

# SUMMARY REPORT

Study Folder: TOP EVENT 2

Unique Audit Number:

186

PHAST v6.00



## TOP EVENT 2



### Methanol spill out

#### Inside containment basins

##### Base Case

CASE Name:

Data

#### User-Defined Data

##### Material

Material Identifier	METHANOL
Type of Vessel	Unpressurized ( at atmospheric pressure)
Pressure Specification	Pressure not used
Discharge Temperature	44 C
Inventory of material to discharge	790 kg

##### Scenario

Type of Event	Leak
Phase	Liquid
Hole Diameter	100 mm

##### Vessel

Averaging used for time varying	Overall Average
Type of Tank	Rectangular
Tank Height	1.1 m
Tand Width	1.1 m
Tank Length	1.1 m

##### Location

Northern location of dispersion source	0 m
Eastern location of dispersion source	0 m
Height of Discharge above surface	0.4 m
Dispersion Concentration of Interest	10 ppm
Averaging time associated with Concentration	Flammable
Status of Dike	Dike present
Area of Dike	31.4 m2
ERPG selection	ERPG is not set
IDLH selection	IDLH is not set
STEL selection	STEL is not set
User Defined Averaging	No user defined averaging time supplied

##### Indoor/Outdoor

Outdoor Release Direction	Down - Impinging on the Ground
---------------------------	--------------------------------

##### Flammable

Location of Ignition	5 m
Method to use for explosions	TNT
Jet Fire Method	Shell

##### Dispersion

Ignition Location	Ignition location supplied
Inventory of material to Disperse	790 kg

##### Bleve Parameters

BLEVE radiation level 1	3 kW/m2
BLEVE radiation level 2	5 kW/m2
BLEVE radiation level 3	7 kW/m2

# SUMMARY REPORT

Unique Audit Number:

186



Study Folder: TOP EVENT 2

PHAST v6.00

## Jet Fire Parameters

Jet fire radiation level 1	3 kW/m2
Jet fire radiation level 2	5 kW/m2
Jet fire radiation level 3	7 kW/m2

## Pool Fire Parameters

Pool fire radiation level 1	3 kW/m2
Pool fire radiation level 2	5 kW/m2
Pool fire radiation level 3	7 kW/m2

## Multi Energy Explosion

Use Unconfined Volumes	No
Use Fractions	No
Use 1st Confined Source	No
Use 2nd Confined Source	No
Use 3rd Confined Source	No
Use 4th Confined Source	No
Use 5th Confined Source	No
Use 6th Confined Source	No
Use 7th Confined Source	No

## Discharge Data

### User-Defined Quantities

Material	METHANOL
Temperature	44,00 C
Pressure	1,01 bar
Inventory	790,00 kg
Scenario	Leak

### Calculated Quantities

**Weather:** Category 2/F

Mass Flow of Air (Vent from Vapor Space Only)	n/a kg/s
---	----------

#### Average Values for Segment Number 1

Liquid Fraction	1,00 fraction
Final Temperature	43,87 C
Final Velocity	1,63 m/s
Droplet Diameter	0,81 mm
Continuous Release Data:	
Mass Flowrate	5,93 kg/s
Release Duration	58,78 s
Orifice Velocity	n/a m/s
Exit Pressure	n/a bar
Exit Temperature	n/a C
Discharge Coefficient	n/a
Expanded Radius	n/a m

**Weather:** Category 5/D

Mass Flow of Air (Vent from Vapor Space Only)	n/a kg/s
---	----------

#### Average Values for Segment Number 1

Liquid Fraction	1,00 fraction
-----------------	---------------

# SUMMARY REPORT

Unique Audit Number:

186



Study Folder: TOP EVENT 2

PHAST v6.00

FinalTemperature	43,87 C
Final Velocity	1,63 m/s
Droplet Diameter	0,81 mm
Continuous Release Data:	
Mass Flowrate	5,93 kg/s
Release Duration	58,78 s
Orifice Velocity	n/a m/s
Exit Pressure	n/a bar
Exit Temperature	n/a C
Discharge Coefficient	n/a
Expanded Radius	n/a m

