path: \Terminal Adonai - Efeitos físicos\Simulações\H156 (P)

DISCHARGE DATA for Weather: Global Weathers\Dia

Wind Speed: 3.00 m/s
Wind Speed at Height (Calculated) 1.78 m/s
Pasquill Stability: C

USER-DEFINED QUANTITIES

Material N-PENTANE
Scenario Catastrophic rupture
Inventory 1,591,663.13 kg
Fixed Duration n/a s

Stagnation data (data at upstream end for long pipe):

- Pressure 1.04 bar
- Temperature 25.00 degC
- Fluid State Non-saturated liquid

CALCULATED QUANTITIES

Mass Flow of Air (Vent from Vapor Space only) n/a
Mass Flowrate n/a kg/s
Release Duration n/a s
Orifice or pipe exit data (before atmospheric expansion):
- Pressure n/a bar
- Temperature n/a degC
- Vena Contracta Velocity (exit velocity for pipe releases) n/a m/s
- Discharge Coefficient n/a
Final data (after atmospheric expansion):
- Temperature 25.00 degC
- Liquid Mass Fraction 1.00 fraction
- Droplet Diameter 717.48 um
- Expanded Radius n/a m
- Velocity 0.86 m/s

DISCHARGE DATA for Weather: Global Weathers\Noite

Wind Speed: 2.00 m/s
Wind Speed at Height (Calculated) 0.83 m/s
Pasquill Stability: E

USER-DEFINED QUANTITIES

Material N-PENTANE
Scenario Catastrophic rupture
Inventory 1,591,663.13 kg
Fixed Duration n/a s

Stagnation data (data at upstream end for long pipe):

- Pressure 1.04 bar
- Temperature 25.00 degC
- Fluid State Non-saturated liquid

CALCULATED QUANTITIES

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Mass Flow of Air (Vent from Vapor Space only)	n/a
Mass Flowrate	n/a kg/s
Release Duration	n/a s
Orifice or pipe exit data (before atmospheric expansion):	
- Pressure	n/a bar
- Temperature	n/a degC
- Vena Contracta Velocity (exit velocity for pipe releases)	n/a m/s
- Discharge Coefficient	n/a
Final data (after atmospheric expansion):	
- Temperature	25.00 degC
- Liquid Mass Fraction	1.00 fraction
- Droplet Diameter	717.48 um
- Expanded Radius	n/a m
- Velocity	0.86 m/s



Consequence Results

Pool Vaporization Results

Path: \Terminal Adonai - Efeitos físicos\Simulações\H156 (P)

N.B. Pool vaporization segments begin when the cloud has left the pool

		Dia	Noite
Liquid Rainout	fraction	0.999195	0.99923
Initial Vapor Cloud	kg	1281.99	1226.33
Time Pool Left Behind	s	58.3788	147.831

Cloud Segment 1

		Dia	Noite
Cloud Segment Duration	s	600	600
Pool Vaporization Rate	kg/s	35.914	28.8212
Maximum Pool Radius	m	21.5059	21.5059

Distance to Concentration Results

Path: \Terminal Adonai - Efeitos físicos\Simulações\H156 (P)

The height for user defined concentrations is the user defined height 0 m

All toxic results are reported at the toxic effect height 1 m

All flammable results are reported at the flammable effect height 0 m

Concentration(ppm)	Averaging Time		Dia	Noite	Distance (m)
UFL (80000)	18.75	s	39.8841	48.0756	
LFL (13000)	18.75	s	94.0385	98.1202	
LFL Frac (13000)	18.75	s	94.0385	98.1202	
Concentration(ppm)	Averaging Time		Dia	Noite	Heights (m) for above distances
UFL (80000)	18.75	s	0	0	
LFL (13000)	18.75	s	0	0	
LFL Frac (13000)	18.75	s	0	0	

Late Pool Fire Hazard

Path: \Terminal Adonai - Efeitos físicos\Simulações\H156 (P)

	Dia	Noite
Late Pool Fire Status	Hazard	Hazard

Radiation Effects: Late Pool Fire Ellipse

Path: \Terminal Adonai - Efeitos físicos\Simulações\H156 (P)

			Dia	Noite	Distance (m)
Radiation Level	9.83	kW/m2	29.0294	27.7158	
Radiation Level	19.46	kW/m2	22.5059	22.5059	
Radiation Level	35	kW/m2	Not Reached	Not Reached	

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Radiation Effects: Late Pool Fire Distance

Path: \Terminal Adonai - Efeitos físicos\Simulações\H156 (P)

	Radiation Level (kW/m2)
Dia	Noite

Fireball Hazard

Path: \Terminal Adonai - Efeitos físicos\Simulações\H156 (P)

	Dia	Noite
Fireball Flame Status	No Hazard	No Hazard

Flash Fire Envelope

Path: \Terminal Adonai - Efeitos físicos\Simulações\H156 (P)

All flammable results are reported at the flammable effect height 0 m

			Dia	Noite
			Distance (m)	
Furthest Extent	13000	ppm	94.0385	98.1202
Furthest Extent	13000	ppm	94.0385	98.1202
			Dia	Noite
			Heights (m) for above distances	
Furthest Extent	13000	ppm	0	0
Furthest Extent	13000	ppm	0	0

Explosion Effects: Early Explosion

Path: \Terminal Adonai - Efeitos físicos\Simulações\H156 (P)

Early Explosions are assumed to be centered at the release location
Explosion Model Used : TNT

			Dia	Noite
Supplied Flammable Mass		kg	1.59166e+006	1.59166e+006
			Distance (m) at Overpressure Levels	
			Dia	Noite
Overpressure	0.05	bar	No Hazard	No Hazard
Overpressure	0.1	bar	No Hazard	No Hazard
Overpressure	0.3	bar	No Hazard	No Hazard
			Used Mass (kg) at Overpressure Levels	
			Dia	Noite
Overpressure	0.05	bar	0	0
Overpressure	0.1	bar	0	0
Overpressure	0.3	bar	0	0

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Explosion Effects: Late Ignition

Path: \Terminal Adonai - Efeitos físicos\Simulações\H156 (P)

Explosion Model Used : TNT

Explosion Location Criterion: Cloud Center

All distances are measured from the Source

All flammable results are reported at the flammable effect height 0 m

			Maximum Distance (m) at Overpressure Level	
			Dia	Noite
Overpressure	0.05	bar	203.576	205.741
Overpressure	0.1	bar	136.844	134.694
Overpressure	0.3	bar	87.585	76.4628

			Supplementary Data at 0.05 bar	
			Dia	Noite
Supplied Flammable Mass		kg	1208.54	1377.16
Used Flammable Mass		kg	1208.54	1377.16
Overpressure Radius		m	179.373	187.354
Distance to:				
- Ignition Source		m	80	90
- Cloud Front/Centre		m	24.2037	18.3867
- Explosion Centre		m	24.2037	18.3867

			Supplementary Data at 0.1 bar	
			Dia	Noite
Supplied Flammable Mass		kg	833.644	1377.16
Used Flammable Mass		kg	833.644	1377.16
Overpressure Radius		m	98.387	116.307
Distance to:				
- Ignition Source		m	90	90
- Cloud Front/Centre		m	38.457	18.3867
- Explosion Centre		m	38.457	18.3867

			Supplementary Data at 0.3 bar	
			Dia	Noite
Supplied Flammable Mass		kg	833.644	1377.16
Used Flammable Mass		kg	833.644	1377.16
Overpressure Radius		m	49.1281	58.0761
Distance to:				
- Ignition Source		m	90	90
- Cloud Front/Centre		m	38.457	18.3867
- Explosion Centre		m	38.457	18.3867

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Weather Conditions

Path: \Terminal Adonai - Efeitos físicos\Simulações\H156 (P)

		Dia	Noite
Wind Speed	m/s	3	2
Pasquill Stability		C	E
Surface Roughness Length	mm	1000	1000
Surface Roughness Parameter		0.173718	0.173718
Atmospheric Temperature	degC	25	20
Surface Temperature	degC	30	20
Relative Humidity	fraction	0.8	0.8

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

H157 (A)

Base Case

CASE Name: Data

Path: \Terminal Adonai - Efeitos físicos\Simulações\H157 (A)

User-Defined Data

Material

Material Identifier	ACETONE
Type of Vessel	Padded Liquid
Pressure Specification	Pressure specified
Storage Pressure - gauge	0.03 bar
Temperature	25 degC
Volume Inventory	1680 m3

Scenario

Scenario Type	Catastrophic rupture
Phase to be Released	Liquid
Building Wake Effect	None

Location

Elevation	0 m
Use ERPG averaging time	ERPG not selected
Use IDLH averaging time	IDLH not selected
Use STEL averaging time	STEL not selected
Supply a user defined averaging time	Not supplied

Bund

Status of Bund	Bund present
Bund Area	1395 m2
[Type of Bund Surface	User-Defined (Land)]
Bund Height	3 m
[Bund Failure Modeling	Bund cannot fail]

Indoor/Outdoor

Location of release	Open air release
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Flammable

Explosion Method	TNT
Jet Fire Method	Cone Model

Dispersion

Late Ignition Location	No ignition location
Mass Inventory of material to Disperse	1.321E6 kg
Use Burst Pressure	No - Use release pressure for fireball

Fireball Parameters

[Mass Modification Factor	3]
[Calculation method for fireball	DNV Recommended]
[TNO model flame temperature	1727 degC]

Toxic Parameters

[Indoor Calculations	Unselected]
[Wind Dependent Exchange Rate	Case Specified]

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

[Building Exchange Rate	4 /hr]
[Tail Time	1800 s]
[Set averaging time equal to exposure time	Use a fixed averaging time]
[Cut-off fraction of toxic load for exposure time calculation	0.05 fraction]
[Cut-off concentration for exposure time calculations	0 fraction]

Geometry

Shape	Point
Dimension	2D
System	Absolute
East(1)	0 m
North(1)	0 m

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Path: \Terminal Adonai - Efeitos físicos\Simulações\H157 (A)

DISCHARGE DATA for Weather: Global Weathers\Dia

Wind Speed: 3.00 m/s
Wind Speed at Height (Calculated) 1.78 m/s
Pasquill Stability: C

USER-DEFINED QUANTITIES

Material ACETONE
Scenario Catastrophic rupture
Inventory 1,321,455.38 kg
Fixed Duration n/a s

Stagnation data (data at upstream end for long pipe):

- Pressure 1.04 bar
- Temperature 25.00 degC
- Fluid State Non-saturated liquid

CALCULATED QUANTITIES

Mass Flow of Air (Vent from Vapor Space only) n/a
Mass Flowrate n/a kg/s
Release Duration n/a s
Orifice or pipe exit data (before atmospheric expansion):
- Pressure n/a bar
- Temperature n/a degC
- Vena Contracta Velocity (exit velocity for pipe releases) n/a m/s
- Discharge Coefficient n/a
Final data (after atmospheric expansion):
- Temperature 25.00 degC
- Liquid Mass Fraction 1.00 fraction
- Droplet Diameter 734.74 um
- Expanded Radius n/a m
- Velocity 1.11 m/s

DISCHARGE DATA for Weather: Global Weathers\Noite

Wind Speed: 2.00 m/s
Wind Speed at Height (Calculated) 0.83 m/s
Pasquill Stability: E

USER-DEFINED QUANTITIES

Material ACETONE
Scenario Catastrophic rupture
Inventory 1,321,455.38 kg
Fixed Duration n/a s

Stagnation data (data at upstream end for long pipe):

- Pressure 1.04 bar
- Temperature 25.00 degC
- Fluid State Non-saturated liquid

CALCULATED QUANTITIES

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Mass Flow of Air (Vent from Vapor Space only)	n/a
Mass Flowrate	n/a kg/s
Release Duration	n/a s
Orifice or pipe exit data (before atmospheric expansion):	
- Pressure	n/a bar
- Temperature	n/a degC
- Vena Contracta Velocity (exit velocity for pipe releases)	n/a m/s
- Discharge Coefficient	n/a
Final data (after atmospheric expansion):	
- Temperature	25.00 degC
- Liquid Mass Fraction	1.00 fraction
- Droplet Diameter	734.74 um
- Expanded Radius	n/a m
- Velocity	1.11 m/s



Consequence Results

Pool Vaporization Results

Path: \Terminal Adonai - Efeitos físicos\Simulações\H157 (A)

N.B. Pool vaporization segments begin when the cloud has left the pool

		Dia	Noite
Liquid Rainout	fraction	0.99925	0.999249
Initial Vapor Cloud	kg	991.029	992.651
Time Pool Left Behind	s	46.6716	108.962

Cloud Segment 1

Cloud Segment Duration	s	600	600
Pool Vaporization Rate	kg/s	10.4071	8.46017

Maximum Pool Radius	m	21.0723	21.0723
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Distance to Concentration Results

Path: \Terminal Adonai - Efeitos físicos\Simulações\H157 (A)

The height for user defined concentrations is the user defined height 0 m

All toxic results are reported at the toxic effect height 1 m

All flammable results are reported at the flammable effect height 0 m

Concentration(ppm)	Averaging Time		Dia	Noite	Distance (m)
UFL (128000)	18.75	s	17.2462	18.4298	
LFL (26000)	18.75	s	53.1085	55.9555	
LFL Frac (26000)	18.75	s	53.1085	55.9555	

Concentration(ppm)	Averaging Time		Dia	Noite	Heights (m) for above distances
UFL (128000)	18.75	s	0	0	
LFL (26000)	18.75	s	0	0	
LFL Frac (26000)	18.75	s	0	0	

Late Pool Fire Hazard

Path: \Terminal Adonai - Efeitos físicos\Simulações\H157 (A)

	Dia	Noite
Late Pool Fire Status	Hazard	Hazard

Radiation Effects: Late Pool Fire Ellipse

Path: \Terminal Adonai - Efeitos físicos\Simulações\H157 (A)

			Dia	Noite	Distance (m)
Radiation Level	9.83	kW/m2	80.514	78.3755	
Radiation Level	19.46	kW/m2	61.002	57.6998	
Radiation Level	35	kW/m2	43.7105	40.3482	

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Radiation Effects: Late Pool Fire Distance

Path: \Terminal Adonai - Efeitos físicos\Simulações\H157 (A)

	Dia	Noite
Radiation Level (kW/m2)		

Fireball Hazard

Path: \Terminal Adonai - Efeitos físicos\Simulações\H157 (A)

	Dia	Noite
Fireball Flame Status	No Hazard	No Hazard

Flash Fire Envelope

Path: \Terminal Adonai - Efeitos físicos\Simulações\H157 (A)

All flammable results are reported at the flammable effect height 0 m

			Dia	Noite
Furthest Extent	26000	ppm	53.1085	55.9555
Furthest Extent	26000	ppm	53.1085	55.9555

			Dia	Noite
Furthest Extent	26000	ppm	0	0
Furthest Extent	26000	ppm	0	0

Explosion Effects: Early Explosion

Path: \Terminal Adonai - Efeitos físicos\Simulações\H157 (A)

Early Explosions are assumed to be centered at the release location
Explosion Model Used : TNT

			Dia	Noite
Supplied Flammable Mass		kg	1.32146e+006	1.32146e+006

			Dia	Noite
Overpressure	0.05	bar	No Hazard	No Hazard
Overpressure	0.1	bar	No Hazard	No Hazard
Overpressure	0.3	bar	No Hazard	No Hazard

			Dia	Noite
Overpressure	0.05	bar	0	0
Overpressure	0.1	bar	0	0
Overpressure	0.3	bar	0	0

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Explosion Effects: Late Ignition

Path: \Terminal Adonai - Efeitos físicos\Simulações\H157 (A)

Explosion Model Used : TNT

Explosion Location Criterion: Cloud Center

All distances are measured from the Source

All flammable results are reported at the flammable effect height 0 m

			Maximum Distance (m) at Overpressure Level	
			Dia	Noite
Overpressure	0.05	bar	135.338	135.624
Overpressure	0.1	bar	86.7765	87.4283
Overpressure	0.3	bar	51.2597	47.9267
			Supplementary Data at 0.05 bar	
			Dia	Noite
Supplied Flammable Mass		kg	692.402	676.89
Used Flammable Mass		kg	692.402	676.89
Overpressure Radius		m	128.058	127.094
Distance to:				
- Ignition Source		m	40	50
- Cloud Front/Centre		m	7.28013	8.53007
- Explosion Centre		m	7.28013	8.53007
			Supplementary Data at 0.1 bar	
			Dia	Noite
Supplied Flammable Mass		kg	692.402	676.89
Used Flammable Mass		kg	692.402	676.89
Overpressure Radius		m	79.4964	78.8982
Distance to:				
- Ignition Source		m	40	50
- Cloud Front/Centre		m	7.28013	8.53007
- Explosion Centre		m	7.28013	8.53007
			Supplementary Data at 0.3 bar	
			Dia	Noite
Supplied Flammable Mass		kg	467.747	676.89
Used Flammable Mass		kg	467.747	676.89
Overpressure Radius		m	34.8303	39.3967
Distance to:				
- Ignition Source		m	50	50
- Cloud Front/Centre		m	16.4294	8.53007
- Explosion Centre		m	16.4294	8.53007

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Weather Conditions

Path: \Terminal Adonai - Efeitos físicos\Simulações\H157 (A)

		Dia	Noite
Wind Speed	m/s	3	2
Pasquill Stability		C	E
Surface Roughness Length	mm	1000	1000
Surface Roughness Parameter		0.173718	0.173718
Atmospheric Temperature	degC	25	20
Surface Temperature	degC	30	20
Relative Humidity	fraction	0.8	0.8

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

H157 (B)

Base Case

CASE Name: Data

Path: \Terminal Adonai - Efeitos físicos\Simulações\H157 (B)

User-Defined Data

Material

Material Identifier	BENZENE
Type of Vessel	Padded Liquid
Pressure Specification	Pressure specified
Storage Pressure - gauge	0.03 bar
Temperature	25 degC
Volume Inventory	1680 m3

Scenario

Scenario Type	Catastrophic rupture
Phase to be Released	Liquid
Building Wake Effect	None

Location

Elevation	0 m
Use ERPG averaging time	ERPG not selected
Use IDLH averaging time	IDLH not selected
Use STEL averaging time	STEL not selected
Supply a user defined averaging time	Not supplied

Bund

Status of Bund	Bund present
Bund Area	1395 m2
[Type of Bund Surface	User-Defined (Land)]
Bund Height	3 m
[Bund Failure Modeling	Bund cannot fail]

Indoor/Outdoor

Location of release	Open air release
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Flammable

Explosion Method	TNT
Jet Fire Method	Cone Model

Dispersion

Late Ignition Location	No ignition location
Mass Inventory of material to Disperse	1.467E6 kg
Use Burst Pressure	No - Use release pressure for fireball

Fireball Parameters

[Mass Modification Factor	3]
[Calculation method for fireball	DNV Recommended]
[TNO model flame temperature	1727 degC]

Toxic Parameters

[Indoor Calculations	Unselected]
[Wind Dependent Exchange Rate	Case Specified]

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

[Building Exchange Rate	4 /hr]
[Tail Time	1800 s]
[Set averaging time equal to exposure time	Use a fixed averaging time]
[Cut-off fraction of toxic load for exposure time calculation	0.05 fraction]
[Cut-off concentration for exposure time calculations	0 fraction]

Geometry

Shape	Point
Dimension	2D
System	Absolute
East(1)	0 m
North(1)	0 m

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Path: \Terminal Adonai - Efeitos físicos\Simulações\H157 (B)

DISCHARGE DATA for Weather: Global Weathers\Dia

Wind Speed: 3.00 m/s
Wind Speed at Height (Calculated) 1.78 m/s
Pasquill Stability: C

USER-DEFINED QUANTITIES

Material BENZENE
Scenario Catastrophic rupture
Inventory 1,466,652.50 kg
Fixed Duration n/a s

Stagnation data (data at upstream end for long pipe):

- Pressure 1.04 bar
- Temperature 25.00 degC
- Fluid State Non-saturated liquid

CALCULATED QUANTITIES

Mass Flow of Air (Vent from Vapor Space only) n/a
Mass Flowrate n/a kg/s
Release Duration n/a s
Orifice or pipe exit data (before atmospheric expansion):
- Pressure n/a bar
- Temperature n/a degC
- Vena Contracta Velocity (exit velocity for pipe releases) n/a m/s
- Discharge Coefficient n/a
Final data (after atmospheric expansion):
- Temperature 25.00 degC
- Liquid Mass Fraction 1.00 fraction
- Droplet Diameter 742.39 um
- Expanded Radius n/a m
- Velocity 0.82 m/s

DISCHARGE DATA for Weather: Global Weathers\Noite

Wind Speed: 2.00 m/s
Wind Speed at Height (Calculated) 0.83 m/s
Pasquill Stability: E

USER-DEFINED QUANTITIES

Material BENZENE
Scenario Catastrophic rupture
Inventory 1,466,652.50 kg
Fixed Duration n/a s

Stagnation data (data at upstream end for long pipe):

- Pressure 1.04 bar
- Temperature 25.00 degC
- Fluid State Non-saturated liquid

CALCULATED QUANTITIES

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Mass Flow of Air (Vent from Vapor Space only)	n/a
Mass Flowrate	n/a kg/s
Release Duration	n/a s
Orifice or pipe exit data (before atmospheric expansion):	
- Pressure	n/a bar
- Temperature	n/a degC
- Vena Contracta Velocity (exit velocity for pipe releases)	n/a m/s
- Discharge Coefficient	n/a
Final data (after atmospheric expansion):	
- Temperature	25.00 degC
- Liquid Mass Fraction	1.00 fraction
- Droplet Diameter	742.39 um
- Expanded Radius	n/a m
- Velocity	0.82 m/s



Consequence Results

Pool Vaporization Results

Path: \Terminal Adonai - Efeitos físicos\Simulações\H157 (B)

N.B. Pool vaporization segments begin when the cloud has left the pool

		Dia	Noite
Liquid Rainout	fraction	0.99995	0.999952
Initial Vapor Cloud	kg	73.6855	70.8056
Time Pool Left Behind	s	31.1003	72.6873

Cloud Segment 1

Cloud Segment Duration	s	600	600
Pool Vaporization Rate	kg/s	4.92286	3.85921

Maximum Pool Radius	m	21.0723	21.0723
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Distance to Concentration Results

Path: \Terminal Adonai - Efeitos físicos\Simulações\H157 (B)

The height for user defined concentrations is the user defined height 0 m

All toxic results are reported at the toxic effect height 1 m

All flammable results are reported at the flammable effect height 0 m

Concentration(ppm)	Averaging Time		Dia	Noite	Distance (m)
UFL (79000)	18.75	s	10.1575	10.1455	
LFL (13000)	18.75	s	26.3891	27.1555	
LFL Frac (13000)	18.75	s	26.3891	27.1555	

Concentration(ppm)	Averaging Time		Dia	Noite	Heights (m) for above distances
UFL (79000)	18.75	s	0	0	
LFL (13000)	18.75	s	0	0	
LFL Frac (13000)	18.75	s	0	0	

Late Pool Fire Hazard

Path: \Terminal Adonai - Efeitos físicos\Simulações\H157 (B)

	Dia	Noite
Late Pool Fire Status	Hazard	Hazard

Radiation Effects: Late Pool Fire Ellipse

Path: \Terminal Adonai - Efeitos físicos\Simulações\H157 (B)

			Dia	Noite	Distance (m)
Radiation Level	9.83	kW/m2	28.683	27.323	
Radiation Level	19.46	kW/m2	22.0723	22.0723	
Radiation Level	35	kW/m2	Not Reached	Not Reached	

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Radiation Effects: Late Pool Fire Distance

Path: \Terminal Adonai - Efeitos físicos\Simulações\H157 (B)

	Dia	Noite
Radiation Level (kW/m2)		

Fireball Hazard

Path: \Terminal Adonai - Efeitos físicos\Simulações\H157 (B)

	Dia	Noite
Fireball Flame Status	No Hazard	No Hazard

Flash Fire Envelope

Path: \Terminal Adonai - Efeitos físicos\Simulações\H157 (B)

All flammable results are reported at the flammable effect height 0 m

			Dia	Noite
Furthest Extent	13000	ppm	26.3891	27.1555
Furthest Extent	13000	ppm	26.3891	27.1555
				Heights (m) for above distances
			Dia	Noite
Furthest Extent	13000	ppm	0	0
Furthest Extent	13000	ppm	0	0

Explosion Effects: Early Explosion

Path: \Terminal Adonai - Efeitos físicos\Simulações\H157 (B)

Early Explosions are assumed to be centered at the release location
Explosion Model Used : TNT

			Dia	Noite
Supplied Flammable Mass		kg	1.46665e+006	1.46665e+006
				Distance (m) at Overpressure Levels
			Dia	Noite
Overpressure	0.05	bar	No Hazard	No Hazard
Overpressure	0.1	bar	No Hazard	No Hazard
Overpressure	0.3	bar	No Hazard	No Hazard
				Used Mass (kg) at Overpressure Levels
			Dia	Noite
Overpressure	0.05	bar	0	0
Overpressure	0.1	bar	0	0
Overpressure	0.3	bar	0	0

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Explosion Effects: Late Ignition

Path: \Terminal Adonai - Efeitos físicos\Simulações\H157 (B)

Explosion Model Used : TNT

Explosion Location Criterion: Cloud Center

All distances are measured from the Source

All flammable results are reported at the flammable effect height 0 m

			Maximum Distance (m) at Overpressure Level	
			Dia	Noite
Overpressure	0.05	bar	64.056	65.2198
Overpressure	0.1	bar	41.1749	41.1454
Overpressure	0.3	bar	22.4214	21.4139

Supplementary Data at 0.05 bar

			Dia	Noite
Supplied Flammable Mass		kg	51.5338	60.0242
Used Flammable Mass		kg	51.5338	60.0242
Overpressure Radius		m	60.3383	63.485
Distance to:				
- Ignition Source		m	20	20
- Cloud Front/Centre		m	3.7177	1.73478
- Explosion Centre		m	3.7177	1.73478

Supplementary Data at 0.1 bar

			Dia	Noite
Supplied Flammable Mass		kg	51.5338	60.0242
Used Flammable Mass		kg	51.5338	60.0242
Overpressure Radius		m	37.4572	39.4106
Distance to:				
- Ignition Source		m	20	20
- Cloud Front/Centre		m	3.7177	1.73478
- Explosion Centre		m	3.7177	1.73478

Supplementary Data at 0.3 bar

			Dia	Noite
Supplied Flammable Mass		kg	51.5338	60.0242
Used Flammable Mass		kg	51.5338	60.0242
Overpressure Radius		m	18.7037	19.6791
Distance to:				
- Ignition Source		m	20	20
- Cloud Front/Centre		m	3.7177	1.73478
- Explosion Centre		m	3.7177	1.73478

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Weather Conditions

Path: \Terminal Adonai - Efeitos físicos\Simulações\H157 (B)

		Dia	Noite
Wind Speed	m/s	3	2
Pasquill Stability		C	E
Surface Roughness Length	mm	1000	1000
Surface Roughness Parameter		0.173718	0.173718
Atmospheric Temperature	degC	25	20
Surface Temperature	degC	30	20
Relative Humidity	fraction	0.8	0.8

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

H157 (E)

Base Case

CASE Name: Data

Path: \Terminal Adonai - Efeitos físicos\Simulações\H157 (E)

User-Defined Data

Material

Material Identifier	ETHANOL
Type of Vessel	Padded Liquid
Pressure Specification	Pressure specified
Storage Pressure - gauge	0.03 bar
Temperature	25 degC
Volume Inventory	1680 m3

Scenario

Scenario Type	Catastrophic rupture
Phase to be Released	Liquid
Building Wake Effect	None

Location

Elevation	0 m
Use ERPG averaging time	ERPG not selected
Use IDLH averaging time	IDLH not selected
Use STEL averaging time	STEL not selected
Supply a user defined averaging time	Not supplied

Bund

Status of Bund	Bund present
Bund Area	1395 m2
[Type of Bund Surface	User-Defined (Land)]
Bund Height	3 m
[Bund Failure Modeling	Bund cannot fail]

Indoor/Outdoor

Location of release	Open air release
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Flammable

Explosion Method	TNT
Jet Fire Method	Cone Model

Dispersion

Late Ignition Location	No ignition location
Mass Inventory of material to Disperse	1.32E6 kg
Use Burst Pressure	No - Use release pressure for fireball

Fireball Parameters

[Mass Modification Factor	3]
[Calculation method for fireball	DNV Recommended]
[TNO model flame temperature	1727 degC]

Toxic Parameters

[Indoor Calculations	Unselected]
[Wind Dependent Exchange Rate	Case Specified]

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

[Building Exchange Rate	4 /hr]
[Tail Time	1800 s]
[Set averaging time equal to exposure time	Use a fixed averaging time]
[Cut-off fraction of toxic load for exposure time calculation	0.05 fraction]
[Cut-off concentration for exposure time calculations	0 fraction]

Geometry

Shape	Point
Dimension	2D
System	Absolute
East(1)	0 m
North(1)	0 m

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Path: \Terminal Adonai - Efeitos físicos\Simulações\H157 (E)

DISCHARGE DATA for Weather: Global Weathers\Dia

Wind Speed: 3.00 m/s
Wind Speed at Height (Calculated) 1.78 m/s
Pasquill Stability: C

USER-DEFINED QUANTITIES

Material ETHANOL
Scenario Catastrophic rupture
Inventory 1,320,303.63 kg
Fixed Duration n/a s

Stagnation data (data at upstream end for long pipe):

- Pressure 1.04 bar
- Temperature 25.00 degC
- Fluid State Non-saturated liquid

CALCULATED QUANTITIES

Mass Flow of Air (Vent from Vapor Space only) n/a
Mass Flowrate n/a kg/s
Release Duration n/a s
Orifice or pipe exit data (before atmospheric expansion):
- Pressure n/a bar
- Temperature n/a degC
- Vena Contracta Velocity (exit velocity for pipe releases) n/a m/s
- Discharge Coefficient n/a
Final data (after atmospheric expansion):
- Temperature 25.00 degC
- Liquid Mass Fraction 1.00 fraction
- Droplet Diameter 734.68 um
- Expanded Radius n/a m
- Velocity 1.23 m/s

DISCHARGE DATA for Weather: Global Weathers\Noite

Wind Speed: 2.00 m/s
Wind Speed at Height (Calculated) 0.83 m/s
Pasquill Stability: E

USER-DEFINED QUANTITIES

Material ETHANOL
Scenario Catastrophic rupture
Inventory 1,320,303.63 kg
Fixed Duration n/a s

Stagnation data (data at upstream end for long pipe):

- Pressure 1.04 bar
- Temperature 25.00 degC
- Fluid State Non-saturated liquid

CALCULATED QUANTITIES

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Mass Flow of Air (Vent from Vapor Space only)	n/a
Mass Flowrate	n/a kg/s
Release Duration	n/a s
Orifice or pipe exit data (before atmospheric expansion):	
- Pressure	n/a bar
- Temperature	n/a degC
- Vena Contracta Velocity (exit velocity for pipe releases)	n/a m/s
- Discharge Coefficient	n/a
Final data (after atmospheric expansion):	
- Temperature	25.00 degC
- Liquid Mass Fraction	1.00 fraction
- Droplet Diameter	734.68 um
- Expanded Radius	n/a m
- Velocity	1.23 m/s



Consequence Results

Pool Vaporization Results

Path: \Terminal Adonai - Efeitos físicos\Simulações\H157 (E)

N.B. Pool vaporization segments begin when the cloud has left the pool

		Dia	Noite
Liquid Rainout	fraction	0.999821	0.99982
Initial Vapor Cloud	kg	236.377	237.556
Time Pool Left Behind	s	31.7376	61.4687

Cloud Segment 1

		Dia	Noite
Cloud Segment Duration	s	600	600
Pool Vaporization Rate	kg/s	2.04486	1.65719
Maximum Pool Radius	m	21.0723	21.0723

Distance to Concentration Results

Path: \Terminal Adonai - Efeitos físicos\Simulações\H157 (E)

The height for user defined concentrations is the user defined height 0 m

All toxic results are reported at the toxic effect height 1 m

All flammable results are reported at the flammable effect height 0 m

Concentration(ppm)	Averaging Time		Dia	Noite	Distance (m)
UFL (190000)	18.75	s	12.6831		12.5603
LFL (43000)	18.75	s	12.828		12.7055
LFL Frac (43000)	18.75	s	12.828		12.7055
Concentration(ppm)	Averaging Time		Dia	Noite	Heights (m) for above distances
UFL (190000)	18.75	s	0		0
LFL (43000)	18.75	s	0		0
LFL Frac (43000)	18.75	s	0		0

Late Pool Fire Hazard

Path: \Terminal Adonai - Efeitos físicos\Simulações\H157 (E)

	Dia	Noite
Late Pool Fire Status	Hazard	Hazard

Radiation Effects: Late Pool Fire Ellipse

Path: \Terminal Adonai - Efeitos físicos\Simulações\H157 (E)

			Dia	Noite	Distance (m)
Radiation Level	9.83	kW/m2	58.6063		57.0983
Radiation Level	19.46	kW/m2	44.6724		42.2827
Radiation Level	35	kW/m2	28.9971		27.6083

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Radiation Effects: Late Pool Fire Distance

Path: \Terminal Adonai - Efeitos físicos\Simulações\H157 (E)

	Dia	Noite
Radiation Level (kW/m2)		

Fireball Hazard

Path: \Terminal Adonai - Efeitos físicos\Simulações\H157 (E)

	Dia	Noite
Fireball Flame Status	No Hazard	No Hazard

Flash Fire Envelope

Path: \Terminal Adonai - Efeitos físicos\Simulações\H157 (E)

All flammable results are reported at the flammable effect height 0 m

			Dia	Noite
Furthest Extent	43000	ppm	12.828	12.7055
Furthest Extent	43000	ppm	12.828	12.7055

			Dia	Noite
Furthest Extent	43000	ppm	0	0
Furthest Extent	43000	ppm	0	0

Explosion Effects: Early Explosion

Path: \Terminal Adonai - Efeitos físicos\Simulações\H157 (E)

Early Explosions are assumed to be centered at the release location
Explosion Model Used : TNT

			Dia	Noite
Supplied Flammable Mass		kg	1.3203e+006	1.3203e+006

			Distance (m) at Overpressure Levels	
			Dia	Noite
Overpressure	0.05	bar	No Hazard	No Hazard
Overpressure	0.1	bar	No Hazard	No Hazard
Overpressure	0.3	bar	No Hazard	No Hazard

			Used Mass (kg) at Overpressure Levels	
			Dia	Noite
Overpressure	0.05	bar	0	0
Overpressure	0.1	bar	0	0
Overpressure	0.3	bar	0	0

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Explosion Effects: Late Ignition

Path: \Terminal Adonai - Efeitos físicos\Simulações\H157 (E)

Explosion Model Used : TNT

Explosion Location Criterion: Cloud Center

All distances are measured from the Source

All flammable results are reported at the flammable effect height 0 m

			Maximum Distance (m) at Overpressure Level	
			Dia	Noite
Overpressure	0.05	bar	36.6981	35.2105
Overpressure	0.1	bar	22.9586	22.0179
Overpressure	0.3	bar	11.6976	11.2052

Supplementary Data at 0.05 bar

			Dia	Noite
Supplied Flammable Mass		kg	16.7095	14.7925
Used Flammable Mass		kg	16.7095	14.7925
Overpressure Radius		m	36.2315	34.7893
Distance to:				
- Ignition Source		m	10	10
- Cloud Front/Centre		m	0.466537	0.421198
- Explosion Centre		m	0.466537	0.421198

Supplementary Data at 0.1 bar

			Dia	Noite
Supplied Flammable Mass		kg	16.7095	14.7925
Used Flammable Mass		kg	16.7095	14.7925
Overpressure Radius		m	22.492	21.5967
Distance to:				
- Ignition Source		m	10	10
- Cloud Front/Centre		m	0.466537	0.421198
- Explosion Centre		m	0.466537	0.421198

Supplementary Data at 0.3 bar

			Dia	Noite
Supplied Flammable Mass		kg	16.7095	14.7925
Used Flammable Mass		kg	16.7095	14.7925
Overpressure Radius		m	11.2311	10.784
Distance to:				
- Ignition Source		m	10	10
- Cloud Front/Centre		m	0.466537	0.421198
- Explosion Centre		m	0.466537	0.421198

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Weather Conditions

Path: \Terminal Adonai - Efeitos físicos\Simulações\H157 (E)

		Dia	Noite
Wind Speed	m/s	3	2
Pasquill Stability		C	E
Surface Roughness Length	mm	1000	1000
Surface Roughness Parameter		0.173718	0.173718
Atmospheric Temperature	degC	25	20
Surface Temperature	degC	30	20
Relative Humidity	fraction	0.8	0.8

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

H157 (H)

Base Case

CASE Name: Data

Path: \Terminal Adonai - Efeitos físicos\Simulações\H157 (H)

User-Defined Data

Material

Material Identifier	N-HEXANE
Type of Vessel	Padded Liquid
Pressure Specification	Pressure specified
Storage Pressure - gauge	0.03 bar
Temperature	25 degC
Volume Inventory	1680 m3

Scenario

Scenario Type	Catastrophic rupture
Phase to be Released	Liquid
Building Wake Effect	None

Location

Elevation	0 m
Use ERPG averaging time	ERPG not selected
Use IDLH averaging time	IDLH not selected
Use STEL averaging time	STEL not selected
Supply a user defined averaging time	Not supplied

Bund

Status of Bund	Bund present
Bund Area	1395 m2
[Type of Bund Surface	User-Defined (Land)]
Bund Height	3 m
[Bund Failure Modeling	Bund cannot fail]

Indoor/Outdoor

Location of release	Open air release
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Flammable

Explosion Method	TNT
Jet Fire Method	Cone Model

Dispersion

Late Ignition Location	No ignition location
Mass Inventory of material to Disperse	1.102E6 kg
Use Burst Pressure	No - Use release pressure for fireball

Fireball Parameters

[Mass Modification Factor	3]
[Calculation method for fireball	DNV Recommended]
[TNO model flame temperature	1727 degC]

Toxic Parameters

[Indoor Calculations	Unselected]
[Wind Dependent Exchange Rate	Case Specified]

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

[Building Exchange Rate	4 /hr]
[Tail Time	1800 s]
[Set averaging time equal to exposure time	Use a fixed averaging time]
[Cut-off fraction of toxic load for exposure time calculation	0.05 fraction]
[Cut-off concentration for exposure time calculations	0 fraction]

Geometry

Shape	Point
Dimension	2D
System	Absolute
East(1)	0 m
North(1)	0 m

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Path: \Terminal Adonai - Efeitos físicos\Simulações\H157 (H)

DISCHARGE DATA for Weather: Global Weathers\Dia

Wind Speed: 3.00 m/s
Wind Speed at Height (Calculated) 1.78 m/s
Pasquill Stability: C

USER-DEFINED QUANTITIES

Material N-HEXANE
Scenario Catastrophic rupture
Inventory 1,102,124.00 kg
Fixed Duration n/a s

Stagnation data (data at upstream end for long pipe):

- Pressure 1.04 bar
- Temperature 25.00 degC
- Fluid State Non-saturated liquid

CALCULATED QUANTITIES

Mass Flow of Air (Vent from Vapor Space only) n/a
Mass Flowrate n/a kg/s
Release Duration n/a s

Orifice or pipe exit data (before atmospheric expansion):

- Pressure n/a bar
- Temperature n/a degC
- Vena Contracta Velocity (exit velocity for pipe releases) n/a m/s
- Discharge Coefficient n/a

Final data (after atmospheric expansion):

- Temperature 25.00 degC
- Liquid Mass Fraction 1.00 fraction
- Droplet Diameter 721.42 um
- Expanded Radius n/a m
- Velocity 1.04 m/s

DISCHARGE DATA for Weather: Global Weathers\Noite

Wind Speed: 2.00 m/s
Wind Speed at Height (Calculated) 0.83 m/s
Pasquill Stability: E

USER-DEFINED QUANTITIES

Material N-HEXANE
Scenario Catastrophic rupture
Inventory 1,102,124.00 kg
Fixed Duration n/a s

Stagnation data (data at upstream end for long pipe):

- Pressure 1.04 bar
- Temperature 25.00 degC
- Fluid State Non-saturated liquid

CALCULATED QUANTITIES

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Mass Flow of Air (Vent from Vapor Space only)	n/a
Mass Flowrate	n/a kg/s
Release Duration	n/a s
Orifice or pipe exit data (before atmospheric expansion):	
- Pressure	n/a bar
- Temperature	n/a degC
- Vena Contracta Velocity (exit velocity for pipe releases)	n/a m/s
- Discharge Coefficient	n/a
Final data (after atmospheric expansion):	
- Temperature	25.00 degC
- Liquid Mass Fraction	1.00 fraction
- Droplet Diameter	721.42 um
- Expanded Radius	n/a m
- Velocity	1.04 m/s



Consequence Results

Pool Vaporization Results

Path: \Terminal Adonai - Efeitos físicos\Simulações\H157 (H)

N.B. Pool vaporization segments begin when the cloud has left the pool

		Dia	Noite
Liquid Rainout	fraction	0.99975	0.999752
Initial Vapor Cloud	kg	275.971	273.59
Time Pool Left Behind	s	39.6434	93.8624

Cloud Segment 1

Cloud Segment Duration	s	600	600
Pool Vaporization Rate	kg/s	7.98438	6.42408

Maximum Pool Radius	m	21.0723	21.0723
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Distance to Concentration Results

Path: \Terminal Adonai - Efeitos físicos\Simulações\H157 (H)

The height for user defined concentrations is the user defined height 0 m

All toxic results are reported at the toxic effect height 1 m

All flammable results are reported at the flammable effect height 0 m

Concentration(ppm)	Averaging Time		Dia	Noite	Distance (m)
UFL (76800)	18.75	s	13.5387	15.7661	
LFL (10500)	18.75	s	46.486	48.2673	
LFL Frac (10500)	18.75	s	46.486	48.2673	

Concentration(ppm)	Averaging Time		Dia	Noite	Heights (m) for above distances
UFL (76800)	18.75	s	0	0	
LFL (10500)	18.75	s	0	0	
LFL Frac (10500)	18.75	s	0	0	

Late Pool Fire Hazard

Path: \Terminal Adonai - Efeitos físicos\Simulações\H157 (H)

	Dia	Noite
Late Pool Fire Status	Hazard	Hazard

Radiation Effects: Late Pool Fire Ellipse

Path: \Terminal Adonai - Efeitos físicos\Simulações\H157 (H)

			Dia	Noite	Distance (m)
Radiation Level	9.83	kW/m2	28.6946	27.319	
Radiation Level	19.46	kW/m2	22.0723	22.0723	
Radiation Level	35	kW/m2	Not Reached	Not Reached	

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Radiation Effects: Late Pool Fire Distance

Path: \Terminal Adonai - Efeitos físicos\Simulações\H157 (H)

	Dia	Noite
Radiation Level (kW/m2)		

Fireball Hazard

Path: \Terminal Adonai - Efeitos físicos\Simulações\H157 (H)

	Dia	Noite
Fireball Flame Status	No Hazard	No Hazard

Flash Fire Envelope

Path: \Terminal Adonai - Efeitos físicos\Simulações\H157 (H)

All flammable results are reported at the flammable effect height 0 m

			Dia	Noite
Furthest Extent	10500	ppm	46.486	48.2673
Furthest Extent	10500	ppm	46.486	48.2673
			Heights (m) for above distances	
			Dia	Noite
Furthest Extent	10500	ppm	0	0
Furthest Extent	10500	ppm	0	0

Explosion Effects: Early Explosion

Path: \Terminal Adonai - Efeitos físicos\Simulações\H157 (H)

Early Explosions are assumed to be centered at the release location
Explosion Model Used : TNT

			Dia	Noite
Supplied Flammable Mass		kg	1.10212e+006	1.10212e+006
			Distance (m) at Overpressure Levels	
			Dia	Noite
Overpressure	0.05	bar	No Hazard	No Hazard
Overpressure	0.1	bar	No Hazard	No Hazard
Overpressure	0.3	bar	No Hazard	No Hazard
			Used Mass (kg) at Overpressure Levels	
			Dia	Noite
Overpressure	0.05	bar	0	0
Overpressure	0.1	bar	0	0
Overpressure	0.3	bar	0	0

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Explosion Effects: Late Ignition

Path: \Terminal Adonai - Efeitos físicos\Simulações\H157 (H)

Explosion Model Used : TNT

Explosion Location Criterion: Cloud Center

All distances are measured from the Source

All flammable results are reported at the flammable effect height 0 m

			Maximum Distance (m) at Overpressure Level	
			Dia	Noite
Overpressure	0.05	bar	109.32	112.192
Overpressure	0.1	bar	72.4592	72.0153
Overpressure	0.3	bar	42.248	39.0866

Supplementary Data at 0.05 bar

			Dia	Noite
Supplied Flammable Mass		kg	193.354	250.366
Used Flammable Mass		kg	193.354	250.366
Overpressure Radius		m	97.2026	105.946
Distance to:				
- Ignition Source		m	40	40
- Cloud Front/Centre		m	12.1171	6.24539
- Explosion Centre		m	12.1171	6.24539

Supplementary Data at 0.1 bar

			Dia	Noite
Supplied Flammable Mass		kg	193.354	250.366
Used Flammable Mass		kg	193.354	250.366
Overpressure Radius		m	60.342	65.7699
Distance to:				
- Ignition Source		m	40	40
- Cloud Front/Centre		m	12.1171	6.24539
- Explosion Centre		m	12.1171	6.24539

Supplementary Data at 0.3 bar

			Dia	Noite
Supplied Flammable Mass		kg	193.354	250.366
Used Flammable Mass		kg	193.354	250.366
Overpressure Radius		m	30.1309	32.8412
Distance to:				
- Ignition Source		m	40	40
- Cloud Front/Centre		m	12.1171	6.24539
- Explosion Centre		m	12.1171	6.24539

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Weather Conditions

Path: \Terminal Adonai - Efeitos físicos\Simulações\H157 (H)

		Dia	Noite
Wind Speed	m/s	3	2
Pasquill Stability		C	E
Surface Roughness Length	mm	1000	1000
Surface Roughness Parameter		0.173718	0.173718
Atmospheric Temperature	degC	25	20
Surface Temperature	degC	30	20
Relative Humidity	fraction	0.8	0.8

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

H157 (M)

Base Case

CASE Name: Data

Path: \Terminal Adonai - Efeitos físicos\Simulações\H157 (M)

User-Defined Data

Material

Material Identifier	METHANOL
Type of Vessel	Padded Liquid
Pressure Specification	Pressure specified
Storage Pressure - gauge	0.03 bar
Temperature	25 degC
Volume Inventory	1680 m3

Scenario

Scenario Type	Catastrophic rupture
Phase to be Released	Liquid
Building Wake Effect	None

Location

Elevation	0 m
Use ERPG averaging time	ERPG not selected
Use IDLH averaging time	IDLH not selected
Use STEL averaging time	STEL not selected
Supply a user defined averaging time	Not supplied

Bund

Status of Bund	Bund present
Bund Area	1395 m2
[Type of Bund Surface	User-Defined (Land)]
Bund Height	3 m
[Bund Failure Modeling	Bund cannot fail]

Indoor/Outdoor

Location of release	Open air release
---------------------	------------------

Flammable

Explosion Method	TNT
Jet Fire Method	Cone Model

Dispersion

Late Ignition Location	No ignition location
Mass Inventory of material to Disperse	1.327E6 kg
Use Burst Pressure	No - Use release pressure for fireball

Fireball Parameters

[Mass Modification Factor	3]
[Calculation method for fireball	DNV Recommended]
[TNO model flame temperature	1727 degC]

Toxic Parameters

[Indoor Calculations	Unselected]
[Wind Dependent Exchange Rate	Case Specified]

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

[Building Exchange Rate	4 /hr]
[Tail Time	1800 s]
[Set averaging time equal to exposure time	Use a fixed averaging time]
[Cut-off fraction of toxic load for exposure time calculation	0.05 fraction]
[Cut-off concentration for exposure time calculations	0 fraction]

Geometry

Shape	Point
Dimension	2D
System	Absolute
East(1)	0 m
North(1)	0 m

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Path: \Terminal Adonai - Efeitos físicos\Simulações\H157 (M)

DISCHARGE DATA for Weather: Global Weathers\Dia

Wind Speed: 3.00 m/s
Wind Speed at Height (Calculated) 1.78 m/s
Pasquill Stability: C

USER-DEFINED QUANTITIES

Material METHANOL
Scenario Catastrophic rupture
Inventory 1,326,557.13 kg
Fixed Duration n/a s

Stagnation data (data at upstream end for long pipe):

- Pressure 1.04 bar
- Temperature 25.00 degC
- Fluid State Non-saturated liquid

CALCULATED QUANTITIES

Mass Flow of Air (Vent from Vapor Space only) n/a
Mass Flowrate n/a kg/s
Release Duration n/a s
Orifice or pipe exit data (before atmospheric expansion):
- Pressure n/a bar
- Temperature n/a degC
- Vena Contracta Velocity (exit velocity for pipe releases) n/a m/s
- Discharge Coefficient n/a
Final data (after atmospheric expansion):
- Temperature 25.00 degC
- Liquid Mass Fraction 1.00 fraction
- Droplet Diameter 735.02 um
- Expanded Radius n/a m
- Velocity 1.54 m/s

DISCHARGE DATA for Weather: Global Weathers\Noite

Wind Speed: 2.00 m/s
Wind Speed at Height (Calculated) 0.83 m/s
Pasquill Stability: E

USER-DEFINED QUANTITIES

Material METHANOL
Scenario Catastrophic rupture
Inventory 1,326,557.13 kg
Fixed Duration n/a s

Stagnation data (data at upstream end for long pipe):

- Pressure 1.04 bar
- Temperature 25.00 degC
- Fluid State Non-saturated liquid

CALCULATED QUANTITIES

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Mass Flow of Air (Vent from Vapor Space only)	n/a
Mass Flowrate	n/a kg/s
Release Duration	n/a s
Orifice or pipe exit data (before atmospheric expansion):	
- Pressure	n/a bar
- Temperature	n/a degC
- Vena Contracta Velocity (exit velocity for pipe releases)	n/a m/s
- Discharge Coefficient	n/a
Final data (after atmospheric expansion):	
- Temperature	25.00 degC
- Liquid Mass Fraction	1.00 fraction
- Droplet Diameter	735.02 um
- Expanded Radius	n/a m
- Velocity	1.54 m/s



Consequence Results

Pool Vaporization Results

Path: \Terminal Adonai - Efeitos físicos\Simulações\H157 (M)

N.B. Pool vaporization segments begin when the cloud has left the pool

		Dia	Noite
Liquid Rainout	fraction	0.999392	0.999387
Initial Vapor Cloud	kg	805.967	812.65
Time Pool Left Behind	s	34.3906	59.9291

Cloud Segment 1

		Dia	Noite
Cloud Segment Duration	s	600	600
Pool Vaporization Rate	kg/s	3.59923	2.93426
Maximum Pool Radius	m	21.0723	21.0723

Distance to Concentration Results

Path: \Terminal Adonai - Efeitos físicos\Simulações\H157 (M)

The height for user defined concentrations is the user defined height 0 m

All toxic results are reported at the toxic effect height 1 m

All flammable results are reported at the flammable effect height 0 m

Concentration(ppm)	Averaging Time		Dia	Noite	Distance (m)
UFL (360000)	18.75	s	15.6323	15.4348	
LFL (73000)	18.75	s	23.2006	24.6514	
LFL Frac (73000)	18.75	s	23.2006	24.6514	
Concentration(ppm)	Averaging Time		Dia	Noite	Heights (m) for above distances
UFL (360000)	18.75	s	0	0	
LFL (73000)	18.75	s	0	0	
LFL Frac (73000)	18.75	s	0	0	

Late Pool Fire Hazard

Path: \Terminal Adonai - Efeitos físicos\Simulações\H157 (M)

	Dia	Noite
Late Pool Fire Status	Hazard	Hazard

Radiation Effects: Late Pool Fire Ellipse

Path: \Terminal Adonai - Efeitos físicos\Simulações\H157 (M)

			Dia	Noite	Distance (m)
Radiation Level	9.83	kW/m2	42.4962	40.9848	
Radiation Level	19.46	kW/m2	29.1835	27.743	
Radiation Level	35	kW/m2	22.0723	22.0723	

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Radiation Effects: Late Pool Fire Distance

Path: \Terminal Adonai - Efeitos físicos\Simulações\H157 (M)

	Dia	Noite
Radiation Level (kW/m2)		

Fireball Hazard

Path: \Terminal Adonai - Efeitos físicos\Simulações\H157 (M)

	Dia	Noite
Fireball Flame Status	No Hazard	No Hazard

Flash Fire Envelope

Path: \Terminal Adonai - Efeitos físicos\Simulações\H157 (M)

All flammable results are reported at the flammable effect height 0 m

			Dia	Noite
Furthest Extent	73000	ppm	23.2006	24.6514
Furthest Extent	73000	ppm	23.2006	24.6514

			Dia	Noite
Furthest Extent	73000	ppm	0	0
Furthest Extent	73000	ppm	0	0

Explosion Effects: Early Explosion

Path: \Terminal Adonai - Efeitos físicos\Simulações\H157 (M)

Early Explosions are assumed to be centered at the release location
Explosion Model Used : TNT

			Dia	Noite
Supplied Flammable Mass		kg	1.32656e+006	1.32656e+006

			Distance (m) at Overpressure Levels	
			Dia	Noite
Overpressure	0.05	bar	No Hazard	No Hazard
Overpressure	0.1	bar	No Hazard	No Hazard
Overpressure	0.3	bar	No Hazard	No Hazard

			Used Mass (kg) at Overpressure Levels	
			Dia	Noite
Overpressure	0.05	bar	0	0
Overpressure	0.1	bar	0	0
Overpressure	0.3	bar	0	0

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Explosion Effects: Late Ignition

Path: \Terminal Adonai - Efeitos físicos\Simulações\H157 (M)

Explosion Model Used : TNT

Explosion Location Criterion: Cloud Center

All distances are measured from the Source

All flammable results are reported at the flammable effect height 0 m

			Maximum Distance (m) at Overpressure Level	
			Dia	Noite
Overpressure	0.05	bar	74.5015	80.116
Overpressure	0.1	bar	49.0189	52.4478
Overpressure	0.3	bar	28.1332	29.7707

Supplementary Data at 0.05 bar

			Dia	Noite
Supplied Flammable Mass		kg	143.484	183.663
Used Flammable Mass		kg	143.484	183.663
Overpressure Radius		m	67.1984	72.9622
Distance to:				
- Ignition Source		m	20	20
- Cloud Front/Centre		m	7.30304	7.15385
- Explosion Centre		m	7.30304	7.15385

Supplementary Data at 0.1 bar

			Dia	Noite
Supplied Flammable Mass		kg	143.484	183.663
Used Flammable Mass		kg	143.484	183.663
Overpressure Radius		m	41.7158	45.2939
Distance to:				
- Ignition Source		m	20	20
- Cloud Front/Centre		m	7.30304	7.15385
- Explosion Centre		m	7.30304	7.15385

Supplementary Data at 0.3 bar

			Dia	Noite
Supplied Flammable Mass		kg	143.484	183.663
Used Flammable Mass		kg	143.484	183.663
Overpressure Radius		m	20.8302	22.6168
Distance to:				
- Ignition Source		m	20	20
- Cloud Front/Centre		m	7.30304	7.15385
- Explosion Centre		m	7.30304	7.15385

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Weather Conditions

Path: \Terminal Adonai - Efeitos físicos\Simulações\H157 (M)

		Dia	Noite
Wind Speed	m/s	3	2
Pasquill Stability		C	E
Surface Roughness Length	mm	1000	1000
Surface Roughness Parameter		0.173718	0.173718
Atmospheric Temperature	degC	25	20
Surface Temperature	degC	30	20
Relative Humidity	fraction	0.8	0.8

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

H157 (N)

Base Case

CASE Name: Data

Path: \Terminal Adonai - Efeitos físicos\Simulações\H157 (N)

User-Defined Data

Material

Material Identifier	N-NONANE
Type of Vessel	Padded Liquid
Pressure Specification	Pressure specified
Storage Pressure - gauge	0.03 bar
Temperature	25 degC
Volume Inventory	1680 m3

Scenario

Scenario Type	Catastrophic rupture
Phase to be Released	Liquid
Building Wake Effect	None

Location

Elevation	0 m
Use ERPG averaging time	ERPG not selected
Use IDLH averaging time	IDLH not selected
Use STEL averaging time	STEL not selected
Supply a user defined averaging time	Not supplied

Bund

Status of Bund	Bund present
Bund Area	1395 m2
[Type of Bund Surface	User-Defined (Land)]
Bund Height	3 m
[Bund Failure Modeling	Bund cannot fail]

Indoor/Outdoor

Location of release	Open air release
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Flammable

Explosion Method	TNT
Jet Fire Method	Cone Model

Dispersion

Late Ignition Location	No ignition location
Mass Inventory of material to Disperse	1.2E6 kg
Use Burst Pressure	No - Use release pressure for fireball

Fireball Parameters

[Mass Modification Factor	3]
[Calculation method for fireball	DNV Recommended]
[TNO model flame temperature	1727 degC]

Toxic Parameters

[Indoor Calculations	Unselected]
[Wind Dependent Exchange Rate	Case Specified]

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

[Building Exchange Rate	4 /hr]
[Tail Time	1800 s]
[Set averaging time equal to exposure time	Use a fixed averaging time]
[Cut-off fraction of toxic load for exposure time calculation	0.05 fraction]
[Cut-off concentration for exposure time calculations	0 fraction]

Geometry

Shape	Point
Dimension	2D
System	Absolute
East(1)	0 m
North(1)	0 m

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Path: \Terminal Adonai - Efeitos físicos\Simulações\H157 (N)

DISCHARGE DATA for Weather: Global Weathers\Dia

Wind Speed: 3.00 m/s
Wind Speed at Height (Calculated) 1.78 m/s
Pasquill Stability: C

USER-DEFINED QUANTITIES

Material N-NONANE
Scenario Catastrophic rupture
Inventory 1,200,011.63 kg
Fixed Duration n/a s

Stagnation data (data at upstream end for long pipe):

- Pressure 1.04 bar
- Temperature 25.00 degC
- Fluid State Non-saturated liquid

CALCULATED QUANTITIES

Mass Flow of Air (Vent from Vapor Space only) n/a
Mass Flowrate n/a kg/s
Release Duration n/a s
Orifice or pipe exit data (before atmospheric expansion):
- Pressure n/a bar
- Temperature n/a degC
- Vena Contracta Velocity (exit velocity for pipe releases) n/a m/s
- Discharge Coefficient n/a
Final data (after atmospheric expansion):
- Temperature 25.00 degC
- Liquid Mass Fraction 1.00 fraction
- Droplet Diameter 727.67 um
- Expanded Radius n/a m
- Velocity 0.76 m/s

DISCHARGE DATA for Weather: Global Weathers\Noite

Wind Speed: 2.00 m/s
Wind Speed at Height (Calculated) 0.83 m/s
Pasquill Stability: E

USER-DEFINED QUANTITIES

Material N-NONANE
Scenario Catastrophic rupture
Inventory 1,200,011.63 kg
Fixed Duration n/a s

Stagnation data (data at upstream end for long pipe):

- Pressure 1.04 bar
- Temperature 25.00 degC
- Fluid State Non-saturated liquid

CALCULATED QUANTITIES

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Mass Flow of Air (Vent from Vapor Space only)	n/a
Mass Flowrate	n/a kg/s
Release Duration	n/a s
Orifice or pipe exit data (before atmospheric expansion):	
- Pressure	n/a bar
- Temperature	n/a degC
- Vena Contracta Velocity (exit velocity for pipe releases)	n/a m/s
- Discharge Coefficient	n/a
Final data (after atmospheric expansion):	
- Temperature	25.00 degC
- Liquid Mass Fraction	1.00 fraction
- Droplet Diameter	727.67 um
- Expanded Radius	n/a m
- Velocity	0.76 m/s



Consequence Results

Pool Vaporization Results

Path: \Terminal Adonai - Efeitos físicos\Simulações\H157 (N)

N.B. Pool vaporization segments begin when the cloud has left the pool

		Dia	Noite
Liquid Rainout	fraction	0.999996	0.999996
Initial Vapor Cloud	kg	4.72222	4.59875
Time Pool Left Behind	s	22.4819	46.7365

Cloud Segment 1

Cloud Segment Duration	s	600	600
Pool Vaporization Rate	kg/s	0.264584	0.208248

Maximum Pool Radius	m	21.0723	21.0723
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Distance to Concentration Results

Path: \Terminal Adonai - Efeitos físicos\Simulações\H157 (N)

The height for user defined concentrations is the user defined height 0 m

All toxic results are reported at the toxic effect height 1 m

All flammable results are reported at the flammable effect height 0 m

Concentration(ppm)	Averaging Time		Dia	Noite	Distance (m)
UFL (56000)	18.75	s	10.152	10.1389	
LFL (7000)	18.75	s	10.2613	10.2482	
LFL Frac (7000)	18.75	s	10.2613	10.2482	

Concentration(ppm)	Averaging Time		Dia	Noite	Heights (m) for above distances
UFL (56000)	18.75	s	0	0	
LFL (7000)	18.75	s	0	0	
LFL Frac (7000)	18.75	s	0	0	

Late Pool Fire Hazard

Path: \Terminal Adonai - Efeitos físicos\Simulações\H157 (N)

	Dia	Noite
Late Pool Fire Status	Hazard	Hazard

Radiation Effects: Late Pool Fire Ellipse

Path: \Terminal Adonai - Efeitos físicos\Simulações\H157 (N)

			Dia	Noite	Distance (m)
Radiation Level	9.83	kW/m2	28.7287	27.3138	
Radiation Level	19.46	kW/m2	22.0723	22.0723	
Radiation Level	35	kW/m2	Not Reached	Not Reached	

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Radiation Effects: Late Pool Fire Distance

Path: \Terminal Adonai - Efeitos físicos\Simulações\H157 (N)

	Dia	Noite
Radiation Level (kW/m2)		

Fireball Hazard

Path: \Terminal Adonai - Efeitos físicos\Simulações\H157 (N)

	Dia	Noite
Fireball Flame Status	No Hazard	No Hazard

Flash Fire Envelope

Path: \Terminal Adonai - Efeitos físicos\Simulações\H157 (N)

All flammable results are reported at the flammable effect height 0 m

			Dia	Noite
Furthest Extent	7000	ppm	10.2613	10.2482
Furthest Extent	7000	ppm	10.2613	10.2482
			Heights (m) for above distances	
			Dia	Noite
Furthest Extent	7000	ppm	0	0
Furthest Extent	7000	ppm	0	0

Explosion Effects: Early Explosion

Path: \Terminal Adonai - Efeitos físicos\Simulações\H157 (N)

Early Explosions are assumed to be centered at the release location
Explosion Model Used : TNT

			Dia	Noite
Supplied Flammable Mass		kg	1.20001e+006	1.20001e+006
			Distance (m) at Overpressure Levels	
			Dia	Noite
Overpressure	0.05	bar	No Hazard	No Hazard
Overpressure	0.1	bar	No Hazard	No Hazard
Overpressure	0.3	bar	No Hazard	No Hazard
			Used Mass (kg) at Overpressure Levels	
			Dia	Noite
Overpressure	0.05	bar	0	0
Overpressure	0.1	bar	0	0
Overpressure	0.3	bar	0	0

SUMMARY REPORT

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Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Explosion Effects: Late Ignition

Path: \Terminal Adonai - Efeitos físicos\Simulações\H157 (N)

Explosion Model Used : TNT

Explosion Location Criterion: Cloud Center

All distances are measured from the Source

All flammable results are reported at the flammable effect height 0 m

			Maximum Distance (m) at Overpressure Level	
			Dia	Noite
Overpressure	0.05	bar	10.2291	9.53757
Overpressure	0.1	bar	6.38602	5.95211
Overpressure	0.3	bar	3.23622	3.01345

Supplementary Data at 0.05 bar

			Dia	Noite
Supplied Flammable Mass		kg	0.221173	0.179611
Used Flammable Mass		kg	0.221173	0.179611
Overpressure Radius		m	10.1343	9.45498
Distance to:				
- Ignition Source		m	10	10
- Cloud Front/Centre		m	0.0947851	0.0825965
- Explosion Centre		m	0.0947851	0.0825965

Supplementary Data at 0.1 bar

			Dia	Noite
Supplied Flammable Mass		kg	0.221173	0.179611
Used Flammable Mass		kg	0.221173	0.179611
Overpressure Radius		m	6.29124	5.86952
Distance to:				
- Ignition Source		m	10	10
- Cloud Front/Centre		m	0.0947851	0.0825965
- Explosion Centre		m	0.0947851	0.0825965

Supplementary Data at 0.3 bar

			Dia	Noite
Supplied Flammable Mass		kg	0.221173	0.179611
Used Flammable Mass		kg	0.221173	0.179611
Overpressure Radius		m	3.14144	2.93086
Distance to:				
- Ignition Source		m	10	10
- Cloud Front/Centre		m	0.0947851	0.0825965
- Explosion Centre		m	0.0947851	0.0825965

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Weather Conditions

Path: \Terminal Adonai - Efeitos físicos\Simulações\H157 (N)

		Dia	Noite
Wind Speed	m/s	3	2
Pasquill Stability		C	E
Surface Roughness Length	mm	1000	1000
Surface Roughness Parameter		0.173718	0.173718
Atmospheric Temperature	degC	25	20
Surface Temperature	degC	30	20
Relative Humidity	fraction	0.8	0.8

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

H157 (P)

Base Case

CASE Name: Data

Path: \Terminal Adonai - Efeitos físicos\Simulações\H157 (P)

User-Defined Data

Material

Material Identifier	N-PENTANE
Type of Vessel	Padded Liquid
Pressure Specification	Pressure specified
Storage Pressure - gauge	0.03 bar
Temperature	25 degC
Volume Inventory	1680 m3

Scenario

Scenario Type	Catastrophic rupture
Phase to be Released	Liquid
Building Wake Effect	None

Location

Elevation	0 m
Use ERPG averaging time	ERPG not selected
Use IDLH averaging time	IDLH not selected
Use STEL averaging time	STEL not selected
Supply a user defined averaging time	Not supplied

Bund

Status of Bund	Bund present
Bund Area	1395 m2
[Type of Bund Surface	User-Defined (Land)]
Bund Height	3 m
[Bund Failure Modeling	Bund cannot fail]

Indoor/Outdoor

Location of release	Open air release
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Flammable

Explosion Method	TNT
Jet Fire Method	Cone Model

Dispersion

Late Ignition Location	No ignition location
Mass Inventory of material to Disperse	1.045E6 kg
Use Burst Pressure	No - Use release pressure for fireball

Fireball Parameters

[Mass Modification Factor	3]
[Calculation method for fireball	DNV Recommended]
[TNO model flame temperature	1727 degC]

Toxic Parameters

[Indoor Calculations	Unselected]
[Wind Dependent Exchange Rate	Case Specified]

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

[Building Exchange Rate	4 /hr]
[Tail Time	1800 s]
[Set averaging time equal to exposure time	Use a fixed averaging time]
[Cut-off fraction of toxic load for exposure time calculation	0.05 fraction]
[Cut-off concentration for exposure time calculations	0 fraction]

Geometry

Shape	Point
Dimension	2D
System	Absolute
East(1)	0 m
North(1)	0 m

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Path: \Terminal Adonai - Efeitos físicos\Simulações\H157 (P)

DISCHARGE DATA for Weather: Global Weathers\Dia

Wind Speed: 3.00 m/s
Wind Speed at Height (Calculated) 1.78 m/s
Pasquill Stability: C

USER-DEFINED QUANTITIES

Material N-PENTANE
Scenario Catastrophic rupture
Inventory 1,044,528.88 kg
Fixed Duration n/a s

Stagnation data (data at upstream end for long pipe):

- Pressure 1.04 bar
- Temperature 25.00 degC
- Fluid State Non-saturated liquid

CALCULATED QUANTITIES

Mass Flow of Air (Vent from Vapor Space only) n/a
Mass Flowrate n/a kg/s
Release Duration n/a s
Orifice or pipe exit data (before atmospheric expansion):
- Pressure n/a bar
- Temperature n/a degC
- Vena Contracta Velocity (exit velocity for pipe releases) n/a m/s
- Discharge Coefficient n/a
Final data (after atmospheric expansion):
- Temperature 25.00 degC
- Liquid Mass Fraction 1.00 fraction
- Droplet Diameter 717.48 um
- Expanded Radius n/a m
- Velocity 0.86 m/s

DISCHARGE DATA for Weather: Global Weathers\Noite

Wind Speed: 2.00 m/s
Wind Speed at Height (Calculated) 0.83 m/s
Pasquill Stability: E

USER-DEFINED QUANTITIES

Material N-PENTANE
Scenario Catastrophic rupture
Inventory 1,044,528.88 kg
Fixed Duration n/a s

Stagnation data (data at upstream end for long pipe):

- Pressure 1.04 bar
- Temperature 25.00 degC
- Fluid State Non-saturated liquid

CALCULATED QUANTITIES

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Mass Flow of Air (Vent from Vapor Space only)	n/a
Mass Flowrate	n/a kg/s
Release Duration	n/a s
Orifice or pipe exit data (before atmospheric expansion):	
- Pressure	n/a bar
- Temperature	n/a degC
- Vena Contracta Velocity (exit velocity for pipe releases)	n/a m/s
- Discharge Coefficient	n/a
Final data (after atmospheric expansion):	
- Temperature	25.00 degC
- Liquid Mass Fraction	1.00 fraction
- Droplet Diameter	717.48 um
- Expanded Radius	n/a m
- Velocity	0.86 m/s



Consequence Results

Pool Vaporization Results

Path: \Terminal Adonai - Efeitos físicos\Simulações\H157 (P)

N.B. Pool vaporization segments begin when the cloud has left the pool

		Dia	Noite
Liquid Rainout	fraction	0.999205	0.999242
Initial Vapor Cloud	kg	830.647	792.028
Time Pool Left Behind	s	53.8732	139.306

Cloud Segment 1

		Dia	Noite
Cloud Segment Duration	s	600	600
Pool Vaporization Rate	kg/s	33.6969	27.0295
Maximum Pool Radius	m	21.0723	21.0723

Distance to Concentration Results

Path: \Terminal Adonai - Efeitos físicos\Simulações\H157 (P)

The height for user defined concentrations is the user defined height 0 m

All toxic results are reported at the toxic effect height 1 m

All flammable results are reported at the flammable effect height 0 m

Concentration(ppm)	Averaging Time		Dia	Noite	Distance (m)
UFL (80000)	18.75	s	34.8291	41.9837	
LFL (13000)	18.75	s	85.8723	89.2054	
LFL Frac (13000)	18.75	s	85.8723	89.2054	
Concentration(ppm)	Averaging Time		Dia	Noite	Heights (m) for above distances
UFL (80000)	18.75	s	0	0	
LFL (13000)	18.75	s	0	0	
LFL Frac (13000)	18.75	s	0	0	

Late Pool Fire Hazard

Path: \Terminal Adonai - Efeitos físicos\Simulações\H157 (P)

	Dia	Noite
Late Pool Fire Status	Hazard	Hazard

Radiation Effects: Late Pool Fire Ellipse

Path: \Terminal Adonai - Efeitos físicos\Simulações\H157 (P)

			Dia	Noite	Distance (m)
Radiation Level	9.83	kW/m2	28.5882	27.3021	
Radiation Level	19.46	kW/m2	22.0723	22.0723	
Radiation Level	35	kW/m2	Not Reached	Not Reached	

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Radiation Effects: Late Pool Fire Distance

Path: \Terminal Adonai - Efeitos físicos\Simulações\H157 (P)

	Dia	Noite
Radiation Level (kW/m2)		

Fireball Hazard

Path: \Terminal Adonai - Efeitos físicos\Simulações\H157 (P)

	Dia	Noite
Fireball Flame Status	No Hazard	No Hazard

Flash Fire Envelope

Path: \Terminal Adonai - Efeitos físicos\Simulações\H157 (P)

All flammable results are reported at the flammable effect height 0 m

			Dia	Noite
Furthest Extent	13000	ppm	85.8723	89.2054
Furthest Extent	13000	ppm	85.8723	89.2054
			Heights (m) for above distances	
			Dia	Noite
Furthest Extent	13000	ppm	0	0
Furthest Extent	13000	ppm	0	0

Explosion Effects: Early Explosion

Path: \Terminal Adonai - Efeitos físicos\Simulações\H157 (P)

Early Explosions are assumed to be centered at the release location
Explosion Model Used : TNT

			Dia	Noite
Supplied Flammable Mass		kg	1.04453e+006	1.04453e+006
			Distance (m) at Overpressure Levels	
			Dia	Noite
Overpressure	0.05	bar	No Hazard	No Hazard
Overpressure	0.1	bar	No Hazard	No Hazard
Overpressure	0.3	bar	No Hazard	No Hazard
			Used Mass (kg) at Overpressure Levels	
			Dia	Noite
Overpressure	0.05	bar	0	0
Overpressure	0.1	bar	0	0
Overpressure	0.3	bar	0	0

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Explosion Effects: Late Ignition

Path: \Terminal Adonai - Efeitos físicos\Simulações\H157 (P)

Explosion Model Used : TNT

Explosion Location Criterion: Cloud Center

All distances are measured from the Source

All flammable results are reported at the flammable effect height 0 m

			Maximum Distance (m) at Overpressure Level	
			Dia	Noite
Overpressure	0.05	bar	182.444	186.964
Overpressure	0.1	bar	124.45	122.512
Overpressure	0.3	bar	79.0872	69.6863

			Supplementary Data at 0.05 bar	
			Dia	Noite
Supplied Flammable Mass		kg	874.684	1028.15
Used Flammable Mass		kg	874.684	1028.15
Overpressure Radius		m	161.047	169.963
Distance to:				
- Ignition Source		m	70	80
- Cloud Front/Centre		m	21.3967	17.0012
- Explosion Centre		m	21.3967	17.0012

			Supplementary Data at 0.1 bar	
			Dia	Noite
Supplied Flammable Mass		kg	651.063	1028.15
Used Flammable Mass		kg	651.063	1028.15
Overpressure Radius		m	90.6049	105.511
Distance to:				
- Ignition Source		m	80	80
- Cloud Front/Centre		m	33.845	17.0012
- Explosion Centre		m	33.845	17.0012

			Supplementary Data at 0.3 bar	
			Dia	Noite
Supplied Flammable Mass		kg	651.063	1028.15
Used Flammable Mass		kg	651.063	1028.15
Overpressure Radius		m	45.2422	52.6851
Distance to:				
- Ignition Source		m	80	80
- Cloud Front/Centre		m	33.845	17.0012
- Explosion Centre		m	33.845	17.0012

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Weather Conditions

Path: \Terminal Adonai - Efeitos físicos\Simulações\H157 (P)

		Dia	Noite
Wind Speed	m/s	3	2
Pasquill Stability		C	E
Surface Roughness Length	mm	1000	1000
Surface Roughness Parameter		0.173718	0.173718
Atmospheric Temperature	degC	25	20
Surface Temperature	degC	30	20
Relative Humidity	fraction	0.8	0.8

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

H158 (A)

Base Case

CASE Name: Data

Path: \Terminal Adonai - Efeitos físicos\Simulações\H158 (A)

User-Defined Data

Material

Material Identifier	ACETONE
Type of Vessel	Padded Liquid
Pressure Specification	Pressure specified
Storage Pressure - gauge	0.03 bar
Temperature	25 degC
Volume Inventory	2560 m3

Scenario

Scenario Type	Catastrophic rupture
Phase to be Released	Liquid
Building Wake Effect	None

Location

Elevation	0 m
Use ERPG averaging time	ERPG not selected
Use IDLH averaging time	IDLH not selected
Use STEL averaging time	STEL not selected
Supply a user defined averaging time	Not supplied

Bund

Status of Bund	Bund present
Bund Area	1395 m2
[Type of Bund Surface	User-Defined (Land)]
Bund Height	3 m
[Bund Failure Modeling	Bund cannot fail]

Indoor/Outdoor

Location of release	Open air release
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Flammable

Explosion Method	TNT
Jet Fire Method	Cone Model

Dispersion

Late Ignition Location	No ignition location
Mass Inventory of material to Disperse	2.014E6 kg
Use Burst Pressure	No - Use release pressure for fireball

Fireball Parameters

[Mass Modification Factor	3]
[Calculation method for fireball	DNV Recommended]
[TNO model flame temperature	1727 degC]

Toxic Parameters

[Indoor Calculations	Unselected]
[Wind Dependent Exchange Rate	Case Specified]

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

[Building Exchange Rate	4 /hr]
[Tail Time	1800 s]
[Set averaging time equal to exposure time	Use a fixed averaging time]
[Cut-off fraction of toxic load for exposure time calculation	0.05 fraction]
[Cut-off concentration for exposure time calculations	0 fraction]

Geometry

Shape	Point
Dimension	2D
System	Absolute
East(1)	0 m
North(1)	0 m

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Path: \Terminal Adonai - Efeitos físicos\Simulações\H158 (A)

DISCHARGE DATA for Weather: Global Weathers\Dia

Wind Speed: 3.00 m/s
Wind Speed at Height (Calculated) 1.78 m/s
Pasquill Stability: C

USER-DEFINED QUANTITIES

Material ACETONE
Scenario Catastrophic rupture
Inventory 2,013,646.25 kg
Fixed Duration n/a s

Stagnation data (data at upstream end for long pipe):

- Pressure 1.04 bar
- Temperature 25.00 degC
- Fluid State Non-saturated liquid

CALCULATED QUANTITIES

Mass Flow of Air (Vent from Vapor Space only) n/a
Mass Flowrate n/a kg/s
Release Duration n/a s
Orifice or pipe exit data (before atmospheric expansion):
- Pressure n/a bar
- Temperature n/a degC
- Vena Contracta Velocity (exit velocity for pipe releases) n/a m/s
- Discharge Coefficient n/a
Final data (after atmospheric expansion):
- Temperature 25.00 degC
- Liquid Mass Fraction 1.00 fraction
- Droplet Diameter 734.74 um
- Expanded Radius n/a m
- Velocity 1.11 m/s

DISCHARGE DATA for Weather: Global Weathers\Noite

Wind Speed: 2.00 m/s
Wind Speed at Height (Calculated) 0.83 m/s
Pasquill Stability: E

USER-DEFINED QUANTITIES

Material ACETONE
Scenario Catastrophic rupture
Inventory 2,013,646.25 kg
Fixed Duration n/a s

Stagnation data (data at upstream end for long pipe):

- Pressure 1.04 bar
- Temperature 25.00 degC
- Fluid State Non-saturated liquid

CALCULATED QUANTITIES

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Mass Flow of Air (Vent from Vapor Space only)	n/a
Mass Flowrate	n/a kg/s
Release Duration	n/a s
Orifice or pipe exit data (before atmospheric expansion):	
- Pressure	n/a bar
- Temperature	n/a degC
- Vena Contracta Velocity (exit velocity for pipe releases)	n/a m/s
- Discharge Coefficient	n/a
Final data (after atmospheric expansion):	
- Temperature	25.00 degC
- Liquid Mass Fraction	1.00 fraction
- Droplet Diameter	734.74 um
- Expanded Radius	n/a m
- Velocity	1.11 m/s



Consequence Results

Pool Vaporization Results

Path: \Terminal Adonai - Efeitos físicos\Simulações\H158 (A)

N.B. Pool vaporization segments begin when the cloud has left the pool

		Dia	Noite
Liquid Rainout	fraction	0.999248	0.999246
Initial Vapor Cloud	kg	1514.15	1517.51
Time Pool Left Behind	s	50.9115	118.552

Cloud Segment 1

Cloud Segment Duration	s	600	600
Pool Vaporization Rate	kg/s	10.4819	8.54022

Maximum Pool Radius	m	21.0723	21.0723
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Distance to Concentration Results

Path: \Terminal Adonai - Efeitos físicos\Simulações\H158 (A)

The height for user defined concentrations is the user defined height 0 m

All toxic results are reported at the toxic effect height 1 m

All flammable results are reported at the flammable effect height 0 m

Concentration(ppm)	Averaging Time		Dia	Noite	Distance (m)
UFL (128000)	18.75	s	20.227	21.3639	
LFL (26000)	18.75	s	60.9869	64.4905	
LFL Frac (26000)	18.75	s	60.9869	64.4905	
Concentration(ppm)	Averaging Time		Dia	Noite	Heights (m) for above distances
UFL (128000)	18.75	s	0	0	
LFL (26000)	18.75	s	0	0	
LFL Frac (26000)	18.75	s	0	0	

Late Pool Fire Hazard

Path: \Terminal Adonai - Efeitos físicos\Simulações\H158 (A)

	Dia	Noite
Late Pool Fire Status	Hazard	Hazard

Radiation Effects: Late Pool Fire Ellipse

Path: \Terminal Adonai - Efeitos físicos\Simulações\H158 (A)

			Dia	Noite	Distance (m)
Radiation Level	9.83	kW/m2	80.514	78.3755	
Radiation Level	19.46	kW/m2	61.002	57.6998	
Radiation Level	35	kW/m2	43.7105	40.3482	

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Radiation Effects: Late Pool Fire Distance

Path: \Terminal Adonai - Efeitos físicos\Simulações\H158 (A)

	Dia	Noite
Radiation Level (kW/m2)		

Fireball Hazard

Path: \Terminal Adonai - Efeitos físicos\Simulações\H158 (A)

	Dia	Noite
Fireball Flame Status	No Hazard	No Hazard

Flash Fire Envelope

Path: \Terminal Adonai - Efeitos físicos\Simulações\H158 (A)

All flammable results are reported at the flammable effect height 0 m

			Dia	Noite
Furthest Extent	26000	ppm	60.9869	64.4905
Furthest Extent	26000	ppm	60.9869	64.4905
			Heights (m) for above distances	
			Dia	Noite
Furthest Extent	26000	ppm	0	0
Furthest Extent	26000	ppm	0	0

Explosion Effects: Early Explosion

Path: \Terminal Adonai - Efeitos físicos\Simulações\H158 (A)

Early Explosions are assumed to be centered at the release location
Explosion Model Used : TNT

			Dia	Noite
Supplied Flammable Mass		kg	2.01365e+006	2.01365e+006
			Distance (m) at Overpressure Levels	
			Dia	Noite
Overpressure	0.05	bar	No Hazard	No Hazard
Overpressure	0.1	bar	No Hazard	No Hazard
Overpressure	0.3	bar	No Hazard	No Hazard
			Used Mass (kg) at Overpressure Levels	
			Dia	Noite
Overpressure	0.05	bar	0	0
Overpressure	0.1	bar	0	0
Overpressure	0.3	bar	0	0

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Explosion Effects: Late Ignition

Path: \Terminal Adonai - Efeitos físicos\Simulações\H158 (A)

Explosion Model Used : TNT

Explosion Location Criterion: Cloud Center

All distances are measured from the Source

All flammable results are reported at the flammable effect height 0 m

			Maximum Distance (m) at Overpressure Level	
			Dia	Noite
Overpressure	0.05	bar	154.584	153.628
Overpressure	0.1	bar	100.011	99.5584
Overpressure	0.3	bar	59.6	55.2429

Supplementary Data at 0.05 bar

			Dia	Noite
Supplied Flammable Mass		kg	982.742	955.747
Used Flammable Mass		kg	982.742	955.747
Overpressure Radius		m	143.913	142.583
Distance to:				
- Ignition Source		m	50	60
- Cloud Front/Centre		m	10.6716	11.0451
- Explosion Centre		m	10.6716	11.0451

Supplementary Data at 0.1 bar

			Dia	Noite
Supplied Flammable Mass		kg	982.742	955.747
Used Flammable Mass		kg	982.742	955.747
Overpressure Radius		m	89.339	88.5134
Distance to:				
- Ignition Source		m	50	60
- Cloud Front/Centre		m	10.6716	11.0451
- Explosion Centre		m	10.6716	11.0451

Supplementary Data at 0.3 bar

			Dia	Noite
Supplied Flammable Mass		kg	540.803	955.747
Used Flammable Mass		kg	540.803	955.747
Overpressure Radius		m	36.5567	44.1978
Distance to:				
- Ignition Source		m	60	60
- Cloud Front/Centre		m	23.0434	11.0451
- Explosion Centre		m	23.0434	11.0451

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Weather Conditions

Path: \Terminal Adonai - Efeitos físicos\Simulações\H158 (A)

		Dia	Noite
Wind Speed	m/s	3	2
Pasquill Stability		C	E
Surface Roughness Length	mm	1000	1000
Surface Roughness Parameter		0.173718	0.173718
Atmospheric Temperature	degC	25	20
Surface Temperature	degC	30	20
Relative Humidity	fraction	0.8	0.8

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

H158 (B)

Base Case

CASE Name: Data

Path: \Terminal Adonai - Efeitos físicos\Simulações\H158 (B)

User-Defined Data

Material

Material Identifier	BENZENE
Type of Vessel	Padded Liquid
Pressure Specification	Pressure specified
Storage Pressure - gauge	0.03 bar
Temperature	25 degC
Volume Inventory	2560 m3

Scenario

Scenario Type	Catastrophic rupture
Phase to be Released	Liquid
Building Wake Effect	None

Location

Elevation	0 m
Use ERPG averaging time	ERPG not selected
Use IDLH averaging time	IDLH not selected
Use STEL averaging time	STEL not selected
Supply a user defined averaging time	Not supplied

Bund

Status of Bund	Bund present
Bund Area	1395 m2
[Type of Bund Surface	User-Defined (Land)]
Bund Height	3 m
[Bund Failure Modeling	Bund cannot fail]

Indoor/Outdoor

Location of release	Open air release
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Flammable

Explosion Method	TNT
Jet Fire Method	Cone Model

Dispersion

Late Ignition Location	No ignition location
Mass Inventory of material to Disperse	2.235E6 kg
Use Burst Pressure	No - Use release pressure for fireball

Fireball Parameters

[Mass Modification Factor	3]
[Calculation method for fireball	DNV Recommended]
[TNO model flame temperature	1727 degC]

Toxic Parameters

[Indoor Calculations	Unselected]
[Wind Dependent Exchange Rate	Case Specified]

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

[Building Exchange Rate	4 /hr]
[Tail Time	1800 s]
[Set averaging time equal to exposure time	Use a fixed averaging time]
[Cut-off fraction of toxic load for exposure time calculation	0.05 fraction]
[Cut-off concentration for exposure time calculations	0 fraction]

Geometry

Shape	Point
Dimension	2D
System	Absolute
East(1)	0 m
North(1)	0 m

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Path: \Terminal Adonai - Efeitos físicos\Simulações\H158 (B)

DISCHARGE DATA for Weather: Global Weathers\Dia

Wind Speed:	3.00 m/s
Wind Speed at Height (Calculated)	1.78 m/s
Pasquill Stability:	C

USER-DEFINED QUANTITIES

Material	BENZENE
Scenario	Catastrophic rupture
Inventory	2,234,899.00 kg
Fixed Duration	n/a s

Stagnation data (data at upstream end for long pipe):

- Pressure	1.04 bar
- Temperature	25.00 degC
- Fluid State	Non-saturated liquid

CALCULATED QUANTITIES

Mass Flow of Air (Vent from Vapor Space only)	n/a
Mass Flowrate	n/a kg/s
Release Duration	n/a s

Orifice or pipe exit data (before atmospheric expansion):

- Pressure	n/a bar
- Temperature	n/a degC
- Vena Contracta Velocity (exit velocity for pipe releases)	n/a m/s
- Discharge Coefficient	n/a

Final data (after atmospheric expansion):

- Temperature	25.00 degC
- Liquid Mass Fraction	1.00 fraction
- Droplet Diameter	742.39 um
- Expanded Radius	n/a m
- Velocity	0.82 m/s

DISCHARGE DATA for Weather: Global Weathers\Noite

Wind Speed:	2.00 m/s
Wind Speed at Height (Calculated)	0.83 m/s
Pasquill Stability:	E

USER-DEFINED QUANTITIES

Material	BENZENE
Scenario	Catastrophic rupture
Inventory	2,234,899.00 kg
Fixed Duration	n/a s

Stagnation data (data at upstream end for long pipe):

- Pressure	1.04 bar
- Temperature	25.00 degC
- Fluid State	Non-saturated liquid

CALCULATED QUANTITIES

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Mass Flow of Air (Vent from Vapor Space only)	n/a
Mass Flowrate	n/a kg/s
Release Duration	n/a s
Orifice or pipe exit data (before atmospheric expansion):	
- Pressure	n/a bar
- Temperature	n/a degC
- Vena Contracta Velocity (exit velocity for pipe releases)	n/a m/s
- Discharge Coefficient	n/a
Final data (after atmospheric expansion):	
- Temperature	25.00 degC
- Liquid Mass Fraction	1.00 fraction
- Droplet Diameter	742.39 um
- Expanded Radius	n/a m
- Velocity	0.82 m/s



Consequence Results

Pool Vaporization Results

Path: \Terminal Adonai - Efeitos físicos\Simulações\H158 (B)

N.B. Pool vaporization segments begin when the cloud has left the pool

		Dia	Noite
Liquid Rainout	fraction	0.999949	0.999951
Initial Vapor Cloud	kg	113.613	109.417
Time Pool Left Behind	s	32.8848	76.2965

Cloud Segment 1

Cloud Segment Duration	s	600	600
Pool Vaporization Rate	kg/s	4.92483	3.88031

Maximum Pool Radius	m	21.0723	21.0723
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Distance to Concentration Results

Path: \Terminal Adonai - Efeitos físicos\Simulações\H158 (B)

The height for user defined concentrations is the user defined height 0 m

All toxic results are reported at the toxic effect height 1 m

All flammable results are reported at the flammable effect height 0 m

Concentration(ppm)	Averaging Time		Distance (m)	
			Dia	Noite
UFL (79000)	18.75	s	11.7146	11.7019
LFL (13000)	18.75	s	28.355	29.7366
LFL Frac (13000)	18.75	s	28.355	29.7366

Concentration(ppm)	Averaging Time		Heights (m) for above distances	
			Dia	Noite
UFL (79000)	18.75	s	0	0
LFL (13000)	18.75	s	0	0
LFL Frac (13000)	18.75	s	0	0

Late Pool Fire Hazard

Path: \Terminal Adonai - Efeitos físicos\Simulações\H158 (B)

	Dia	Noite
Late Pool Fire Status	Hazard	Hazard

Radiation Effects: Late Pool Fire Ellipse

Path: \Terminal Adonai - Efeitos físicos\Simulações\H158 (B)

			Distance (m)	
			Dia	Noite
Radiation Level	9.83	kW/m2	28.683	27.323
Radiation Level	19.46	kW/m2	22.0723	22.0723
Radiation Level	35	kW/m2	Not Reached	Not Reached

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Radiation Effects: Late Pool Fire Distance

Path: \Terminal Adonai - Efeitos físicos\Simulações\H158 (B)

	Dia	Noite
Radiation Level (kW/m ²)		

Fireball Hazard

Path: \Terminal Adonai - Efeitos físicos\Simulações\H158 (B)

	Dia	Noite
Fireball Flame Status	No Hazard	No Hazard

Flash Fire Envelope

Path: \Terminal Adonai - Efeitos físicos\Simulações\H158 (B)

All flammable results are reported at the flammable effect height 0 m

			Dia	Noite
Furthest Extent	13000	ppm	28.355	29.7366
Furthest Extent	13000	ppm	28.355	29.7366

			Dia	Noite
Furthest Extent	13000	ppm	0	0
Furthest Extent	13000	ppm	0	0

Explosion Effects: Early Explosion

Path: \Terminal Adonai - Efeitos físicos\Simulações\H158 (B)

Early Explosions are assumed to be centered at the release location
Explosion Model Used : TNT