## Consequence Results

### Distance to Concentration Results

Concentration(ppm) Averaging Time				Distance (m)	
				Category 2/F	Category 5/D
User Conc (10)	18.75	s		264.144	54.1849
UFL (360000)	18.75	s		0.386979	0.282449
LFL (73000)	18.75	s		0.848274	0.960212
LFL Frac (36500)	18.75	s		1.17666	1.33828

### Concentration At Distance Results

Distance		Conc.(ppm) at Flammable Avg.Time of 18.75 s	
		Category 2/F	Category 5/D
10	m	988.991	472.024
25	m	390.012	56.1548
50	m	158.676	12.2763
Distance		Conc.(ppm) at Core Avg.Time of 18.75 s	
		Category 2/F	Category 5/D
10	m	988.991	472.024
25	m	390.012	56.1548
50	m	158.676	12.2763

### Jet Fire Hazard

Jet Fire Status		Category 2/F Hazard	Category 5/D Hazard
-----------------	--	------------------------	------------------------

### Radiation Effects: Jet Fire Ellipse

				Distance (m)	
				Category 2/F	Category 5/D
Radiation Level	3	kW/m2	Model Error	Model Error	
Radiation Level	5	kW/m2	Not Reached	Not Reached	
Radiation Level	7	kW/m2	Not Reached	Not Reached	

# SUMMARY REPORT

Study Folder: TOP EVENT 2

Unique Audit Number:

186

PHAST v6.00



## Radiation Effects: Jet Fire Distance

			Radiation Level (kW/m2)	
			Category 2/F	Category 5/D
Distance Of Interest 10	m		0.00069661	0.000174447
Distance Of Interest 25	m		9.36722e-005	2.49477e-005
Distance Of Interest 50	m		2.12965e-005	5.79074e-006

## Early Pool Fire Hazard

		Category 2/F	Category 5/D
Early Pool Fire Status		Hazard	Hazard

## Radiation Effects: Early Pool Fire Ellipse

			Distance (m)	
			Category 2/F	Category 5/D
Radiation Level 3	kW/m2	Model Error	Model Error	Model Error
Radiation Level 5	kW/m2	Model Error	Model Error	Model Error
Radiation Level 7	kW/m2	Model Error	Model Error	Model Error

## Radiation Effects: Early Pool Fire Distance

			Radiation Level (kW/m2)	
			Category 2/F	Category 5/D
Distance Of Interest 10	m		23.564	26.4888
Distance Of Interest 25	m		2.25343	1.79195
Distance Of Interest 50	m		0.457035	0.347131

## Late Pool Fire Hazard

		Category 2/F	Category 5/D
Late Pool Fire Status		Hazard	Hazard

## Radiation Effects: Late Pool Fire Ellipse

			Distance (m)	
			Category 2/F	Category 5/D
Radiation Level 3	kW/m2	Model Error	Model Error	Model Error
Radiation Level 5	kW/m2	Model Error	Model Error	Model Error
Radiation Level 7	kW/m2	Model Error	Model Error	Model Error

# SUMMARY REPORT

Study Folder: TOP EVENT 2

Unique Audit Number:

186

PHAST v6.00



## Radiation Effects: Late Pool Fire Distance

			Radiation Level (kW/m2)	
			Category 2/F	Category 5/D
Distance Of Interest 10	m		23.564	26.4888
Distance Of Interest 25	m		2.25343	1.79195
Distance Of Interest 50	m		0.457035	0.347131

## Flash Fire Envelope

			Distance (m)	
			Category 2/F	Category 5/D
Furthest Extent	36500	ppm	1.17666	1.33828
Furthest Extent	73000	ppm	0.848274	0.960212

## Weather Conditions

			Category 2/F	Category 5/D
Wind Speed	m/s		2	5
Pasquill Stability			F	D
Surface Roughness Parameter				0.1
Atmospheric Temperature	C		9.85	9.85
Surface Temperature	C		9.85	9.85
Relative Humidity	fraction		0.7	0.7