			Dia	Noite
Supplied Flammable Mass		kg	2.2349e+006	2.2349e+006

			Distance (m) at Overpressure Levels	
			Dia	Noite
Overpressure	0.05	bar	No Hazard	No Hazard
Overpressure	0.1	bar	No Hazard	No Hazard
Overpressure	0.3	bar	No Hazard	No Hazard

			Used Mass (kg) at Overpressure Levels	
			Dia	Noite
Overpressure	0.05	bar	0	0
Overpressure	0.1	bar	0	0
Overpressure	0.3	bar	0	0

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Explosion Effects: Late Ignition

Path: \Terminal Adonai - Efeitos físicos\Simulações\H158 (B)

Explosion Model Used : TNT

Explosion Location Criterion: Cloud Center

All distances are measured from the Source

All flammable results are reported at the flammable effect height 0 m

			Maximum Distance (m) at Overpressure Level	
			Dia	Noite
Overpressure	0.05	bar	73.2138	71.2207
Overpressure	0.1	bar	46.0371	44.4949
Overpressure	0.3	bar	23.7628	22.5904

Supplementary Data at 0.05 bar

			Dia	Noite
Supplied Flammable Mass		kg	86.3482	82.1202
Used Flammable Mass		kg	86.3482	82.1202
Overpressure Radius		m	71.6661	70.4767
Distance to:				
- Ignition Source		m	20	20
- Cloud Front/Centre		m	1.54777	0.743968
- Explosion Centre		m	1.54777	0.743968

Supplementary Data at 0.1 bar

			Dia	Noite
Supplied Flammable Mass		kg	86.3482	82.1202
Used Flammable Mass		kg	86.3482	82.1202
Overpressure Radius		m	44.4893	43.751
Distance to:				
- Ignition Source		m	20	20
- Cloud Front/Centre		m	1.54777	0.743968
- Explosion Centre		m	1.54777	0.743968

Supplementary Data at 0.3 bar

			Dia	Noite
Supplied Flammable Mass		kg	86.3482	82.1202
Used Flammable Mass		kg	86.3482	82.1202
Overpressure Radius		m	22.2151	21.8464
Distance to:				
- Ignition Source		m	20	20
- Cloud Front/Centre		m	1.54777	0.743968
- Explosion Centre		m	1.54777	0.743968

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Weather Conditions

Path: \Terminal Adonai - Efeitos físicos\Simulações\H158 (B)

		Dia	Noite
Wind Speed	m/s	3	2
Pasquill Stability		C	E
Surface Roughness Length	mm	1000	1000
Surface Roughness Parameter		0.173718	0.173718
Atmospheric Temperature	degC	25	20
Surface Temperature	degC	30	20
Relative Humidity	fraction	0.8	0.8

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

H158 (E)

Base Case

CASE Name: Data

Path: \Terminal Adonai - Efeitos físicos\Simulações\H158 (E)

User-Defined Data

Material

Material Identifier	ETHANOL
Type of Vessel	Padded Liquid
Pressure Specification	Pressure specified
Storage Pressure - gauge	0.03 bar
Temperature	25 degC
Volume Inventory	2560 m3

Scenario

Scenario Type	Catastrophic rupture
Phase to be Released	Liquid
Building Wake Effect	None

Location

Elevation	0 m
Use ERPG averaging time	ERPG not selected
Use IDLH averaging time	IDLH not selected
Use STEL averaging time	STEL not selected
Supply a user defined averaging time	Not supplied

Bund

Status of Bund	Bund present
Bund Area	1395 m2
[Type of Bund Surface	User-Defined (Land)]
Bund Height	3 m
[Bund Failure Modeling	Bund cannot fail]

Indoor/Outdoor

Location of release	Open air release
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Flammable

Explosion Method	TNT
Jet Fire Method	Cone Model

Dispersion

Late Ignition Location	No ignition location
Mass Inventory of material to Disperse	2.012E6 kg
Use Burst Pressure	No - Use release pressure for fireball

Fireball Parameters

[Mass Modification Factor	3]
[Calculation method for fireball	DNV Recommended]
[TNO model flame temperature	1727 degC]

Toxic Parameters

[Indoor Calculations	Unselected]
[Wind Dependent Exchange Rate	Case Specified]

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

[Building Exchange Rate	4 /hr]
[Tail Time	1800 s]
[Set averaging time equal to exposure time	Use a fixed averaging time]
[Cut-off fraction of toxic load for exposure time calculation	0.05 fraction]
[Cut-off concentration for exposure time calculations	0 fraction]

Geometry

Shape	Point
Dimension	2D
System	Absolute
East(1)	0 m
North(1)	0 m

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Path: \Terminal Adonai - Efeitos físicos\Simulações\H158 (E)

DISCHARGE DATA for Weather: Global Weathers\Dia

Wind Speed: 3.00 m/s
Wind Speed at Height (Calculated) 1.78 m/s
Pasquill Stability: C

USER-DEFINED QUANTITIES

Material ETHANOL
Scenario Catastrophic rupture
Inventory 2,011,891.25 kg
Fixed Duration n/a s

Stagnation data (data at upstream end for long pipe):

- Pressure 1.04 bar
- Temperature 25.00 degC
- Fluid State Non-saturated liquid

CALCULATED QUANTITIES

Mass Flow of Air (Vent from Vapor Space only) n/a
Mass Flowrate n/a kg/s
Release Duration n/a s

Orifice or pipe exit data (before atmospheric expansion):

- Pressure n/a bar
- Temperature n/a degC
- Vena Contracta Velocity (exit velocity for pipe releases) n/a m/s
- Discharge Coefficient n/a

Final data (after atmospheric expansion):

- Temperature 25.00 degC
- Liquid Mass Fraction 1.00 fraction
- Droplet Diameter 734.68 um
- Expanded Radius n/a m
- Velocity 1.23 m/s

DISCHARGE DATA for Weather: Global Weathers\Noite

Wind Speed: 2.00 m/s
Wind Speed at Height (Calculated) 0.83 m/s
Pasquill Stability: E

USER-DEFINED QUANTITIES

Material ETHANOL
Scenario Catastrophic rupture
Inventory 2,011,891.25 kg
Fixed Duration n/a s

Stagnation data (data at upstream end for long pipe):

- Pressure 1.04 bar
- Temperature 25.00 degC
- Fluid State Non-saturated liquid

CALCULATED QUANTITIES

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Mass Flow of Air (Vent from Vapor Space only)	n/a
Mass Flowrate	n/a kg/s
Release Duration	n/a s
Orifice or pipe exit data (before atmospheric expansion):	
- Pressure	n/a bar
- Temperature	n/a degC
- Vena Contracta Velocity (exit velocity for pipe releases)	n/a m/s
- Discharge Coefficient	n/a
Final data (after atmospheric expansion):	
- Temperature	25.00 degC
- Liquid Mass Fraction	1.00 fraction
- Droplet Diameter	734.68 um
- Expanded Radius	n/a m
- Velocity	1.23 m/s



Consequence Results

Pool Vaporization Results

Path: \Terminal Adonai - Efeitos físicos\Simulações\H158 (E)

N.B. Pool vaporization segments begin when the cloud has left the pool

		Dia	Noite
Liquid Rainout	fraction	0.999821	0.99982
Initial Vapor Cloud	kg	361.068	363.013
Time Pool Left Behind	s	34.359	65.8698

Cloud Segment 1

		Dia	Noite
Cloud Segment Duration	s	600	600
Pool Vaporization Rate	kg/s	2.04691	1.66476
Maximum Pool Radius	m	21.0723	21.0723

Distance to Concentration Results

Path: \Terminal Adonai - Efeitos físicos\Simulações\H158 (E)

The height for user defined concentrations is the user defined height 0 m

All toxic results are reported at the toxic effect height 1 m

All flammable results are reported at the flammable effect height 0 m

Concentration(ppm)	Averaging Time		Dia	Noite	Distance (m)
UFL (190000)	18.75	s	14.7616	14.6226	
LFL (43000)	18.75	s	14.9286	14.7901	
LFL Frac (43000)	18.75	s	14.9286	14.7901	
Concentration(ppm)	Averaging Time		Dia	Noite	Heights (m) for above distances
UFL (190000)	18.75	s	0	0	
LFL (43000)	18.75	s	0	0	
LFL Frac (43000)	18.75	s	0	0	

Late Pool Fire Hazard

Path: \Terminal Adonai - Efeitos físicos\Simulações\H158 (E)

	Dia	Noite
Late Pool Fire Status	Hazard	Hazard

Radiation Effects: Late Pool Fire Ellipse

Path: \Terminal Adonai - Efeitos físicos\Simulações\H158 (E)

			Dia	Noite	Distance (m)
Radiation Level	9.83	kW/m2	58.6063	57.0983	
Radiation Level	19.46	kW/m2	44.6724	42.2827	
Radiation Level	35	kW/m2	28.9971	27.6083	

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Radiation Effects: Late Pool Fire Distance

Path: \Terminal Adonai - Efeitos físicos\Simulações\H158 (E)

	Dia	Noite
Radiation Level (kW/m2)		

Fireball Hazard

Path: \Terminal Adonai - Efeitos físicos\Simulações\H158 (E)

	Dia	Noite
Fireball Flame Status	No Hazard	No Hazard

Flash Fire Envelope

Path: \Terminal Adonai - Efeitos físicos\Simulações\H158 (E)

All flammable results are reported at the flammable effect height 0 m

			Dia	Noite
Furthest Extent	43000	ppm	14.9286	14.7901
Furthest Extent	43000	ppm	14.9286	14.7901

			Dia	Noite
Furthest Extent	43000	ppm	0	0
Furthest Extent	43000	ppm	0	0

Explosion Effects: Early Explosion

Path: \Terminal Adonai - Efeitos físicos\Simulações\H158 (E)

Early Explosions are assumed to be centered at the release location
Explosion Model Used : TNT

			Dia	Noite
Supplied Flammable Mass		kg	2.01189e+006	2.01189e+006

			Distance (m) at Overpressure Levels	
			Dia	Noite
Overpressure	0.05	bar	No Hazard	No Hazard
Overpressure	0.1	bar	No Hazard	No Hazard
Overpressure	0.3	bar	No Hazard	No Hazard

			Used Mass (kg) at Overpressure Levels	
			Dia	Noite
Overpressure	0.05	bar	0	0
Overpressure	0.1	bar	0	0
Overpressure	0.3	bar	0	0

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Explosion Effects: Late Ignition

Path: \Terminal Adonai - Efeitos físicos\Simulações\H158 (E)

Explosion Model Used : TNT

Explosion Location Criterion: Cloud Center

All distances are measured from the Source

All flammable results are reported at the flammable effect height 0 m

			Maximum Distance (m) at Overpressure Level	
			Dia	Noite
Overpressure	0.05	bar	No Hazard	No Hazard
Overpressure	0.1	bar	No Hazard	No Hazard
Overpressure	0.3	bar	No Hazard	No Hazard
			Supplementary Data at 0.05 bar	
			Dia	Noite
Supplied Flammable Mass		kg	No Hazard	No Hazard
Used Flammable Mass		kg	No Hazard	No Hazard
Overpressure Radius		m	0	0
Distance to:				
- Ignition Source		m	No Hazard	No Hazard
- Cloud Front/Centre		m	No Hazard	No Hazard
- Explosion Centre		m	0	0
			Supplementary Data at 0.1 bar	
			Dia	Noite
Supplied Flammable Mass		kg	No Hazard	No Hazard
Used Flammable Mass		kg	No Hazard	No Hazard
Overpressure Radius		m	0	0
Distance to:				
- Ignition Source		m	No Hazard	No Hazard
- Cloud Front/Centre		m	No Hazard	No Hazard
- Explosion Centre		m	0	0
			Supplementary Data at 0.3 bar	
			Dia	Noite
Supplied Flammable Mass		kg	No Hazard	No Hazard
Used Flammable Mass		kg	No Hazard	No Hazard
Overpressure Radius		m	0	0
Distance to:				
- Ignition Source		m	No Hazard	No Hazard
- Cloud Front/Centre		m	No Hazard	No Hazard
- Explosion Centre		m	0	0

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Weather Conditions

Path: \Terminal Adonai - Efeitos físicos\Simulações\H158 (E)

		Dia	Noite
Wind Speed	m/s	3	2
Pasquill Stability		C	E
Surface Roughness Length	mm	1000	1000
Surface Roughness Parameter		0.173718	0.173718
Atmospheric Temperature	degC	25	20
Surface Temperature	degC	30	20
Relative Humidity	fraction	0.8	0.8

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

H158 (H)

Base Case

CASE Name: Data

Path: \Terminal Adonai - Efeitos físicos\Simulações\H158 (H)

User-Defined Data

Material

Material Identifier	N-HEXANE
Type of Vessel	Padded Liquid
Pressure Specification	Pressure specified
Storage Pressure - gauge	0.03 bar
Temperature	25 degC
Volume Inventory	2560 m3

Scenario

Scenario Type	Catastrophic rupture
Phase to be Released	Liquid
Building Wake Effect	None

Location

Elevation	0 m
Use ERPG averaging time	ERPG not selected
Use IDLH averaging time	IDLH not selected
Use STEL averaging time	STEL not selected
Supply a user defined averaging time	Not supplied

Bund

Status of Bund	Bund present
Bund Area	1395 m2
[Type of Bund Surface	User-Defined (Land)]
Bund Height	3 m
[Bund Failure Modeling	Bund cannot fail]

Indoor/Outdoor

Location of release	Open air release
---------------------	------------------

Flammable

Explosion Method	TNT
Jet Fire Method	Cone Model

Dispersion

Late Ignition Location	No ignition location
Mass Inventory of material to Disperse	1.679E6 kg
Use Burst Pressure	No - Use release pressure for fireball

Fireball Parameters

[Mass Modification Factor	3]
[Calculation method for fireball	DNV Recommended]
[TNO model flame temperature	1727 degC]

Toxic Parameters

[Indoor Calculations	Unselected]
[Wind Dependent Exchange Rate	Case Specified]

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

[Building Exchange Rate	4 /hr]
[Tail Time	1800 s]
[Set averaging time equal to exposure time	Use a fixed averaging time]
[Cut-off fraction of toxic load for exposure time calculation	0.05 fraction]
[Cut-off concentration for exposure time calculations	0 fraction]

Geometry

Shape	Point
Dimension	2D
System	Absolute
East(1)	0 m
North(1)	0 m

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Path: \Terminal Adonai - Efeitos físicos\Simulações\H158 (H)

DISCHARGE DATA for Weather: Global Weathers\Dia

Wind Speed: 3.00 m/s
Wind Speed at Height (Calculated) 1.78 m/s
Pasquill Stability: C

USER-DEFINED QUANTITIES

Material N-HEXANE
Scenario Catastrophic rupture
Inventory 1,679,427.13 kg
Fixed Duration n/a s

Stagnation data (data at upstream end for long pipe):

- Pressure 1.04 bar
- Temperature 25.00 degC
- Fluid State Non-saturated liquid

CALCULATED QUANTITIES

Mass Flow of Air (Vent from Vapor Space only) n/a
Mass Flowrate n/a kg/s
Release Duration n/a s
Orifice or pipe exit data (before atmospheric expansion):
- Pressure n/a bar
- Temperature n/a degC
- Vena Contracta Velocity (exit velocity for pipe releases) n/a m/s
- Discharge Coefficient n/a
Final data (after atmospheric expansion):
- Temperature 25.00 degC
- Liquid Mass Fraction 1.00 fraction
- Droplet Diameter 721.42 um
- Expanded Radius n/a m
- Velocity 1.04 m/s

DISCHARGE DATA for Weather: Global Weathers\Noite

Wind Speed: 2.00 m/s
Wind Speed at Height (Calculated) 0.83 m/s
Pasquill Stability: E

USER-DEFINED QUANTITIES

Material N-HEXANE
Scenario Catastrophic rupture
Inventory 1,679,427.13 kg
Fixed Duration n/a s

Stagnation data (data at upstream end for long pipe):

- Pressure 1.04 bar
- Temperature 25.00 degC
- Fluid State Non-saturated liquid

CALCULATED QUANTITIES

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Mass Flow of Air (Vent from Vapor Space only)	n/a
Mass Flowrate	n/a kg/s
Release Duration	n/a s
Orifice or pipe exit data (before atmospheric expansion):	
- Pressure	n/a bar
- Temperature	n/a degC
- Vena Contracta Velocity (exit velocity for pipe releases)	n/a m/s
- Discharge Coefficient	n/a
Final data (after atmospheric expansion):	
- Temperature	25.00 degC
- Liquid Mass Fraction	1.00 fraction
- Droplet Diameter	721.42 um
- Expanded Radius	n/a m
- Velocity	1.04 m/s



Consequence Results

Pool Vaporization Results

Path: \Terminal Adonai - Efeitos físicos\Simulações\H158 (H)

N.B. Pool vaporization segments begin when the cloud has left the pool

		Dia	Noite
Liquid Rainout	fraction	0.999747	0.999749
Initial Vapor Cloud	kg	424.975	421.682
Time Pool Left Behind	s	42.6887	100.168

Cloud Segment 1

		Dia	Noite
Cloud Segment Duration	s	600	600
Pool Vaporization Rate	kg/s	8.00636	6.46424
Maximum Pool Radius	m	21.0723	21.0723

Distance to Concentration Results

Path: \Terminal Adonai - Efeitos físicos\Simulações\H158 (H)

The height for user defined concentrations is the user defined height 0 m

All toxic results are reported at the toxic effect height 1 m

All flammable results are reported at the flammable effect height 0 m

Concentration(ppm)	Averaging Time		Dia	Noite	Distance (m)
UFL (76800)	18.75	s	15.6116	18.1415	
LFL (10500)	18.75	s	51.54	54.186	
LFL Frac (10500)	18.75	s	51.54	54.186	
Concentration(ppm)	Averaging Time		Dia	Noite	Heights (m) for above distances
UFL (76800)	18.75	s	0	0	
LFL (10500)	18.75	s	0	0	
LFL Frac (10500)	18.75	s	0	0	

Late Pool Fire Hazard

Path: \Terminal Adonai - Efeitos físicos\Simulações\H158 (H)

	Dia	Noite
Late Pool Fire Status	Hazard	Hazard

Radiation Effects: Late Pool Fire Ellipse

Path: \Terminal Adonai - Efeitos físicos\Simulações\H158 (H)

			Dia	Noite	Distance (m)
Radiation Level	9.83	kW/m2	28.6946	27.319	
Radiation Level	19.46	kW/m2	22.0723	22.0723	
Radiation Level	35	kW/m2	Not Reached	Not Reached	

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Radiation Effects: Late Pool Fire Distance

Path: \Terminal Adonai - Efeitos físicos\Simulações\H158 (H)

	Dia	Noite
Radiation Level (kW/m2)		

Fireball Hazard

Path: \Terminal Adonai - Efeitos físicos\Simulações\H158 (H)

	Dia	Noite
Fireball Flame Status	No Hazard	No Hazard

Flash Fire Envelope

Path: \Terminal Adonai - Efeitos físicos\Simulações\H158 (H)

All flammable results are reported at the flammable effect height 0 m

			Dia	Noite
Furthest Extent	10500	ppm	51.54	54.186
Furthest Extent	10500	ppm	51.54	54.186

			Dia	Noite
Furthest Extent	10500	ppm	0	0
Furthest Extent	10500	ppm	0	0

Explosion Effects: Early Explosion

Path: \Terminal Adonai - Efeitos físicos\Simulações\H158 (H)

Early Explosions are assumed to be centered at the release location
Explosion Model Used : TNT

			Dia	Noite
Supplied Flammable Mass		kg	1.67943e+006	1.67943e+006

			Distance (m) at Overpressure Levels	
			Dia	Noite
Overpressure	0.05	bar	No Hazard	No Hazard
Overpressure	0.1	bar	No Hazard	No Hazard
Overpressure	0.3	bar	No Hazard	No Hazard

			Used Mass (kg) at Overpressure Levels	
			Dia	Noite
Overpressure	0.05	bar	0	0
Overpressure	0.1	bar	0	0
Overpressure	0.3	bar	0	0

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Explosion Effects: Late Ignition

Path: \Terminal Adonai - Efeitos físicos\Simulações\H158 (H)

Explosion Model Used : TNT

Explosion Location Criterion: Cloud Center

All distances are measured from the Source

All flammable results are reported at the flammable effect height 0 m

			Maximum Distance (m) at Overpressure Level	
			Dia	Noite
Overpressure	0.05	bar	125.095	126.26
Overpressure	0.1	bar	80.7272	82.0542
Overpressure	0.3	bar	50.352	45.8225

Supplementary Data at 0.05 bar

			Dia	Noite
Supplied Flammable Mass		kg	337.188	333.516
Used Flammable Mass		kg	337.188	333.516
Overpressure Radius		m	117	116.573
Distance to:				
- Ignition Source		m	40	50
- Cloud Front/Centre		m	8.09551	9.68706
- Explosion Centre		m	8.09551	9.68706

Supplementary Data at 0.1 bar

			Dia	Noite
Supplied Flammable Mass		kg	337.188	333.516
Used Flammable Mass		kg	337.188	333.516
Overpressure Radius		m	72.6317	72.3671
Distance to:				
- Ignition Source		m	40	50
- Cloud Front/Centre		m	8.09551	9.68706
- Explosion Centre		m	8.09551	9.68706

Supplementary Data at 0.3 bar

			Dia	Noite
Supplied Flammable Mass		kg	185.201	333.516
Used Flammable Mass		kg	185.201	333.516
Overpressure Radius		m	29.7013	36.1354
Distance to:				
- Ignition Source		m	50	50
- Cloud Front/Centre		m	20.6507	9.68706
- Explosion Centre		m	20.6507	9.68706

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Weather Conditions

Path: \Terminal Adonai - Efeitos físicos\Simulações\H158 (H)

		Dia	Noite
Wind Speed	m/s	3	2
Pasquill Stability		C	E
Surface Roughness Length	mm	1000	1000
Surface Roughness Parameter		0.173718	0.173718
Atmospheric Temperature	degC	25	20
Surface Temperature	degC	30	20
Relative Humidity	fraction	0.8	0.8

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

H158 (M)

Base Case

CASE Name: Data

Path: \Terminal Adonai - Efeitos físicos\Simulações\H158 (M)

User-Defined Data

Material

Material Identifier	METHANOL
Type of Vessel	Padded Liquid
Pressure Specification	Pressure specified
Storage Pressure - gauge	0.03 bar
Temperature	25 degC
Volume Inventory	2560 m3

Scenario

Scenario Type	Catastrophic rupture
Phase to be Released	Liquid
Building Wake Effect	None

Location

Elevation	0 m
Use ERPG averaging time	ERPG not selected
Use IDLH averaging time	IDLH not selected
Use STEL averaging time	STEL not selected
Supply a user defined averaging time	Not supplied

Bund

Status of Bund	Bund present
Bund Area	1395 m2
[Type of Bund Surface	User-Defined (Land)]
Bund Height	3 m
[Bund Failure Modeling	Bund cannot fail]

Indoor/Outdoor

Location of release	Open air release
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Flammable

Explosion Method	TNT
Jet Fire Method	Cone Model

Dispersion

Late Ignition Location	No ignition location
Mass Inventory of material to Disperse	2.021E6 kg
Use Burst Pressure	No - Use release pressure for fireball

Fireball Parameters

[Mass Modification Factor	3]
[Calculation method for fireball	DNV Recommended]
[TNO model flame temperature	1727 degC]

Toxic Parameters

[Indoor Calculations	Unselected]
[Wind Dependent Exchange Rate	Case Specified]

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

[Building Exchange Rate	4 /hr]
[Tail Time	1800 s]
[Set averaging time equal to exposure time	Use a fixed averaging time]
[Cut-off fraction of toxic load for exposure time calculation	0.05 fraction]
[Cut-off concentration for exposure time calculations	0 fraction]

Geometry

Shape	Point
Dimension	2D
System	Absolute
East(1)	0 m
North(1)	0 m

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Path: \Terminal Adonai - Efeitos físicos\Simulações\H158 (M)

DISCHARGE DATA for Weather: Global Weathers\Dia

Wind Speed: 3.00 m/s
Wind Speed at Height (Calculated) 1.78 m/s
Pasquill Stability: C

USER-DEFINED QUANTITIES

Material METHANOL
Scenario Catastrophic rupture
Inventory 2,021,420.38 kg
Fixed Duration n/a s

Stagnation data (data at upstream end for long pipe):

- Pressure 1.04 bar
- Temperature 25.00 degC
- Fluid State Non-saturated liquid

CALCULATED QUANTITIES

Mass Flow of Air (Vent from Vapor Space only) n/a
Mass Flowrate n/a kg/s
Release Duration n/a s
Orifice or pipe exit data (before atmospheric expansion):
- Pressure n/a bar
- Temperature n/a degC
- Vena Contracta Velocity (exit velocity for pipe releases) n/a m/s
- Discharge Coefficient n/a
Final data (after atmospheric expansion):
- Temperature 25.00 degC
- Liquid Mass Fraction 1.00 fraction
- Droplet Diameter 735.02 um
- Expanded Radius n/a m
- Velocity 1.54 m/s

DISCHARGE DATA for Weather: Global Weathers\Noite

Wind Speed: 2.00 m/s
Wind Speed at Height (Calculated) 0.83 m/s
Pasquill Stability: E

USER-DEFINED QUANTITIES

Material METHANOL
Scenario Catastrophic rupture
Inventory 2,021,420.38 kg
Fixed Duration n/a s

Stagnation data (data at upstream end for long pipe):

- Pressure 1.04 bar
- Temperature 25.00 degC
- Fluid State Non-saturated liquid

CALCULATED QUANTITIES

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Mass Flow of Air (Vent from Vapor Space only)	n/a
Mass Flowrate	n/a kg/s
Release Duration	n/a s
Orifice or pipe exit data (before atmospheric expansion):	
- Pressure	n/a bar
- Temperature	n/a degC
- Vena Contracta Velocity (exit velocity for pipe releases)	n/a m/s
- Discharge Coefficient	n/a
Final data (after atmospheric expansion):	
- Temperature	25.00 degC
- Liquid Mass Fraction	1.00 fraction
- Droplet Diameter	735.02 um
- Expanded Radius	n/a m
- Velocity	1.54 m/s



Consequence Results

Pool Vaporization Results

Path: \Terminal Adonai - Efeitos físicos\Simulações\H158 (M)

N.B. Pool vaporization segments begin when the cloud has left the pool

		Dia	Noite
Liquid Rainout	fraction	0.999391	0.999386
Initial Vapor Cloud	kg	1230.67	1241.01
Time Pool Left Behind	s	37.2714	63.9908

Cloud Segment 1

		Dia	Noite
Cloud Segment Duration	s	600	600
Pool Vaporization Rate	kg/s	3.61698	2.95591
Maximum Pool Radius	m	21.0723	21.0723

Distance to Concentration Results

Path: \Terminal Adonai - Efeitos físicos\Simulações\H158 (M)

The height for user defined concentrations is the user defined height 0 m

All toxic results are reported at the toxic effect height 1 m

All flammable results are reported at the flammable effect height 0 m

Concentration(ppm)	Averaging Time		Dia	Noite	Distance (m)
UFL (360000)	18.75	s	18.2602	18.0375	
LFL (73000)	18.75	s	27.1097	29.274	
LFL Frac (73000)	18.75	s	27.1097	29.274	

Concentration(ppm)	Averaging Time		Dia	Noite	Heights (m) for above distances
UFL (360000)	18.75	s	0	0	
LFL (73000)	18.75	s	0	0	
LFL Frac (73000)	18.75	s	0	0	

Late Pool Fire Hazard

Path: \Terminal Adonai - Efeitos físicos\Simulações\H158 (M)

	Dia	Noite
Late Pool Fire Status	Hazard	Hazard

Radiation Effects: Late Pool Fire Ellipse

Path: \Terminal Adonai - Efeitos físicos\Simulações\H158 (M)

			Dia	Noite	Distance (m)
Radiation Level	9.83	kW/m2	42.4962	40.9848	
Radiation Level	19.46	kW/m2	29.1835	27.743	
Radiation Level	35	kW/m2	22.0723	22.0723	

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Radiation Effects: Late Pool Fire Distance

Path: \Terminal Adonai - Efeitos físicos\Simulações\H158 (M)

	Dia	Noite
Radiation Level (kW/m ²)		

Fireball Hazard

Path: \Terminal Adonai - Efeitos físicos\Simulações\H158 (M)

	Dia	Noite
Fireball Flame Status	No Hazard	No Hazard

Flash Fire Envelope

Path: \Terminal Adonai - Efeitos físicos\Simulações\H158 (M)

All flammable results are reported at the flammable effect height 0 m

			Dia	Noite
Furthest Extent	73000	ppm	27.1097	29.274
Furthest Extent	73000	ppm	27.1097	29.274

			Dia	Noite
Furthest Extent	73000	ppm	0	0
Furthest Extent	73000	ppm	0	0

Explosion Effects: Early Explosion

Path: \Terminal Adonai - Efeitos físicos\Simulações\H158 (M)

Early Explosions are assumed to be centered at the release location
Explosion Model Used : TNT

			Dia	Noite
Supplied Flammable Mass		kg	2.02142e+006	2.02142e+006

			Distance (m) at Overpressure Levels	
			Dia	Noite
Overpressure	0.05	bar	No Hazard	No Hazard
Overpressure	0.1	bar	No Hazard	No Hazard
Overpressure	0.3	bar	No Hazard	No Hazard

			Used Mass (kg) at Overpressure Levels	
			Dia	Noite
Overpressure	0.05	bar	0	0
Overpressure	0.1	bar	0	0
Overpressure	0.3	bar	0	0

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Explosion Effects: Late Ignition

Path: \Terminal Adonai - Efeitos físicos\Simulações\H158 (M)

Explosion Model Used : TNT

Explosion Location Criterion: Cloud Center

All distances are measured from the Source

All flammable results are reported at the flammable effect height 0 m

			Maximum Distance (m) at Overpressure Level	
			Dia	Noite
Overpressure	0.05	bar	93.2263	96.9038
Overpressure	0.1	bar	59.8644	62.2123
Overpressure	0.3	bar	32.5209	33.7789

Supplementary Data at 0.05 bar

			Dia	Noite
Supplied Flammable Mass		kg	321.977	362.03
Used Flammable Mass		kg	321.977	362.03
Overpressure Radius		m	87.9763	91.4827
Distance to:				
- Ignition Source		m	20	20
- Cloud Front/Centre		m	5.24997	5.42108
- Explosion Centre		m	5.24997	5.42108

Supplementary Data at 0.1 bar

			Dia	Noite
Supplied Flammable Mass		kg	321.977	362.03
Used Flammable Mass		kg	321.977	362.03
Overpressure Radius		m	54.6145	56.7912
Distance to:				
- Ignition Source		m	20	20
- Cloud Front/Centre		m	5.24997	5.42108
- Explosion Centre		m	5.24997	5.42108

Supplementary Data at 0.3 bar

			Dia	Noite
Supplied Flammable Mass		kg	321.977	362.03
Used Flammable Mass		kg	321.977	362.03
Overpressure Radius		m	27.2709	28.3578
Distance to:				
- Ignition Source		m	20	20
- Cloud Front/Centre		m	5.24997	5.42108
- Explosion Centre		m	5.24997	5.42108

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Weather Conditions

Path: \Terminal Adonai - Efeitos físicos\Simulações\H158 (M)

		Dia	Noite
Wind Speed	m/s	3	2
Pasquill Stability		C	E
Surface Roughness Length	mm	1000	1000
Surface Roughness Parameter		0.173718	0.173718
Atmospheric Temperature	degC	25	20
Surface Temperature	degC	30	20
Relative Humidity	fraction	0.8	0.8

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

H158 (N)

Base Case

CASE Name: Data

Path: \Terminal Adonai - Efeitos físicos\Simulações\H158 (N)

User-Defined Data

Material

Material Identifier	N-NONANE
Type of Vessel	Padded Liquid
Pressure Specification	Pressure specified
Storage Pressure - gauge	0.03 bar
Temperature	25 degC
Volume Inventory	2560 m3

Scenario

Scenario Type	Catastrophic rupture
Phase to be Released	Liquid
Building Wake Effect	None

Location

Elevation	0 m
Use ERPG averaging time	ERPG not selected
Use IDLH averaging time	IDLH not selected
Use STEL averaging time	STEL not selected
Supply a user defined averaging time	Not supplied

Bund

Status of Bund	Bund present
Bund Area	1395 m2
[Type of Bund Surface	User-Defined (Land)]
Bund Height	3 m
[Bund Failure Modeling	Bund cannot fail]

Indoor/Outdoor

Location of release	Open air release
---------------------	------------------

Flammable

Explosion Method	TNT
Jet Fire Method	Cone Model

Dispersion

Late Ignition Location	No ignition location
Mass Inventory of material to Disperse	1.829E6 kg
Use Burst Pressure	No - Use release pressure for fireball

Fireball Parameters

[Mass Modification Factor	3]
[Calculation method for fireball	DNV Recommended]
[TNO model flame temperature	1727 degC]

Toxic Parameters

[Indoor Calculations	Unselected]
[Wind Dependent Exchange Rate	Case Specified]

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

[Building Exchange Rate	4 /hr]
[Tail Time	1800 s]
[Set averaging time equal to exposure time	Use a fixed averaging time]
[Cut-off fraction of toxic load for exposure time calculation	0.05 fraction]
[Cut-off concentration for exposure time calculations	0 fraction]

Geometry

Shape	Point
Dimension	2D
System	Absolute
East(1)	0 m
North(1)	0 m

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Path: \Terminal Adonai - Efeitos físicos\Simulações\H158 (N)

DISCHARGE DATA for Weather: Global Weathers\Dia

Wind Speed: 3.00 m/s
Wind Speed at Height (Calculated) 1.78 m/s
Pasquill Stability: C

USER-DEFINED QUANTITIES

Material N-NONANE
Scenario Catastrophic rupture
Inventory 1,828,589.13 kg
Fixed Duration n/a s

Stagnation data (data at upstream end for long pipe):

- Pressure 1.04 bar
- Temperature 25.00 degC
- Fluid State Non-saturated liquid

CALCULATED QUANTITIES

Mass Flow of Air (Vent from Vapor Space only) n/a
Mass Flowrate n/a kg/s
Release Duration n/a s

Orifice or pipe exit data (before atmospheric expansion):

- Pressure n/a bar
- Temperature n/a degC
- Vena Contracta Velocity (exit velocity for pipe releases) n/a m/s
- Discharge Coefficient n/a

Final data (after atmospheric expansion):

- Temperature 25.00 degC
- Liquid Mass Fraction 1.00 fraction
- Droplet Diameter 727.67 um
- Expanded Radius n/a m
- Velocity 0.76 m/s

DISCHARGE DATA for Weather: Global Weathers\Noite

Wind Speed: 2.00 m/s
Wind Speed at Height (Calculated) 0.83 m/s
Pasquill Stability: E

USER-DEFINED QUANTITIES

Material N-NONANE
Scenario Catastrophic rupture
Inventory 1,828,589.13 kg
Fixed Duration n/a s

Stagnation data (data at upstream end for long pipe):

- Pressure 1.04 bar
- Temperature 25.00 degC
- Fluid State Non-saturated liquid

CALCULATED QUANTITIES

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Mass Flow of Air (Vent from Vapor Space only)	n/a
Mass Flowrate	n/a kg/s
Release Duration	n/a s
Orifice or pipe exit data (before atmospheric expansion):	
- Pressure	n/a bar
- Temperature	n/a degC
- Vena Contracta Velocity (exit velocity for pipe releases)	n/a m/s
- Discharge Coefficient	n/a
Final data (after atmospheric expansion):	
- Temperature	25.00 degC
- Liquid Mass Fraction	1.00 fraction
- Droplet Diameter	727.67 um
- Expanded Radius	n/a m
- Velocity	0.76 m/s



Consequence Results

Pool Vaporization Results

Path: \Terminal Adonai - Efeitos físicos\Simulações\H158 (N)

N.B. Pool vaporization segments begin when the cloud has left the pool

		Dia	Noite
Liquid Rainout	fraction	0.999996	0.999996
Initial Vapor Cloud	kg	7.27132	7.09494
Time Pool Left Behind	s	23.9123	48.9436

Cloud Segment 1

Cloud Segment Duration	s	600	600
Pool Vaporization Rate	kg/s	0.263606	0.208834

Maximum Pool Radius	m	21.0723	21.0723
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Distance to Concentration Results

Path: \Terminal Adonai - Efeitos físicos\Simulações\H158 (N)

The height for user defined concentrations is the user defined height 0 m

All toxic results are reported at the toxic effect height 1 m

All flammable results are reported at the flammable effect height 0 m

Concentration(ppm)	Averaging Time		Dia	Noite	Distance (m)
UFL (56000)	18.75	s	11.7049	11.6914	
LFL (7000)	18.75	s	11.8308	11.8174	
LFL Frac (7000)	18.75	s	11.8308	11.8174	

Concentration(ppm)	Averaging Time		Dia	Noite	Heights (m) for above distances
UFL (56000)	18.75	s	0	0	
LFL (7000)	18.75	s	0	0	
LFL Frac (7000)	18.75	s	0	0	

Late Pool Fire Hazard

Path: \Terminal Adonai - Efeitos físicos\Simulações\H158 (N)

	Dia	Noite
Late Pool Fire Status	Hazard	Hazard

Radiation Effects: Late Pool Fire Ellipse

Path: \Terminal Adonai - Efeitos físicos\Simulações\H158 (N)

			Dia	Noite	Distance (m)
Radiation Level	9.83	kW/m2	28.7287	27.3138	
Radiation Level	19.46	kW/m2	22.0723	22.0723	
Radiation Level	35	kW/m2	Not Reached	Not Reached	

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Radiation Effects: Late Pool Fire Distance

Path: \Terminal Adonai - Efeitos físicos\Simulações\H158 (N)

	Dia	Noite
Radiation Level (kW/m ²)		

Fireball Hazard

Path: \Terminal Adonai - Efeitos físicos\Simulações\H158 (N)

	Dia	Noite
Fireball Flame Status	No Hazard	No Hazard

Flash Fire Envelope

Path: \Terminal Adonai - Efeitos físicos\Simulações\H158 (N)

All flammable results are reported at the flammable effect height 0 m

			Dia	Noite
Furthest Extent	7000	ppm	11.8308	11.8174
Furthest Extent	7000	ppm	11.8308	11.8174

			Dia	Noite
Furthest Extent	7000	ppm	0	0
Furthest Extent	7000	ppm	0	0

Explosion Effects: Early Explosion

Path: \Terminal Adonai - Efeitos físicos\Simulações\H158 (N)

Early Explosions are assumed to be centered at the release location
Explosion Model Used : TNT

			Dia	Noite
Supplied Flammable Mass		kg	1.82859e+006	1.82859e+006

			Distance (m) at Overpressure Levels	
			Dia	Noite
Overpressure	0.05	bar	No Hazard	No Hazard
Overpressure	0.1	bar	No Hazard	No Hazard
Overpressure	0.3	bar	No Hazard	No Hazard

			Used Mass (kg) at Overpressure Levels	
			Dia	Noite
Overpressure	0.05	bar	0	0
Overpressure	0.1	bar	0	0
Overpressure	0.3	bar	0	0

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Explosion Effects: Late Ignition

Path: \Terminal Adonai - Efeitos físicos\Simulações\H158 (N)

Explosion Model Used : TNT

Explosion Location Criterion: Cloud Center

All distances are measured from the Source

All flammable results are reported at the flammable effect height 0 m

			Maximum Distance (m) at Overpressure Level	
			Dia	Noite
Overpressure	0.05	bar	No Hazard	No Hazard
Overpressure	0.1	bar	No Hazard	No Hazard
Overpressure	0.3	bar	No Hazard	No Hazard
			Supplementary Data at 0.05 bar	
			Dia	Noite
Supplied Flammable Mass		kg	No Hazard	No Hazard
Used Flammable Mass		kg	No Hazard	No Hazard
Overpressure Radius		m	0	0
Distance to:				
- Ignition Source		m	No Hazard	No Hazard
- Cloud Front/Centre		m	No Hazard	No Hazard
- Explosion Centre		m	0	0
			Supplementary Data at 0.1 bar	
			Dia	Noite
Supplied Flammable Mass		kg	No Hazard	No Hazard
Used Flammable Mass		kg	No Hazard	No Hazard
Overpressure Radius		m	0	0
Distance to:				
- Ignition Source		m	No Hazard	No Hazard
- Cloud Front/Centre		m	No Hazard	No Hazard
- Explosion Centre		m	0	0
			Supplementary Data at 0.3 bar	
			Dia	Noite
Supplied Flammable Mass		kg	No Hazard	No Hazard
Used Flammable Mass		kg	No Hazard	No Hazard
Overpressure Radius		m	0	0
Distance to:				
- Ignition Source		m	No Hazard	No Hazard
- Cloud Front/Centre		m	No Hazard	No Hazard
- Explosion Centre		m	0	0

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Weather Conditions

Path: \Terminal Adonai - Efeitos físicos\Simulações\H158 (N)

		Dia	Noite
Wind Speed	m/s	3	2
Pasquill Stability		C	E
Surface Roughness Length	mm	1000	1000
Surface Roughness Parameter		0.173718	0.173718
Atmospheric Temperature	degC	25	20
Surface Temperature	degC	30	20
Relative Humidity	fraction	0.8	0.8

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

H158 (P)

Base Case

CASE Name: Data

Path: \Terminal Adonai - Efeitos físicos\Simulações\H158 (P)

User-Defined Data

Material

Material Identifier	N-PENTANE
Type of Vessel	Padded Liquid
Pressure Specification	Pressure specified
Storage Pressure - gauge	0.03 bar
Temperature	25 degC
Volume Inventory	2560 m3

Scenario

Scenario Type	Catastrophic rupture
Phase to be Released	Liquid
Building Wake Effect	None

Location

Elevation	0 m
Use ERPG averaging time	ERPG not selected
Use IDLH averaging time	IDLH not selected
Use STEL averaging time	STEL not selected
Supply a user defined averaging time	Not supplied

Bund

Status of Bund	Bund present
Bund Area	1395 m2
[Type of Bund Surface	User-Defined (Land)]
Bund Height	3 m
[Bund Failure Modeling	Bund cannot fail]

Indoor/Outdoor

Location of release	Open air release
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Flammable

Explosion Method	TNT
Jet Fire Method	Cone Model

Dispersion

Late Ignition Location	No ignition location
Mass Inventory of material to Disperse	1.592E6 kg
Use Burst Pressure	No - Use release pressure for fireball

Fireball Parameters

[Mass Modification Factor	3]
[Calculation method for fireball	DNV Recommended]
[TNO model flame temperature	1727 degC]

Toxic Parameters

[Indoor Calculations	Unselected]
[Wind Dependent Exchange Rate	Case Specified]

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

[Building Exchange Rate	4 /hr]
[Tail Time	1800 s]
[Set averaging time equal to exposure time	Use a fixed averaging time]
[Cut-off fraction of toxic load for exposure time calculation	0.05 fraction]
[Cut-off concentration for exposure time calculations	0 fraction]

Geometry

Shape	Point
Dimension	2D
System	Absolute
East(1)	0 m
North(1)	0 m

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Path: \Terminal Adonai - Efeitos físicos\Simulações\H158 (P)

DISCHARGE DATA for Weather: Global Weathers\Dia

Wind Speed: 3.00 m/s
Wind Speed at Height (Calculated) 1.78 m/s
Pasquill Stability: C

USER-DEFINED QUANTITIES

Material N-PENTANE
Scenario Catastrophic rupture
Inventory 1,591,663.13 kg
Fixed Duration n/a s

Stagnation data (data at upstream end for long pipe):

- Pressure 1.04 bar
- Temperature 25.00 degC
- Fluid State Non-saturated liquid

CALCULATED QUANTITIES

Mass Flow of Air (Vent from Vapor Space only) n/a
Mass Flowrate n/a kg/s
Release Duration n/a s
Orifice or pipe exit data (before atmospheric expansion):
- Pressure n/a bar
- Temperature n/a degC
- Vena Contracta Velocity (exit velocity for pipe releases) n/a m/s
- Discharge Coefficient n/a
Final data (after atmospheric expansion):
- Temperature 25.00 degC
- Liquid Mass Fraction 1.00 fraction
- Droplet Diameter 717.48 um
- Expanded Radius n/a m
- Velocity 0.86 m/s

DISCHARGE DATA for Weather: Global Weathers\Noite

Wind Speed: 2.00 m/s
Wind Speed at Height (Calculated) 0.83 m/s
Pasquill Stability: E

USER-DEFINED QUANTITIES

Material N-PENTANE
Scenario Catastrophic rupture
Inventory 1,591,663.13 kg
Fixed Duration n/a s

Stagnation data (data at upstream end for long pipe):

- Pressure 1.04 bar
- Temperature 25.00 degC
- Fluid State Non-saturated liquid

CALCULATED QUANTITIES

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Mass Flow of Air (Vent from Vapor Space only)	n/a
Mass Flowrate	n/a kg/s
Release Duration	n/a s
Orifice or pipe exit data (before atmospheric expansion):	
- Pressure	n/a bar
- Temperature	n/a degC
- Vena Contracta Velocity (exit velocity for pipe releases)	n/a m/s
- Discharge Coefficient	n/a
Final data (after atmospheric expansion):	
- Temperature	25.00 degC
- Liquid Mass Fraction	1.00 fraction
- Droplet Diameter	717.48 um
- Expanded Radius	n/a m
- Velocity	0.86 m/s



Consequence Results

Pool Vaporization Results

Path: \Terminal Adonai - Efeitos físicos\Simulações\H158 (P)

N.B. Pool vaporization segments begin when the cloud has left the pool

		Dia	Noite
Liquid Rainout	fraction	0.999195	0.99923
Initial Vapor Cloud	kg	1281.99	1226.33
Time Pool Left Behind	s	57.7927	145.871

Cloud Segment 1

		Dia	Noite
Cloud Segment Duration	s	600	600
Pool Vaporization Rate	kg/s	34.635	27.7924
Maximum Pool Radius	m	21.0723	21.0723

Distance to Concentration Results

Path: \Terminal Adonai - Efeitos físicos\Simulações\H158 (P)

The height for user defined concentrations is the user defined height 0 m

All toxic results are reported at the toxic effect height 1 m

All flammable results are reported at the flammable effect height 0 m

Concentration(ppm)	Averaging Time		Dia	Noite	Distance (m)
UFL (80000)	18.75	s	39.7035	47.8049	
LFL (13000)	18.75	s	93.0577	97.3111	
LFL Frac (13000)	18.75	s	93.0577	97.3111	
Concentration(ppm)	Averaging Time		Dia	Noite	Heights (m) for above distances
UFL (80000)	18.75	s	0	0	
LFL (13000)	18.75	s	0	0	
LFL Frac (13000)	18.75	s	0	0	

Late Pool Fire Hazard

Path: \Terminal Adonai - Efeitos físicos\Simulações\H158 (P)

	Dia	Noite
Late Pool Fire Status	Hazard	Hazard

Radiation Effects: Late Pool Fire Ellipse

Path: \Terminal Adonai - Efeitos físicos\Simulações\H158 (P)

			Dia	Noite	Distance (m)
Radiation Level	9.83	kW/m2	28.5882	27.3021	
Radiation Level	19.46	kW/m2	22.0723	22.0723	
Radiation Level	35	kW/m2	Not Reached	Not Reached	

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Radiation Effects: Late Pool Fire Distance

Path: \Terminal Adonai - Efeitos físicos\Simulações\H158 (P)

		Radiation Level (kW/m2)
	Dia	Noite

Fireball Hazard

Path: \Terminal Adonai - Efeitos físicos\Simulações\H158 (P)

		Dia	Noite
Fireball Flame Status		No Hazard	No Hazard

Flash Fire Envelope

Path: \Terminal Adonai - Efeitos físicos\Simulações\H158 (P)

All flammable results are reported at the flammable effect height 0 m

				Distance (m)
			Dia	Noite
Furthest Extent	13000	ppm	93.0577	97.3111
Furthest Extent	13000	ppm	93.0577	97.3111
				Heights (m) for above distances
			Dia	Noite
Furthest Extent	13000	ppm	0	0
Furthest Extent	13000	ppm	0	0

Explosion Effects: Early Explosion

Path: \Terminal Adonai - Efeitos físicos\Simulações\H158 (P)

Early Explosions are assumed to be centered at the release location
Explosion Model Used : TNT

			Dia	Noite
Supplied Flammable Mass		kg	1.59166e+006	1.59166e+006
				Distance (m) at Overpressure Levels
			Dia	Noite
Overpressure	0.05	bar	No Hazard	No Hazard
Overpressure	0.1	bar	No Hazard	No Hazard
Overpressure	0.3	bar	No Hazard	No Hazard
				Used Mass (kg) at Overpressure Levels
			Dia	Noite
Overpressure	0.05	bar	0	0
Overpressure	0.1	bar	0	0
Overpressure	0.3	bar	0	0

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Explosion Effects: Late Ignition

Path: \Terminal Adonai - Efeitos físicos\Simulações\H158 (P)

Explosion Model Used : TNT

Explosion Location Criterion: Cloud Center

All distances are measured from the Source

All flammable results are reported at the flammable effect height 0 m

			Maximum Distance (m) at Overpressure Level	
			Dia	Noite
Overpressure	0.05	bar	202.519	204.99
Overpressure	0.1	bar	135.607	134.351
Overpressure	0.3	bar	87.6107	76.4552

			Supplementary Data at 0.05 bar	
			Dia	Noite
Supplied Flammable Mass		kg	1180.63	1353.54
Used Flammable Mass		kg	1180.63	1353.54
Overpressure Radius		m	177.981	186.277
Distance to:				
- Ignition Source		m	80	90
- Cloud Front/Centre		m	24.5379	18.713
- Explosion Centre		m	24.5379	18.713

			Supplementary Data at 0.1 bar	
			Dia	Noite
Supplied Flammable Mass		kg	771.154	1353.54
Used Flammable Mass		kg	771.154	1353.54
Overpressure Radius		m	95.8645	115.638
Distance to:				
- Ignition Source		m	90	90
- Cloud Front/Centre		m	39.7422	18.713
- Explosion Centre		m	39.7422	18.713

			Supplementary Data at 0.3 bar	
			Dia	Noite
Supplied Flammable Mass		kg	771.154	1353.54
Used Flammable Mass		kg	771.154	1353.54
Overpressure Radius		m	47.8685	57.7422
Distance to:				
- Ignition Source		m	90	90
- Cloud Front/Centre		m	39.7422	18.713
- Explosion Centre		m	39.7422	18.713

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Weather Conditions

Path: \Terminal Adonai - Efeitos físicos\Simulações\H158 (P)

		Dia	Noite
Wind Speed	m/s	3	2
Pasquill Stability		C	E
Surface Roughness Length	mm	1000	1000
Surface Roughness Parameter		0.173718	0.173718
Atmospheric Temperature	degC	25	20
Surface Temperature	degC	30	20
Relative Humidity	fraction	0.8	0.8

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

H159 (A)

Base Case

CASE Name: Data

Path: \Terminal Adonai - Efeitos físicos\Simulações\H159 (A)

User-Defined Data

Material

Material Identifier	ACETONE
Type of Vessel	Padded Liquid
Pressure Specification	Pressure specified
Storage Pressure - gauge	0.03 bar
Temperature	25 degC
Volume Inventory	3200 m3

Scenario

Scenario Type	Catastrophic rupture
Phase to be Released	Liquid
Building Wake Effect	None

Location

Elevation	0 m
Use ERPG averaging time	ERPG not selected
Use IDLH averaging time	IDLH not selected
Use STEL averaging time	STEL not selected
Supply a user defined averaging time	Not supplied

Bund

Status of Bund	Bund present
Bund Area	1395 m2
[Type of Bund Surface	User-Defined (Land)]
Bund Height	3 m
[Bund Failure Modeling	Bund cannot fail]

Indoor/Outdoor

Location of release	Open air release
---------------------	------------------

Flammable

Explosion Method	TNT
Jet Fire Method	Cone Model

Dispersion

Late Ignition Location	No ignition location
Mass Inventory of material to Disperse	2.517E6 kg
Use Burst Pressure	No - Use release pressure for fireball

Fireball Parameters

[Mass Modification Factor	3]
[Calculation method for fireball	DNV Recommended]
[TNO model flame temperature	1727 degC]

Toxic Parameters

[Indoor Calculations	Unselected]
[Wind Dependent Exchange Rate	Case Specified]

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

[Building Exchange Rate	4 /hr]
[Tail Time	1800 s]
[Set averaging time equal to exposure time	Use a fixed averaging time]
[Cut-off fraction of toxic load for exposure time calculation	0.05 fraction]
[Cut-off concentration for exposure time calculations	0 fraction]

Geometry

Shape	Point
Dimension	2D
System	Absolute
East(1)	0 m
North(1)	0 m

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Path: \Terminal Adonai - Efeitos físicos\Simulações\H159 (A)

DISCHARGE DATA for Weather: Global Weathers\Noite

Wind Speed: 2.00 m/s
Wind Speed at Height (Calculated) 0.83 m/s
Pasquill Stability: E

USER-DEFINED QUANTITIES

Material ACETONE
Scenario Catastrophic rupture
Inventory 2,517,057.75 kg
Fixed Duration n/a s

Stagnation data (data at upstream end for long pipe):

- Pressure 1.04 bar
- Temperature 25.00 degC
- Fluid State Non-saturated liquid

CALCULATED QUANTITIES

Mass Flow of Air (Vent from Vapor Space only) n/a
Mass Flowrate n/a kg/s
Release Duration n/a s
Orifice or pipe exit data (before atmospheric expansion):
- Pressure n/a bar
- Temperature n/a degC
- Vena Contracta Velocity (exit velocity for pipe releases) n/a m/s
- Discharge Coefficient n/a
Final data (after atmospheric expansion):
- Temperature 25.00 degC
- Liquid Mass Fraction 1.00 fraction
- Droplet Diameter 734.74 um
- Expanded Radius n/a m
- Velocity 1.11 m/s

DISCHARGE DATA for Weather: Global Weathers\Dia

Wind Speed: 3.00 m/s
Wind Speed at Height (Calculated) 1.78 m/s
Pasquill Stability: C

USER-DEFINED QUANTITIES

Material ACETONE
Scenario Catastrophic rupture
Inventory 2,517,057.75 kg
Fixed Duration n/a s

Stagnation data (data at upstream end for long pipe):

- Pressure 1.04 bar
- Temperature 25.00 degC
- Fluid State Non-saturated liquid

CALCULATED QUANTITIES

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Mass Flow of Air (Vent from Vapor Space only)	n/a
Mass Flowrate	n/a kg/s
Release Duration	n/a s
Orifice or pipe exit data (before atmospheric expansion):	
- Pressure	n/a bar
- Temperature	n/a degC
- Vena Contracta Velocity (exit velocity for pipe releases)	n/a m/s
- Discharge Coefficient	n/a
Final data (after atmospheric expansion):	
- Temperature	25.00 degC
- Liquid Mass Fraction	1.00 fraction
- Droplet Diameter	734.74 um
- Expanded Radius	n/a m
- Velocity	1.11 m/s



Consequence Results

Pool Vaporization Results

Path: \Terminal Adonai - Efeitos físicos\Simulações\H159 (A)

N.B. Pool vaporization segments begin when the cloud has left the pool

		Dia	Noite
Liquid Rainout	fraction	0.999247	0.999245
Initial Vapor Cloud	kg	1895.76	1900.48
Time Pool Left Behind	s	53.5413	124.822

Cloud Segment 1

		Dia	Noite
Cloud Segment Duration	s	600	600
Pool Vaporization Rate	kg/s	10.5108	8.5716
Maximum Pool Radius	m	21.0723	21.0723

Distance to Concentration Results

Path: \Terminal Adonai - Efeitos físicos\Simulações\H159 (A)

The height for user defined concentrations is the user defined height 0 m

All toxic results are reported at the toxic effect height 1 m

All flammable results are reported at the flammable effect height 0 m

Concentration(ppm)	Averaging Time		Dia	Noite	Distance (m)
UFL (128000)	18.75	s	22.028	23.228	
LFL (26000)	18.75	s	66.0329	69.556	
LFL Frac (26000)	18.75	s	66.0329	69.556	
Concentration(ppm)	Averaging Time		Dia	Noite	Heights (m) for above distances
UFL (128000)	18.75	s	0	0	
LFL (26000)	18.75	s	0	0	
LFL Frac (26000)	18.75	s	0	0	

Late Pool Fire Hazard

Path: \Terminal Adonai - Efeitos físicos\Simulações\H159 (A)

	Dia	Noite
Late Pool Fire Status	Hazard	Hazard

Radiation Effects: Late Pool Fire Ellipse

Path: \Terminal Adonai - Efeitos físicos\Simulações\H159 (A)

			Dia	Noite	Distance (m)
Radiation Level	9.83	kW/m2	80.514	78.3755	
Radiation Level	19.46	kW/m2	61.002	57.6998	
Radiation Level	35	kW/m2	43.7105	40.3482	

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Radiation Effects: Late Pool Fire Distance

Path: \Terminal Adonai - Efeitos físicos\Simulações\H159 (A)

	Dia	Noite
Radiation Level (kW/m2)		

Fireball Hazard

Path: \Terminal Adonai - Efeitos físicos\Simulações\H159 (A)

	Dia	Noite
Fireball Flame Status	No Hazard	No Hazard

Flash Fire Envelope

Path: \Terminal Adonai - Efeitos físicos\Simulações\H159 (A)

All flammable results are reported at the flammable effect height 0 m

			Dia	Noite
Furthest Extent	26000	ppm	66.0329	69.556
Furthest Extent	26000	ppm	66.0329	69.556
				Heights (m) for above distances
			Dia	Noite
Furthest Extent	26000	ppm	0	0
Furthest Extent	26000	ppm	0	0

Explosion Effects: Early Explosion

Path: \Terminal Adonai - Efeitos físicos\Simulações\H159 (A)

Early Explosions are assumed to be centered at the release location
Explosion Model Used : TNT

			Dia	Noite
Supplied Flammable Mass		kg	2.51706e+006	2.51706e+006
				Distance (m) at Overpressure Levels
			Dia	Noite
Overpressure	0.05	bar	No Hazard	No Hazard
Overpressure	0.1	bar	No Hazard	No Hazard
Overpressure	0.3	bar	No Hazard	No Hazard
				Used Mass (kg) at Overpressure Levels
			Dia	Noite
Overpressure	0.05	bar	0	0
Overpressure	0.1	bar	0	0
Overpressure	0.3	bar	0	0

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Explosion Effects: Late Ignition

Path: \Terminal Adonai - Efeitos físicos\Simulações\H159 (A)

Explosion Model Used : TNT

Explosion Location Criterion: Cloud Center

All distances are measured from the Source

All flammable results are reported at the flammable effect height 0 m

			Maximum Distance (m) at Overpressure Level	
			Dia	Noite
Overpressure	0.05	bar	166.453	167.632
Overpressure	0.1	bar	107.049	107.432
Overpressure	0.3	bar	61.736	58.0919

			Supplementary Data at 0.05 bar	
			Dia	Noite
Supplied Flammable Mass		kg	1289.17	1319.11
Used Flammable Mass		kg	1289.17	1319.11
Overpressure Radius		m	157.539	158.75
Distance to:				
- Ignition Source		m	50	60
- Cloud Front/Centre		m	8.9141	8.88255
- Explosion Centre		m	8.9141	8.88255

			Supplementary Data at 0.1 bar	
			Dia	Noite
Supplied Flammable Mass		kg	1021.74	1319.11
Used Flammable Mass		kg	1021.74	1319.11
Overpressure Radius		m	90.5053	98.5497
Distance to:				
- Ignition Source		m	60	60
- Cloud Front/Centre		m	16.5435	8.88255
- Explosion Centre		m	16.5435	8.88255

			Supplementary Data at 0.3 bar	
			Dia	Noite
Supplied Flammable Mass		kg	1021.74	1319.11
Used Flammable Mass		kg	1021.74	1319.11
Overpressure Radius		m	45.1925	49.2093
Distance to:				
- Ignition Source		m	60	60
- Cloud Front/Centre		m	16.5435	8.88255
- Explosion Centre		m	16.5435	8.88255

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Weather Conditions

Path: \Terminal Adonai - Efeitos físicos\Simulações\H159 (A)

		Dia	Noite
Wind Speed	m/s	3	2
Pasquill Stability		C	E
Surface Roughness Length	mm	1000	1000
Surface Roughness Parameter		0.173718	0.173718
Atmospheric Temperature	degC	25	20
Surface Temperature	degC	30	20
Relative Humidity	fraction	0.8	0.8

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

H159 (B)

Base Case

CASE Name: Data

Path: \Terminal Adonai - Efeitos físicos\Simulações\H159 (B)

User-Defined Data

Material

Material Identifier	BENZENE
Type of Vessel	Padded Liquid
Pressure Specification	Pressure specified
Storage Pressure - gauge	0.03 bar
Temperature	25 degC
Volume Inventory	3200 m3

Scenario

Scenario Type	Catastrophic rupture
Phase to be Released	Liquid
Building Wake Effect	None

Location

Elevation	0 m
Use ERPG averaging time	ERPG not selected
Use IDLH averaging time	IDLH not selected
Use STEL averaging time	STEL not selected
Supply a user defined averaging time	Not supplied

Bund

Status of Bund	Bund present
Bund Area	1395 m2
[Type of Bund Surface	User-Defined (Land)]
Bund Height	3 m
[Bund Failure Modeling	Bund cannot fail]

Indoor/Outdoor

Location of release	Open air release
---------------------	------------------

Flammable

Explosion Method	TNT
Jet Fire Method	Cone Model

Dispersion

Late Ignition Location	No ignition location
Mass Inventory of material to Disperse	2.794E6 kg
Use Burst Pressure	No - Use release pressure for fireball

Fireball Parameters

[Mass Modification Factor	3]
[Calculation method for fireball	DNV Recommended]
[TNO model flame temperature	1727 degC]

Toxic Parameters

[Indoor Calculations	Unselected]
[Wind Dependent Exchange Rate	Case Specified]

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

[Building Exchange Rate	4 /hr]
[Tail Time	1800 s]
[Set averaging time equal to exposure time	Use a fixed averaging time]
[Cut-off fraction of toxic load for exposure time calculation	0.05 fraction]
[Cut-off concentration for exposure time calculations	0 fraction]

Geometry

Shape	Point
Dimension	2D
System	Absolute
East(1)	0 m
North(1)	0 m

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Path: \Terminal Adonai - Efeitos físicos\Simulações\H159 (B)

DISCHARGE DATA for Weather: Global Weathers\Dia

Wind Speed: 3.00 m/s
Wind Speed at Height (Calculated) 1.78 m/s
Pasquill Stability: C

USER-DEFINED QUANTITIES

Material BENZENE
Scenario Catastrophic rupture
Inventory 2,793,623.75 kg
Fixed Duration n/a s

Stagnation data (data at upstream end for long pipe):

- Pressure 1.04 bar
- Temperature 25.00 degC
- Fluid State Non-saturated liquid

CALCULATED QUANTITIES

Mass Flow of Air (Vent from Vapor Space only) n/a
Mass Flowrate n/a kg/s
Release Duration n/a s
Orifice or pipe exit data (before atmospheric expansion):
- Pressure n/a bar
- Temperature n/a degC
- Vena Contracta Velocity (exit velocity for pipe releases) n/a m/s
- Discharge Coefficient n/a
Final data (after atmospheric expansion):
- Temperature 25.00 degC
- Liquid Mass Fraction 1.00 fraction
- Droplet Diameter 742.39 um
- Expanded Radius n/a m
- Velocity 0.82 m/s

DISCHARGE DATA for Weather: Global Weathers\Noite

Wind Speed: 2.00 m/s
Wind Speed at Height (Calculated) 0.83 m/s
Pasquill Stability: E

USER-DEFINED QUANTITIES

Material BENZENE
Scenario Catastrophic rupture
Inventory 2,793,623.75 kg
Fixed Duration n/a s

Stagnation data (data at upstream end for long pipe):

- Pressure 1.04 bar
- Temperature 25.00 degC
- Fluid State Non-saturated liquid

CALCULATED QUANTITIES

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Mass Flow of Air (Vent from Vapor Space only)	n/a
Mass Flowrate	n/a kg/s
Release Duration	n/a s
Orifice or pipe exit data (before atmospheric expansion):	
- Pressure	n/a bar
- Temperature	n/a degC
- Vena Contracta Velocity (exit velocity for pipe releases)	n/a m/s
- Discharge Coefficient	n/a
Final data (after atmospheric expansion):	
- Temperature	25.00 degC
- Liquid Mass Fraction	1.00 fraction
- Droplet Diameter	742.39 um
- Expanded Radius	n/a m
- Velocity	0.82 m/s



Consequence Results

Pool Vaporization Results

Path: \Terminal Adonai - Efeitos físicos\Simulações\H159 (B)

N.B. Pool vaporization segments begin when the cloud has left the pool

		Dia	Noite
Liquid Rainout	fraction	0.999949	0.999951
Initial Vapor Cloud	kg	142.952	137.884
Time Pool Left Behind	s	34.0045	78.364

Cloud Segment 1

		Dia	Noite
Cloud Segment Duration	s	600	600
Pool Vaporization Rate	kg/s	4.92475	3.88887
Maximum Pool Radius	m	21.0723	21.0723

Distance to Concentration Results

Path: \Terminal Adonai - Efeitos físicos\Simulações\H159 (B)

The height for user defined concentrations is the user defined height 0 m

All toxic results are reported at the toxic effect height 1 m

All flammable results are reported at the flammable effect height 0 m

Concentration(ppm)	Averaging Time		Dia	Noite	Distance (m)
UFL (79000)	18.75	s	12.6343	12.6222	
LFL (13000)	18.75	s	29.7385	31.4451	
LFL Frac (13000)	18.75	s	29.7385	31.4451	
Concentration(ppm)	Averaging Time		Dia	Noite	Heights (m) for above distances
UFL (79000)	18.75	s	0	0	
LFL (13000)	18.75	s	0	0	
LFL Frac (13000)	18.75	s	0	0	

Late Pool Fire Hazard

Path: \Terminal Adonai - Efeitos físicos\Simulações\H159 (B)

	Dia	Noite
Late Pool Fire Status	Hazard	Hazard

Radiation Effects: Late Pool Fire Ellipse

Path: \Terminal Adonai - Efeitos físicos\Simulações\H159 (B)

			Dia	Noite	Distance (m)
Radiation Level	9.83	kW/m2	28.683	27.323	
Radiation Level	19.46	kW/m2	22.0723	22.0723	
Radiation Level	35	kW/m2	Not Reached	Not Reached	

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Radiation Effects: Late Pool Fire Distance

Path: \Terminal Adonai - Efeitos físicos\Simulações\H159 (B)

	Dia	Noite
Radiation Level (kW/m ²)		

Fireball Hazard

Path: \Terminal Adonai - Efeitos físicos\Simulações\H159 (B)

	Dia	Noite
Fireball Flame Status	No Hazard	No Hazard

Flash Fire Envelope

Path: \Terminal Adonai - Efeitos físicos\Simulações\H159 (B)

All flammable results are reported at the flammable effect height 0 m

			Dia	Noite
Furthest Extent	13000	ppm	29.7385	31.4451
Furthest Extent	13000	ppm	29.7385	31.4451
				Heights (m) for above distances
			Dia	Noite
Furthest Extent	13000	ppm	0	0
Furthest Extent	13000	ppm	0	0

Explosion Effects: Early Explosion

Path: \Terminal Adonai - Efeitos físicos\Simulações\H159 (B)

Early Explosions are assumed to be centered at the release location
Explosion Model Used : TNT

			Dia	Noite
Supplied Flammable Mass		kg	2.79362e+006	2.79362e+006
				Distance (m) at Overpressure Levels
			Dia	Noite
Overpressure	0.05	bar	No Hazard	No Hazard
Overpressure	0.1	bar	No Hazard	No Hazard
Overpressure	0.3	bar	No Hazard	No Hazard
				Used Mass (kg) at Overpressure Levels
			Dia	Noite
Overpressure	0.05	bar	0	0
Overpressure	0.1	bar	0	0
Overpressure	0.3	bar	0	0

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Explosion Effects: Late Ignition

Path: \Terminal Adonai - Efeitos físicos\Simulações\H159 (B)

Explosion Model Used : TNT

Explosion Location Criterion: Cloud Center

All distances are measured from the Source

All flammable results are reported at the flammable effect height 0 m

			Maximum Distance (m) at Overpressure Level	
			Dia	Noite
Overpressure	0.05	bar	76.626	77.807
Overpressure	0.1	bar	47.8406	50.779
Overpressure	0.3	bar	24.2479	28.6268

Supplementary Data at 0.05 bar

			Dia	Noite
Supplied Flammable Mass		kg	102.607	84.9373
Used Flammable Mass		kg	102.607	84.9373
Overpressure Radius		m	75.9081	71.2736
Distance to:				
- Ignition Source		m	20	30
- Cloud Front/Centre		m	0.717874	6.53337
- Explosion Centre		m	0.717874	6.53337

Supplementary Data at 0.1 bar

			Dia	Noite
Supplied Flammable Mass		kg	102.607	84.9373
Used Flammable Mass		kg	102.607	84.9373
Overpressure Radius		m	47.1227	44.2456
Distance to:				
- Ignition Source		m	20	30
- Cloud Front/Centre		m	0.717874	6.53337
- Explosion Centre		m	0.717874	6.53337

Supplementary Data at 0.3 bar

			Dia	Noite
Supplied Flammable Mass		kg	102.607	84.9373
Used Flammable Mass		kg	102.607	84.9373
Overpressure Radius		m	23.53	22.0934
Distance to:				
- Ignition Source		m	20	30
- Cloud Front/Centre		m	0.717874	6.53337
- Explosion Centre		m	0.717874	6.53337

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Weather Conditions

Path: \Terminal Adonai - Efeitos físicos\Simulações\H159 (B)

		Dia	Noite
Wind Speed	m/s	3	2
Pasquill Stability		C	E
Surface Roughness Length	mm	1000	1000
Surface Roughness Parameter		0.173718	0.173718
Atmospheric Temperature	degC	25	20
Surface Temperature	degC	30	20
Relative Humidity	fraction	0.8	0.8

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

H159 (E)

Base Case

CASE Name: Data

Path: \Terminal Adonai - Efeitos físicos\Simulações\H159 (E)

User-Defined Data

Material

Material Identifier	ETHANOL
Type of Vessel	Padded Liquid
Pressure Specification	Pressure specified
Storage Pressure - gauge	0.03 bar
Temperature	25 degC
Volume Inventory	3200 m3

Scenario

Scenario Type	Catastrophic rupture
Phase to be Released	Liquid
Building Wake Effect	None

Location

Elevation	0 m
Use ERPG averaging time	ERPG not selected
Use IDLH averaging time	IDLH not selected
Use STEL averaging time	STEL not selected
Supply a user defined averaging time	Not supplied

Bund

Status of Bund	Bund present
Bund Area	1395 m2
[Type of Bund Surface	User-Defined (Land)]
Bund Height	3 m
[Bund Failure Modeling	Bund cannot fail]

Indoor/Outdoor

Location of release	Open air release
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Flammable

Explosion Method	TNT
Jet Fire Method	Cone Model

Dispersion

Late Ignition Location	No ignition location
Mass Inventory of material to Disperse	2.515E6 kg
Use Burst Pressure	No - Use release pressure for fireball

Fireball Parameters

[Mass Modification Factor	3]
[Calculation method for fireball	DNV Recommended]
[TNO model flame temperature	1727 degC]

Toxic Parameters

[Indoor Calculations	Unselected]
[Wind Dependent Exchange Rate	Case Specified]

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

[Building Exchange Rate	4 /hr]
[Tail Time	1800 s]
[Set averaging time equal to exposure time	Use a fixed averaging time]
[Cut-off fraction of toxic load for exposure time calculation	0.05 fraction]
[Cut-off concentration for exposure time calculations	0 fraction]

Geometry

Shape	Point
Dimension	2D
System	Absolute
East(1)	0 m
North(1)	0 m

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Path: \Terminal Adonai - Efeitos físicos\Simulações\H159 (E)

DISCHARGE DATA for Weather: Global Weathers\Dia

Wind Speed: 3.00 m/s
Wind Speed at Height (Calculated) 1.78 m/s
Pasquill Stability: C

USER-DEFINED QUANTITIES

Material ETHANOL
Scenario Catastrophic rupture
Inventory 2,514,864.00 kg
Fixed Duration n/a s

Stagnation data (data at upstream end for long pipe):

- Pressure 1.04 bar
- Temperature 25.00 degC
- Fluid State Non-saturated liquid

CALCULATED QUANTITIES

Mass Flow of Air (Vent from Vapor Space only) n/a
Mass Flowrate n/a kg/s
Release Duration n/a s
Orifice or pipe exit data (before atmospheric expansion):
- Pressure n/a bar
- Temperature n/a degC
- Vena Contracta Velocity (exit velocity for pipe releases) n/a m/s
- Discharge Coefficient n/a
Final data (after atmospheric expansion):
- Temperature 25.00 degC
- Liquid Mass Fraction 1.00 fraction
- Droplet Diameter 734.68 um
- Expanded Radius n/a m
- Velocity 1.23 m/s

DISCHARGE DATA for Weather: Global Weathers\Noite

Wind Speed: 2.00 m/s
Wind Speed at Height (Calculated) 0.83 m/s
Pasquill Stability: E

USER-DEFINED QUANTITIES

Material ETHANOL
Scenario Catastrophic rupture
Inventory 2,514,864.00 kg
Fixed Duration n/a s

Stagnation data (data at upstream end for long pipe):

- Pressure 1.04 bar
- Temperature 25.00 degC
- Fluid State Non-saturated liquid

CALCULATED QUANTITIES

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Mass Flow of Air (Vent from Vapor Space only)	n/a
Mass Flowrate	n/a kg/s
Release Duration	n/a s
Orifice or pipe exit data (before atmospheric expansion):	
- Pressure	n/a bar
- Temperature	n/a degC
- Vena Contracta Velocity (exit velocity for pipe releases)	n/a m/s
- Discharge Coefficient	n/a
Final data (after atmospheric expansion):	
- Temperature	25.00 degC
- Liquid Mass Fraction	1.00 fraction
- Droplet Diameter	734.68 um
- Expanded Radius	n/a m
- Velocity	1.23 m/s



Consequence Results

Pool Vaporization Results

Path: \Terminal Adonai - Efeitos físicos\Simulações\H159 (E)

N.B. Pool vaporization segments begin when the cloud has left the pool

		Dia	Noite
Liquid Rainout	fraction	0.99982	0.999819
Initial Vapor Cloud	kg	451.995	454.516
Time Pool Left Behind	s	35.8527	68.4947

Cloud Segment 1

		Dia	Noite
Cloud Segment Duration	s	600	600
Pool Vaporization Rate	kg/s	2.04769	1.66772
Maximum Pool Radius	m	21.0723	21.0723

Distance to Concentration Results

Path: \Terminal Adonai - Efeitos físicos\Simulações\H159 (E)

The height for user defined concentrations is the user defined height 0 m

All toxic results are reported at the toxic effect height 1 m

All flammable results are reported at the flammable effect height 0 m

Concentration(ppm)	Averaging Time		Dia	Noite	Distance (m)
UFL (190000)	18.75	s	16.0003		15.8534
LFL (43000)	18.75	s	16.1804		16.0341
LFL Frac (43000)	18.75	s	16.1804		16.0341

Concentration(ppm)	Averaging Time		Dia	Noite	Heights (m) for above distances
UFL (190000)	18.75	s	0		0
LFL (43000)	18.75	s	0		0
LFL Frac (43000)	18.75	s	0		0

Late Pool Fire Hazard

Path: \Terminal Adonai - Efeitos físicos\Simulações\H159 (E)

	Dia	Noite
Late Pool Fire Status	Hazard	Hazard

Radiation Effects: Late Pool Fire Ellipse

Path: \Terminal Adonai - Efeitos físicos\Simulações\H159 (E)

			Dia	Noite	Distance (m)
Radiation Level	9.83	kW/m2	58.6063		57.0983
Radiation Level	19.46	kW/m2	44.6724		42.2827
Radiation Level	35	kW/m2	28.9971		27.6083

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Radiation Effects: Late Pool Fire Distance

Path: \Terminal Adonai - Efeitos físicos\Simulações\H159 (E)

	Dia	Noite
Radiation Level (kW/m ²)		

Fireball Hazard

Path: \Terminal Adonai - Efeitos físicos\Simulações\H159 (E)

	Dia	Noite
Fireball Flame Status	No Hazard	No Hazard

Flash Fire Envelope

Path: \Terminal Adonai - Efeitos físicos\Simulações\H159 (E)

All flammable results are reported at the flammable effect height 0 m

			Dia	Noite
Furthest Extent	43000	ppm	16.1804	16.0341
Furthest Extent	43000	ppm	16.1804	16.0341

			Dia	Noite
Furthest Extent	43000	ppm	0	0
Furthest Extent	43000	ppm	0	0

Explosion Effects: Early Explosion

Path: \Terminal Adonai - Efeitos físicos\Simulações\H159 (E)

Early Explosions are assumed to be centered at the release location
Explosion Model Used : TNT

			Dia	Noite
Supplied Flammable Mass		kg	2.51486e+006	2.51486e+006

			Distance (m) at Overpressure Levels	
			Dia	Noite
Overpressure	0.05	bar	No Hazard	No Hazard
Overpressure	0.1	bar	No Hazard	No Hazard
Overpressure	0.3	bar	No Hazard	No Hazard

			Used Mass (kg) at Overpressure Levels	
			Dia	Noite
Overpressure	0.05	bar	0	0
Overpressure	0.1	bar	0	0
Overpressure	0.3	bar	0	0

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Explosion Effects: Late Ignition

Path: \Terminal Adonai - Efeitos físicos\Simulações\H159 (E)

Explosion Model Used : TNT

Explosion Location Criterion: Cloud Center

All distances are measured from the Source

All flammable results are reported at the flammable effect height 0 m

			Maximum Distance (m) at Overpressure Level	
			Dia	Noite
Overpressure	0.05	bar	No Hazard	No Hazard
Overpressure	0.1	bar	No Hazard	No Hazard
Overpressure	0.3	bar	No Hazard	No Hazard
			Supplementary Data at 0.05 bar	
			Dia	Noite
Supplied Flammable Mass		kg	No Hazard	No Hazard
Used Flammable Mass		kg	No Hazard	No Hazard
Overpressure Radius		m	0	0
Distance to:				
- Ignition Source		m	No Hazard	No Hazard
- Cloud Front/Centre		m	No Hazard	No Hazard
- Explosion Centre		m	0	0
			Supplementary Data at 0.1 bar	
			Dia	Noite
Supplied Flammable Mass		kg	No Hazard	No Hazard
Used Flammable Mass		kg	No Hazard	No Hazard
Overpressure Radius		m	0	0
Distance to:				
- Ignition Source		m	No Hazard	No Hazard
- Cloud Front/Centre		m	No Hazard	No Hazard
- Explosion Centre		m	0	0
			Supplementary Data at 0.3 bar	
			Dia	Noite
Supplied Flammable Mass		kg	No Hazard	No Hazard
Used Flammable Mass		kg	No Hazard	No Hazard
Overpressure Radius		m	0	0
Distance to:				
- Ignition Source		m	No Hazard	No Hazard
- Cloud Front/Centre		m	No Hazard	No Hazard
- Explosion Centre		m	0	0

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Weather Conditions

Path: \Terminal Adonai - Efeitos físicos\Simulações\H159 (E)

		Dia	Noite
Wind Speed	m/s	3	2
Pasquill Stability		C	E
Surface Roughness Length	mm	1000	1000
Surface Roughness Parameter		0.173718	0.173718
Atmospheric Temperature	degC	25	20
Surface Temperature	degC	30	20
Relative Humidity	fraction	0.8	0.8

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

H159 (H)

Base Case

CASE Name: Data

Path: \Terminal Adonai - Efeitos físicos\Simulações\H159 (H)

User-Defined Data

Material

Material Identifier	N-HEXANE
Type of Vessel	Padded Liquid
Pressure Specification	Pressure specified
Storage Pressure - gauge	0.03 bar
Temperature	25 degC
Volume Inventory	3200 m3

Scenario

Scenario Type	Catastrophic rupture
Phase to be Released	Liquid
Building Wake Effect	None

Location

Elevation	0 m
Use ERPG averaging time	ERPG not selected
Use IDLH averaging time	IDLH not selected
Use STEL averaging time	STEL not selected
Supply a user defined averaging time	Not supplied

Bund

Status of Bund	Bund present
Bund Area	1395 m2
[Type of Bund Surface	User-Defined (Land)]
Bund Height	3 m
[Bund Failure Modeling	Bund cannot fail]

Indoor/Outdoor

Location of release	Open air release
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Flammable

Explosion Method	TNT
Jet Fire Method	Cone Model

Dispersion

Late Ignition Location	No ignition location
Mass Inventory of material to Disperse	2.099E6 kg
Use Burst Pressure	No - Use release pressure for fireball

Fireball Parameters

[Mass Modification Factor	3]
[Calculation method for fireball	DNV Recommended]
[TNO model flame temperature	1727 degC]

Toxic Parameters

[Indoor Calculations	Unselected]
[Wind Dependent Exchange Rate	Case Specified]

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

[Building Exchange Rate	4 /hr]
[Tail Time	1800 s]
[Set averaging time equal to exposure time	Use a fixed averaging time]
[Cut-off fraction of toxic load for exposure time calculation	0.05 fraction]
[Cut-off concentration for exposure time calculations	0 fraction]

Geometry

Shape	Point
Dimension	2D
System	Absolute
East(1)	0 m
North(1)	0 m

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Path: \Terminal Adonai - Efeitos físicos\Simulações\H159 (H)

DISCHARGE DATA for Weather: Global Weathers\Dia

Wind Speed: 3.00 m/s
Wind Speed at Height (Calculated) 1.78 m/s
Pasquill Stability: C

USER-DEFINED QUANTITIES

Material N-HEXANE
Scenario Catastrophic rupture
Inventory 2,099,283.75 kg
Fixed Duration n/a s

Stagnation data (data at upstream end for long pipe):

- Pressure 1.04 bar
- Temperature 25.00 degC
- Fluid State Non-saturated liquid

CALCULATED QUANTITIES

Mass Flow of Air (Vent from Vapor Space only) n/a
Mass Flowrate n/a kg/s
Release Duration n/a s
Orifice or pipe exit data (before atmospheric expansion):
- Pressure n/a bar
- Temperature n/a degC
- Vena Contracta Velocity (exit velocity for pipe releases) n/a m/s
- Discharge Coefficient n/a
Final data (after atmospheric expansion):
- Temperature 25.00 degC
- Liquid Mass Fraction 1.00 fraction
- Droplet Diameter 721.42 um
- Expanded Radius n/a m
- Velocity 1.04 m/s

DISCHARGE DATA for Weather: Global Weathers\Noite

Wind Speed: 2.00 m/s
Wind Speed at Height (Calculated) 0.83 m/s
Pasquill Stability: E

USER-DEFINED QUANTITIES

Material N-HEXANE
Scenario Catastrophic rupture
Inventory 2,099,283.75 kg
Fixed Duration n/a s

Stagnation data (data at upstream end for long pipe):

- Pressure 1.04 bar
- Temperature 25.00 degC
- Fluid State Non-saturated liquid

CALCULATED QUANTITIES

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Mass Flow of Air (Vent from Vapor Space only)	n/a
Mass Flowrate	n/a kg/s
Release Duration	n/a s
Orifice or pipe exit data (before atmospheric expansion):	
- Pressure	n/a bar
- Temperature	n/a degC
- Vena Contracta Velocity (exit velocity for pipe releases)	n/a m/s
- Discharge Coefficient	n/a
Final data (after atmospheric expansion):	
- Temperature	25.00 degC
- Liquid Mass Fraction	1.00 fraction
- Droplet Diameter	721.42 um
- Expanded Radius	n/a m
- Velocity	1.04 m/s



Consequence Results

Pool Vaporization Results

Path: \Terminal Adonai - Efeitos físicos\Simulações\H159 (H)

N.B. Pool vaporization segments begin when the cloud has left the pool

		Dia	Noite
Liquid Rainout	fraction	0.999746	0.999747
Initial Vapor Cloud	kg	534.211	530.3
Time Pool Left Behind	s	44.5805	104.141

Cloud Segment 1

Cloud Segment Duration	s	600	600
Pool Vaporization Rate	kg/s	8.01442	6.48008

Maximum Pool Radius	m	21.0723	21.0723
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Distance to Concentration Results

Path: \Terminal Adonai - Efeitos físicos\Simulações\H159 (H)

The height for user defined concentrations is the user defined height 0 m

All toxic results are reported at the toxic effect height 1 m

All flammable results are reported at the flammable effect height 0 m

Concentration(ppm)	Averaging Time		Dia	Noite	Distance (m)
UFL (76800)	18.75	s	16.8754	19.558	
LFL (10500)	18.75	s	54.7339	57.8901	
LFL Frac (10500)	18.75	s	54.7339	57.8901	

Concentration(ppm)	Averaging Time		Dia	Noite	Heights (m) for above distances
UFL (76800)	18.75	s	0	0	
LFL (10500)	18.75	s	0	0	
LFL Frac (10500)	18.75	s	0	0	

Late Pool Fire Hazard

Path: \Terminal Adonai - Efeitos físicos\Simulações\H159 (H)

	Dia	Noite
Late Pool Fire Status	Hazard	Hazard

Radiation Effects: Late Pool Fire Ellipse

Path: \Terminal Adonai - Efeitos físicos\Simulações\H159 (H)

			Dia	Noite	Distance (m)
Radiation Level	9.83	kW/m2	28.6946	27.319	
Radiation Level	19.46	kW/m2	22.0723	22.0723	
Radiation Level	35	kW/m2	Not Reached	Not Reached	

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Radiation Effects: Late Pool Fire Distance

Path: \Terminal Adonai - Efeitos físicos\Simulações\H159 (H)

	Dia	Noite
Radiation Level (kW/m ²)		

Fireball Hazard

Path: \Terminal Adonai - Efeitos físicos\Simulações\H159 (H)

	Dia	Noite
Fireball Flame Status	No Hazard	No Hazard

Flash Fire Envelope

Path: \Terminal Adonai - Efeitos físicos\Simulações\H159 (H)

All flammable results are reported at the flammable effect height 0 m

			Dia	Noite
Furthest Extent	10500	ppm	54.7339	57.8901
Furthest Extent	10500	ppm	54.7339	57.8901
				Heights (m) for above distances
			Dia	Noite
Furthest Extent	10500	ppm	0	0
Furthest Extent	10500	ppm	0	0

Explosion Effects: Early Explosion

Path: \Terminal Adonai - Efeitos físicos\Simulações\H159 (H)

Early Explosions are assumed to be centered at the release location
Explosion Model Used : TNT

			Dia	Noite
Supplied Flammable Mass		kg	2.09928e+006	2.09928e+006
				Distance (m) at Overpressure Levels
			Dia	Noite
Overpressure	0.05	bar	No Hazard	No Hazard
Overpressure	0.1	bar	No Hazard	No Hazard
Overpressure	0.3	bar	No Hazard	No Hazard
				Used Mass (kg) at Overpressure Levels
			Dia	Noite
Overpressure	0.05	bar	0	0
Overpressure	0.1	bar	0	0
Overpressure	0.3	bar	0	0

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Explosion Effects: Late Ignition

Path: \Terminal Adonai - Efeitos físicos\Simulações\H159 (H)

Explosion Model Used : TNT

Explosion Location Criterion: Cloud Center

All distances are measured from the Source

All flammable results are reported at the flammable effect height 0 m

			Maximum Distance (m) at Overpressure Level	
			Dia	Noite
Overpressure	0.05	bar	133.855	135.917
Overpressure	0.1	bar	87.0631	87.2233
Overpressure	0.3	bar	51.2118	47.3137

Supplementary Data at 0.05 bar

			Dia	Noite
Supplied Flammable Mass		kg	435.427	445.744
Used Flammable Mass		kg	435.427	445.744
Overpressure Radius		m	127.409	128.407
Distance to:				
- Ignition Source		m	40	50
- Cloud Front/Centre		m	6.44603	7.50999
- Explosion Centre		m	6.44603	7.50999

Supplementary Data at 0.1 bar

			Dia	Noite
Supplied Flammable Mass		kg	323.122	445.744
Used Flammable Mass		kg	323.122	445.744
Overpressure Radius		m	71.6074	79.7133
Distance to:				
- Ignition Source		m	50	50
- Cloud Front/Centre		m	15.4558	7.50999
- Explosion Centre		m	15.4558	7.50999

Supplementary Data at 0.3 bar

			Dia	Noite
Supplied Flammable Mass		kg	323.122	445.744
Used Flammable Mass		kg	323.122	445.744
Overpressure Radius		m	35.7561	39.8037
Distance to:				
- Ignition Source		m	50	50
- Cloud Front/Centre		m	15.4558	7.50999
- Explosion Centre		m	15.4558	7.50999

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Weather Conditions

Path: \Terminal Adonai - Efeitos físicos\Simulações\H159 (H)

		Dia	Noite
Wind Speed	m/s	3	2
Pasquill Stability		C	E
Surface Roughness Length	mm	1000	1000
Surface Roughness Parameter		0.173718	0.173718
Atmospheric Temperature	degC	25	20
Surface Temperature	degC	30	20
Relative Humidity	fraction	0.8	0.8

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

H159 (M)

Base Case

CASE Name: Data

Path: \Terminal Adonai - Efeitos físicos\Simulações\H159 (M)

User-Defined Data

Material

Material Identifier	METHANOL
Type of Vessel	Padded Liquid
Pressure Specification	Pressure specified
Storage Pressure - gauge	0.03 bar
Temperature	25 degC
Volume Inventory	3200 m3

Scenario

Scenario Type	Catastrophic rupture
Phase to be Released	Liquid
Building Wake Effect	None

Location

Elevation	0 m
Use ERPG averaging time	ERPG not selected
Use IDLH averaging time	IDLH not selected
Use STEL averaging time	STEL not selected
Supply a user defined averaging time	Not supplied

Bund

Status of Bund	Bund present
Bund Area	1395 m2
[Type of Bund Surface	User-Defined (Land)]
Bund Height	3 m
[Bund Failure Modeling	Bund cannot fail]

Indoor/Outdoor

Location of release	Open air release
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Flammable

Explosion Method	TNT
Jet Fire Method	Cone Model

Dispersion

Late Ignition Location	No ignition location
Mass Inventory of material to Disperse	2.527E6 kg
Use Burst Pressure	No - Use release pressure for fireball

Fireball Parameters

[Mass Modification Factor	3]
[Calculation method for fireball	DNV Recommended]
[TNO model flame temperature	1727 degC]

Toxic Parameters

[Indoor Calculations	Unselected]
[Wind Dependent Exchange Rate	Case Specified]

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

[Building Exchange Rate	4 /hr]
[Tail Time	1800 s]
[Set averaging time equal to exposure time	Use a fixed averaging time]
[Cut-off fraction of toxic load for exposure time calculation	0.05 fraction]
[Cut-off concentration for exposure time calculations	0 fraction]

Geometry

Shape	Point
Dimension	2D
System	Absolute
East(1)	0 m
North(1)	0 m

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Path: \Terminal Adonai - Efeitos físicos\Simulações\H159 (M)

DISCHARGE DATA for Weather: Global Weathers\Dia

Wind Speed: 3.00 m/s
Wind Speed at Height (Calculated) 1.78 m/s
Pasquill Stability: C

USER-DEFINED QUANTITIES

Material METHANOL
Scenario Catastrophic rupture
Inventory 2,526,775.50 kg
Fixed Duration n/a s

Stagnation data (data at upstream end for long pipe):

- Pressure 1.04 bar
- Temperature 25.00 degC
- Fluid State Non-saturated liquid

CALCULATED QUANTITIES

Mass Flow of Air (Vent from Vapor Space only) n/a
Mass Flowrate n/a kg/s
Release Duration n/a s
Orifice or pipe exit data (before atmospheric expansion):
- Pressure n/a bar
- Temperature n/a degC
- Vena Contracta Velocity (exit velocity for pipe releases) n/a m/s
- Discharge Coefficient n/a
Final data (after atmospheric expansion):
- Temperature 25.00 degC
- Liquid Mass Fraction 1.00 fraction
- Droplet Diameter 735.02 um
- Expanded Radius n/a m
- Velocity 1.54 m/s

DISCHARGE DATA for Weather: Global Weathers\Noite

Wind Speed: 2.00 m/s
Wind Speed at Height (Calculated) 0.83 m/s
Pasquill Stability: E

USER-DEFINED QUANTITIES

Material METHANOL
Scenario Catastrophic rupture
Inventory 2,526,775.50 kg
Fixed Duration n/a s

Stagnation data (data at upstream end for long pipe):

- Pressure 1.04 bar
- Temperature 25.00 degC
- Fluid State Non-saturated liquid

CALCULATED QUANTITIES

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Mass Flow of Air (Vent from Vapor Space only)	n/a
Mass Flowrate	n/a kg/s
Release Duration	n/a s
Orifice or pipe exit data (before atmospheric expansion):	
- Pressure	n/a bar
- Temperature	n/a degC
- Vena Contracta Velocity (exit velocity for pipe releases)	n/a m/s
- Discharge Coefficient	n/a
Final data (after atmospheric expansion):	
- Temperature	25.00 degC
- Liquid Mass Fraction	1.00 fraction
- Droplet Diameter	735.02 um
- Expanded Radius	n/a m
- Velocity	1.54 m/s



Consequence Results

Pool Vaporization Results

Path: \Terminal Adonai - Efeitos físicos\Simulações\H159 (M)

N.B. Pool vaporization segments begin when the cloud has left the pool

		Dia	Noite
Liquid Rainout	fraction	0.99939	0.999385
Initial Vapor Cloud	kg	1540.22	1553.38
Time Pool Left Behind	s	38.9374	66.1486

Cloud Segment 1

Cloud Segment Duration	s	600	600
Pool Vaporization Rate	kg/s	3.62383	2.96435

Maximum Pool Radius	m	21.0723	21.0723
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Distance to Concentration Results

Path: \Terminal Adonai - Efeitos físicos\Simulações\H159 (M)

The height for user defined concentrations is the user defined height 0 m

All toxic results are reported at the toxic effect height 1 m

All flammable results are reported at the flammable effect height 0 m

Concentration(ppm)	Averaging Time		Dia	Noite	Distance (m)
UFL (360000)	18.75	s	19.8306	19.5977	
LFL (73000)	18.75	s	29.4812	31.9033	
LFL Frac (73000)	18.75	s	29.4812	31.9033	
Concentration(ppm)	Averaging Time		Dia	Noite	Heights (m) for above distances
UFL (360000)	18.75	s	0	0	
LFL (73000)	18.75	s	0	0	
LFL Frac (73000)	18.75	s	0	0	

Late Pool Fire Hazard

Path: \Terminal Adonai - Efeitos físicos\Simulações\H159 (M)

	Dia	Noite
Late Pool Fire Status	Hazard	Hazard

Radiation Effects: Late Pool Fire Ellipse

Path: \Terminal Adonai - Efeitos físicos\Simulações\H159 (M)

			Dia	Noite	Distance (m)
Radiation Level	9.83	kW/m2	42.4962	40.9848	
Radiation Level	19.46	kW/m2	29.1835	27.743	
Radiation Level	35	kW/m2	22.0723	22.0723	

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Radiation Effects: Late Pool Fire Distance

Path: \Terminal Adonai - Efeitos físicos\Simulações\H159 (M)

	Dia	Noite
Radiation Level (kW/m2)		

Fireball Hazard

Path: \Terminal Adonai - Efeitos físicos\Simulações\H159 (M)

	Dia	Noite
Fireball Flame Status	No Hazard	No Hazard

Flash Fire Envelope

Path: \Terminal Adonai - Efeitos físicos\Simulações\H159 (M)

All flammable results are reported at the flammable effect height 0 m

			Dia	Noite
Furthest Extent	73000	ppm	29.4812	31.9033
Furthest Extent	73000	ppm	29.4812	31.9033
				Heights (m) for above distances
			Dia	Noite
Furthest Extent	73000	ppm	0	0
Furthest Extent	73000	ppm	0	0

Explosion Effects: Early Explosion

Path: \Terminal Adonai - Efeitos físicos\Simulações\H159 (M)

Early Explosions are assumed to be centered at the release location
Explosion Model Used : TNT

			Dia	Noite
Supplied Flammable Mass		kg	2.52678e+006	2.52678e+006
				Distance (m) at Overpressure Levels
			Dia	Noite
Overpressure	0.05	bar	No Hazard	No Hazard
Overpressure	0.1	bar	No Hazard	No Hazard
Overpressure	0.3	bar	No Hazard	No Hazard
				Used Mass (kg) at Overpressure Levels
			Dia	Noite
Overpressure	0.05	bar	0	0
Overpressure	0.1	bar	0	0
Overpressure	0.3	bar	0	0

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Explosion Effects: Late Ignition

Path: \Terminal Adonai - Efeitos físicos\Simulações\H159 (M)

Explosion Model Used : TNT

Explosion Location Criterion: Cloud Center

All distances are measured from the Source

All flammable results are reported at the flammable effect height 0 m

			Maximum Distance (m) at Overpressure Level	
			Dia	Noite
Overpressure	0.05	bar	120.327	106.115
Overpressure	0.1	bar	75.9737	67.6394
Overpressure	0.3	bar	39.6219	38.417

			Supplementary Data at 0.05 bar	
			Dia	Noite
Supplied Flammable Mass		kg	756.551	493.886
Used Flammable Mass		kg	756.551	493.886
Overpressure Radius		m	116.96	101.461
Distance to:				
- Ignition Source		m	20	20
- Cloud Front/Centre		m	3.36668	4.65375
- Explosion Centre		m	3.36668	4.65375

			Supplementary Data at 0.1 bar	
			Dia	Noite
Supplied Flammable Mass		kg	756.551	493.886
Used Flammable Mass		kg	756.551	493.886
Overpressure Radius		m	72.6071	62.9857
Distance to:				
- Ignition Source		m	20	20
- Cloud Front/Centre		m	3.36668	4.65375
- Explosion Centre		m	3.36668	4.65375

			Supplementary Data at 0.3 bar	
			Dia	Noite
Supplied Flammable Mass		kg	756.551	202.554
Used Flammable Mass		kg	756.551	202.554
Overpressure Radius		m	36.2553	23.3671
Distance to:				
- Ignition Source		m	20	30
- Cloud Front/Centre		m	3.36668	15.0499
- Explosion Centre		m	3.36668	15.0499

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Weather Conditions

Path: \Terminal Adonai - Efeitos físicos\Simulações\H159 (M)

		Dia	Noite
Wind Speed	m/s	3	2
Pasquill Stability		C	E
Surface Roughness Length	mm	1000	1000
Surface Roughness Parameter		0.173718	0.173718
Atmospheric Temperature	degC	25	20
Surface Temperature	degC	30	20
Relative Humidity	fraction	0.8	0.8

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

H159 (N)

Base Case

CASE Name: Data

Path: \Terminal Adonai - Efeitos físicos\Simulações\H159 (N)

User-Defined Data

Material

Material Identifier	N-NONANE
Type of Vessel	Padded Liquid
Pressure Specification	Pressure specified
Storage Pressure - gauge	0.03 bar
Temperature	25 degC
Volume Inventory	3200 m3

Scenario

Scenario Type	Catastrophic rupture
Phase to be Released	Liquid
Building Wake Effect	None

Location

Elevation	0 m
Use ERPG averaging time	ERPG not selected
Use IDLH averaging time	IDLH not selected
Use STEL averaging time	STEL not selected
Supply a user defined averaging time	Not supplied

Bund

Status of Bund	Bund present
Bund Area	1395 m2
[Type of Bund Surface	User-Defined (Land)]
Bund Height	3 m
[Bund Failure Modeling	Bund cannot fail]

Indoor/Outdoor

Location of release	Open air release
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Flammable

Explosion Method	TNT
Jet Fire Method	Cone Model

Dispersion

Late Ignition Location	No ignition location
Mass Inventory of material to Disperse	2.286E6 kg
Use Burst Pressure	No - Use release pressure for fireball

Fireball Parameters

[Mass Modification Factor	3]
[Calculation method for fireball	DNV Recommended]
[TNO model flame temperature	1727 degC]

Toxic Parameters

[Indoor Calculations	Unselected]
[Wind Dependent Exchange Rate	Case Specified]

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

[Building Exchange Rate	4 /hr]
[Tail Time	1800 s]
[Set averaging time equal to exposure time	Use a fixed averaging time]
[Cut-off fraction of toxic load for exposure time calculation	0.05 fraction]
[Cut-off concentration for exposure time calculations	0 fraction]

Geometry

Shape	Point
Dimension	2D
System	Absolute
East(1)	0 m
North(1)	0 m

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Path: \Terminal Adonai - Efeitos físicos\Simulações\H159 (N)

DISCHARGE DATA for Weather: Global Weathers\Dia

Wind Speed: 3.00 m/s
Wind Speed at Height (Calculated) 1.78 m/s
Pasquill Stability: C

USER-DEFINED QUANTITIES

Material N-NONANE
Scenario Catastrophic rupture
Inventory 2,285,736.50 kg
Fixed Duration n/a s

Stagnation data (data at upstream end for long pipe):

- Pressure 1.04 bar
- Temperature 25.00 degC
- Fluid State Non-saturated liquid

CALCULATED QUANTITIES

Mass Flow of Air (Vent from Vapor Space only) n/a
Mass Flowrate n/a kg/s
Release Duration n/a s
Orifice or pipe exit data (before atmospheric expansion):
- Pressure n/a bar
- Temperature n/a degC
- Vena Contracta Velocity (exit velocity for pipe releases) n/a m/s
- Discharge Coefficient n/a
Final data (after atmospheric expansion):
- Temperature 25.00 degC
- Liquid Mass Fraction 1.00 fraction
- Droplet Diameter 727.67 um
- Expanded Radius n/a m
- Velocity 0.76 m/s

DISCHARGE DATA for Weather: Global Weathers\Noite

Wind Speed: 2.00 m/s
Wind Speed at Height (Calculated) 0.83 m/s
Pasquill Stability: E

USER-DEFINED QUANTITIES

Material N-NONANE
Scenario Catastrophic rupture
Inventory 2,285,736.50 kg
Fixed Duration n/a s

Stagnation data (data at upstream end for long pipe):

- Pressure 1.04 bar
- Temperature 25.00 degC
- Fluid State Non-saturated liquid

CALCULATED QUANTITIES

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Mass Flow of Air (Vent from Vapor Space only)	n/a
Mass Flowrate	n/a kg/s
Release Duration	n/a s
Orifice or pipe exit data (before atmospheric expansion):	
- Pressure	n/a bar
- Temperature	n/a degC
- Vena Contracta Velocity (exit velocity for pipe releases)	n/a m/s
- Discharge Coefficient	n/a
Final data (after atmospheric expansion):	
- Temperature	25.00 degC
- Liquid Mass Fraction	1.00 fraction
- Droplet Diameter	727.67 um
- Expanded Radius	n/a m
- Velocity	0.76 m/s



Consequence Results

Pool Vaporization Results

Path: \Terminal Adonai - Efeitos físicos\Simulações\H159 (N)

N.B. Pool vaporization segments begin when the cloud has left the pool

		Dia	Noite
Liquid Rainout	fraction	0.999996	0.999996
Initial Vapor Cloud	kg	9.14639	8.93431
Time Pool Left Behind	s	24.7445	50.2053

Cloud Segment 1

		Dia	Noite
Cloud Segment Duration	s	600	600
Pool Vaporization Rate	kg/s	0.263199	0.209078
Maximum Pool Radius	m	21.0723	21.0723

Distance to Concentration Results

Path: \Terminal Adonai - Efeitos físicos\Simulações\H159 (N)

The height for user defined concentrations is the user defined height 0 m

All toxic results are reported at the toxic effect height 1 m

All flammable results are reported at the flammable effect height 0 m

Concentration(ppm)	Averaging Time		Dia	Noite	Distance (m)
UFL (56000)	18.75	s	12.6226	12.6095	
LFL (7000)	18.75	s	12.7584	12.7453	
LFL Frac (7000)	18.75	s	12.7584	12.7453	
Concentration(ppm)	Averaging Time		Dia	Noite	Heights (m) for above distances
UFL (56000)	18.75	s	0	0	
LFL (7000)	18.75	s	0	0	
LFL Frac (7000)	18.75	s	0	0	

Late Pool Fire Hazard

Path: \Terminal Adonai - Efeitos físicos\Simulações\H159 (N)

	Dia	Noite
Late Pool Fire Status	Hazard	Hazard

Radiation Effects: Late Pool Fire Ellipse

Path: \Terminal Adonai - Efeitos físicos\Simulações\H159 (N)

			Dia	Noite	Distance (m)
Radiation Level	9.83	kW/m2	28.7287	27.3138	
Radiation Level	19.46	kW/m2	22.0723	22.0723	
Radiation Level	35	kW/m2	Not Reached	Not Reached	

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Radiation Effects: Late Pool Fire Distance

Path: \Terminal Adonai - Efeitos físicos\Simulações\H159 (N)

	Dia	Noite
Radiation Level (kW/m2)		

Fireball Hazard

Path: \Terminal Adonai - Efeitos físicos\Simulações\H159 (N)

	Dia	Noite
Fireball Flame Status	No Hazard	No Hazard

Flash Fire Envelope

Path: \Terminal Adonai - Efeitos físicos\Simulações\H159 (N)

All flammable results are reported at the flammable effect height 0 m

			Dia	Noite
Furthest Extent	7000	ppm	12.7584	12.7453
Furthest Extent	7000	ppm	12.7584	12.7453

			Dia	Noite
Furthest Extent	7000	ppm	0	0
Furthest Extent	7000	ppm	0	0

Explosion Effects: Early Explosion

Path: \Terminal Adonai - Efeitos físicos\Simulações\H159 (N)

Early Explosions are assumed to be centered at the release location
Explosion Model Used : TNT

			Dia	Noite
Supplied Flammable Mass		kg	2.28574e+006	2.28574e+006

			Distance (m) at Overpressure Levels	
			Dia	Noite
Overpressure	0.05	bar	No Hazard	No Hazard
Overpressure	0.1	bar	No Hazard	No Hazard
Overpressure	0.3	bar	No Hazard	No Hazard

			Used Mass (kg) at Overpressure Levels	
			Dia	Noite
Overpressure	0.05	bar	0	0
Overpressure	0.1	bar	0	0
Overpressure	0.3	bar	0	0

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Explosion Effects: Late Ignition

Path: \Terminal Adonai - Efeitos físicos\Simulações\H159 (N)

Explosion Model Used : TNT

Explosion Location Criterion: Cloud Center

All distances are measured from the Source

All flammable results are reported at the flammable effect height 0 m

			Maximum Distance (m) at Overpressure Level	
			Dia	Noite
Overpressure	0.05	bar	No Hazard	No Hazard
Overpressure	0.1	bar	No Hazard	No Hazard
Overpressure	0.3	bar	No Hazard	No Hazard
			Supplementary Data at 0.05 bar	
			Dia	Noite
Supplied Flammable Mass		kg	No Hazard	No Hazard
Used Flammable Mass		kg	No Hazard	No Hazard
Overpressure Radius		m	0	0
Distance to:				
- Ignition Source		m	No Hazard	No Hazard
- Cloud Front/Centre		m	No Hazard	No Hazard
- Explosion Centre		m	0	0
			Supplementary Data at 0.1 bar	
			Dia	Noite
Supplied Flammable Mass		kg	No Hazard	No Hazard
Used Flammable Mass		kg	No Hazard	No Hazard
Overpressure Radius		m	0	0
Distance to:				
- Ignition Source		m	No Hazard	No Hazard
- Cloud Front/Centre		m	No Hazard	No Hazard
- Explosion Centre		m	0	0
			Supplementary Data at 0.3 bar	
			Dia	Noite
Supplied Flammable Mass		kg	No Hazard	No Hazard
Used Flammable Mass		kg	No Hazard	No Hazard
Overpressure Radius		m	0	0
Distance to:				
- Ignition Source		m	No Hazard	No Hazard
- Cloud Front/Centre		m	No Hazard	No Hazard
- Explosion Centre		m	0	0

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Weather Conditions

Path: \Terminal Adonai - Efeitos físicos\Simulações\H159 (N)

		Dia	Noite
Wind Speed	m/s	3	2
Pasquill Stability		C	E
Surface Roughness Length	mm	1000	1000
Surface Roughness Parameter		0.173718	0.173718
Atmospheric Temperature	degC	25	20
Surface Temperature	degC	30	20
Relative Humidity	fraction	0.8	0.8

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

H159 (P)

Base Case

CASE Name: Data

Path: \Terminal Adonai - Efeitos físicos\Simulações\H159 (P)

User-Defined Data

Material

Material Identifier	N-PENTANE
Type of Vessel	Padded Liquid
Pressure Specification	Pressure specified
Storage Pressure - gauge	0.03 bar
Temperature	25 degC
Volume Inventory	3200 m3

Scenario

Scenario Type	Catastrophic rupture
Phase to be Released	Liquid
Building Wake Effect	None

Location

Elevation	0 m
Use ERPG averaging time	ERPG not selected
Use IDLH averaging time	IDLH not selected
Use STEL averaging time	STEL not selected
Supply a user defined averaging time	Not supplied

Bund

Status of Bund	Bund present
Bund Area	1395 m2
[Type of Bund Surface	User-Defined (Land)]
Bund Height	3 m
[Bund Failure Modeling	Bund cannot fail]

Indoor/Outdoor

Location of release	Open air release
---------------------	------------------

Flammable

Explosion Method	TNT
Jet Fire Method	Cone Model

Dispersion

Late Ignition Location	No ignition location
Mass Inventory of material to Disperse	1.99E6 kg
Use Burst Pressure	No - Use release pressure for fireball

Fireball Parameters

[Mass Modification Factor	3]
[Calculation method for fireball	DNV Recommended]
[TNO model flame temperature	1727 degC]

Toxic Parameters

[Indoor Calculations	Unselected]
[Wind Dependent Exchange Rate	Case Specified]

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

[Building Exchange Rate	4 /hr]
[Tail Time	1800 s]
[Set averaging time equal to exposure time	Use a fixed averaging time]
[Cut-off fraction of toxic load for exposure time calculation	0.05 fraction]
[Cut-off concentration for exposure time calculations	0 fraction]

Geometry

Shape	Point
Dimension	2D
System	Absolute
East(1)	0 m
North(1)	0 m

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Path: \Terminal Adonai - Efeitos físicos\Simulações\H159 (P)

DISCHARGE DATA for Weather: Global Weathers\Dia

Wind Speed: 3.00 m/s
Wind Speed at Height (Calculated) 1.78 m/s
Pasquill Stability: C

USER-DEFINED QUANTITIES

Material N-PENTANE
Scenario Catastrophic rupture
Inventory 1,989,578.88 kg
Fixed Duration n/a s

Stagnation data (data at upstream end for long pipe):

- Pressure 1.04 bar
- Temperature 25.00 degC
- Fluid State Non-saturated liquid

CALCULATED QUANTITIES

Mass Flow of Air (Vent from Vapor Space only) n/a
Mass Flowrate n/a kg/s
Release Duration n/a s
Orifice or pipe exit data (before atmospheric expansion):
- Pressure n/a bar
- Temperature n/a degC
- Vena Contracta Velocity (exit velocity for pipe releases) n/a m/s
- Discharge Coefficient n/a
Final data (after atmospheric expansion):
- Temperature 25.00 degC
- Liquid Mass Fraction 1.00 fraction
- Droplet Diameter 717.48 um
- Expanded Radius n/a m
- Velocity 0.86 m/s

DISCHARGE DATA for Weather: Global Weathers\Noite

Wind Speed: 2.00 m/s
Wind Speed at Height (Calculated) 0.83 m/s
Pasquill Stability: E

USER-DEFINED QUANTITIES

Material N-PENTANE
Scenario Catastrophic rupture
Inventory 1,989,578.88 kg
Fixed Duration n/a s

Stagnation data (data at upstream end for long pipe):

- Pressure 1.04 bar
- Temperature 25.00 degC
- Fluid State Non-saturated liquid

CALCULATED QUANTITIES

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Mass Flow of Air (Vent from Vapor Space only)	n/a
Mass Flowrate	n/a kg/s
Release Duration	n/a s
Orifice or pipe exit data (before atmospheric expansion):	
- Pressure	n/a bar
- Temperature	n/a degC
- Vena Contracta Velocity (exit velocity for pipe releases)	n/a m/s
- Discharge Coefficient	n/a
Final data (after atmospheric expansion):	
- Temperature	25.00 degC
- Liquid Mass Fraction	1.00 fraction
- Droplet Diameter	717.48 um
- Expanded Radius	n/a m
- Velocity	0.86 m/s



Consequence Results

Pool Vaporization Results

Path: \Terminal Adonai - Efeitos físicos\Simulações\H159 (P)

N.B. Pool vaporization segments begin when the cloud has left the pool

		Dia	Noite
Liquid Rainout	fraction	0.999188	0.999222
Initial Vapor Cloud	kg	1615.24	1546.99
Time Pool Left Behind	s	60.2447	150.939

Cloud Segment 1

		Dia	Noite
Cloud Segment Duration	s	600	600
Pool Vaporization Rate	kg/s	35.0132	28.1041

		Dia	Noite
Maximum Pool Radius	m	21.0723	21.0723

Distance to Concentration Results

Path: \Terminal Adonai - Efeitos físicos\Simulações\H159 (P)

The height for user defined concentrations is the user defined height 0 m

All toxic results are reported at the toxic effect height 1 m

All flammable results are reported at the flammable effect height 0 m

Concentration(ppm)	Averaging Time		Dia	Noite	Distance (m)
UFL (80000)	18.75	s	42.7106	51.504	
LFL (13000)	18.75	s	97.8054	102.607	
LFL Frac (13000)	18.75	s	97.8054	102.607	

Concentration(ppm)	Averaging Time		Dia	Noite	Heights (m) for above distances
UFL (80000)	18.75	s	0	0	
LFL (13000)	18.75	s	0	0	
LFL Frac (13000)	18.75	s	0	0	

Late Pool Fire Hazard

Path: \Terminal Adonai - Efeitos físicos\Simulações\H159 (P)

	Dia	Noite
Late Pool Fire Status	Hazard	Hazard

Radiation Effects: Late Pool Fire Ellipse

Path: \Terminal Adonai - Efeitos físicos\Simulações\H159 (P)

			Dia	Noite	Distance (m)
Radiation Level	9.83	kW/m2	28.5882	27.3021	
Radiation Level	19.46	kW/m2	22.0723	22.0723	
Radiation Level	35	kW/m2	Not Reached	Not Reached	

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Radiation Effects: Late Pool Fire Distance

Path: \Terminal Adonai - Efeitos físicos\Simulações\H159 (P)

	Dia	Noite
Radiation Level (kW/m ²)		

Fireball Hazard

Path: \Terminal Adonai - Efeitos físicos\Simulações\H159 (P)

	Dia	Noite
Fireball Flame Status	No Hazard	No Hazard

Flash Fire Envelope

Path: \Terminal Adonai - Efeitos físicos\Simulações\H159 (P)

All flammable results are reported at the flammable effect height 0 m

			Dia	Noite
Furthest Extent	13000	ppm	97.8054	102.607
Furthest Extent	13000	ppm	97.8054	102.607

			Dia	Noite
Furthest Extent	13000	ppm	0	0
Furthest Extent	13000	ppm	0	0

Explosion Effects: Early Explosion

Path: \Terminal Adonai - Efeitos físicos\Simulações\H159 (P)

Early Explosions are assumed to be centered at the release location
Explosion Model Used : TNT

			Dia	Noite
Supplied Flammable Mass		kg	1.98958e+006	1.98958e+006

			Dia	Noite
Overpressure	0.05	bar	No Hazard	No Hazard
Overpressure	0.1	bar	No Hazard	No Hazard
Overpressure	0.3	bar	No Hazard	No Hazard

			Dia	Noite
Overpressure	0.05	bar	0	0
Overpressure	0.1	bar	0	0
Overpressure	0.3	bar	0	0

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Explosion Effects: Late Ignition

Path: \Terminal Adonai - Efeitos físicos\Simulações\H159 (P)

Explosion Model Used : TNT

Explosion Location Criterion: Cloud Center

All distances are measured from the Source

All flammable results are reported at the flammable effect height 0 m

			Maximum Distance (m) at Overpressure Level	
			Dia	Noite
Overpressure	0.05	bar	212.744	215.79
Overpressure	0.1	bar	143.736	143.008
Overpressure	0.3	bar	87.6642	83.3547

			Supplementary Data at 0.05 bar	
			Dia	Noite
Supplied Flammable Mass		kg	1482.85	1480.55
Used Flammable Mass		kg	1482.85	1480.55
Overpressure Radius		m	192.03	191.93
Distance to:				
- Ignition Source		m	80	100
- Cloud Front/Centre		m	20.7145	23.8602
- Explosion Centre		m	20.7145	23.8602

			Supplementary Data at 0.1 bar	
			Dia	Noite
Supplied Flammable Mass		kg	1229.59	1480.55
Used Flammable Mass		kg	1229.59	1480.55
Overpressure Radius		m	111.995	119.147
Distance to:				
- Ignition Source		m	90	100
- Cloud Front/Centre		m	31.7413	23.8602
- Explosion Centre		m	31.7413	23.8602

			Supplementary Data at 0.3 bar	
			Dia	Noite
Supplied Flammable Mass		kg	1229.59	1480.55
Used Flammable Mass		kg	1229.59	1480.55
Overpressure Radius		m	55.9229	59.4945
Distance to:				
- Ignition Source		m	90	100
- Cloud Front/Centre		m	31.7413	23.8602
- Explosion Centre		m	31.7413	23.8602

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Weather Conditions

Path: \Terminal Adonai - Efeitos físicos\Simulações\H159 (P)

		Dia	Noite
Wind Speed	m/s	3	2
Pasquill Stability		C	E
Surface Roughness Length	mm	1000	1000
Surface Roughness Parameter		0.173718	0.173718
Atmospheric Temperature	degC	25	20
Surface Temperature	degC	30	20
Relative Humidity	fraction	0.8	0.8

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

H160

Base Case

CASE Name: Data

Path: \Terminal Adonai - Efeitos físicos\Simulações\H160

User-Defined Data

Material

Material Identifier	ACETONE
Type of Vessel	Unpressurized (at atmospheric pressure)
Pressure Specification	Pressure not used
Temperature	25 degC
Volume Inventory	50 m3

Scenario

Scenario Type	Catastrophic rupture
Phase to be Released	Liquid
Building Wake Effect	None
Tank Head	0 m

Location

Elevation	0 m
Use ERPG averaging time	ERPG not selected
Use IDLH averaging time	IDLH not selected
Use STEL averaging time	STEL not selected
Supply a user defined averaging time	Not supplied

Bund

Status of Bund	Bund present
Bund Area	1940 m2
[Type of Bund Surface	User-Defined (Land)]
Bund Height	3 m
[Bund Failure Modeling	Bund cannot fail]

Indoor/Outdoor

Location of release	Open air release
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Flammable

Explosion Method	TNT
Jet Fire Method	Cone Model

Dispersion

Late Ignition Location	No ignition location
Mass Inventory of material to Disperse	3.933E4 kg
Use Burst Pressure	No - Use release pressure for fireball

Fireball Parameters

[Mass Modification Factor	3]
[Calculation method for fireball	DNV Recommended]
[TNO model flame temperature	1727 degC]

Toxic Parameters

[Indoor Calculations	Unselected]
[Wind Dependent Exchange Rate	Case Specified]

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

[Building Exchange Rate	4 /hr]
[Tail Time	1800 s]
[Set averaging time equal to exposure time	Use a fixed averaging time]
[Cut-off fraction of toxic load for exposure time calculation	0.05 fraction]
[Cut-off concentration for exposure time calculations	0 fraction]

Geometry

Shape	Point
Dimension	2D
System	Absolute
East(1)	0 m
North(1)	0 m

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Path: \Terminal Adonai - Efeitos físicos\Simulações\H160

DISCHARGE DATA for Weather: Global Weathers\Dia

Wind Speed: 3.00 m/s
Wind Speed at Height (Calculated) 1.78 m/s
Pasquill Stability: C

USER-DEFINED QUANTITIES

Material ACETONE
Scenario Catastrophic rupture
Inventory 39,329.03 kg
Fixed Duration n/a s

Stagnation data (data at upstream end for long pipe):

- Pressure 1.01 bar
- Temperature 25.00 degC
- Fluid State Liquid at atmospheric pressure

CALCULATED QUANTITIES

Mass Flow of Air (Vent from Vapor Space only) n/a
Mass Flowrate n/a kg/s
Release Duration n/a s
Orifice or pipe exit data (before atmospheric expansion):
- Pressure n/a bar
- Temperature n/a degC
- Vena Contracta Velocity (exit velocity for pipe releases) n/a m/s
- Discharge Coefficient n/a
Final data (after atmospheric expansion):
- Temperature 25.00 degC
- Liquid Mass Fraction 1.00 fraction
- Droplet Diameter 10,000.00 um
- Expanded Radius n/a m
- Velocity 0.00 m/s

DISCHARGE DATA for Weather: Global Weathers\Noite

Wind Speed: 2.00 m/s
Wind Speed at Height (Calculated) 0.83 m/s
Pasquill Stability: E

USER-DEFINED QUANTITIES

Material ACETONE
Scenario Catastrophic rupture
Inventory 39,329.03 kg
Fixed Duration n/a s

Stagnation data (data at upstream end for long pipe):

- Pressure 1.01 bar
- Temperature 25.00 degC
- Fluid State Liquid at atmospheric pressure

CALCULATED QUANTITIES

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Mass Flow of Air (Vent from Vapor Space only)	n/a
Mass Flowrate	n/a kg/s
Release Duration	n/a s
Orifice or pipe exit data (before atmospheric expansion):	
- Pressure	n/a bar
- Temperature	n/a degC
- Vena Contracta Velocity (exit velocity for pipe releases)	n/a m/s
- Discharge Coefficient	n/a
Final data (after atmospheric expansion):	
- Temperature	25.00 degC
- Liquid Mass Fraction	1.00 fraction
- Droplet Diameter	10,000.00 um
- Expanded Radius	n/a m
- Velocity	0.00 m/s



Consequence Results

Pool Vaporization Results

Path: \Terminal Adonai - Efeitos físicos\Simulações\H160

N.B. Pool vaporization segments begin when the cloud has left the pool

		Dia	Noite
Liquid Rainout	fraction	0.999999	0.999999
Initial Vapor Cloud	kg	0.0347084	0.0346218
Time Pool Left Behind	s	25.1496	65.7679
Cloud Segment 1			
Cloud Segment Duration	s	44.2225	35.4025
Pool Vaporization Rate	kg/s	9.77259	7.29687
Cloud Segment 2			
Cloud Segment Duration	s	38.5875	28.9981
Pool Vaporization Rate	kg/s	11.1821	8.7752
Cloud Segment 3			
Cloud Segment Duration	s	517.19	535.599
Pool Vaporization Rate	kg/s	7.26354	5.32093
Maximum Pool Radius	m	22.9773	22.9701

Distance to Concentration Results

Path: \Terminal Adonai - Efeitos físicos\Simulações\H160

The height for user defined concentrations is the user defined height 0 m
 All toxic results are reported at the toxic effect height 1 m
 All flammable results are reported at the flammable effect height 0 m

Concentration(ppm)	Averaging Time		Dia	Noite
UFL (128000)	18.75	s	2.67605	2.67743
LFL (26000)	18.75	s	12.2768	13.3038
LFL Frac (26000)	18.75	s	12.2768	13.3038
Concentration(ppm)	Averaging Time		Heights (m) for above distances	
UFL (128000)	18.75	s	Dia	Noite
LFL (26000)	18.75	s	0	0
LFL Frac (26000)	18.75	s	0	0

Late Pool Fire Hazard

Path: \Terminal Adonai - Efeitos físicos\Simulações\H160

	Dia	Noite
Late Pool Fire Status	Hazard	Hazard

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Radiation Effects: Late Pool Fire Ellipse

Path: \Terminal Adonai - Efeitos físicos\Simulações\H160

			Dia	Noite
Radiation Level	9.83	kW/m2	86.9948	84.7391
Radiation Level	19.46	kW/m2	65.9866	62.5028
Radiation Level	35	kW/m2	47.6774	44.0292

Radiation Effects: Late Pool Fire Distance

Path: \Terminal Adonai - Efeitos físicos\Simulações\H160

	Dia	Noite
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Fireball Hazard

Path: \Terminal Adonai - Efeitos físicos\Simulações\H160

	Dia	Noite
Fireball Flame Status	No Hazard	No Hazard

Flash Fire Envelope

Path: \Terminal Adonai - Efeitos físicos\Simulações\H160

All flammable results are reported at the flammable effect height 0 m

			Dia	Noite
Furthest Extent	26000	ppm	12.2768	13.3038
Furthest Extent	26000	ppm	12.2768	13.3038

			Dia	Noite
Furthest Extent	26000	ppm	0	0
Furthest Extent	26000	ppm	0	0

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Explosion Effects: Early Explosion

Path: \Terminal Adonai - Efeitos físicos\Simulações\H160

Early Explosions are assumed to be centered at the release location
Explosion Model Used : TNT

Supplied Flammable Mass			Dia	Noite
		kg	39329	39329
Distance (m) at Overpressure Levels				
			Dia	Noite
Overpressure	0.05	bar	No Hazard	No Hazard
Overpressure	0.1	bar	No Hazard	No Hazard
Overpressure	0.3	bar	No Hazard	No Hazard
Used Mass (kg) at Overpressure Levels				
			Dia	Noite
Overpressure	0.05	bar	0	0
Overpressure	0.1	bar	0	0
Overpressure	0.3	bar	0	0

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Explosion Effects: Late Ignition

Path: \Terminal Adonai - Efeitos físicos\Simulações\H160

Explosion Model Used : TNT

Explosion Location Criterion: Cloud Center

All distances are measured from the Source

All flammable results are reported at the flammable effect height 0 m

			Maximum Distance (m) at Overpressure Level	
			Dia	Noite
Overpressure	0.05	bar	19.3304	9.43362
Overpressure	0.1	bar	13.1864	5.87967
Overpressure	0.3	bar	8.15074	2.96683

			Supplementary Data at 0.05 bar	
			Dia	Noite
Supplied Flammable Mass		kg	1.40229	0.271409
Used Flammable Mass		kg	1.40229	0.271409
Overpressure Radius		m	16.2019	9.37189
Distance to:				
- Ignition Source		m	10	10
- Cloud Front/Centre		m	3.12848	0.0617285
- Explosion Centre		m	3.12848	0.0617285

			Supplementary Data at 0.1 bar	
			Dia	Noite
Supplied Flammable Mass		kg	1.40229	0.271409
Used Flammable Mass		kg	1.40229	0.271409
Overpressure Radius		m	10.0579	5.81794
Distance to:				
- Ignition Source		m	10	10
- Cloud Front/Centre		m	3.12848	0.0617285
- Explosion Centre		m	3.12848	0.0617285

			Supplementary Data at 0.3 bar	
			Dia	Noite
Supplied Flammable Mass		kg	1.40229	0.271409
Used Flammable Mass		kg	1.40229	0.271409
Overpressure Radius		m	5.02226	2.9051
Distance to:				
- Ignition Source		m	10	10
- Cloud Front/Centre		m	3.12848	0.0617285
- Explosion Centre		m	3.12848	0.0617285

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Weather Conditions

Path: \Terminal Adonai - Efeitos físicos\Simulações\H160

		Dia	Noite
Wind Speed	m/s	3	2
Pasquill Stability		C	E
Surface Roughness Length	mm	1000	1000
Surface Roughness Parameter		0.173718	0.173718
Atmospheric Temperature	degC	25	20
Surface Temperature	degC	30	20
Relative Humidity	fraction	0.8	0.8

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

H161

Base Case

CASE Name: Data

Path: \Terminal Adonai - Efeitos físicos\Simulações\H161

User-Defined Data

Material

Material Identifier	BENZENE
Type of Vessel	Unpressurized (at atmospheric pressure)
Pressure Specification	Pressure not used
Temperature	25 degC
Volume Inventory	50 m3

Scenario

Scenario Type	Catastrophic rupture
Phase to be Released	Liquid
Building Wake Effect	None
Tank Head	0 m

Location

Elevation	0 m
Use ERPG averaging time	ERPG not selected
Use IDLH averaging time	IDLH not selected
Use STEL averaging time	STEL not selected
Supply a user defined averaging time	Not supplied

Bund

Status of Bund	Bund present
Bund Area	1940 m2
[Type of Bund Surface	User-Defined (Land)]
Bund Height	3 m
[Bund Failure Modeling	Bund cannot fail]

Indoor/Outdoor

Location of release	Open air release
---------------------	------------------

Flammable

Explosion Method	TNT
Jet Fire Method	Cone Model

Dispersion

Late Ignition Location	No ignition location
Mass Inventory of material to Disperse	4.365E4 kg
Use Burst Pressure	No - Use release pressure for fireball

Fireball Parameters

[Mass Modification Factor	3]
[Calculation method for fireball	DNV Recommended]
[TNO model flame temperature	1727 degC]

Toxic Parameters

[Indoor Calculations	Unselected]
[Wind Dependent Exchange Rate	Case Specified]

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

[Building Exchange Rate	4 /hr]
[Tail Time	1800 s]
[Set averaging time equal to exposure time	Use a fixed averaging time]
[Cut-off fraction of toxic load for exposure time calculation	0.05 fraction]
[Cut-off concentration for exposure time calculations	0 fraction]

Geometry

Shape	Point
Dimension	2D
System	Absolute
East(1)	0 m
North(1)	0 m

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Path: \Terminal Adonai - Efeitos físicos\Simulações\H161

DISCHARGE DATA for Weather: Global Weathers\Dia

Wind Speed: 3.00 m/s
Wind Speed at Height (Calculated) 1.78 m/s
Pasquill Stability: C

USER-DEFINED QUANTITIES

Material BENZENE
Scenario Catastrophic rupture
Inventory 43,650.37 kg
Fixed Duration n/a s

Stagnation data (data at upstream end for long pipe):

- Pressure 1.01 bar
- Temperature 25.00 degC
- Fluid State Liquid at atmospheric pressure

CALCULATED QUANTITIES

Mass Flow of Air (Vent from Vapor Space only) n/a
Mass Flowrate n/a kg/s
Release Duration n/a s
Orifice or pipe exit data (before atmospheric expansion):
- Pressure n/a bar
- Temperature n/a degC
- Vena Contracta Velocity (exit velocity for pipe releases) n/a m/s
- Discharge Coefficient n/a
Final data (after atmospheric expansion):
- Temperature 25.00 degC
- Liquid Mass Fraction 1.00 fraction
- Droplet Diameter 10,000.00 um
- Expanded Radius n/a m
- Velocity 0.00 m/s

DISCHARGE DATA for Weather: Global Weathers\Noite

Wind Speed: 2.00 m/s
Wind Speed at Height (Calculated) 0.83 m/s
Pasquill Stability: E

USER-DEFINED QUANTITIES

Material BENZENE
Scenario Catastrophic rupture
Inventory 43,650.37 kg
Fixed Duration n/a s

Stagnation data (data at upstream end for long pipe):

- Pressure 1.01 bar
- Temperature 25.00 degC
- Fluid State Liquid at atmospheric pressure

CALCULATED QUANTITIES

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Mass Flow of Air (Vent from Vapor Space only)	n/a
Mass Flowrate	n/a kg/s
Release Duration	n/a s
Orifice or pipe exit data (before atmospheric expansion):	
- Pressure	n/a bar
- Temperature	n/a degC
- Vena Contracta Velocity (exit velocity for pipe releases)	n/a m/s
- Discharge Coefficient	n/a
Final data (after atmospheric expansion):	
- Temperature	25.00 degC
- Liquid Mass Fraction	1.00 fraction
- Droplet Diameter	10,000.00 um
- Expanded Radius	n/a m
- Velocity	0.00 m/s



Consequence Results

Pool Vaporization Results

Path: \Terminal Adonai - Efeitos físicos\Simulações\H161

N.B. Pool vaporization segments begin when the cloud has left the pool

		Dia	Noite
Liquid Rainout	fraction	1	1
Initial Vapor Cloud	kg	0.0169465	0.0169042
Time Pool Left Behind	s	23.2555	54.3349

Cloud Segment 1

		Dia	Noite
Cloud Segment Duration	s	600	600
Pool Vaporization Rate	kg/s	4.92717	3.25167
Maximum Pool Radius	m	23.017	23.0032

Distance to Concentration Results

Path: \Terminal Adonai - Efeitos físicos\Simulações\H161

The height for user defined concentrations is the user defined height 0 m

All toxic results are reported at the toxic effect height 1 m

All flammable results are reported at the flammable effect height 0 m

Concentration(ppm)	Averaging Time		Dia	Noite	Distance (m)
UFL (79000)	18.75	s	2.68725		2.68864
LFL (13000)	18.75	s	10.0734		9.71009
LFL Frac (13000)	18.75	s	10.0734		9.71009

Concentration(ppm)	Averaging Time		Dia	Noite	Heights (m) for above distances
UFL (79000)	18.75	s	0		0
LFL (13000)	18.75	s	0		0
LFL Frac (13000)	18.75	s	0		0

Late Pool Fire Hazard

Path: \Terminal Adonai - Efeitos físicos\Simulações\H161

	Dia	Noite
Late Pool Fire Status	Hazard	Hazard

Radiation Effects: Late Pool Fire Ellipse

Path: \Terminal Adonai - Efeitos físicos\Simulações\H161

			Dia	Noite	Distance (m)
Radiation Level	9.83	kW/m2	30.5814		29.1372
Radiation Level	19.46	kW/m2	24.017		24.0032
Radiation Level	35	kW/m2	Not Reached		Not Reached

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Radiation Effects: Late Pool Fire Distance

Path: \Terminal Adonai - Efeitos físicos\Simulações\H161

	Dia	Noite
Radiation Level (kW/m2)		

Fireball Hazard

Path: \Terminal Adonai - Efeitos físicos\Simulações\H161

	Dia	Noite
Fireball Flame Status	No Hazard	No Hazard

Flash Fire Envelope

Path: \Terminal Adonai - Efeitos físicos\Simulações\H161

All flammable results are reported at the flammable effect height 0 m

			Dia	Noite
Furthest Extent	13000	ppm	10.0734	9.71009
Furthest Extent	13000	ppm	10.0734	9.71009

			Dia	Noite
Furthest Extent	13000	ppm	0	0
Furthest Extent	13000	ppm	0	0

Explosion Effects: Early Explosion

Path: \Terminal Adonai - Efeitos físicos\Simulações\H161

Early Explosions are assumed to be centered at the release location
Explosion Model Used : TNT

			Dia	Noite
Supplied Flammable Mass		kg	43650.4	43650.4

			Distance (m) at Overpressure Levels	
			Dia	Noite
Overpressure	0.05	bar	No Hazard	No Hazard
Overpressure	0.1	bar	No Hazard	No Hazard
Overpressure	0.3	bar	No Hazard	No Hazard

			Used Mass (kg) at Overpressure Levels	
			Dia	Noite
Overpressure	0.05	bar	0	0
Overpressure	0.1	bar	0	0
Overpressure	0.3	bar	0	0

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Explosion Effects: Late Ignition

Path: \Terminal Adonai - Efeitos físicos\Simulações\H161

Explosion Model Used : TNT

Explosion Location Criterion: Cloud Center

All distances are measured from the Source

All flammable results are reported at the flammable effect height 0 m

			Maximum Distance (m) at Overpressure Level
			Dia
Overpressure	0.05	bar	16.3714
Overpressure	0.1	bar	12.6468
Overpressure	0.3	bar	9.59411
			Supplementary Data at 0.05 bar
			Dia
Supplied Flammable Mass		kg	0.222275
Used Flammable Mass		kg	0.222275
Overpressure Radius		m	9.82184
Distance to:			
- Ignition Source		m	10
- Cloud Front/Centre		m	6.54954
- Explosion Centre		m	6.54954
			Supplementary Data at 0.1 bar
			Dia
Supplied Flammable Mass		kg	0.222275
Used Flammable Mass		kg	0.222275
Overpressure Radius		m	6.09726
Distance to:			
- Ignition Source		m	10
- Cloud Front/Centre		m	6.54954
- Explosion Centre		m	6.54954
			Supplementary Data at 0.3 bar
			Dia
Supplied Flammable Mass		kg	0.222275
Used Flammable Mass		kg	0.222275
Overpressure Radius		m	3.04458
Distance to:			
- Ignition Source		m	10
- Cloud Front/Centre		m	6.54954
- Explosion Centre		m	6.54954

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Weather Conditions

Path: \Terminal Adonai - Efeitos físicos\Simulações\H161

		Dia	Noite
Wind Speed	m/s	3	2
Pasquill Stability		C	E
Surface Roughness Length	mm	1000	1000
Surface Roughness Parameter		0.173718	0.173718
Atmospheric Temperature	degC	25	20
Surface Temperature	degC	30	20
Relative Humidity	fraction	0.8	0.8

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

H162

Base Case

CASE Name: Data

Path: \Terminal Adonai - Efeitos físicos\Simulações\H162

User-Defined Data

Material

Material Identifier	ETHANOL
Type of Vessel	Unpressurized (at atmospheric pressure)
Pressure Specification	Pressure not used
Temperature	25 degC
Volume Inventory	50 m3

Scenario

Scenario Type	Catastrophic rupture
Phase to be Released	Liquid
Building Wake Effect	None
Tank Head	0 m

Location

Elevation	0 m
Use ERPG averaging time	ERPG not selected
Use IDLH averaging time	IDLH not selected
Use STEL averaging time	STEL not selected
Supply a user defined averaging time	Not supplied

Bund

Status of Bund	Bund present
Bund Area	1940 m2
[Type of Bund Surface	User-Defined (Land)]
Bund Height	3 m
[Bund Failure Modeling	Bund cannot fail]

Indoor/Outdoor

Location of release	Open air release
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Flammable

Explosion Method	TNT
Jet Fire Method	Cone Model

Dispersion

Late Ignition Location	No ignition location
Mass Inventory of material to Disperse	3.929E4 kg
Use Burst Pressure	No - Use release pressure for fireball

Fireball Parameters

[Mass Modification Factor	3]
[Calculation method for fireball	DNV Recommended]
[TNO model flame temperature	1727 degC]

Toxic Parameters

[Indoor Calculations	Unselected]
[Wind Dependent Exchange Rate	Case Specified]

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

[Building Exchange Rate	4 /hr]
[Tail Time	1800 s]
[Set averaging time equal to exposure time	Use a fixed averaging time]
[Cut-off fraction of toxic load for exposure time calculation	0.05 fraction]
[Cut-off concentration for exposure time calculations	0 fraction]

Geometry

Shape	Point
Dimension	2D
System	Absolute
East(1)	0 m
North(1)	0 m

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Path: \Terminal Adonai - Efeitos físicos\Simulações\H162

DISCHARGE DATA for Weather: Global Weathers\Dia

Wind Speed:	3.00 m/s
Wind Speed at Height (Calculated)	1.78 m/s
Pasquill Stability:	C

USER-DEFINED QUANTITIES

Material	ETHANOL
Scenario	Catastrophic rupture
Inventory	39,294.75 kg
Fixed Duration	n/a s

Stagnation data (data at upstream end for long pipe):

- Pressure	1.01 bar
- Temperature	25.00 degC
- Fluid State	Liquid at atmospheric pressure

CALCULATED QUANTITIES

Mass Flow of Air (Vent from Vapor Space only)	n/a
Mass Flowrate	n/a kg/s
Release Duration	n/a s
Orifice or pipe exit data (before atmospheric expansion):	
- Pressure	n/a bar
- Temperature	n/a degC
- Vena Contracta Velocity (exit velocity for pipe releases)	n/a m/s
- Discharge Coefficient	n/a
Final data (after atmospheric expansion):	
- Temperature	25.00 degC
- Liquid Mass Fraction	1.00 fraction
- Droplet Diameter	10,000.00 um
- Expanded Radius	n/a m
- Velocity	0.00 m/s

DISCHARGE DATA for Weather: Global Weathers\Noite

Wind Speed:	2.00 m/s
Wind Speed at Height (Calculated)	0.83 m/s
Pasquill Stability:	E

USER-DEFINED QUANTITIES

Material	ETHANOL
Scenario	Catastrophic rupture
Inventory	39,294.75 kg
Fixed Duration	n/a s

Stagnation data (data at upstream end for long pipe):

- Pressure	1.01 bar
- Temperature	25.00 degC
- Fluid State	Liquid at atmospheric pressure

CALCULATED QUANTITIES

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Mass Flow of Air (Vent from Vapor Space only)	n/a
Mass Flowrate	n/a kg/s
Release Duration	n/a s
Orifice or pipe exit data (before atmospheric expansion):	
- Pressure	n/a bar
- Temperature	n/a degC
- Vena Contracta Velocity (exit velocity for pipe releases)	n/a m/s
- Discharge Coefficient	n/a
Final data (after atmospheric expansion):	
- Temperature	25.00 degC
- Liquid Mass Fraction	1.00 fraction
- Droplet Diameter	10,000.00 um
- Expanded Radius	n/a m
- Velocity	0.00 m/s

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Consequence Results

Pool Vaporization Results

Path: \Terminal Adonai - Efeitos físicos\Simulações\H162

N.B. Pool vaporization segments begin when the cloud has left the pool

		Dia	Noite
Liquid Rainout	fraction	1	1
Initial Vapor Cloud	kg	0.0053556	0.00534223
Time Pool Left Behind	s	17.1665	44.2538
Cloud Segment 1			
Cloud Segment Duration	s	36	600
Pool Vaporization Rate	kg/s	1.84916	1.40381
Cloud Segment 2			
Cloud Segment Duration	s	564	
Pool Vaporization Rate	kg/s	2.2254	
Maximum Pool Radius	m	23.0274	23.0149

Distance to Concentration Results

Path: \Terminal Adonai - Efeitos físicos\Simulações\H162

The height for user defined concentrations is the user defined height 0 m

All toxic results are reported at the toxic effect height 1 m

All flammable results are reported at the flammable effect height 0 m

Concentration(ppm)	Averaging Time		Dia	Noite
UFL (190000)	18.75	s	2.66448	2.66586
LFL (43000)	18.75	s	2.69866	2.70005
LFL Frac (43000)	18.75	s	2.69866	2.70005
Concentration(ppm)	Averaging Time		Dia	Noite
UFL (190000)	18.75	s	0	0
LFL (43000)	18.75	s	0	0
LFL Frac (43000)	18.75	s	0	0

Late Pool Fire Hazard

Path: \Terminal Adonai - Efeitos físicos\Simulações\H162

	Dia	Noite
Late Pool Fire Status	Hazard	Hazard

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Radiation Effects: Late Pool Fire Ellipse

Path: \Terminal Adonai - Efeitos físicos\Simulações\H162

			Dia	Noite
Radiation Level	9.83	kW/m2	63.4776	61.8613
Radiation Level	19.46	kW/m2	48.4825	45.9436
Radiation Level	35	kW/m2	31.9885	24.8199

Radiation Effects: Late Pool Fire Distance

Path: \Terminal Adonai - Efeitos físicos\Simulações\H162

	Dia	Noite
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Fireball Hazard

Path: \Terminal Adonai - Efeitos físicos\Simulações\H162

	Dia	Noite
Fireball Flame Status	No Hazard	No Hazard

Flash Fire Envelope

Path: \Terminal Adonai - Efeitos físicos\Simulações\H162

All flammable results are reported at the flammable effect height 0 m

			Dia	Noite
Furthest Extent	43000	ppm	2.69866	2.70005
Furthest Extent	43000	ppm	2.69866	2.70005

			Dia	Noite
Furthest Extent	43000	ppm	0	0
Furthest Extent	43000	ppm	0	0

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Explosion Effects: Early Explosion

Path: \Terminal Adonai - Efeitos físicos\Simulações\H162

Early Explosions are assumed to be centered at the release location
Explosion Model Used : TNT

			Dia	Noite
Supplied Flammable Mass		kg	39294.7	39294.7
Distance (m) at Overpressure Levels				
			Dia	Noite
Overpressure	0.05	bar	No Hazard	No Hazard
Overpressure	0.1	bar	No Hazard	No Hazard
Overpressure	0.3	bar	No Hazard	No Hazard
Used Mass (kg) at Overpressure Levels				
			Dia	Noite
Overpressure	0.05	bar	0	0
Overpressure	0.1	bar	0	0
Overpressure	0.3	bar	0	0

Weather Conditions

Path: \Terminal Adonai - Efeitos físicos\Simulações\H162

		Dia	Noite
Wind Speed	m/s	3	2
Pasquill Stability		C	E
Surface Roughness Length	mm	1000	1000
Surface Roughness Parameter		0.173718	0.173718
Atmospheric Temperature	degC	25	20
Surface Temperature	degC	30	20
Relative Humidity	fraction	0.8	0.8

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

H163

Base Case

CASE Name: Data

Path: \Terminal Adonai - Efeitos físicos\Simulações\H163

User-Defined Data

Material

Material Identifier	METHANOL
Type of Vessel	Unpressurized (at atmospheric pressure)
Pressure Specification	Pressure not used
Temperature	25 degC
Volume Inventory	50 m3

Scenario

Scenario Type	Catastrophic rupture
Phase to be Released	Liquid
Building Wake Effect	None
Tank Head	0 m

Location

Elevation	0 m
Use ERPG averaging time	ERPG not selected
Use IDLH averaging time	IDLH not selected
Use STEL averaging time	STEL not selected
Supply a user defined averaging time	Not supplied

Bund

Status of Bund	Bund present
Bund Area	1940 m2
[Type of Bund Surface	User-Defined (Land)]
Bund Height	3 m
[Bund Failure Modeling	Bund cannot fail]

Indoor/Outdoor

Location of release	Open air release
---------------------	------------------

Flammable

Explosion Method	TNT
Jet Fire Method	Cone Model

Dispersion

Late Ignition Location	No ignition location
Mass Inventory of material to Disperse	3.948E4 kg
Use Burst Pressure	No - Use release pressure for fireball

Fireball Parameters

[Mass Modification Factor	3]
[Calculation method for fireball	DNV Recommended]
[TNO model flame temperature	1727 degC]

Toxic Parameters

[Indoor Calculations	Unselected]
[Wind Dependent Exchange Rate	Case Specified]

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

[Building Exchange Rate	4 /hr]
[Tail Time	1800 s]
[Set averaging time equal to exposure time	Use a fixed averaging time]
[Cut-off fraction of toxic load for exposure time calculation	0.05 fraction]
[Cut-off concentration for exposure time calculations	0 fraction]

Geometry

Shape	Point
Dimension	2D
System	Absolute
East(1)	0 m
North(1)	0 m

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Path: \Terminal Adonai - Efeitos físicos\Simulações\H163

DISCHARGE DATA for Weather: Global Weathers\Dia

Wind Speed: 3.00 m/s
Wind Speed at Height (Calculated) 1.78 m/s
Pasquill Stability: C

USER-DEFINED QUANTITIES

Material METHANOL
Scenario Catastrophic rupture
Inventory 39,480.87 kg
Fixed Duration n/a s

Stagnation data (data at upstream end for long pipe):

- Pressure 1.01 bar
- Temperature 25.00 degC
- Fluid State Liquid at atmospheric pressure

CALCULATED QUANTITIES

Mass Flow of Air (Vent from Vapor Space only) n/a
Mass Flowrate n/a kg/s
Release Duration n/a s
Orifice or pipe exit data (before atmospheric expansion):
- Pressure n/a bar
- Temperature n/a degC
- Vena Contracta Velocity (exit velocity for pipe releases) n/a m/s
- Discharge Coefficient n/a
Final data (after atmospheric expansion):
- Temperature 25.00 degC
- Liquid Mass Fraction 1.00 fraction
- Droplet Diameter 10,000.00 um
- Expanded Radius n/a m
- Velocity 0.00 m/s

DISCHARGE DATA for Weather: Global Weathers\Noite

Wind Speed: 2.00 m/s
Wind Speed at Height (Calculated) 0.83 m/s
Pasquill Stability: E

USER-DEFINED QUANTITIES

Material METHANOL
Scenario Catastrophic rupture
Inventory 39,480.87 kg
Fixed Duration n/a s

Stagnation data (data at upstream end for long pipe):

- Pressure 1.01 bar
- Temperature 25.00 degC
- Fluid State Liquid at atmospheric pressure

CALCULATED QUANTITIES

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Mass Flow of Air (Vent from Vapor Space only)	n/a
Mass Flowrate	n/a kg/s
Release Duration	n/a s
Orifice or pipe exit data (before atmospheric expansion):	
- Pressure	n/a bar
- Temperature	n/a degC
- Vena Contracta Velocity (exit velocity for pipe releases)	n/a m/s
- Discharge Coefficient	n/a
Final data (after atmospheric expansion):	
- Temperature	25.00 degC
- Liquid Mass Fraction	1.00 fraction
- Droplet Diameter	10,000.00 um
- Expanded Radius	n/a m
- Velocity	0.00 m/s



Consequence Results

Pool Vaporization Results

Path: \Terminal Adonai - Efeitos físicos\Simulações\H163

N.B. Pool vaporization segments begin when the cloud has left the pool

		Dia	Noite
Liquid Rainout	fraction	1	1
Initial Vapor Cloud	kg	0.00878411	0.00876219
Time Pool Left Behind	s	19.9557	50.143

Cloud Segment 1

		Dia	Noite
Cloud Segment Duration	s	600	600
Pool Vaporization Rate	kg/s	3.05409	2.13865
Maximum Pool Radius	m	23.0145	23.0042

Distance to Concentration Results

Path: \Terminal Adonai - Efeitos físicos\Simulações\H163

The height for user defined concentrations is the user defined height 0 m

All toxic results are reported at the toxic effect height 1 m

All flammable results are reported at the flammable effect height 0 m

Concentration(ppm)	Averaging Time		Dia	Noite	Distance (m)
UFL (360000)	18.75	s	2.63886	2.64023	
LFL (73000)	18.75	s	4.83305	17.9859	
LFL Frac (73000)	18.75	s	4.83305	17.9859	
Concentration(ppm)	Averaging Time		Dia	Noite	Heights (m) for above distances
UFL (360000)	18.75	s	0	0	
LFL (73000)	18.75	s	0	0	
LFL Frac (73000)	18.75	s	0	0	

Late Pool Fire Hazard

Path: \Terminal Adonai - Efeitos físicos\Simulações\H163

	Dia	Noite
Late Pool Fire Status	Hazard	Hazard

Radiation Effects: Late Pool Fire Ellipse

Path: \Terminal Adonai - Efeitos físicos\Simulações\H163

			Dia	Noite	Distance (m)
Radiation Level	9.83	kW/m2	46.0553	44.4457	
Radiation Level	19.46	kW/m2	32.0043	30.491	
Radiation Level	35	kW/m2	24.0145	24.0042	

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Radiation Effects: Late Pool Fire Distance

Path: \Terminal Adonai - Efeitos físicos\Simulações\H163

	Dia	Noite
Radiation Level (kW/m2)		

Fireball Hazard

Path: \Terminal Adonai - Efeitos físicos\Simulações\H163

	Dia	Noite
Fireball Flame Status	No Hazard	No Hazard

Flash Fire Envelope

Path: \Terminal Adonai - Efeitos físicos\Simulações\H163

All flammable results are reported at the flammable effect height 0 m

			Dia	Noite
Furthest Extent	73000	ppm	4.83305	17.9859
Furthest Extent	73000	ppm	4.83305	17.9859
				Heights (m) for above distances
			Dia	Noite
Furthest Extent	73000	ppm	0	0
Furthest Extent	73000	ppm	0	0

Explosion Effects: Early Explosion

Path: \Terminal Adonai - Efeitos físicos\Simulações\H163

Early Explosions are assumed to be centered at the release location
Explosion Model Used : TNT

			Dia	Noite
Supplied Flammable Mass		kg	39480.9	39480.9
				Distance (m) at Overpressure Levels
			Dia	Noite
Overpressure	0.05	bar	No Hazard	No Hazard
Overpressure	0.1	bar	No Hazard	No Hazard
Overpressure	0.3	bar	No Hazard	No Hazard
				Used Mass (kg) at Overpressure Levels
			Dia	Noite
Overpressure	0.05	bar	0	0
Overpressure	0.1	bar	0	0
Overpressure	0.3	bar	0	0

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Explosion Effects: Late Ignition

Path: \Terminal Adonai - Efeitos físicos\Simulações\H163

Explosion Model Used : TNT

Explosion Location Criterion: Cloud Center

All distances are measured from the Source

All flammable results are reported at the flammable effect height 0 m

			Maximum Distance (m) at Overpressure Level
			Noite
Overpressure	0.05	bar	5.34926
Overpressure	0.1	bar	3.33488
Overpressure	0.3	bar	1.68389
			Supplementary Data at 0.05 bar
			Noite
Supplied Flammable Mass		kg	0.0708761
Used Flammable Mass		kg	0.0708761
Overpressure Radius		m	5.31199
Distance to:			
- Ignition Source		m	10
- Cloud Front/Centre		m	0.0372724
- Explosion Centre		m	0.0372724
			Supplementary Data at 0.1 bar
			Noite
Supplied Flammable Mass		kg	0.0708761
Used Flammable Mass		kg	0.0708761
Overpressure Radius		m	3.29761
Distance to:			
- Ignition Source		m	10
- Cloud Front/Centre		m	0.0372724
- Explosion Centre		m	0.0372724
			Supplementary Data at 0.3 bar
			Noite
Supplied Flammable Mass		kg	0.0708761
Used Flammable Mass		kg	0.0708761
Overpressure Radius		m	1.64661
Distance to:			
- Ignition Source		m	10
- Cloud Front/Centre		m	0.0372724
- Explosion Centre		m	0.0372724

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Weather Conditions

Path: \Terminal Adonai - Efeitos físicos\Simulações\H163

		Dia	Noite
Wind Speed	m/s	3	2
Pasquill Stability		C	E
Surface Roughness Length	mm	1000	1000
Surface Roughness Parameter		0.173718	0.173718
Atmospheric Temperature	degC	25	20
Surface Temperature	degC	30	20
Relative Humidity	fraction	0.8	0.8

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

H164

Base Case

CASE Name: Data

Path: \Terminal Adonai - Efeitos físicos\Simulações\H164

User-Defined Data

Material

Material Identifier	N-HEXANE
Type of Vessel	Unpressurized (at atmospheric pressure)
Pressure Specification	Pressure not used
Temperature	25 degC
Volume Inventory	50 m3

Scenario

Scenario Type	Catastrophic rupture
Phase to be Released	Liquid
Building Wake Effect	None
Tank Head	0 m

Location

Elevation	0 m
Use ERPG averaging time	ERPG not selected
Use IDLH averaging time	IDLH not selected
Use STEL averaging time	STEL not selected
Supply a user defined averaging time	Not supplied

Bund

Status of Bund	Bund present
Bund Area	1940 m2
[Type of Bund Surface	User-Defined (Land)]
Bund Height	3 m
[Bund Failure Modeling	Bund cannot fail]

Indoor/Outdoor

Location of release	Open air release
---------------------	------------------

Flammable

Explosion Method	TNT
Jet Fire Method	Cone Model

Dispersion

Late Ignition Location	No ignition location
Mass Inventory of material to Disperse	3.28E4 kg
Use Burst Pressure	No - Use release pressure for fireball

Fireball Parameters

[Mass Modification Factor	3]
[Calculation method for fireball	DNV Recommended]
[TNO model flame temperature	1727 degC]

Toxic Parameters

[Indoor Calculations	Unselected]
[Wind Dependent Exchange Rate	Case Specified]

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

[Building Exchange Rate	4 /hr]
[Tail Time	1800 s]
[Set averaging time equal to exposure time	Use a fixed averaging time]
[Cut-off fraction of toxic load for exposure time calculation	0.05 fraction]
[Cut-off concentration for exposure time calculations	0 fraction]

Geometry

Shape	Point
Dimension	2D
System	Absolute
East(1)	0 m
North(1)	0 m

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Path: \Terminal Adonai - Efeitos físicos\Simulações\H164

DISCHARGE DATA for Weather: Global Weathers\Dia

Wind Speed: 3.00 m/s
Wind Speed at Height (Calculated) 1.78 m/s
Pasquill Stability: C

USER-DEFINED QUANTITIES

Material N-HEXANE
Scenario Catastrophic rupture
Inventory 32,801.31 kg
Fixed Duration n/a s

Stagnation data (data at upstream end for long pipe):

- Pressure 1.01 bar
- Temperature 25.00 degC
- Fluid State Liquid at atmospheric pressure

CALCULATED QUANTITIES

Mass Flow of Air (Vent from Vapor Space only) n/a
Mass Flowrate n/a kg/s
Release Duration n/a s
Orifice or pipe exit data (before atmospheric expansion):
- Pressure n/a bar
- Temperature n/a degC
- Vena Contracta Velocity (exit velocity for pipe releases) n/a m/s
- Discharge Coefficient n/a
Final data (after atmospheric expansion):
- Temperature 25.00 degC
- Liquid Mass Fraction 1.00 fraction
- Droplet Diameter 10,000.00 um
- Expanded Radius n/a m
- Velocity 0.00 m/s

DISCHARGE DATA for Weather: Global Weathers\Noite

Wind Speed: 2.00 m/s
Wind Speed at Height (Calculated) 0.83 m/s
Pasquill Stability: E

USER-DEFINED QUANTITIES

Material N-HEXANE
Scenario Catastrophic rupture
Inventory 32,801.31 kg
Fixed Duration n/a s

Stagnation data (data at upstream end for long pipe):

- Pressure 1.01 bar
- Temperature 25.00 degC
- Fluid State Liquid at atmospheric pressure

CALCULATED QUANTITIES

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Mass Flow of Air (Vent from Vapor Space only)	n/a
Mass Flowrate	n/a kg/s
Release Duration	n/a s
Orifice or pipe exit data (before atmospheric expansion):	
- Pressure	n/a bar
- Temperature	n/a degC
- Vena Contracta Velocity (exit velocity for pipe releases)	n/a m/s
- Discharge Coefficient	n/a
Final data (after atmospheric expansion):	
- Temperature	25.00 degC
- Liquid Mass Fraction	1.00 fraction
- Droplet Diameter	10,000.00 um
- Expanded Radius	n/a m
- Velocity	0.00 m/s



Consequence Results

Pool Vaporization Results

Path: \Terminal Adonai - Efeitos físicos\Simulações\H164

N.B. Pool vaporization segments begin when the cloud has left the pool

		Dia	Noite
Liquid Rainout	fraction	0.999999	0.999999
Initial Vapor Cloud	kg	0.0246441	0.0245826
Time Pool Left Behind	s	26.3135	62.7392

Cloud Segment 1

		Dia	Noite
Cloud Segment Duration	s	600	600
Pool Vaporization Rate	kg/s	7.17383	4.92265
Maximum Pool Radius	m	22.9904	22.9783

Distance to Concentration Results

Path: \Terminal Adonai - Efeitos físicos\Simulações\H164

The height for user defined concentrations is the user defined height 0 m

All toxic results are reported at the toxic effect height 1 m

All flammable results are reported at the flammable effect height 0 m

Concentration(ppm)	Averaging Time		Dia	Noite	Distance (m)
UFL (76800)	18.75	s	2.68764	2.68904	
LFL (10500)	18.75	s	20.52	16.5843	
LFL Frac (10500)	18.75	s	20.52	16.5843	

Concentration(ppm)	Averaging Time		Dia	Noite	Heights (m) for above distances
UFL (76800)	18.75	s	0	0	
LFL (10500)	18.75	s	0	0	
LFL Frac (10500)	18.75	s	0	0	

Late Pool Fire Hazard

Path: \Terminal Adonai - Efeitos físicos\Simulações\H164

	Dia	Noite
Late Pool Fire Status	Hazard	Hazard

Radiation Effects: Late Pool Fire Ellipse

Path: \Terminal Adonai - Efeitos físicos\Simulações\H164

			Dia	Noite	Distance (m)
Radiation Level	9.83	kW/m2	30.5647	29.1181	
Radiation Level	19.46	kW/m2	23.9904	23.9783	
Radiation Level	35	kW/m2	Not Reached	Not Reached	

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Radiation Effects: Late Pool Fire Distance

Path: \Terminal Adonai - Efeitos físicos\Simulações\H164

	Dia	Noite
Radiation Level (kW/m2)		

Fireball Hazard

Path: \Terminal Adonai - Efeitos físicos\Simulações\H164

	Dia	Noite
Fireball Flame Status	No Hazard	No Hazard

Flash Fire Envelope

Path: \Terminal Adonai - Efeitos físicos\Simulações\H164

All flammable results are reported at the flammable effect height 0 m

			Dia	Noite
Furthest Extent	10500	ppm	20.52	16.5843
Furthest Extent	10500	ppm	20.52	16.5843

			Dia	Noite
Furthest Extent	10500	ppm	0	0
Furthest Extent	10500	ppm	0	0

Explosion Effects: Early Explosion

Path: \Terminal Adonai - Efeitos físicos\Simulações\H164

Early Explosions are assumed to be centered at the release location
Explosion Model Used : TNT

			Dia	Noite
Supplied Flammable Mass		kg	32801.3	32801.3

			Distance (m) at Overpressure Levels	
			Dia	Noite
Overpressure	0.05	bar	No Hazard	No Hazard
Overpressure	0.1	bar	No Hazard	No Hazard
Overpressure	0.3	bar	No Hazard	No Hazard

			Used Mass (kg) at Overpressure Levels	
			Dia	Noite
Overpressure	0.05	bar	0	0
Overpressure	0.1	bar	0	0
Overpressure	0.3	bar	0	0

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Explosion Effects: Late Ignition

Path: \Terminal Adonai - Efeitos físicos\Simulações\H164

Explosion Model Used : TNT

Explosion Location Criterion: Cloud Center

All distances are measured from the Source

All flammable results are reported at the flammable effect height 0 m

			Maximum Distance (m) at Overpressure Level	
			Dia	Noite
Overpressure	0.05	bar	33.8011	9.72663
Overpressure	0.1	bar	26.2683	6.05997
Overpressure	0.3	bar	20.0944	3.05476

			Supplementary Data at 0.05 bar	
			Dia	Noite
Supplied Flammable Mass		kg	1.65021	0.190317
Used Flammable Mass		kg	1.65021	0.190317
Overpressure Radius		m	19.8643	9.6691
Distance to:				
- Ignition Source		m	20	10
- Cloud Front/Centre		m	13.9368	0.0575283
- Explosion Centre		m	13.9368	0.0575283

			Supplementary Data at 0.1 bar	
			Dia	Noite
Supplied Flammable Mass		kg	1.65021	0.190317
Used Flammable Mass		kg	1.65021	0.190317
Overpressure Radius		m	12.3315	6.00244
Distance to:				
- Ignition Source		m	20	10
- Cloud Front/Centre		m	13.9368	0.0575283
- Explosion Centre		m	13.9368	0.0575283

			Supplementary Data at 0.3 bar	
			Dia	Noite
Supplied Flammable Mass		kg	1.65021	0.190317
Used Flammable Mass		kg	1.65021	0.190317
Overpressure Radius		m	6.15754	2.99723
Distance to:				
- Ignition Source		m	20	10
- Cloud Front/Centre		m	13.9368	0.0575283
- Explosion Centre		m	13.9368	0.0575283

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Weather Conditions

Path: \Terminal Adonai - Efeitos físicos\Simulações\H164

		Dia	Noite
Wind Speed	m/s	3	2
Pasquill Stability		C	E
Surface Roughness Length	mm	1000	1000
Surface Roughness Parameter		0.173718	0.173718
Atmospheric Temperature	degC	25	20
Surface Temperature	degC	30	20
Relative Humidity	fraction	0.8	0.8

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

H165

Base Case

CASE Name: Data

Path: \Terminal Adonai - Efeitos físicos\Simulações\H165

User-Defined Data

Material

Material Identifier	N-NONANE
Type of Vessel	Unpressurized (at atmospheric pressure)
Pressure Specification	Pressure not used
Temperature	25 degC
Volume Inventory	50 m3

Scenario

Scenario Type	Catastrophic rupture
Phase to be Released	Liquid
Building Wake Effect	None
Tank Head	0 m

Location

Elevation	0 m
Use ERPG averaging time	ERPG not selected
Use IDLH averaging time	IDLH not selected
Use STEL averaging time	STEL not selected
Supply a user defined averaging time	Not supplied

Bund

Status of Bund	Bund present
Bund Area	1940 m2
[Type of Bund Surface	User-Defined (Land)]
Bund Height	3 m
[Bund Failure Modeling	Bund cannot fail]

Indoor/Outdoor

Location of release	Open air release
---------------------	------------------

Flammable

Explosion Method	TNT
Jet Fire Method	Cone Model

Dispersion

Late Ignition Location	No ignition location
Mass Inventory of material to Disperse	3.571E4 kg
Use Burst Pressure	No - Use release pressure for fireball

Fireball Parameters

[Mass Modification Factor	3]
[Calculation method for fireball	DNV Recommended]
[TNO model flame temperature	1727 degC]

Toxic Parameters

[Indoor Calculations	Unselected]
[Wind Dependent Exchange Rate	Case Specified]

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

[Building Exchange Rate	4 /hr]
[Tail Time	1800 s]
[Set averaging time equal to exposure time	Use a fixed averaging time]
[Cut-off fraction of toxic load for exposure time calculation	0.05 fraction]
[Cut-off concentration for exposure time calculations	0 fraction]

Geometry

Shape	Point
Dimension	2D
System	Absolute
East(1)	0 m
North(1)	0 m

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Path: \Terminal Adonai - Efeitos físicos\Simulações\H165

DISCHARGE DATA for Weather: Global Weathers\Dia

Wind Speed: 3.00 m/s
Wind Speed at Height (Calculated) 1.78 m/s
Pasquill Stability: C

USER-DEFINED QUANTITIES

Material N-NONANE
Scenario Catastrophic rupture
Inventory 35,714.63 kg
Fixed Duration n/a s

Stagnation data (data at upstream end for long pipe):

- Pressure 1.01 bar
- Temperature 25.00 degC
- Fluid State Liquid at atmospheric pressure

CALCULATED QUANTITIES

Mass Flow of Air (Vent from Vapor Space only) n/a
Mass Flowrate n/a kg/s
Release Duration n/a s
Orifice or pipe exit data (before atmospheric expansion):
- Pressure n/a bar
- Temperature n/a degC
- Vena Contracta Velocity (exit velocity for pipe releases) n/a m/s
- Discharge Coefficient n/a
Final data (after atmospheric expansion):
- Temperature 25.00 degC
- Liquid Mass Fraction 1.00 fraction
- Droplet Diameter 10,000.00 um
- Expanded Radius n/a m
- Velocity 0.00 m/s

DISCHARGE DATA for Weather: Global Weathers\Noite

Wind Speed: 2.00 m/s
Wind Speed at Height (Calculated) 0.83 m/s
Pasquill Stability: E

USER-DEFINED QUANTITIES

Material N-NONANE
Scenario Catastrophic rupture
Inventory 35,714.63 kg
Fixed Duration n/a s

Stagnation data (data at upstream end for long pipe):

- Pressure 1.01 bar
- Temperature 25.00 degC
- Fluid State Liquid at atmospheric pressure

CALCULATED QUANTITIES

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Mass Flow of Air (Vent from Vapor Space only)	n/a
Mass Flowrate	n/a kg/s
Release Duration	n/a s
Orifice or pipe exit data (before atmospheric expansion):	
- Pressure	n/a bar
- Temperature	n/a degC
- Vena Contracta Velocity (exit velocity for pipe releases)	n/a m/s
- Discharge Coefficient	n/a
Final data (after atmospheric expansion):	
- Temperature	25.00 degC
- Liquid Mass Fraction	1.00 fraction
- Droplet Diameter	10,000.00 um
- Expanded Radius	n/a m
- Velocity	0.00 m/s



Consequence Results

Pool Vaporization Results

Path: \Terminal Adonai - Efeitos físicos\Simulações\H165

N.B. Pool vaporization segments begin when the cloud has left the pool

		Dia	Noite
Liquid Rainout	fraction	1	1
Initial Vapor Cloud	kg	0.00092019	0.000917894
Time Pool Left Behind	s	16.4383	39.169
Cloud Segment 1			
Cloud Segment Duration	s	79.6556	600
Pool Vaporization Rate	kg/s	0.290729	0.206718
Cloud Segment 2			
Cloud Segment Duration	s	471.42	
Pool Vaporization Rate	kg/s	0.394814	
Cloud Segment 3			
Cloud Segment Duration	s	48.9244	
Pool Vaporization Rate	kg/s	0.434891	
Maximum Pool Radius	m	23.0547	23.0239

Distance to Concentration Results

Path: \Terminal Adonai - Efeitos físicos\Simulações\H165

The height for user defined concentrations is the user defined height 0 m
 All toxic results are reported at the toxic effect height 1 m
 All flammable results are reported at the flammable effect height 0 m

Concentration(ppm)	Averaging Time		Dia	Noite
UFL (56000)	18.75	s	2.69382	2.69521
LFL (7000)	18.75	s	2.72315	2.72456
LFL Frac (7000)	18.75	s	2.72315	2.72456
Concentration(ppm)	Averaging Time		Dia	Noite
UFL (56000)	18.75	s	0	0
LFL (7000)	18.75	s	0	0
LFL Frac (7000)	18.75	s	0	0

Late Pool Fire Hazard

Path: \Terminal Adonai - Efeitos físicos\Simulações\H165

	Dia	Noite
Late Pool Fire Status	Hazard	Hazard

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Radiation Effects: Late Pool Fire Ellipse

Path: \Terminal Adonai - Efeitos físicos\Simulações\H165

			Distance (m)	
			Dia	Noite
Radiation Level	9.83	kW/m2	30.6186	29.1538
Radiation Level	19.46	kW/m2	24.0547	24.0239
Radiation Level	35	kW/m2	Not Reached	Not Reached

Radiation Effects: Late Pool Fire Distance

Path: \Terminal Adonai - Efeitos físicos\Simulações\H165

	Radiation Level (kW/m2)	
	Dia	Noite

Fireball Hazard

Path: \Terminal Adonai - Efeitos físicos\Simulações\H165

	Dia	Noite
Fireball Flame Status	No Hazard	No Hazard

Flash Fire Envelope

Path: \Terminal Adonai - Efeitos físicos\Simulações\H165

All flammable results are reported at the flammable effect height 0 m

			Distance (m)	
			Dia	Noite
Furthest Extent	7000	ppm	2.72315	2.72456
Furthest Extent	7000	ppm	2.72315	2.72456

			Heights (m) for above distances	
			Dia	Noite
Furthest Extent	7000	ppm	0	0
Furthest Extent	7000	ppm	0	0

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Explosion Effects: Early Explosion

Path: \Terminal Adonai - Efeitos físicos\Simulações\H165

Early Explosions are assumed to be centered at the release location
Explosion Model Used : TNT

			Dia	Noite
Supplied Flammable Mass		kg	35714.6	35714.6
Distance (m) at Overpressure Levels				
			Dia	Noite
Overpressure	0.05	bar	No Hazard	No Hazard
Overpressure	0.1	bar	No Hazard	No Hazard
Overpressure	0.3	bar	No Hazard	No Hazard
Used Mass (kg) at Overpressure Levels				
			Dia	Noite
Overpressure	0.05	bar	0	0
Overpressure	0.1	bar	0	0
Overpressure	0.3	bar	0	0

Weather Conditions

Path: \Terminal Adonai - Efeitos físicos\Simulações\H165

		Dia	Noite
Wind Speed	m/s	3	2
Pasquill Stability		C	E
Surface Roughness Length	mm	1000	1000
Surface Roughness Parameter		0.173718	0.173718
Atmospheric Temperature	degC	25	20
Surface Temperature	degC	30	20
Relative Humidity	fraction	0.8	0.8

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

H166

Base Case

CASE Name: Data

Path: \Terminal Adonai - Efeitos físicos\Simulações\H166

User-Defined Data

Material

Material Identifier	N-PENTANE
Type of Vessel	Unpressurized (at atmospheric pressure)
Pressure Specification	Pressure not used
Temperature	25 degC
Volume Inventory	50 m3

Scenario

Scenario Type	Catastrophic rupture
Phase to be Released	Liquid
Building Wake Effect	None
Tank Head	0 m

Location

Elevation	0 m
Use ERPG averaging time	ERPG not selected
Use IDLH averaging time	IDLH not selected
Use STEL averaging time	STEL not selected
Supply a user defined averaging time	Not supplied

Bund

Status of Bund	No bund present
[Type of Bund Surface	User-Defined (Land)]
Bund Height	3 m
[Bund Failure Modeling	Bund cannot fail]

Indoor/Outdoor

Location of release	Open air release
---------------------	------------------

Flammable

Explosion Method	TNT
Jet Fire Method	Cone Model

Dispersion

Late Ignition Location	No ignition location
Mass Inventory of material to Disperse	3.109E4 kg
Use Burst Pressure	No - Use release pressure for fireball

Fireball Parameters

[Mass Modification Factor	3]
[Calculation method for fireball	DNV Recommended]
[TNO model flame temperature	1727 degC]

Toxic Parameters

[Indoor Calculations	Unselected]
[Wind Dependent Exchange Rate	Case Specified]
[Building Exchange Rate	4 /hr]

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

[Tail Time	1800 s]
[Set averaging time equal to exposure time	Use a fixed averaging time]
[Cut-off fraction of toxic load for exposure time calculation	0.05 fraction]
[Cut-off concentration for exposure time calculations	0 fraction]

Geometry

Shape	Point
Dimension	2D
System	Absolute
East(1)	0 m
North(1)	0 m

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Path: \Terminal Adonai - Efeitos físicos\Simulações\H166

DISCHARGE DATA for Weather: Global Weathers\Dia

Wind Speed: 3.00 m/s
Wind Speed at Height (Calculated) 1.78 m/s
Pasquill Stability: C

USER-DEFINED QUANTITIES

Material N-PENTANE
Scenario Catastrophic rupture
Inventory 31,087.17 kg
Fixed Duration n/a s

Stagnation data (data at upstream end for long pipe):

- Pressure 1.01 bar
- Temperature 25.00 degC
- Fluid State Liquid at atmospheric pressure

CALCULATED QUANTITIES

Mass Flow of Air (Vent from Vapor Space only) n/a
Mass Flowrate n/a kg/s
Release Duration n/a s
Orifice or pipe exit data (before atmospheric expansion):
- Pressure n/a bar
- Temperature n/a degC
- Vena Contracta Velocity (exit velocity for pipe releases) n/a m/s
- Discharge Coefficient n/a
Final data (after atmospheric expansion):
- Temperature 25.00 degC
- Liquid Mass Fraction 1.00 fraction
- Droplet Diameter 10,000.00 um
- Expanded Radius n/a m
- Velocity 0.00 m/s

DISCHARGE DATA for Weather: Global Weathers\Noite

Wind Speed: 2.00 m/s
Wind Speed at Height (Calculated) 0.83 m/s
Pasquill Stability: E

USER-DEFINED QUANTITIES

Material N-PENTANE
Scenario Catastrophic rupture
Inventory 31,087.17 kg
Fixed Duration n/a s

Stagnation data (data at upstream end for long pipe):

- Pressure 1.01 bar
- Temperature 25.00 degC
- Fluid State Liquid at atmospheric pressure

CALCULATED QUANTITIES

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Mass Flow of Air (Vent from Vapor Space only)	n/a
Mass Flowrate	n/a kg/s
Release Duration	n/a s
Orifice or pipe exit data (before atmospheric expansion):	
- Pressure	n/a bar
- Temperature	n/a degC
- Vena Contracta Velocity (exit velocity for pipe releases)	n/a m/s
- Discharge Coefficient	n/a
Final data (after atmospheric expansion):	
- Temperature	25.00 degC
- Liquid Mass Fraction	1.00 fraction
- Droplet Diameter	10,000.00 um
- Expanded Radius	n/a m
- Velocity	0.00 m/s

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Consequence Results

Pool Vaporization Results

Path: \Terminal Adonai - Efeitos físicos\Simulações\H166

N.B. Pool vaporization segments begin when the cloud has left the pool

		Dia	Noite
Liquid Rainout	fraction	0.999995	0.999995
Initial Vapor Cloud	kg	0.162468	0.162063
Time Pool Left Behind	s	37.0582	114.257
Cloud Segment 1			
Cloud Segment Duration	s	25	25
Pool Vaporization Rate	kg/s	25.6947	20.4044
Cloud Segment 2			
Cloud Segment Duration	s	18.8906	19.5556
Pool Vaporization Rate	kg/s	33.6171	26.0268
Cloud Segment 3			
Cloud Segment Duration	s	22.5319	23.095
Pool Vaporization Rate	kg/s	28.5144	22.0021
Cloud Segment 4			
Cloud Segment Duration	s	26.2181	27.4119
Pool Vaporization Rate	kg/s	24.3956	18.8141
Cloud Segment 5			
Cloud Segment Duration	s	30.5694	31.5
Pool Vaporization Rate	kg/s	21.0548	16.2329
Cloud Segment 6			
Cloud Segment Duration	s	34.9206	36
Pool Vaporization Rate	kg/s	18.3232	14.1299
Cloud Segment 7			
Cloud Segment Duration	s	39.975	41.2131
Pool Vaporization Rate	kg/s	16.0746	12.3867
Cloud Segment 8			
Cloud Segment Duration	s	45.2544	44.2869
Pool Vaporization Rate	kg/s	14.2062	10.9608
Cloud Segment 9			
Cloud Segment Duration	s	45.64	351.938
Pool Vaporization Rate	kg/s	12.7186	7.67505
Cloud Segment 10			
Cloud Segment Duration	s	311	
Pool Vaporization Rate	kg/s	9.5444	
Maximum Pool Radius	m	22.8009	22.8237

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Distance to Concentration Results

Path: \Terminal Adonai - Efeitos físicos\Simulações\H166

The height for user defined concentrations is the user defined height 0 m
All toxic results are reported at the toxic effect height 1 m
All flammable results are reported at the flammable effect height 0 m

Concentration(ppm)	Averaging Time		Distance (m)	
			Dia	Noite
UFL (80000)	18.75	s	4.95381	9.09781
LFL (13000)	18.75	s	62.0068	65.5807
LFL Frac (13000)	18.75	s	62.0068	65.5807

Concentration(ppm)	Averaging Time		Heights (m) for above distances	
			Dia	Noite
UFL (80000)	18.75	s	0	0
LFL (13000)	18.75	s	0	0
LFL Frac (13000)	18.75	s	0	0

Late Pool Fire Hazard

Path: \Terminal Adonai - Efeitos físicos\Simulações\H166

	Dia	Noite
Late Pool Fire Status	Hazard	Hazard

Radiation Effects: Late Pool Fire Ellipse

Path: \Terminal Adonai - Efeitos físicos\Simulações\H166

			Distance (m)	
			Dia	Noite
Radiation Level	9.83	kW/m2	30.3533	28.9785
Radiation Level	19.46	kW/m2	23.8009	23.8237
Radiation Level	35	kW/m2	Not Reached	Not Reached

Radiation Effects: Late Pool Fire Distance

Path: \Terminal Adonai - Efeitos físicos\Simulações\H166

	Dia	Radiation Level (kW/m2) Noite
--	-----	----------------------------------

Fireball Hazard

Path: \Terminal Adonai - Efeitos físicos\Simulações\H166

	Dia	Noite
Fireball Flame Status	No Hazard	No Hazard

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Flash Fire Envelope

Path: \Terminal Adonai - Efeitos físicos\Simulações\H166

All flammable results are reported at the flammable effect height 0 m

				Distance (m)	
				Dia	Noite
Furthest Extent	13000	ppm		62.0068	65.5807
Furthest Extent	13000	ppm		62.0068	65.5807
				Heights (m) for above distances	
				Dia	Noite
Furthest Extent	13000	ppm		0	0
Furthest Extent	13000	ppm		0	0

Explosion Effects: Early Explosion

Path: \Terminal Adonai - Efeitos físicos\Simulações\H166

Early Explosions are assumed to be centered at the release location
Explosion Model Used : TNT

				Dia	Noite
Supplied Flammable Mass		kg		31087.2	31087.2
				Distance (m) at Overpressure Levels	
				Dia	Noite
Overpressure	0.05	bar		No Hazard	No Hazard
Overpressure	0.1	bar		No Hazard	No Hazard
Overpressure	0.3	bar		No Hazard	No Hazard
				Used Mass (kg) at Overpressure Levels	
				Dia	Noite
Overpressure	0.05	bar		0	0
Overpressure	0.1	bar		0	0
Overpressure	0.3	bar		0	0

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Explosion Effects: Late Ignition

Path: \Terminal Adonai - Efeitos físicos\Simulações\H166

Explosion Model Used : TNT

Explosion Location Criterion: Cloud Center

All distances are measured from the Source

All flammable results are reported at the flammable effect height 0 m

			Maximum Distance (m) at Overpressure Level	
			Dia	Noite
Overpressure	0.05	bar	104.673	124.002
Overpressure	0.1	bar	77.6009	86.8231
Overpressure	0.3	bar	60.9644	56.3511

			Supplementary Data at 0.05 bar	
			Dia	Noite
Supplied Flammable Mass		kg	92.7568	197.345
Used Flammable Mass		kg	92.7568	197.345
Overpressure Radius		m	76.2285	98.0417
Distance to:				
- Ignition Source		m	50	60
- Cloud Front/Centre		m	28.4443	25.9602
- Explosion Centre		m	28.4443	25.9602

			Supplementary Data at 0.1 bar	
			Dia	Noite
Supplied Flammable Mass		kg	32.1148	197.345
Used Flammable Mass		kg	32.1148	197.345
Overpressure Radius		m	33.2286	60.8629
Distance to:				
- Ignition Source		m	60	60
- Cloud Front/Centre		m	44.3722	25.9602
- Explosion Centre		m	44.3722	25.9602

			Supplementary Data at 0.3 bar	
			Dia	Noite
Supplied Flammable Mass		kg	32.1148	197.345
Used Flammable Mass		kg	32.1148	197.345
Overpressure Radius		m	16.5922	30.391
Distance to:				
- Ignition Source		m	60	60
- Cloud Front/Centre		m	44.3722	25.9602
- Explosion Centre		m	44.3722	25.9602

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Weather Conditions

Path: \Terminal Adonai - Efeitos físicos\Simulações\H166

		Dia	Noite
Wind Speed	m/s	3	2
Pasquill Stability		C	E
Surface Roughness Length	mm	1000	1000
Surface Roughness Parameter		0.173718	0.173718
Atmospheric Temperature	degC	25	20
Surface Temperature	degC	30	20
Relative Humidity	fraction	0.8	0.8

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

H167

Base Case

CASE Name: Data

Path: \Terminal Adonai - Efeitos físicos\Simulações\H167

User-Defined Data

Material

Material Identifier	ACETONE
Type of Vessel	Unpressurized (at atmospheric pressure)
Pressure Specification	Pressure not used
Temperature	25 degC
Volume Inventory	60 m3

Scenario

Scenario Type	Catastrophic rupture
Phase to be Released	Liquid
Building Wake Effect	None
Tank Head	0 m

Location

Elevation	1 m
Use ERPG averaging time	ERPG not selected
Use IDLH averaging time	IDLH not selected
Use STEL averaging time	STEL not selected
Supply a user defined averaging time	Not supplied

Bund

Status of Bund	No bund present
[Type of Bund Surface	User-Defined (Land)]
[Bund Height	0 m]
[Bund Failure Modeling	Bund cannot fail]

Indoor/Outdoor

Location of release	Open air release
---------------------	------------------

Flammable

Explosion Method	TNT
Jet Fire Method	Cone Model

Dispersion

Late Ignition Location	No ignition location
Mass Inventory of material to Disperse	4.719E4 kg
Use Burst Pressure	No - Use release pressure for fireball

Fireball Parameters

[Mass Modification Factor	3]
[Calculation method for fireball	DNV Recommended]
[TNO model flame temperature	1727 degC]

Toxic Parameters

[Indoor Calculations	Unselected]
[Wind Dependent Exchange Rate	Case Specified]
[Building Exchange Rate	4 /hr]

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

[Tail Time	1800 s]
[Set averaging time equal to exposure time	Use a fixed averaging time]
[Cut-off fraction of toxic load for exposure time calculation	0.05 fraction]
[Cut-off concentration for exposure time calculations	0 fraction]

Geometry

Shape	Point
Dimension	2D
System	Absolute
East(1)	0 m
North(1)	0 m

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Path: \Terminal Adonai - Efeitos físicos\Simulações\H167

DISCHARGE DATA for Weather: Global Weathers\Dia

Wind Speed:	3.00 m/s
Wind Speed at Height (Calculated)	1.78 m/s
Pasquill Stability:	C

USER-DEFINED QUANTITIES

Material	ACETONE
Scenario	Catastrophic rupture
Inventory	47,194.83 kg
Fixed Duration	n/a s

Stagnation data (data at upstream end for long pipe):

- Pressure	1.01 bar
- Temperature	25.00 degC
- Fluid State	Liquid at atmospheric pressure

CALCULATED QUANTITIES

Mass Flow of Air (Vent from Vapor Space only)	n/a
Mass Flowrate	n/a kg/s
Release Duration	n/a s
Orifice or pipe exit data (before atmospheric expansion):	
- Pressure	n/a bar
- Temperature	n/a degC
- Vena Contracta Velocity (exit velocity for pipe releases)	n/a m/s
- Discharge Coefficient	n/a
Final data (after atmospheric expansion):	
- Temperature	25.00 degC
- Liquid Mass Fraction	1.00 fraction
- Droplet Diameter	10,000.00 um
- Expanded Radius	n/a m
- Velocity	0.00 m/s

DISCHARGE DATA for Weather: Global Weathers\Noite

Wind Speed:	2.00 m/s
Wind Speed at Height (Calculated)	0.83 m/s
Pasquill Stability:	E

USER-DEFINED QUANTITIES

Material	ACETONE
Scenario	Catastrophic rupture
Inventory	47,194.83 kg
Fixed Duration	n/a s

Stagnation data (data at upstream end for long pipe):

- Pressure	1.01 bar
- Temperature	25.00 degC
- Fluid State	Liquid at atmospheric pressure

CALCULATED QUANTITIES

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Mass Flow of Air (Vent from Vapor Space only)	n/a
Mass Flowrate	n/a kg/s
Release Duration	n/a s
Orifice or pipe exit data (before atmospheric expansion):	
- Pressure	n/a bar
- Temperature	n/a degC
- Vena Contracta Velocity (exit velocity for pipe releases)	n/a m/s
- Discharge Coefficient	n/a
Final data (after atmospheric expansion):	
- Temperature	25.00 degC
- Liquid Mass Fraction	1.00 fraction
- Droplet Diameter	10,000.00 um
- Expanded Radius	n/a m
- Velocity	0.00 m/s



Consequence Results

Pool Vaporization Results

Path: \Terminal Adonai - Efeitos físicos\Simulações\H167

N.B. Pool vaporization segments begin when the cloud has left the pool

		Dia	Noite
Liquid Rainout	fraction	0.998746	0.999073
Initial Vapor Cloud	kg	59.1759	43.7654
Time Pool Left Behind	s	29.9595	77.6691
Cloud Segment 1			
Cloud Segment Duration	s	33.64	35.7006
Pool Vaporization Rate	kg/s	11.6589	7.77317
Cloud Segment 2			
Cloud Segment Duration	s	54.2506	28.2994
Pool Vaporization Rate	kg/s	14.544	9.7948
Cloud Segment 3			
Cloud Segment Duration	s	62.1719	536
Pool Vaporization Rate	kg/s	12.4334	6.1756
Cloud Segment 4			
Cloud Segment Duration	s	449.938	
Pool Vaporization Rate	kg/s	8.37277	
Maximum Pool Radius	m	25.1822	25.1206

Distance to Concentration Results

Path: \Terminal Adonai - Efeitos físicos\Simulações\H167

The height for user defined concentrations is the user defined height 0 m

All toxic results are reported at the toxic effect height 1 m

All flammable results are reported at the flammable effect height 0 m

Concentration(ppm)	Averaging Time		Dia	Noite
UFL (128000)	18.75	s	11.1015	11.4915
LFL (26000)	18.75	s	33.1798	31.1147
LFL Frac (26000)	18.75	s	33.1798	31.1147
Concentration(ppm)	Averaging Time		Dia	Noite
UFL (128000)	18.75	s	0	0
LFL (26000)	18.75	s	0	0
LFL Frac (26000)	18.75	s	0	0

Late Pool Fire Hazard

Path: \Terminal Adonai - Efeitos físicos\Simulações\H167

	Dia	Noite
Late Pool Fire Status	Hazard	Hazard

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Radiation Effects: Late Pool Fire Ellipse

Path: \Terminal Adonai - Efeitos físicos\Simulações\H167

			Dia	Noite
Radiation Level	9.83	kW/m2	95.1552	92.6201
Radiation Level	19.46	kW/m2	72.4306	68.6374
Radiation Level	35	kW/m2	52.9306	48.9066

Radiation Effects: Late Pool Fire Distance

Path: \Terminal Adonai - Efeitos físicos\Simulações\H167

	Dia	Noite
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Fireball Hazard

Path: \Terminal Adonai - Efeitos físicos\Simulações\H167

	Dia	Noite
Fireball Flame Status	No Hazard	No Hazard

Flash Fire Envelope

Path: \Terminal Adonai - Efeitos físicos\Simulações\H167

All flammable results are reported at the flammable effect height 0 m

			Dia	Noite
Furthest Extent	26000	ppm	33.1798	31.1147
Furthest Extent	26000	ppm	33.1798	31.1147

			Dia	Noite
Furthest Extent	26000	ppm	0	0
Furthest Extent	26000	ppm	0	0

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Explosion Effects: Early Explosion

Path: \Terminal Adonai - Efeitos físicos\Simulações\H167

Early Explosions are assumed to be centered at the release location
Explosion Model Used : TNT

Supplied Flammable Mass			Dia	Noite
		kg	47194.8	47194.8
Distance (m) at Overpressure Levels				
			Dia	Noite
Overpressure	0.05	bar	No Hazard	No Hazard
Overpressure	0.1	bar	No Hazard	No Hazard
Overpressure	0.3	bar	No Hazard	No Hazard
Used Mass (kg) at Overpressure Levels				
			Dia	Noite
Overpressure	0.05	bar	0	0
Overpressure	0.1	bar	0	0
Overpressure	0.3	bar	0	0

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Explosion Effects: Late Ignition

Path: \Terminal Adonai - Efeitos físicos\Simulações\H167

Explosion Model Used : TNT

Explosion Location Criterion: Cloud Center

All distances are measured from the Source

All flammable results are reported at the flammable effect height 0 m

			Maximum Distance (m) at Overpressure Level	
			Dia	Noite
Overpressure	0.05	bar	66.8163	65.1266
Overpressure	0.1	bar	47.3519	45.1666
Overpressure	0.3	bar	31.3988	28.8073

Supplementary Data at 0.05 bar

			Dia	Noite
Supplied Flammable Mass		kg	44.5872	48.0803
Used Flammable Mass		kg	44.5872	48.0803
Overpressure Radius		m	51.3282	52.635
Distance to:				
- Ignition Source		m	30	30
- Cloud Front/Centre		m	15.4881	12.4915
- Explosion Centre		m	15.4881	12.4915

Supplementary Data at 0.1 bar

			Dia	Noite
Supplied Flammable Mass		kg	44.5872	48.0803
Used Flammable Mass		kg	44.5872	48.0803
Overpressure Radius		m	31.8638	32.6751
Distance to:				
- Ignition Source		m	30	30
- Cloud Front/Centre		m	15.4881	12.4915
- Explosion Centre		m	15.4881	12.4915

Supplementary Data at 0.3 bar

			Dia	Noite
Supplied Flammable Mass		kg	44.5872	48.0803
Used Flammable Mass		kg	44.5872	48.0803
Overpressure Radius		m	15.9107	16.3158
Distance to:				
- Ignition Source		m	30	30
- Cloud Front/Centre		m	15.4881	12.4915
- Explosion Centre		m	15.4881	12.4915

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Weather Conditions

Path: \Terminal Adonai - Efeitos físicos\Simulações\H167

		Dia	Noite
Wind Speed	m/s	3	2
Pasquill Stability		C	E
Surface Roughness Length	mm	1000	1000
Surface Roughness Parameter		0.173718	0.173718
Atmospheric Temperature	degC	25	20
Surface Temperature	degC	30	20
Relative Humidity	fraction	0.8	0.8

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

H168

Base Case

CASE Name: Data

Path: \Terminal Adonai - Efeitos físicos\Simulações\H168

User-Defined Data

Material

Material Identifier	BENZENE
Type of Vessel	Unpressurized (at atmospheric pressure)
Pressure Specification	Pressure not used
Temperature	25 degC
Volume Inventory	60 m3

Scenario

Scenario Type	Catastrophic rupture
Phase to be Released	Liquid
Building Wake Effect	None
Tank Head	0 m

Location

Elevation	1 m
Use ERPG averaging time	ERPG not selected
Use IDLH averaging time	IDLH not selected
Use STEL averaging time	STEL not selected
Supply a user defined averaging time	Not supplied

Bund

Status of Bund	No bund present
[Type of Bund Surface	User-Defined (Land)]
[Bund Height	0 m]
[Bund Failure Modeling	Bund cannot fail]

Indoor/Outdoor

Location of release	Open air release
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Flammable

Explosion Method	TNT
Jet Fire Method	Cone Model

Dispersion

Late Ignition Location	No ignition location
Mass Inventory of material to Disperse	5.238E4 kg
Use Burst Pressure	No - Use release pressure for fireball

Fireball Parameters

[Mass Modification Factor	3]
[Calculation method for fireball	DNV Recommended]
[TNO model flame temperature	1727 degC]

Toxic Parameters

[Indoor Calculations	Unselected]
[Wind Dependent Exchange Rate	Case Specified]
[Building Exchange Rate	4 /hr]

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

[Tail Time	1800 s]
[Set averaging time equal to exposure time	Use a fixed averaging time]
[Cut-off fraction of toxic load for exposure time calculation	0.05 fraction]
[Cut-off concentration for exposure time calculations	0 fraction]

Geometry

Shape	Point
Dimension	2D
System	Absolute
East(1)	0 m
North(1)	0 m

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Path: \Terminal Adonai - Efeitos físicos\Simulações\H168

DISCHARGE DATA for Weather: Global Weathers\Dia

Wind Speed: 3.00 m/s
Wind Speed at Height (Calculated) 1.78 m/s
Pasquill Stability: C

USER-DEFINED QUANTITIES

Material BENZENE
Scenario Catastrophic rupture
Inventory 52,380.45 kg
Fixed Duration n/a s

Stagnation data (data at upstream end for long pipe):

- Pressure 1.01 bar
- Temperature 25.00 degC
- Fluid State Liquid at atmospheric pressure

CALCULATED QUANTITIES

Mass Flow of Air (Vent from Vapor Space only) n/a
Mass Flowrate n/a kg/s
Release Duration n/a s
Orifice or pipe exit data (before atmospheric expansion):
- Pressure n/a bar
- Temperature n/a degC
- Vena Contracta Velocity (exit velocity for pipe releases) n/a m/s
- Discharge Coefficient n/a
Final data (after atmospheric expansion):
- Temperature 25.00 degC
- Liquid Mass Fraction 1.00 fraction
- Droplet Diameter 10,000.00 um
- Expanded Radius n/a m
- Velocity 0.00 m/s

DISCHARGE DATA for Weather: Global Weathers\Noite

Wind Speed: 2.00 m/s
Wind Speed at Height (Calculated) 0.83 m/s
Pasquill Stability: E

USER-DEFINED QUANTITIES

Material BENZENE
Scenario Catastrophic rupture
Inventory 52,380.45 kg
Fixed Duration n/a s

Stagnation data (data at upstream end for long pipe):

- Pressure 1.01 bar
- Temperature 25.00 degC
- Fluid State Liquid at atmospheric pressure

CALCULATED QUANTITIES

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Mass Flow of Air (Vent from Vapor Space only)	n/a
Mass Flowrate	n/a kg/s
Release Duration	n/a s
Orifice or pipe exit data (before atmospheric expansion):	
- Pressure	n/a bar
- Temperature	n/a degC
- Vena Contracta Velocity (exit velocity for pipe releases)	n/a m/s
- Discharge Coefficient	n/a
Final data (after atmospheric expansion):	
- Temperature	25.00 degC
- Liquid Mass Fraction	1.00 fraction
- Droplet Diameter	10,000.00 um
- Expanded Radius	n/a m
- Velocity	0.00 m/s



Consequence Results

Pool Vaporization Results

Path: \Terminal Adonai - Efeitos físicos\Simulações\H168

N.B. Pool vaporization segments begin when the cloud has left the pool

		Dia	Noite
Liquid Rainout	fraction	0.999513	0.99966
Initial Vapor Cloud	kg	25.4921	17.785
Time Pool Left Behind	s	29.2946	65.4347

Cloud Segment 1

Cloud Segment Duration	s	600	600
Pool Vaporization Rate	kg/s	6.20048	3.68498

Maximum Pool Radius	m	25.2437	25.1649
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Distance to Concentration Results

Path: \Terminal Adonai - Efeitos físicos\Simulações\H168

The height for user defined concentrations is the user defined height 0 m

All toxic results are reported at the toxic effect height 1 m

All flammable results are reported at the flammable effect height 0 m

Concentration(ppm)	Averaging Time		Dia	Noite	Distance (m)
UFL (79000)	18.75	s	7.26622	6.99028	
LFL (13000)	18.75	s	30.5135	25.2236	
LFL Frac (13000)	18.75	s	30.5135	25.2236	
Concentration(ppm)	Averaging Time		Dia	Noite	Heights (m) for above distances
UFL (79000)	18.75	s	0	0	
LFL (13000)	18.75	s	0	0	
LFL Frac (13000)	18.75	s	0	0	

Late Pool Fire Hazard

Path: \Terminal Adonai - Efeitos físicos\Simulações\H168

	Dia	Noite
Late Pool Fire Status	Hazard	Hazard

Radiation Effects: Late Pool Fire Ellipse

Path: \Terminal Adonai - Efeitos físicos\Simulações\H168

			Dia	Noite	Distance (m)
Radiation Level	9.83	kW/m2	33.6163	32.156	
Radiation Level	19.46	kW/m2	27.0906	27.0367	
Radiation Level	35	kW/m2	Not Reached	Not Reached	

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Radiation Effects: Late Pool Fire Distance

Path: \Terminal Adonai - Efeitos físicos\Simulações\H168

	Dia	Noite
Radiation Level (kW/m2)		

Fireball Hazard

Path: \Terminal Adonai - Efeitos físicos\Simulações\H168

	Dia	Noite
Fireball Flame Status	No Hazard	No Hazard

Flash Fire Envelope

Path: \Terminal Adonai - Efeitos físicos\Simulações\H168

All flammable results are reported at the flammable effect height 0 m

			Dia	Noite
Furthest Extent	13000	ppm	30.5135	25.2236
Furthest Extent	13000	ppm	30.5135	25.2236
				Heights (m) for above distances
			Dia	Noite
Furthest Extent	13000	ppm	0	0
Furthest Extent	13000	ppm	0	0

Explosion Effects: Early Explosion

Path: \Terminal Adonai - Efeitos físicos\Simulações\H168

Early Explosions are assumed to be centered at the release location
Explosion Model Used : TNT

			Dia	Noite
Supplied Flammable Mass		kg	52380.4	52380.4
				Distance (m) at Overpressure Levels
			Dia	Noite
Overpressure	0.05	bar	No Hazard	No Hazard
Overpressure	0.1	bar	No Hazard	No Hazard
Overpressure	0.3	bar	No Hazard	No Hazard
				Used Mass (kg) at Overpressure Levels
			Dia	Noite
Overpressure	0.05	bar	0	0
Overpressure	0.1	bar	0	0
Overpressure	0.3	bar	0	0

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Explosion Effects: Late Ignition

Path: \Terminal Adonai - Efeitos físicos\Simulações\H168

Explosion Model Used : TNT

Explosion Location Criterion: Cloud Center

All distances are measured from the Source

All flammable results are reported at the flammable effect height 0 m

			Maximum Distance (m) at Overpressure Level	
			Dia	Noite
Overpressure	0.05	bar	55.126	50.8364
Overpressure	0.1	bar	40.8897	33.7948
Overpressure	0.3	bar	30.913	19.8273

Supplementary Data at 0.05 bar

			Dia	Noite
Supplied Flammable Mass		kg	26.5952	21.2909
Used Flammable Mass		kg	26.5952	21.2909
Overpressure Radius		m	48.3983	44.9394
Distance to:				
- Ignition Source		m	20	20
- Cloud Front/Centre		m	6.72766	5.89701
- Explosion Centre		m	6.72766	5.89701

Supplementary Data at 0.1 bar

			Dia	Noite
Supplied Flammable Mass		kg	7.75894	21.2909
Used Flammable Mass		kg	7.75894	21.2909
Overpressure Radius		m	19.9268	27.8978
Distance to:				
- Ignition Source		m	30	20
- Cloud Front/Centre		m	20.9628	5.89701
- Explosion Centre		m	20.9628	5.89701

Supplementary Data at 0.3 bar

			Dia	Noite
Supplied Flammable Mass		kg	7.75894	21.2909
Used Flammable Mass		kg	7.75894	21.2909
Overpressure Radius		m	9.95017	13.9303
Distance to:				
- Ignition Source		m	30	20
- Cloud Front/Centre		m	20.9628	5.89701
- Explosion Centre		m	20.9628	5.89701

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Weather Conditions

Path: \Terminal Adonai - Efeitos físicos\Simulações\H168

		Dia	Noite
Wind Speed	m/s	3	2
Pasquill Stability		C	E
Surface Roughness Length	mm	1000	1000
Surface Roughness Parameter		0.173718	0.173718
Atmospheric Temperature	degC	25	20
Surface Temperature	degC	30	20
Relative Humidity	fraction	0.8	0.8

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

H169

Base Case

CASE Name: Data

Path: \Terminal Adonai - Efeitos físicos\Simulações\H169

User-Defined Data

Material

Material Identifier	ETHANOL
Type of Vessel	Unpressurized (at atmospheric pressure)
Pressure Specification	Pressure not used
Temperature	25 degC
Volume Inventory	60 m3

Scenario

Scenario Type	Catastrophic rupture
Phase to be Released	Liquid
Building Wake Effect	None
Tank Head	0 m

Location

Elevation	1 m
Use ERPG averaging time	ERPG not selected
Use IDLH averaging time	IDLH not selected
Use STEL averaging time	STEL not selected
Supply a user defined averaging time	Not supplied

Bund

Status of Bund	No bund present
[Type of Bund Surface	User-Defined (Land)]
[Bund Height	0 m]
[Bund Failure Modeling	Bund cannot fail]

Indoor/Outdoor

Location of release	Open air release
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Flammable

Explosion Method	TNT
Jet Fire Method	Cone Model

Dispersion

Late Ignition Location	No ignition location
Mass Inventory of material to Disperse	4.715E4 kg
Use Burst Pressure	No - Use release pressure for fireball

Fireball Parameters

[Mass Modification Factor	3]
[Calculation method for fireball	DNV Recommended]
[TNO model flame temperature	1727 degC]

Toxic Parameters

[Indoor Calculations	Unselected]
[Wind Dependent Exchange Rate	Case Specified]
[Building Exchange Rate	4 /hr]

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

[Tail Time	1800 s]
[Set averaging time equal to exposure time	Use a fixed averaging time]
[Cut-off fraction of toxic load for exposure time calculation	0.05 fraction]
[Cut-off concentration for exposure time calculations	0 fraction]

Geometry

Shape	Point
Dimension	2D
System	Absolute
East(1)	0 m
North(1)	0 m

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Path: \Terminal Adonai - Efeitos físicos\Simulações\H169

DISCHARGE DATA for Weather: Global Weathers\Dia

Wind Speed: 3.00 m/s
Wind Speed at Height (Calculated) 1.78 m/s
Pasquill Stability: C

USER-DEFINED QUANTITIES

Material ETHANOL
Scenario Catastrophic rupture
Inventory 47,153.70 kg
Fixed Duration n/a s

Stagnation data (data at upstream end for long pipe):

- Pressure 1.01 bar
- Temperature 25.00 degC
- Fluid State Liquid at atmospheric pressure

CALCULATED QUANTITIES

Mass Flow of Air (Vent from Vapor Space only) n/a
Mass Flowrate n/a kg/s
Release Duration n/a s
Orifice or pipe exit data (before atmospheric expansion):
- Pressure n/a bar
- Temperature n/a degC
- Vena Contracta Velocity (exit velocity for pipe releases) n/a m/s
- Discharge Coefficient n/a
Final data (after atmospheric expansion):
- Temperature 25.00 degC
- Liquid Mass Fraction 1.00 fraction
- Droplet Diameter 10,000.00 um
- Expanded Radius n/a m
- Velocity 0.00 m/s

DISCHARGE DATA for Weather: Global Weathers\Noite

Wind Speed: 2.00 m/s
Wind Speed at Height (Calculated) 0.83 m/s
Pasquill Stability: E

USER-DEFINED QUANTITIES

Material ETHANOL
Scenario Catastrophic rupture
Inventory 47,153.70 kg
Fixed Duration n/a s

Stagnation data (data at upstream end for long pipe):

- Pressure 1.01 bar
- Temperature 25.00 degC
- Fluid State Liquid at atmospheric pressure

CALCULATED QUANTITIES

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Mass Flow of Air (Vent from Vapor Space only)	n/a
Mass Flowrate	n/a kg/s
Release Duration	n/a s
Orifice or pipe exit data (before atmospheric expansion):	
- Pressure	n/a bar
- Temperature	n/a degC
- Vena Contracta Velocity (exit velocity for pipe releases)	n/a m/s
- Discharge Coefficient	n/a
Final data (after atmospheric expansion):	
- Temperature	25.00 degC
- Liquid Mass Fraction	1.00 fraction
- Droplet Diameter	10,000.00 um
- Expanded Radius	n/a m
- Velocity	0.00 m/s

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Consequence Results

Pool Vaporization Results

Path: \Terminal Adonai - Efeitos físicos\Simulações\H169

N.B. Pool vaporization segments begin when the cloud has left the pool

		Dia	Noite
Liquid Rainout	fraction	0.99981	0.999869
Initial Vapor Cloud	kg	8.96503	6.18205
Time Pool Left Behind	s	22.3525	47.5875

Cloud Segment 1

Cloud Segment Duration	s	600	600
Pool Vaporization Rate	kg/s	2.79705	1.58151
Maximum Pool Radius	m	25.2577	25.1849

Distance to Concentration Results

Path: \Terminal Adonai - Efeitos físicos\Simulações\H169

The height for user defined concentrations is the user defined height 0 m

All toxic results are reported at the toxic effect height 1 m

All flammable results are reported at the flammable effect height 0 m

Concentration(ppm)	Averaging Time		Dia	Noite
UFL (190000)	18.75	s	6.93257	6.98395
LFL (43000)	18.75	s	9.47371	7.28921
LFL Frac (43000)	18.75	s	9.47371	7.28921

Concentration(ppm)	Averaging Time		Dia	Noite
UFL (190000)	18.75	s	0	0
LFL (43000)	18.75	s	0	0
LFL Frac (43000)	18.75	s	0	0

Late Pool Fire Hazard

Path: \Terminal Adonai - Efeitos físicos\Simulações\H169

	Dia	Noite
Late Pool Fire Status	Hazard	Hazard

Radiation Effects: Late Pool Fire Ellipse

Path: \Terminal Adonai - Efeitos físicos\Simulações\H169

			Dia	Noite
Radiation Level	9.83	kW/m2	69.8573	68.0414
Radiation Level	19.46	kW/m2	53.6677	50.9055
Radiation Level	35	kW/m2	36.1977	34.3343

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Radiation Effects: Late Pool Fire Distance

Path: \Terminal Adonai - Efeitos físicos\Simulações\H169

	Dia	Noite
Radiation Level (kW/m2)		

Fireball Hazard

Path: \Terminal Adonai - Efeitos físicos\Simulações\H169

	Dia	Noite
Fireball Flame Status	No Hazard	No Hazard

Flash Fire Envelope

Path: \Terminal Adonai - Efeitos físicos\Simulações\H169

All flammable results are reported at the flammable effect height 0 m

			Dia	Noite
Furthest Extent	43000	ppm	9.47371	7.28921
Furthest Extent	43000	ppm	9.47371	7.28921

			Dia	Noite
Furthest Extent	43000	ppm	0	0
Furthest Extent	43000	ppm	0	0

Explosion Effects: Early Explosion

Path: \Terminal Adonai - Efeitos físicos\Simulações\H169

Early Explosions are assumed to be centered at the release location
Explosion Model Used : TNT

			Dia	Noite
Supplied Flammable Mass		kg	47153.7	47153.7

			Distance (m) at Overpressure Levels	
			Dia	Noite
Overpressure	0.05	bar	No Hazard	No Hazard
Overpressure	0.1	bar	No Hazard	No Hazard
Overpressure	0.3	bar	No Hazard	No Hazard

			Used Mass (kg) at Overpressure Levels	
			Dia	Noite
Overpressure	0.05	bar	0	0
Overpressure	0.1	bar	0	0
Overpressure	0.3	bar	0	0

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Weather Conditions

Path: \Terminal Adonai - Efeitos físicos\Simulações\H169

		Dia	Noite
Wind Speed	m/s	3	2
Pasquill Stability		C	E
Surface Roughness Length	mm	1000	1000
Surface Roughness Parameter		0.173718	0.173718
Atmospheric Temperature	degC	25	20
Surface Temperature	degC	30	20
Relative Humidity	fraction	0.8	0.8

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

H170

Base Case

CASE Name: Data

Path: \Terminal Adonai - Efeitos físicos\Simulações\H170

User-Defined Data

Material

Material Identifier	METHANOL
Type of Vessel	Unpressurized (at atmospheric pressure)
Pressure Specification	Pressure not used
Temperature	25 degC
Volume Inventory	60 m3

Scenario

Scenario Type	Catastrophic rupture
Phase to be Released	Liquid
Building Wake Effect	None
Tank Head	0 m

Location

Elevation	1 m
Use ERPG averaging time	ERPG not selected
Use IDLH averaging time	IDLH not selected
Use STEL averaging time	STEL not selected
Supply a user defined averaging time	Not supplied

Bund

Status of Bund	No bund present
[Type of Bund Surface	User-Defined (Land)]
[Bund Height	0 m]
[Bund Failure Modeling	Bund cannot fail]

Indoor/Outdoor

Location of release	Open air release
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Flammable

Explosion Method	TNT
Jet Fire Method	Cone Model

Dispersion

Late Ignition Location	No ignition location
Mass Inventory of material to Disperse	4.738E4 kg
Use Burst Pressure	No - Use release pressure for fireball

Fireball Parameters

[Mass Modification Factor	3]
[Calculation method for fireball	DNV Recommended]
[TNO model flame temperature	1727 degC]

Toxic Parameters

[Indoor Calculations	Unselected]
[Wind Dependent Exchange Rate	Case Specified]
[Building Exchange Rate	4 /hr]

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

[Tail Time	1800 s]
[Set averaging time equal to exposure time	Use a fixed averaging time]
[Cut-off fraction of toxic load for exposure time calculation	0.05 fraction]
[Cut-off concentration for exposure time calculations	0 fraction]

Geometry

Shape	Point
Dimension	2D
System	Absolute
East(1)	0 m
North(1)	0 m

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Path: \Terminal Adonai - Efeitos físicos\Simulações\H170

DISCHARGE DATA for Weather: Global Weathers\Dia

Wind Speed: 3.00 m/s
Wind Speed at Height (Calculated) 1.78 m/s
Pasquill Stability: C

USER-DEFINED QUANTITIES

Material METHANOL
Scenario Catastrophic rupture
Inventory 47,377.04 kg
Fixed Duration n/a s

Stagnation data (data at upstream end for long pipe):

- Pressure 1.01 bar
- Temperature 25.00 degC
- Fluid State Liquid at atmospheric pressure

CALCULATED QUANTITIES

Mass Flow of Air (Vent from Vapor Space only) n/a
Mass Flowrate n/a kg/s
Release Duration n/a s
Orifice or pipe exit data (before atmospheric expansion):
- Pressure n/a bar
- Temperature n/a degC
- Vena Contracta Velocity (exit velocity for pipe releases) n/a m/s
- Discharge Coefficient n/a
Final data (after atmospheric expansion):
- Temperature 25.00 degC
- Liquid Mass Fraction 1.00 fraction
- Droplet Diameter 10,000.00 um
- Expanded Radius n/a m
- Velocity 0.00 m/s

DISCHARGE DATA for Weather: Global Weathers\Noite

Wind Speed: 2.00 m/s
Wind Speed at Height (Calculated) 0.83 m/s
Pasquill Stability: E

USER-DEFINED QUANTITIES

Material METHANOL
Scenario Catastrophic rupture
Inventory 47,377.04 kg
Fixed Duration n/a s

Stagnation data (data at upstream end for long pipe):

- Pressure 1.01 bar
- Temperature 25.00 degC
- Fluid State Liquid at atmospheric pressure

CALCULATED QUANTITIES

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Mass Flow of Air (Vent from Vapor Space only)	n/a
Mass Flowrate	n/a kg/s
Release Duration	n/a s
Orifice or pipe exit data (before atmospheric expansion):	
- Pressure	n/a bar
- Temperature	n/a degC
- Vena Contracta Velocity (exit velocity for pipe releases)	n/a m/s
- Discharge Coefficient	n/a
Final data (after atmospheric expansion):	
- Temperature	25.00 degC
- Liquid Mass Fraction	1.00 fraction
- Droplet Diameter	10,000.00 um
- Expanded Radius	n/a m
- Velocity	0.00 m/s



Consequence Results

Pool Vaporization Results

Path: \Terminal Adonai - Efeitos físicos\Simulações\H170

N.B. Pool vaporization segments begin when the cloud has left the pool

		Dia	Noite
Liquid Rainout	fraction	0.99969	0.99978
Initial Vapor Cloud	kg	14.6766	10.4315
Time Pool Left Behind	s	20.2482	44.1856

Cloud Segment 1

Cloud Segment Duration	s	600	600
Pool Vaporization Rate	kg/s	3.84625	2.43266

Maximum Pool Radius	m	25.239	25.1717
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Distance to Concentration Results

Path: \Terminal Adonai - Efeitos físicos\Simulações\H170

The height for user defined concentrations is the user defined height 0 m

All toxic results are reported at the toxic effect height 1 m

All flammable results are reported at the flammable effect height 0 m

Concentration(ppm)	Averaging Time		Distance (m)	
			Dia	Noite
UFL (360000)	18.75	s	6.79398	6.83493
LFL (73000)	18.75	s	11.0223	27.2116
LFL Frac (73000)	18.75	s	11.0223	27.2116

Concentration(ppm)	Averaging Time		Heights (m) for above distances	
			Dia	Noite
UFL (360000)	18.75	s	0	0
LFL (73000)	18.75	s	0	0
LFL Frac (73000)	18.75	s	0	0

Late Pool Fire Hazard

Path: \Terminal Adonai - Efeitos físicos\Simulações\H170

	Dia	Noite
Late Pool Fire Status	Hazard	Hazard

Radiation Effects: Late Pool Fire Ellipse

Path: \Terminal Adonai - Efeitos físicos\Simulações\H170

			Distance (m)	
			Dia	Noite
Radiation Level	9.83	kW/m2	50.917	49.14
Radiation Level	19.46	kW/m2	36.2086	34.357
Radiation Level	35	kW/m2	27.0581	27.0113

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Radiation Effects: Late Pool Fire Distance

Path: \Terminal Adonai - Efeitos físicos\Simulações\H170

	Dia	Noite
Radiation Level (kW/m2)		

Fireball Hazard

Path: \Terminal Adonai - Efeitos físicos\Simulações\H170

	Dia	Noite
Fireball Flame Status	No Hazard	No Hazard

Flash Fire Envelope

Path: \Terminal Adonai - Efeitos físicos\Simulações\H170

All flammable results are reported at the flammable effect height 0 m

			Dia	Noite
Furthest Extent	73000	ppm	11.0223	27.2116
Furthest Extent	73000	ppm	11.0223	27.2116
				Heights (m) for above distances
			Dia	Noite
Furthest Extent	73000	ppm	0	0
Furthest Extent	73000	ppm	0	0

Explosion Effects: Early Explosion

Path: \Terminal Adonai - Efeitos físicos\Simulações\H170

Early Explosions are assumed to be centered at the release location
Explosion Model Used : TNT

			Dia	Noite
Supplied Flammable Mass		kg	47377	47377
				Distance (m) at Overpressure Levels
			Dia	Noite
Overpressure	0.05	bar	No Hazard	No Hazard
Overpressure	0.1	bar	No Hazard	No Hazard
Overpressure	0.3	bar	No Hazard	No Hazard
				Used Mass (kg) at Overpressure Levels
			Dia	Noite
Overpressure	0.05	bar	0	0
Overpressure	0.1	bar	0	0
Overpressure	0.3	bar	0	0

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Explosion Effects: Late Ignition

Path: \Terminal Adonai - Efeitos físicos\Simulações\H170

Explosion Model Used : TNT

Explosion Location Criterion: Cloud Center

All distances are measured from the Source

All flammable results are reported at the flammable effect height 0 m

			Maximum Distance (m) at Overpressure Level	
			Dia	Noite
Overpressure	0.05	bar	25.4655	31.5615
Overpressure	0.1	bar	17.5189	25.7875
Overpressure	0.3	bar	11.0058	21.0552

Supplementary Data at 0.05 bar

			Dia	Noite
Supplied Flammable Mass		kg	4.35133	1.66913
Used Flammable Mass		kg	4.35133	1.66913
Overpressure Radius		m	20.9555	15.2261
Distance to:				
- Ignition Source		m	10	20
- Cloud Front/Centre		m	4.51005	16.3354
- Explosion Centre		m	4.51005	16.3354

Supplementary Data at 0.1 bar

			Dia	Noite
Supplied Flammable Mass		kg	4.35133	1.66913
Used Flammable Mass		kg	4.35133	1.66913
Overpressure Radius		m	13.0089	9.45213
Distance to:				
- Ignition Source		m	10	20
- Cloud Front/Centre		m	4.51005	16.3354
- Explosion Centre		m	4.51005	16.3354

Supplementary Data at 0.3 bar

			Dia	Noite
Supplied Flammable Mass		kg	4.35133	1.66913
Used Flammable Mass		kg	4.35133	1.66913
Overpressure Radius		m	6.49579	4.71978
Distance to:				
- Ignition Source		m	10	20
- Cloud Front/Centre		m	4.51005	16.3354
- Explosion Centre		m	4.51005	16.3354

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Weather Conditions

Path: \Terminal Adonai - Efeitos físicos\Simulações\H170

		Dia	Noite
Wind Speed	m/s	3	2
Pasquill Stability		C	E
Surface Roughness Length	mm	1000	1000
Surface Roughness Parameter		0.173718	0.173718
Atmospheric Temperature	degC	25	20
Surface Temperature	degC	30	20
Relative Humidity	fraction	0.8	0.8

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

H171

Base Case

CASE Name: Data

Path: \Terminal Adonai - Efeitos físicos\Simulações\H171

User-Defined Data

Material

Material Identifier	N-HEXANE
Type of Vessel	Unpressurized (at atmospheric pressure)
Pressure Specification	Pressure not used
Temperature	25 degC
Volume Inventory	60 m3

Scenario

Scenario Type	Catastrophic rupture
Phase to be Released	Liquid
Building Wake Effect	None
Tank Head	0 m

Location

Elevation	1 m
Use ERPG averaging time	ERPG not selected
Use IDLH averaging time	IDLH not selected
Use STEL averaging time	STEL not selected
Supply a user defined averaging time	Not supplied

Bund

Status of Bund	No bund present
[Type of Bund Surface	User-Defined (Land)]
[Bund Height	0 m]
[Bund Failure Modeling	Bund cannot fail]

Indoor/Outdoor

Location of release	Open air release
---------------------	------------------

Flammable

Explosion Method	TNT
Jet Fire Method	Cone Model

Dispersion

Late Ignition Location	No ignition location
Mass Inventory of material to Disperse	3.936E4 kg
Use Burst Pressure	No - Use release pressure for fireball

Fireball Parameters

[Mass Modification Factor	3]
[Calculation method for fireball	DNV Recommended]
[TNO model flame temperature	1727 degC]

Toxic Parameters

[Indoor Calculations	Unselected]
[Wind Dependent Exchange Rate	Case Specified]
[Building Exchange Rate	4 /hr]

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

[Tail Time	1800 s]
[Set averaging time equal to exposure time	Use a fixed averaging time]
[Cut-off fraction of toxic load for exposure time calculation	0.05 fraction]
[Cut-off concentration for exposure time calculations	0 fraction]

Geometry

Shape	Point
Dimension	2D
System	Absolute
East(1)	0 m
North(1)	0 m

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Path: \Terminal Adonai - Efeitos físicos\Simulações\H171

DISCHARGE DATA for Weather: Global Weathers\Dia

Wind Speed: 3.00 m/s
Wind Speed at Height (Calculated) 1.78 m/s
Pasquill Stability: C

USER-DEFINED QUANTITIES

Material N-HEXANE
Scenario Catastrophic rupture
Inventory 39,361.57 kg
Fixed Duration n/a s

Stagnation data (data at upstream end for long pipe):

- Pressure 1.01 bar
- Temperature 25.00 degC
- Fluid State Liquid at atmospheric pressure

CALCULATED QUANTITIES

Mass Flow of Air (Vent from Vapor Space only) n/a
Mass Flowrate n/a kg/s
Release Duration n/a s
Orifice or pipe exit data (before atmospheric expansion):
- Pressure n/a bar
- Temperature n/a degC
- Vena Contracta Velocity (exit velocity for pipe releases) n/a m/s
- Discharge Coefficient n/a
Final data (after atmospheric expansion):
- Temperature 25.00 degC
- Liquid Mass Fraction 1.00 fraction
- Droplet Diameter 10,000.00 um
- Expanded Radius n/a m
- Velocity 0.00 m/s

DISCHARGE DATA for Weather: Global Weathers\Noite

Wind Speed: 2.00 m/s
Wind Speed at Height (Calculated) 0.83 m/s
Pasquill Stability: E

USER-DEFINED QUANTITIES

Material N-HEXANE
Scenario Catastrophic rupture
Inventory 39,361.57 kg
Fixed Duration n/a s

Stagnation data (data at upstream end for long pipe):

- Pressure 1.01 bar
- Temperature 25.00 degC
- Fluid State Liquid at atmospheric pressure

CALCULATED QUANTITIES

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Mass Flow of Air (Vent from Vapor Space only)	n/a
Mass Flowrate	n/a kg/s
Release Duration	n/a s
Orifice or pipe exit data (before atmospheric expansion):	
- Pressure	n/a bar
- Temperature	n/a degC
- Vena Contracta Velocity (exit velocity for pipe releases)	n/a m/s
- Discharge Coefficient	n/a
Final data (after atmospheric expansion):	
- Temperature	25.00 degC
- Liquid Mass Fraction	1.00 fraction
- Droplet Diameter	10,000.00 um
- Expanded Radius	n/a m
- Velocity	0.00 m/s



Consequence Results

Pool Vaporization Results

Path: \Terminal Adonai - Efeitos físicos\Simulações\H171

N.B. Pool vaporization segments begin when the cloud has left the pool

		Dia	Noite
Liquid Rainout	fraction	0.998786	0.999075
Initial Vapor Cloud	kg	47.778	36.4019
Time Pool Left Behind	s	32.3279	76.8422

Cloud Segment 1

Cloud Segment Duration	s	600	600
Pool Vaporization Rate	kg/s	8.8614	5.67074

Maximum Pool Radius	m	25.1951	25.1345
---------------------	---	---------	---------

Distance to Concentration Results

Path: \Terminal Adonai - Efeitos físicos\Simulações\H171

The height for user defined concentrations is the user defined height 0 m

All toxic results are reported at the toxic effect height 1 m

All flammable results are reported at the flammable effect height 0 m

Concentration(ppm)	Averaging Time		Dia	Noite	Distance (m)
UFL (76800)	18.75	s	11.5552	12.0546	
LFL (10500)	18.75	s	40.5406	35.7823	
LFL Frac (10500)	18.75	s	40.5406	35.7823	

Concentration(ppm)	Averaging Time		Dia	Noite	Heights (m) for above distances
UFL (76800)	18.75	s	0	0	
LFL (10500)	18.75	s	0	0	
LFL Frac (10500)	18.75	s	0	0	

Late Pool Fire Hazard

Path: \Terminal Adonai - Efeitos físicos\Simulações\H171

	Dia	Noite
Late Pool Fire Status	Hazard	Hazard

Radiation Effects: Late Pool Fire Ellipse

Path: \Terminal Adonai - Efeitos físicos\Simulações\H171

			Dia	Noite	Distance (m)
Radiation Level	9.83	kW/m2	33.5049	32.0727	
Radiation Level	19.46	kW/m2	26.9972	26.9534	
Radiation Level	35	kW/m2	Not Reached	Not Reached	

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Radiation Effects: Late Pool Fire Distance

Path: \Terminal Adonai - Efeitos físicos\Simulações\H171

	Dia	Noite
Radiation Level (kW/m2)		

Fireball Hazard

Path: \Terminal Adonai - Efeitos físicos\Simulações\H171

	Dia	Noite
Fireball Flame Status	No Hazard	No Hazard

Flash Fire Envelope

Path: \Terminal Adonai - Efeitos físicos\Simulações\H171

All flammable results are reported at the flammable effect height 0 m

			Dia	Noite
Furthest Extent	10500	ppm	40.5406	35.7823
Furthest Extent	10500	ppm	40.5406	35.7823
				Heights (m) for above distances
			Dia	Noite
Furthest Extent	10500	ppm	0	0
Furthest Extent	10500	ppm	0	0

Explosion Effects: Early Explosion

Path: \Terminal Adonai - Efeitos físicos\Simulações\H171

Early Explosions are assumed to be centered at the release location
Explosion Model Used : TNT

			Dia	Noite
Supplied Flammable Mass		kg	39361.6	39361.6
				Distance (m) at Overpressure Levels
			Dia	Noite
Overpressure	0.05	bar	No Hazard	No Hazard
Overpressure	0.1	bar	No Hazard	No Hazard
Overpressure	0.3	bar	No Hazard	No Hazard
				Used Mass (kg) at Overpressure Levels
			Dia	Noite
Overpressure	0.05	bar	0	0
Overpressure	0.1	bar	0	0
Overpressure	0.3	bar	0	0

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Explosion Effects: Late Ignition

Path: \Terminal Adonai - Efeitos físicos\Simulações\H171

Explosion Model Used : TNT

Explosion Location Criterion: Cloud Center

All distances are measured from the Source

All flammable results are reported at the flammable effect height 0 m

			Maximum Distance (m) at Overpressure Level	
			Dia	Noite
Overpressure	0.05	bar	76.1804	72.3817
Overpressure	0.1	bar	54.1349	48.4262
Overpressure	0.3	bar	40.9834	28.7921

Supplementary Data at 0.05 bar

			Dia	Noite
Supplied Flammable Mass		kg	55.641	53.0738
Used Flammable Mass		kg	55.641	53.0738
Overpressure Radius		m	64.174	63.1714
Distance to:				
- Ignition Source		m	30	30
- Cloud Front/Centre		m	12.0065	9.21026
- Explosion Centre		m	12.0065	9.21026

Supplementary Data at 0.1 bar

			Dia	Noite
Supplied Flammable Mass		kg	15.9506	53.0738
Used Flammable Mass		kg	15.9506	53.0738
Overpressure Radius		m	26.2681	39.2159
Distance to:				
- Ignition Source		m	40	30
- Cloud Front/Centre		m	27.8668	9.21026
- Explosion Centre		m	27.8668	9.21026

Supplementary Data at 0.3 bar

			Dia	Noite
Supplied Flammable Mass		kg	15.9506	53.0738
Used Flammable Mass		kg	15.9506	53.0738
Overpressure Radius		m	13.1166	19.5819
Distance to:				
- Ignition Source		m	40	30
- Cloud Front/Centre		m	27.8668	9.21026
- Explosion Centre		m	27.8668	9.21026

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Weather Conditions

Path: \Terminal Adonai - Efeitos físicos\Simulações\H171

		Dia	Noite
Wind Speed	m/s	3	2
Pasquill Stability		C	E
Surface Roughness Length	mm	1000	1000
Surface Roughness Parameter		0.173718	0.173718
Atmospheric Temperature	degC	25	20
Surface Temperature	degC	30	20
Relative Humidity	fraction	0.8	0.8

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

H172

Base Case

CASE Name: Data

Path: \Terminal Adonai - Efeitos físicos\Simulações\H172

User-Defined Data

Material

Material Identifier	N-NONANE
Type of Vessel	Unpressurized (at atmospheric pressure)
Pressure Specification	Pressure not used
Temperature	25 degC
Volume Inventory	60 m3

Scenario

Scenario Type	Catastrophic rupture
Phase to be Released	Liquid
Building Wake Effect	None
Tank Head	0 m

Location

Elevation	1 m
Use ERPG averaging time	ERPG not selected
Use IDLH averaging time	IDLH not selected
Use STEL averaging time	STEL not selected
Supply a user defined averaging time	Not supplied

Bund

Status of Bund	No bund present
[Type of Bund Surface	User-Defined (Land)]
[Bund Height	0 m]
[Bund Failure Modeling	Bund cannot fail]

Indoor/Outdoor

Location of release	Open air release
---------------------	------------------

Flammable

Explosion Method	TNT
Jet Fire Method	Cone Model

Dispersion

Late Ignition Location	No ignition location
Mass Inventory of material to Disperse	4.286E4 kg
Use Burst Pressure	No - Use release pressure for fireball

Fireball Parameters

[Mass Modification Factor	3]
[Calculation method for fireball	DNV Recommended]
[TNO model flame temperature	1727 degC]

Toxic Parameters

[Indoor Calculations	Unselected]
[Wind Dependent Exchange Rate	Case Specified]
[Building Exchange Rate	4 /hr]

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

[Tail Time	1800 s]
[Set averaging time equal to exposure time	Use a fixed averaging time]
[Cut-off fraction of toxic load for exposure time calculation	0.05 fraction]
[Cut-off concentration for exposure time calculations	0 fraction]

Geometry

Shape	Point
Dimension	2D
System	Absolute
East(1)	0 m
North(1)	0 m

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Path: \Terminal Adonai - Efeitos físicos\Simulações\H172

DISCHARGE DATA for Weather: Global Weathers\Dia

Wind Speed: 3.00 m/s
Wind Speed at Height (Calculated) 1.78 m/s
Pasquill Stability: C

USER-DEFINED QUANTITIES

Material N-NONANE
Scenario Catastrophic rupture
Inventory 42,857.56 kg
Fixed Duration n/a s

Stagnation data (data at upstream end for long pipe):

- Pressure 1.01 bar
- Temperature 25.00 degC
- Fluid State Liquid at atmospheric pressure

CALCULATED QUANTITIES

Mass Flow of Air (Vent from Vapor Space only) n/a
Mass Flowrate n/a kg/s
Release Duration n/a s
Orifice or pipe exit data (before atmospheric expansion):
- Pressure n/a bar
- Temperature n/a degC
- Vena Contracta Velocity (exit velocity for pipe releases) n/a m/s
- Discharge Coefficient n/a
Final data (after atmospheric expansion):
- Temperature 25.00 degC
- Liquid Mass Fraction 1.00 fraction
- Droplet Diameter 10,000.00 um
- Expanded Radius n/a m
- Velocity 0.00 m/s

DISCHARGE DATA for Weather: Global Weathers\Noite

Wind Speed: 2.00 m/s
Wind Speed at Height (Calculated) 0.83 m/s
Pasquill Stability: E

USER-DEFINED QUANTITIES

Material N-NONANE
Scenario Catastrophic rupture
Inventory 42,857.56 kg
Fixed Duration n/a s

Stagnation data (data at upstream end for long pipe):

- Pressure 1.01 bar
- Temperature 25.00 degC
- Fluid State Liquid at atmospheric pressure

CALCULATED QUANTITIES

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Mass Flow of Air (Vent from Vapor Space only)	n/a
Mass Flowrate	n/a kg/s
Release Duration	n/a s
Orifice or pipe exit data (before atmospheric expansion):	
- Pressure	n/a bar
- Temperature	n/a degC
- Vena Contracta Velocity (exit velocity for pipe releases)	n/a m/s
- Discharge Coefficient	n/a
Final data (after atmospheric expansion):	
- Temperature	25.00 degC
- Liquid Mass Fraction	1.00 fraction
- Droplet Diameter	10,000.00 um
- Expanded Radius	n/a m
- Velocity	0.00 m/s

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Consequence Results

Pool Vaporization Results

Path: \Terminal Adonai - Efeitos físicos\Simulações\H172

N.B. Pool vaporization segments begin when the cloud has left the pool

		Dia	Noite
Liquid Rainout	fraction	0.999961	0.999973
Initial Vapor Cloud	kg	1.66362	1.15964
Time Pool Left Behind	s	18.0262	40.7204
Cloud Segment 1			
Cloud Segment Duration	s	76.1256	600
Pool Vaporization Rate	kg/s	0.387403	0.232923
Cloud Segment 2			
Cloud Segment Duration	s	523.874	
Pool Vaporization Rate	kg/s	0.505187	
Maximum Pool Radius	m	25.2744	25.2

Distance to Concentration Results

Path: \Terminal Adonai - Efeitos físicos\Simulações\H172

The height for user defined concentrations is the user defined height 0 m

All toxic results are reported at the toxic effect height 1 m

All flammable results are reported at the flammable effect height 0 m

Concentration(ppm)	Averaging Time		Dia	Noite
UFL (56000)	18.75	s	7.06084	7.12139
LFL (7000)	18.75	s	7.12766	7.18852
LFL Frac (7000)	18.75	s	7.12766	7.18852
Concentration(ppm)	Averaging Time		Dia	Noite
UFL (56000)	18.75	s	0	0
LFL (7000)	18.75	s	0	0
LFL Frac (7000)	18.75	s	0	0

Late Pool Fire Hazard

Path: \Terminal Adonai - Efeitos físicos\Simulações\H172

	Dia	Noite
Late Pool Fire Status	Hazard	Hazard

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Radiation Effects: Late Pool Fire Ellipse

Path: \Terminal Adonai - Efeitos físicos\Simulações\H172

			Distance (m)	
			Dia	Noite
Radiation Level	9.83	kW/m2	33.9044	27.1502
Radiation Level	19.46	kW/m2	27.192	27.1502
Radiation Level	35	kW/m2	Not Reached	Not Reached

Radiation Effects: Late Pool Fire Distance

Path: \Terminal Adonai - Efeitos físicos\Simulações\H172

	Radiation Level (kW/m2)	
	Dia	Noite

Fireball Hazard

Path: \Terminal Adonai - Efeitos físicos\Simulações\H172

	Dia	Noite
Fireball Flame Status	No Hazard	No Hazard

Flash Fire Envelope

Path: \Terminal Adonai - Efeitos físicos\Simulações\H172

All flammable results are reported at the flammable effect height 0 m

			Distance (m)	
			Dia	Noite
Furthest Extent	7000	ppm	7.12766	7.18852
Furthest Extent	7000	ppm	7.12766	7.18852

			Heights (m) for above distances	
			Dia	Noite
Furthest Extent	7000	ppm	0	0
Furthest Extent	7000	ppm	0	0

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Explosion Effects: Early Explosion

Path: \Terminal Adonai - Efeitos físicos\Simulações\H172

Early Explosions are assumed to be centered at the release location
Explosion Model Used : TNT

			Dia	Noite
Supplied Flammable Mass		kg	42857.6	42857.6
Distance (m) at Overpressure Levels				
			Dia	Noite
Overpressure	0.05	bar	No Hazard	No Hazard
Overpressure	0.1	bar	No Hazard	No Hazard
Overpressure	0.3	bar	No Hazard	No Hazard
Used Mass (kg) at Overpressure Levels				
			Dia	Noite
Overpressure	0.05	bar	0	0
Overpressure	0.1	bar	0	0
Overpressure	0.3	bar	0	0

Weather Conditions

Path: \Terminal Adonai - Efeitos físicos\Simulações\H172

		Dia	Noite
Wind Speed	m/s	3	2
Pasquill Stability		C	E
Surface Roughness Length	mm	1000	1000
Surface Roughness Parameter		0.173718	0.173718
Atmospheric Temperature	degC	25	20
Surface Temperature	degC	30	20
Relative Humidity	fraction	0.8	0.8

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

H173

Base Case

CASE Name: Data

Path: \Terminal Adonai - Efeitos físicos\Simulações\H173

User-Defined Data

Material

Material Identifier	N-PENTANE
Type of Vessel	Unpressurized (at atmospheric pressure)
Pressure Specification	Pressure not used
Temperature	25 degC
Volume Inventory	60 m3

Scenario

Scenario Type	Catastrophic rupture
Phase to be Released	Liquid
Building Wake Effect	None
Tank Head	0 m

Location

Elevation	1 m
Use ERPG averaging time	ERPG not selected
Use IDLH averaging time	IDLH not selected
Use STEL averaging time	STEL not selected
Supply a user defined averaging time	Not supplied

Bund

Status of Bund	No bund present
[Type of Bund Surface	User-Defined (Land)]
[Bund Height	0 m]
[Bund Failure Modeling	Bund cannot fail]

Indoor/Outdoor

Location of release	Open air release
---------------------	------------------

Flammable

Explosion Method	TNT
Jet Fire Method	Cone Model

Dispersion

Late Ignition Location	No ignition location
Mass Inventory of material to Disperse	3.73E4 kg
Use Burst Pressure	No - Use release pressure for fireball

Fireball Parameters

[Mass Modification Factor	3]
[Calculation method for fireball	DNV Recommended]
[TNO model flame temperature	1727 degC]

Toxic Parameters

[Indoor Calculations	Unselected]
[Wind Dependent Exchange Rate	Case Specified]
[Building Exchange Rate	4 /hr]

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

[Tail Time	1800 s]
[Set averaging time equal to exposure time	Use a fixed averaging time]
[Cut-off fraction of toxic load for exposure time calculation	0.05 fraction]
[Cut-off concentration for exposure time calculations	0 fraction]

Geometry

Shape	Point
Dimension	2D
System	Absolute
East(1)	0 m
North(1)	0 m

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Path: \Terminal Adonai - Efeitos físicos\Simulações\H173

DISCHARGE DATA for Weather: Global Weathers\Dia

Wind Speed: 3.00 m/s
Wind Speed at Height (Calculated) 1.78 m/s
Pasquill Stability: C

USER-DEFINED QUANTITIES

Material N-PENTANE
Scenario Catastrophic rupture
Inventory 37,304.60 kg
Fixed Duration n/a s

Stagnation data (data at upstream end for long pipe):

- Pressure 1.01 bar
- Temperature 25.00 degC
- Fluid State Liquid at atmospheric pressure

CALCULATED QUANTITIES

Mass Flow of Air (Vent from Vapor Space only) n/a
Mass Flowrate n/a kg/s
Release Duration n/a s
Orifice or pipe exit data (before atmospheric expansion):
- Pressure n/a bar
- Temperature n/a degC
- Vena Contracta Velocity (exit velocity for pipe releases) n/a m/s
- Discharge Coefficient n/a
Final data (after atmospheric expansion):
- Temperature 25.00 degC
- Liquid Mass Fraction 1.00 fraction
- Droplet Diameter 10,000.00 um
- Expanded Radius n/a m
- Velocity 0.00 m/s

DISCHARGE DATA for Weather: Global Weathers\Noite

Wind Speed: 2.00 m/s
Wind Speed at Height (Calculated) 0.83 m/s
Pasquill Stability: E

USER-DEFINED QUANTITIES

Material N-PENTANE
Scenario Catastrophic rupture
Inventory 37,304.60 kg
Fixed Duration n/a s

Stagnation data (data at upstream end for long pipe):

- Pressure 1.01 bar
- Temperature 25.00 degC
- Fluid State Liquid at atmospheric pressure

CALCULATED QUANTITIES

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Mass Flow of Air (Vent from Vapor Space only)	n/a
Mass Flowrate	n/a kg/s
Release Duration	n/a s
Orifice or pipe exit data (before atmospheric expansion):	
- Pressure	n/a bar
- Temperature	n/a degC
- Vena Contracta Velocity (exit velocity for pipe releases)	n/a m/s
- Discharge Coefficient	n/a
Final data (after atmospheric expansion):	
- Temperature	25.00 degC
- Liquid Mass Fraction	1.00 fraction
- Droplet Diameter	10,000.00 um
- Expanded Radius	n/a m
- Velocity	0.00 m/s



Consequence Results

Pool Vaporization Results

Path: \Terminal Adonai - Efeitos físicos\Simulações\H173

N.B. Pool vaporization segments begin when the cloud has left the pool

		Dia	Noite
Liquid Rainout	fraction	0.989395	0.990001
Initial Vapor Cloud	kg	395.602	373.016
Time Pool Left Behind	s	46.8033	127.057
Cloud Segment 1			
Cloud Segment Duration	s	27.5625	25.7556
Pool Vaporization Rate	kg/s	28.6918	21.1767
Cloud Segment 2			
Cloud Segment Duration	s	21.0881	19.1344
Pool Vaporization Rate	kg/s	37.4576	28.7812
Cloud Segment 3			
Cloud Segment Duration	s	24.88	21.9406
Pool Vaporization Rate	kg/s	31.7913	24.8825
Cloud Segment 4			
Cloud Segment Duration	s	28.985	25.3294
Pool Vaporization Rate	kg/s	27.2123	21.7111
Cloud Segment 5			
Cloud Segment Duration	s	33.79	28.84
Pool Vaporization Rate	kg/s	23.4877	19.0695
Cloud Segment 6			
Cloud Segment Duration	s	38.595	32.76
Pool Vaporization Rate	kg/s	20.4421	16.8478
Cloud Segment 7			
Cloud Segment Duration	s	44.1394	36.68
Pool Vaporization Rate	kg/s	17.938	14.9692
Cloud Segment 8			
Cloud Segment Duration	s	49.92	81.81
Pool Vaporization Rate	kg/s	15.8612	12.7265
Cloud Segment 9			
Cloud Segment Duration	s	51.45	327.75
Pool Vaporization Rate	kg/s	14.1946	8.87989
Cloud Segment 10			
Cloud Segment Duration	s	279.59	
Pool Vaporization Rate	kg/s	11.0465	
Maximum Pool Radius	m	24.8246	24.8519

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Distance to Concentration Results

Path: \Terminal Adonai - Efeitos físicos\Simulações\H173

The height for user defined concentrations is the user defined height 0 m
All toxic results are reported at the toxic effect height 1 m
All flammable results are reported at the flammable effect height 0 m

Concentration(ppm)	Averaging Time		Distance (m)	
			Dia	Noite
UFL (80000)	18.75	s	31.0566	35.9919
LFL (13000)	18.75	s	79.4716	81.8898
LFL Frac (13000)	18.75	s	79.4716	81.8898

Concentration(ppm)	Averaging Time		Heights (m) for above distances	
			Dia	Noite
UFL (80000)	18.75	s	0	0
LFL (13000)	18.75	s	0	0
LFL Frac (13000)	18.75	s	0	0

Late Pool Fire Hazard

Path: \Terminal Adonai - Efeitos físicos\Simulações\H173

	Dia	Noite
Late Pool Fire Status	Hazard	Hazard

Radiation Effects: Late Pool Fire Ellipse

Path: \Terminal Adonai - Efeitos físicos\Simulações\H173

			Distance (m)	
			Dia	Noite
Radiation Level	9.83	kW/m2	32.7942	31.4749
Radiation Level	19.46	kW/m2	26.2748	26.2681
Radiation Level	35	kW/m2	Not Reached	Not Reached

Radiation Effects: Late Pool Fire Distance

Path: \Terminal Adonai - Efeitos físicos\Simulações\H173

	Dia	Radiation Level (kW/m2) Noite
--	-----	----------------------------------

Fireball Hazard

Path: \Terminal Adonai - Efeitos físicos\Simulações\H173

	Dia	Noite
Fireball Flame Status	No Hazard	No Hazard

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Flash Fire Envelope

Path: \Terminal Adonai - Efeitos físicos\Simulações\H173

All flammable results are reported at the flammable effect height 0 m

				Distance (m)	
				Dia	Noite
Furthest Extent	13000	ppm		79.4716	81.8898
Furthest Extent	13000	ppm		79.4716	81.8898
				Heights (m) for above distances	
				Dia	Noite
Furthest Extent	13000	ppm		0	0
Furthest Extent	13000	ppm		0	0

Explosion Effects: Early Explosion

Path: \Terminal Adonai - Efeitos físicos\Simulações\H173

Early Explosions are assumed to be centered at the release location
Explosion Model Used : TNT

				Dia	Noite
Supplied Flammable Mass		kg		37304.6	37304.6
				Distance (m) at Overpressure Levels	
				Dia	Noite
Overpressure	0.05	bar		No Hazard	No Hazard
Overpressure	0.1	bar		No Hazard	No Hazard
Overpressure	0.3	bar		No Hazard	No Hazard
				Used Mass (kg) at Overpressure Levels	
				Dia	Noite
Overpressure	0.05	bar		0	0
Overpressure	0.1	bar		0	0
Overpressure	0.3	bar		0	0

SUMMARY REPORT

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Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Explosion Effects: Late Ignition

Path: \Terminal Adonai - Efeitos físicos\Simulações\H173

Explosion Model Used : TNT

Explosion Location Criterion: Cloud Center

All distances are measured from the Source

All flammable results are reported at the flammable effect height 0 m

			Maximum Distance (m) at Overpressure Level	
			Dia	Noite
Overpressure	0.05	bar	157.249	161.372
Overpressure	0.1	bar	109.765	111.99
Overpressure	0.3	bar	70.8461	71.5164
			Supplementary Data at 0.05 bar	
			Dia	Noite
Supplied Flammable Mass		kg	411.146	462.425
Used Flammable Mass		kg	411.146	462.425
Overpressure Radius		m	125.218	130.221
Distance to:				
- Ignition Source		m	70	80
- Cloud Front/Centre		m	32.0309	31.1503
- Explosion Centre		m	32.0309	31.1503
			Supplementary Data at 0.1 bar	
			Dia	Noite
Supplied Flammable Mass		kg	411.146	462.425
Used Flammable Mass		kg	411.146	462.425
Overpressure Radius		m	77.7337	80.8397
Distance to:				
- Ignition Source		m	70	80
- Cloud Front/Centre		m	32.0309	31.1503
- Explosion Centre		m	32.0309	31.1503
			Supplementary Data at 0.3 bar	
			Dia	Noite
Supplied Flammable Mass		kg	411.146	462.425
Used Flammable Mass		kg	411.146	462.425
Overpressure Radius		m	38.8152	40.3661
Distance to:				
- Ignition Source		m	70	80
- Cloud Front/Centre		m	32.0309	31.1503
- Explosion Centre		m	32.0309	31.1503

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Weather Conditions

Path: \Terminal Adonai - Efeitos físicos\Simulações\H173

		Dia	Noite
Wind Speed	m/s	3	2
Pasquill Stability		C	E
Surface Roughness Length	mm	1000	1000
Surface Roughness Parameter		0.173718	0.173718
Atmospheric Temperature	degC	25	20
Surface Temperature	degC	30	20
Relative Humidity	fraction	0.8	0.8

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

H174

Base Case

CASE Name: Data

Path: \Terminal Adonai - Efeitos físicos\Simulações\H174

User-Defined Data

Material

Material Identifier	PROPANE
Type of Vessel	Pressurized Gas
Pressure Specification	Pressure specified
Storage Pressure - gauge	1.5 bar
Temperature	25 degC
Mass Inventory	2000 kg

Scenario

Scenario Type	Line rupture
Phase to be Released	Vapor
Building Wake Effect	None
Specify Pump Head	No pump head supplied
Number of Excess Flow Valves	0
Number of Non-Return Valves	0
Number of Shut-Off Valves	0

Pipe

Internal Diameter	50.8 mm
Line length	1 m

Vessel/Tank

Duration of Interest	600 s
Method Used for Time Varying Releases	Average Rates

Location

[Elevation	1 m]
Use ERPG averaging time	ERPG not selected
Use IDLH averaging time	IDLH not selected
Use STEL averaging time	STEL not selected
Supply a user defined averaging time	Not supplied

Bund

Status of Bund	No bund present
[Type of Bund Surface	User-Defined (Land)]
[Bund Height	0 m]
[Bund Failure Modeling	Bund cannot fail]

Indoor/Outdoor

Location of release	Open air release
Outdoor Release Direction	Horizontal

Flammable

Explosion Method	TNT
Jet Fire Method	Cone Model

Dispersion

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Late Ignition Location No ignition location
Mass Inventory of material to Disperse 2000 kg

Fireball Parameters

[Mass Modification Factor 3]
[Calculation method for fireball DNV Recommended]
[TNO model flame temperature 1727 degC]

Toxic Parameters

[Indoor Calculations Unselected]
[Wind Dependent Exchange Rate Case Specified]
[Building Exchange Rate 4 /hr]
[Tail Time 1800 s]
[Set averaging time equal to exposure time Use a fixed averaging time]
[Cut-off fraction of toxic load for exposure time calculation 0.05 fraction]
[Cut-off concentration for exposure time calculations 0 fraction]

Geometry

Shape Point
Dimension 2D
System Absolute
East(1) 0 m
North(1) 0 m

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Path: \Terminal Adonai - Efeitos físicos\Simulações\H174

DISCHARGE DATA for Weather: Global Weathers\Dia

Wind Speed: 3.00 m/s
Wind Speed at Height (Calculated) 1.78 m/s
Pasquill Stability: C

USER-DEFINED QUANTITIES

Material PROPANE
Scenario Line rupture
Inventory 2,000.00 kg
Fixed Duration n/a s

Stagnation data (data at upstream end for long pipe):

- Pressure 2.51 bar
- Temperature 25.00 degC
- Fluid State Pressurized gas

CALCULATED QUANTITIES

Mass Flow of Air (Vent from Vapor Space only) n/a
Mass Flowrate 9.19957E-001 kg/s
Release Duration 600.00 s
Orifice or pipe exit data (before atmospheric expansion):
- Pressure n/a bar
- Temperature n/a degC
- Vena Contracta Velocity (exit velocity for pipe releases) n/a m/s
- Discharge Coefficient n/a
Final data (after atmospheric expansion):
- Temperature 4.03 degC
- Liquid Mass Fraction 0.00 fraction
- Droplet Diameter 0.00 um
- Expanded Radius n/a m
- Velocity 233.82 m/s

DISCHARGE DATA for Weather: Global Weathers\Noite

Wind Speed: 2.00 m/s
Wind Speed at Height (Calculated) 0.83 m/s
Pasquill Stability: E

USER-DEFINED QUANTITIES

Material PROPANE
Scenario Line rupture
Inventory 2,000.00 kg
Fixed Duration n/a s

Stagnation data (data at upstream end for long pipe):

- Pressure 2.51 bar
- Temperature 25.00 degC
- Fluid State Pressurized gas

CALCULATED QUANTITIES

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Mass Flow of Air (Vent from Vapor Space only)	n/a
Mass Flowrate	9.19957E-001 kg/s
Release Duration	600.00 s
Orifice or pipe exit data (before atmospheric expansion):	
- Pressure	n/a bar
- Temperature	n/a degC
- Vena Contracta Velocity (exit velocity for pipe releases)	n/a m/s
- Discharge Coefficient	n/a
Final data (after atmospheric expansion):	
- Temperature	4.03 degC
- Liquid Mass Fraction	0.00 fraction
- Droplet Diameter	0.00 um
- Expanded Radius	n/a m
- Velocity	233.82 m/s



Consequence Results

Distance to Concentration Results

Path: \Terminal Adonai - Efeitos físicos\Simulações\H174

The height for user defined concentrations is the user defined height 0 m
 All toxic results are reported at the toxic effect height 1 m
 All flammable results are reported at the flammable effect height 0 m

Concentration(ppm)	Averaging Time	Distance (m)	
		Dia	Noite
UFL (95000)	18.75 s	No Hazard	No Hazard
LFL (20000)	18.75 s	No Hazard	No Hazard
LFL Frac (20000)	18.75 s	No Hazard	No Hazard

Concentration(ppm)	Averaging Time	Heights (m) for above distances	
		Dia	Noite
UFL (95000)	18.75 s	0	0
LFL (20000)	18.75 s	0	0
LFL Frac (20000)	18.75 s	0	0

Jet Fire Hazard

Path: \Terminal Adonai - Efeitos físicos\Simulações\H174

Jet fire method used: Cone model - DNV recommended

Jet Fire Status	Dia	Noite
Flame Direction	Horizontal	Horizontal

Radiation Effects: Jet Fire Ellipse

Path: \Terminal Adonai - Efeitos físicos\Simulações\H174

This table gives the distances to the specified radiation levels for each jet fire listed in the above hazard table

Radiation Level	kW/m2	Distance (m)	
		Dia	Noite
9.83	kW/m2	15.7787	15.0473
19.46	kW/m2	13.5073	12.7199
35	kW/m2	Not Reached	Not Reached

Radiation Effects: Jet Fire Distance

Path: \Terminal Adonai - Efeitos físicos\Simulações\H174

Dia	Radiation Level (kW/m2)
	Noite

SUMMARY REPORT

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Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Weather Conditions

Path: \Terminal Adonai - Efeitos físicos\Simulações\H174

		Dia	Noite
Wind Speed	m/s	3	2
Pasquill Stability		C	E
Surface Roughness Length	mm	1000	1000
Surface Roughness Parameter		0.173718	0.173718
Atmospheric Temperature	degC	25	20
Surface Temperature	degC	30	20
Relative Humidity	fraction	0.8	0.8

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

H175

Base Case

CASE Name: Data

Path: \Terminal Adonai - Efeitos físicos\Simulações\H175

User-Defined Data

Material

Material Identifier	PROPANE
Type of Vessel	Pressurized Gas
Pressure Specification	Pressure specified
Storage Pressure - gauge	1.5 bar
Temperature	25 degC
Mass Inventory	2000 kg

Scenario

Scenario Type	Leak
Phase to be Released	Vapor
Hole Diameter	5.08 mm
Building Wake Effect	None

Vessel/Tank

Duration of Interest	600 s
Method Used for Time Varying Releases	Average Rates

Location

[Elevation	1 m]
Use ERPG averaging time	ERPG not selected
Use IDLH averaging time	IDLH not selected
Use STEL averaging time	STEL not selected
Supply a user defined averaging time	Not supplied

Bund

Status of Bund	No bund present
[Type of Bund Surface	User-Defined (Land)]
[Bund Height	0 m]
[Bund Failure Modeling	Bund cannot fail]

Indoor/Outdoor

Location of release	Open air release
Outdoor Release Direction	Horizontal

Flammable

Explosion Method	TNT
Jet Fire Method	Cone Model

Dispersion

Late Ignition Location	No ignition location
Mass Inventory of material to Disperse	2000 kg

Fireball Parameters

[Mass Modification Factor	3]
[Calculation method for fireball	DNV Recommended]
[TNO model flame temperature	1727 degC]

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Toxic Parameters

[Indoor Calculations	Unselected]
[Wind Dependent Exchange Rate	Case Specified]
[Building Exchange Rate	4 /hr]
[Tail Time	1800 s]
[Set averaging time equal to exposure time	Use a fixed averaging time]
[Cut-off fraction of toxic load for exposure time calculation	0.05 fraction]
[Cut-off concentration for exposure time calculations	0 fraction]

Geometry

Shape	Point
Dimension	2D
System	Absolute
East(1)	0 m
North(1)	0 m

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Path: \Terminal Adonai - Efeitos físicos\Simulações\H175

DISCHARGE DATA for Weather: Global Weathers\Dia

Wind Speed: 3.00 m/s
Wind Speed at Height (Calculated) 1.78 m/s
Pasquill Stability: C

USER-DEFINED QUANTITIES

Material PROPANE
Scenario Leak
Inventory 2,000.00 kg
Fixed Duration n/a s

Stagnation data (data at upstream end for long pipe):

- Pressure 2.51 bar
- Temperature 25.00 degC
- Fluid State Pressurized gas

CALCULATED QUANTITIES

Mass Flow of Air (Vent from Vapor Space only) n/a
Mass Flowrate 1.12305E-002 kg/s
Release Duration 600.00 s

Orifice or pipe exit data (before atmospheric expansion):

- Pressure n/a bar
- Temperature n/a degC
- Vena Contracta Velocity (exit velocity for pipe releases) n/a m/s
- Discharge Coefficient n/a

Final data (after atmospheric expansion):

- Temperature -6.26 degC
- Liquid Mass Fraction 0.00 fraction
- Droplet Diameter 0.00 um
- Expanded Radius n/a m
- Velocity 304.23 m/s

DISCHARGE DATA for Weather: Global Weathers\Noite

Wind Speed: 2.00 m/s
Wind Speed at Height (Calculated) 0.83 m/s
Pasquill Stability: E

USER-DEFINED QUANTITIES

Material PROPANE
Scenario Leak
Inventory 2,000.00 kg
Fixed Duration n/a s

Stagnation data (data at upstream end for long pipe):

- Pressure 2.51 bar
- Temperature 25.00 degC
- Fluid State Pressurized gas

CALCULATED QUANTITIES

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Mass Flow of Air (Vent from Vapor Space only)	n/a
Mass Flowrate	1.12305E-002 kg/s
Release Duration	600.00 s
Orifice or pipe exit data (before atmospheric expansion):	
- Pressure	n/a bar
- Temperature	n/a degC
- Vena Contracta Velocity (exit velocity for pipe releases)	n/a m/s
- Discharge Coefficient	n/a
Final data (after atmospheric expansion):	
- Temperature	-6.26 degC
- Liquid Mass Fraction	0.00 fraction
- Droplet Diameter	0.00 um
- Expanded Radius	n/a m
- Velocity	304.23 m/s



Consequence Results

Distance to Concentration Results

Path: \Terminal Adonai - Efeitos físicos\Simulações\H175

The height for user defined concentrations is the user defined height 0 m
 All toxic results are reported at the toxic effect height 1 m
 All flammable results are reported at the flammable effect height 0 m

Concentration(ppm)	Averaging Time			Distance (m)	
				Dia	Noite
UFL (95000)	18.75	s		No Hazard	No Hazard
LFL (20000)	18.75	s		No Hazard	No Hazard
LFL Frac (20000)	18.75	s		No Hazard	No Hazard

Concentration(ppm)	Averaging Time			Heights (m) for above distances	
				Dia	Noite
UFL (95000)	18.75	s		0	0
LFL (20000)	18.75	s		0	0
LFL Frac (20000)	18.75	s		0	0

Jet Fire Hazard

Path: \Terminal Adonai - Efeitos físicos\Simulações\H175

Jet fire method used: Cone model - DNV recommended

	Dia	Noite
Jet Fire Status	Hazard	Hazard
Flame Direction	Horizontal	Horizontal

Radiation Effects: Jet Fire Ellipse

Path: \Terminal Adonai - Efeitos físicos\Simulações\H175

This table gives the distances to the specified radiation levels for each jet fire listed in the above hazard table

			Distance (m)	
			Dia	Noite
Radiation Level	9.83	kW/m2	Not Reached	Not Reached
Radiation Level	19.46	kW/m2	Not Reached	Not Reached
Radiation Level	35	kW/m2	Not Reached	Not Reached

Radiation Effects: Jet Fire Distance

Path: \Terminal Adonai - Efeitos físicos\Simulações\H175

	Radiation Level (kW/m2)
Dia	Noite

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Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Weather Conditions

Path: \Terminal Adonai - Efeitos físicos\Simulações\H175

		Dia	Noite
Wind Speed	m/s	3	2
Pasquill Stability		C	E
Surface Roughness Length	mm	1000	1000
Surface Roughness Parameter		0.173718	0.173718
Atmospheric Temperature	degC	25	20
Surface Temperature	degC	30	20
Relative Humidity	fraction	0.8	0.8

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

H176

Base Case

CASE Name: Data

Path: \Terminal Adonai - Efeitos físicos\Simulações\H176

User-Defined Data

Material

Material Identifier	PROPANE
Type of Vessel	Padded Liquid
Pressure Specification	Pressure specified
Storage Pressure - gauge	15 bar
Temperature	25 degC
Mass Inventory	2000 kg

Scenario

Scenario Type	Catastrophic rupture
Phase to be Released	Liquid
Building Wake Effect	None

Location

[Elevation	1 m]
Use ERPG averaging time	ERPG not selected
Use IDLH averaging time	IDLH not selected
Use STEL averaging time	STEL not selected
Supply a user defined averaging time	Not supplied

Bund

Status of Bund	No bund present
[Type of Bund Surface	User-Defined (Land)]
[Bund Height	0 m]
[Bund Failure Modeling	Bund cannot fail]

Indoor/Outdoor

Location of release	Open air release
---------------------	------------------

Flammable

Explosion Method	TNT
Jet Fire Method	Cone Model

Dispersion

Late Ignition Location	No ignition location
Mass Inventory of material to Disperse	2000 kg
Use Burst Pressure	No - Use release pressure for fireball

Fireball Parameters

[Mass Modification Factor	3]
[Calculation method for fireball	DNV Recommended]
[TNO model flame temperature	1727 degC]

Toxic Parameters

[Indoor Calculations	Unselected]
[Wind Dependent Exchange Rate	Case Specified]
[Building Exchange Rate	4 /hr]

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Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

[Tail Time	1800 s]
[Set averaging time equal to exposure time	Use a fixed averaging time]
[Cut-off fraction of toxic load for exposure time calculation	0.05 fraction]
[Cut-off concentration for exposure time calculations	0 fraction]

Geometry

Shape	Point
Dimension	2D
System	Absolute
East(1)	0 m
North(1)	0 m

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Path: \Terminal Adonai - Efeitos físicos\Simulações\H176

DISCHARGE DATA for Weather: Global Weathers\Dia

Wind Speed: 3.00 m/s
Wind Speed at Height (Calculated) 1.78 m/s
Pasquill Stability: C

USER-DEFINED QUANTITIES

Material PROPANE
Scenario Catastrophic rupture
Inventory 2,000.00 kg
Fixed Duration n/a s

Stagnation data (data at upstream end for long pipe):

- Pressure 16.01 bar
- Temperature 25.00 degC
- Fluid State Non-saturated liquid

CALCULATED QUANTITIES

Mass Flow of Air (Vent from Vapor Space only) n/a
Mass Flowrate n/a kg/s
Release Duration n/a s
Orifice or pipe exit data (before atmospheric expansion):
- Pressure n/a bar
- Temperature n/a degC
- Vena Contracta Velocity (exit velocity for pipe releases) n/a m/s
- Discharge Coefficient n/a
Final data (after atmospheric expansion):
- Temperature -42.07 degC
- Liquid Mass Fraction 0.66 fraction
- Droplet Diameter 94.74 um
- Expanded Radius n/a m
- Velocity 203.48 m/s

DISCHARGE DATA for Weather: Global Weathers\Noite

Wind Speed: 2.00 m/s
Wind Speed at Height (Calculated) 0.83 m/s
Pasquill Stability: E

USER-DEFINED QUANTITIES

Material PROPANE
Scenario Catastrophic rupture
Inventory 2,000.00 kg
Fixed Duration n/a s

Stagnation data (data at upstream end for long pipe):

- Pressure 16.01 bar
- Temperature 25.00 degC
- Fluid State Non-saturated liquid

CALCULATED QUANTITIES

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Mass Flow of Air (Vent from Vapor Space only)	n/a
Mass Flowrate	n/a kg/s
Release Duration	n/a s
Orifice or pipe exit data (before atmospheric expansion):	
- Pressure	n/a bar
- Temperature	n/a degC
- Vena Contracta Velocity (exit velocity for pipe releases)	n/a m/s
- Discharge Coefficient	n/a
Final data (after atmospheric expansion):	
- Temperature	-42.07 degC
- Liquid Mass Fraction	0.66 fraction
- Droplet Diameter	94.74 um
- Expanded Radius	n/a m
- Velocity	203.48 m/s

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Consequence Results

Distance to Concentration Results

Path: \Terminal Adonai - Efeitos físicos\Simulações\H176

The height for user defined concentrations is the user defined height 0 m
All toxic results are reported at the toxic effect height 1 m
All flammable results are reported at the flammable effect height 0 m

Concentration(ppm)	Averaging Time		Distance (m)	
			Dia	Noite
UFL (95000)	18.75	s	12.4052	11.73
LFL (20000)	18.75	s	36.4207	26.8336
LFL Frac (20000)	18.75	s	36.4207	26.8336

Concentration(ppm)	Averaging Time		Heights (m) for above distances	
			Dia	Noite
UFL (95000)	18.75	s	0	0
LFL (20000)	18.75	s	0	0
LFL Frac (20000)	18.75	s	0	0

Fireball Hazard

Path: \Terminal Adonai - Efeitos físicos\Simulações\H176

Fireball Flame Status	Dia	Noite
	Hazard	Hazard

Radiation Effects: Fireball Ellipse

Path: \Terminal Adonai - Efeitos físicos\Simulações\H176

Radiation Level			Distance (m)	
			Dia	Noite
Radiation Level	9.83	kW/m2	135.689	138.367
Radiation Level	19.46	kW/m2	84.0478	86.1132
Radiation Level	35	kW/m2	41.4652	43.6322

Radiation Effects: Fireball Distance

Path: \Terminal Adonai - Efeitos físicos\Simulações\H176

Dia	Radiation Level (kW/m2)
	Noite

SUMMARY REPORT

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Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Flash Fire Envelope

Path: \Terminal Adonai - Efeitos físicos\Simulações\H176

All flammable results are reported at the flammable effect height 0 m

			Distance (m)	
			Dia	Noite
Furthest Extent	20000	ppm	36.4207	26.8336
Furthest Extent	20000	ppm	36.4207	26.8336
			Heights (m) for above distances	
			Dia	Noite
Furthest Extent	20000	ppm	0	0
Furthest Extent	20000	ppm	0	0

Explosion Effects: Early Explosion

Path: \Terminal Adonai - Efeitos físicos\Simulações\H176

Early Explosions are assumed to be centered at the release location
Explosion Model Used : TNT

			Dia	Noite
Supplied Flammable Mass		kg	2000	2000
			Distance (m) at Overpressure Levels	
			Dia	Noite
Overpressure	0.05	bar	214.282	214.282
Overpressure	0.1	bar	133.023	133.023
Overpressure	0.3	bar	66.4231	66.4231
			Used Mass (kg) at Overpressure Levels	
			Dia	Noite
Overpressure	0.05	bar	2000	2000
Overpressure	0.1	bar	2000	2000
Overpressure	0.3	bar	2000	2000

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Explosion Effects: Late Ignition

Path: \Terminal Adonai - Efeitos físicos\Simulações\H176

Explosion Model Used : TNT

Explosion Location Criterion: Cloud Center

All distances are measured from the Source

All flammable results are reported at the flammable effect height 0 m

			Maximum Distance (m) at Overpressure Level	
			Dia	Noite
Overpressure	0.05	bar	179.15	184.432
Overpressure	0.1	bar	112.284	115.359
Overpressure	0.3	bar	57.758	58.7464

Supplementary Data at 0.05 bar

			Dia	Noite
Supplied Flammable Mass		kg	1114.37	1228.43
Used Flammable Mass		kg	1114.37	1228.43
Overpressure Radius		m	176.327	182.148
Distance to:				
- Ignition Source		m	20	20
- Cloud Front/Centre		m	2.82254	2.28395
- Explosion Centre		m	2.82254	2.28395

Supplementary Data at 0.1 bar

			Dia	Noite
Supplied Flammable Mass		kg	1114.37	1228.43
Used Flammable Mass		kg	1114.37	1228.43
Overpressure Radius		m	109.461	113.075
Distance to:				
- Ignition Source		m	20	20
- Cloud Front/Centre		m	2.82254	2.28395
- Explosion Centre		m	2.82254	2.28395

Supplementary Data at 0.3 bar

			Dia	Noite
Supplied Flammable Mass		kg	646.452	1228.43
Used Flammable Mass		kg	646.452	1228.43
Overpressure Radius		m	45.5849	56.4624
Distance to:				
- Ignition Source		m	30	20
- Cloud Front/Centre		m	12.173	2.28395
- Explosion Centre		m	12.173	2.28395

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Weather Conditions

Path: \Terminal Adonai - Efeitos físicos\Simulações\H176

		Dia	Noite
Wind Speed	m/s	3	2
Pasquill Stability		C	E
Surface Roughness Length	mm	1000	1000
Surface Roughness Parameter		0.173718	0.173718
Atmospheric Temperature	degC	25	20
Surface Temperature	degC	30	20
Relative Humidity	fraction	0.8	0.8

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

H177

Base Case

CASE Name: Data

Path: \Terminal Adonai - Efeitos físicos\Simulações\H177

User-Defined Data

Material

Material Identifier	PROPANE
Type of Vessel	Saturated Liquid (Equilibrium vapor/liquid)
Pressure Specification	Pressure not used
Temperature	25 degC
Mass Inventory	2000 kg

Scenario

Scenario Type	Relief valve
Phase to be Released	Two-Phase
Hole Diameter	50.8 mm
Building Wake Effect	None
Number of Excess Flow Valves	0
Number of Non-Return Valves	0
Number of Shut-Off Valves	0

Pipe

Internal Diameter	50.8 mm
Line length	1 m

Location

Elevation	2 m
Use ERPG averaging time	ERPG not selected
Use IDLH averaging time	IDLH not selected
Use STEL averaging time	STEL not selected
Supply a user defined averaging time	Not supplied

Bund

Status of Bund	No bund present
[Type of Bund Surface	User-Defined (Land)]
[Bund Height	0 m]
[Bund Failure Modeling	Bund cannot fail]

Indoor/Outdoor

Location of release	Open air release
Outdoor Release Direction	Vertical

Flammable

Explosion Method	TNT
Jet Fire Method	Cone Model

Dispersion

Late Ignition Location	No ignition location
Mass Inventory of material to Disperse	2000 kg

Fireball Parameters

[Mass Modification Factor	3]
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SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

[Calculation method for fireball DNV Recommended]
[TNO model flame temperature 1727 degC]

Toxic Parameters

[Indoor Calculations Unselected]
[Wind Dependent Exchange Rate Case Specified]
[Building Exchange Rate 4 /hr]
[Tail Time 1800 s]
[Set averaging time equal to exposure time Use a fixed averaging time]
[Cut-off fraction of toxic load for exposure time calculation 0.05 fraction]
[Cut-off concentration for exposure time calculations 0 fraction]

Geometry

Shape Point
Dimension 2D
System Absolute
East(1) 0 m
North(1) 0 m

SUMMARY REPORT

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Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Path: \Terminal Adonai - Efeitos físicos\Simulações\H177

DISCHARGE DATA for Weather: Global Weathers\Dia

Wind Speed: 3.00 m/s
Wind Speed at Height (Calculated) 2.08 m/s
Pasquill Stability: C

USER-DEFINED QUANTITIES

Material PROPANE
Scenario Relief valve
Inventory 2,000.00 kg
Fixed Duration n/a s

Stagnation data (data at upstream end for long pipe):

- Pressure 9.53 bar
- Temperature 25.00 degC
- Fluid State Saturated liquid

CALCULATED QUANTITIES

Mass Flow of Air (Vent from Vapor Space only) n/a
Mass Flowrate 1.30980E+001 kg/s
Release Duration 152.70 s

Orifice or pipe exit data (before atmospheric expansion):

- Pressure 7.90 bar
- Temperature 17.81 degC
- Vena Contracta Velocity (exit velocity for pipe releases) 33.65 m/s
- Discharge Coefficient 1.00

Final data (after atmospheric expansion):

- Temperature -42.07 degC
- Liquid Mass Fraction 0.66 fraction
- Droplet Diameter 104.58 um
- Expanded Radius 0.05 m
- Velocity 213.14 m/s

DISCHARGE DATA for Weather: Global Weathers\Noite

Wind Speed: 2.00 m/s
Wind Speed at Height (Calculated) 1.08 m/s
Pasquill Stability: E

USER-DEFINED QUANTITIES

Material PROPANE
Scenario Relief valve
Inventory 2,000.00 kg
Fixed Duration n/a s

Stagnation data (data at upstream end for long pipe):

- Pressure 9.53 bar
- Temperature 25.00 degC
- Fluid State Saturated liquid

CALCULATED QUANTITIES

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Mass Flow of Air (Vent from Vapor Space only)	n/a
Mass Flowrate	1.30980E+001 kg/s
Release Duration	152.70 s
Orifice or pipe exit data (before atmospheric expansion):	
- Pressure	7.90 bar
- Temperature	17.81 degC
- Vena Contracta Velocity (exit velocity for pipe releases)	33.65 m/s
- Discharge Coefficient	1.00
Final data (after atmospheric expansion):	
- Temperature	-42.07 degC
- Liquid Mass Fraction	0.66 fraction
- Droplet Diameter	104.58 um
- Expanded Radius	0.05 m
- Velocity	213.14 m/s

SUMMARY REPORT

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Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Consequence Results

Distance to Concentration Results

Path: \Terminal Adonai - Efeitos físicos\Simulações\H177

The height for user defined concentrations is the user defined height 0 m
All toxic results are reported at the toxic effect height 1 m
All flammable results are reported at the flammable effect height 0 m

Concentration(ppm)	Averaging Time		Distance (m)	
			Dia	Noite
UFL (95000)	18.75	s	No Hazard	No Hazard
LFL (20000)	18.75	s	No Hazard	No Hazard
LFL Frac (20000)	18.75	s	No Hazard	No Hazard

Concentration(ppm)	Averaging Time		Heights (m) for above distances	
			Dia	Noite
UFL (95000)	18.75	s	0	0
LFL (20000)	18.75	s	0	0
LFL Frac (20000)	18.75	s	0	0

Jet Fire Hazard

Path: \Terminal Adonai - Efeitos físicos\Simulações\H177

Jet fire method used: Cone model - DNV recommended

	Dia	Noite
Jet Fire Status	Hazard	Hazard
Flame Direction	Vertical	Vertical

Radiation Effects: Jet Fire Ellipse

Path: \Terminal Adonai - Efeitos físicos\Simulações\H177

This table gives the distances to the specified radiation levels for each jet fire listed in the above hazard table

			Distance (m)	
Radiation Level			Dia	Noite
9.83	kW/m2		30.1854	29.6828
19.46	kW/m2		14.4931	Not Reached
35	kW/m2		Not Reached	Not Reached

Radiation Effects: Jet Fire Distance

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	Radiation Level (kW/m2)
Dia	Noite

SUMMARY REPORT

Unique Audit Number: 12,800,234



Study Folder: Terminal Adonai - Efeitos físicos

Phast 6.7

Weather Conditions

Path: \Terminal Adonai - Efeitos físicos\Simulações\H177

		Dia	Noite
Wind Speed	m/s	3	2
Pasquill Stability		C	E
Surface Roughness Length	mm	1000	1000
Surface Roughness Parameter		0.173718	0.173718
Atmospheric Temperature	degC	25	20
Surface Temperature	degC	30	20
Relative Humidity	fraction	0.8	0.8