Input Report
Workspace: CPA_rev_Resposta_APA
3600 s
Study
CPA_rev_Resposta_APA

Tab	Group	Field	Value	Units
Context of calculations	Selection of context	Weathers to use for this study	Weather folder	
		Parameters to use for this study	3600s	
		Obstructions to use for this study		
Material	Modelling of mixtures	Multi or pseudo-component modelling	PC modelling	
Bund, building and terrain	Terrain and bund definition	Type of terrain for dispersion	Land	
		Type of pool substrate and bunds	Concrete, no bund	
Toxic parameters	Indoor toxic calculations	Specify the downwind building type	Unselected	
		Building type (downwind building type)	Buildings\Building type	
Dispersion	Distances of interest	Distances of interest		m

01_Rotura catastrófica de tanque auxiliar

Atmospheric storage tank
CPA_rev_Resposta_APA\3600 s

Tab	Group	Field	Value	Units
Material	Material	Material	CYCLOPENTANE	
		Specify volume inventory?	No	
		Mass inventory	14050	kg
		Volume inventory	4732,51	m3
		Material to track	CYCLOPENTANE	
	Phase	Specified condition	Temperature and atmospheric pressure	
		Temperature	25,9	degC
		Pressure (gauge)		bar
		Fluid state	Liquid	
		Liquid mole fraction	1	fraction
	Modelling of mixtures	Multi or pseudo-component modelling	PC modelling	
Scenario	Pipe dimensions	Pipe length		m
	Release location	Elevation	0,1	m
		Tank head	1,85	m
	Direction	Outdoor release direction	Horizontal	
		Outdoor release angle	0	deg
Discharge parameters	Model settings	Atmospheric expansion method	DNV recommended	
		Phase change upstream of orifice?	Allow phase change (equilibrium)	
	Droplet break-up mechanism	Droplet break-up mechanism - instantaneous	Use flashing correlation	
		Droplet break-up mechanism - continuous	Do not force correlation	
Short pipe	Pipe characteristics	Pipe roughness	0,045	mm
	Frequencies	Frequency of bends in pipe	0	/m
		Frequency of couplings in pipe	0	/m
		Frequency of junctions in pipe	0	/m
	Frequencies of valves	Frequency of excess	0	/m

		flow valves		
		Frequency of non-return valves	0	/m
		Frequency of shut-off valves	0	/m
	Velocity head losses	Excess flow valve velocity head losses	0	
		Non-return valve velocity head losses	0	
		Shut-off valve velocity head losses	0	
Time varying releases	Modelling of time-varying leaks and line ruptures	Vacuum relief valve	Operating	
		Vacuum relief valve set point	0	bar
	Inventory data for time-varying releases	Tank volume	4732,51	m3
		Tank vapour volume	4732,51	m3
		Tank liquid volume	0	m3
		Tank liquid level	0	m
		Maximum vapour release height		m
		Minimum mass inventory	0,1	kg
		Maximum mass inventory	1E+09	kg
Dispersion	Dispersion scope	Concentration of interest		ppm
		Averaging time for concentration of interest		
		Specify user-defined averaging time	No	
		User defined averaging time		s
	Distances of interest	Distances of interest		m
	Averaging time for reports	ERPG [1 hr]	No	
		IDLH [30 mins]	No	
		STEL [15 mins]	No	
Bund, building and terrain	Terrain and bund definition	Type of terrain for dispersion	Land	

		Type of pool substrate and bunds	WHR_BR_Tk_Auxiliar	
	Building definition	Release building		
		In-building release?	Outdoor	
		Building wake effect	Roof/lee	
		Wind or release angle from North	0	deg
		Handling of droplets	Trapped	
		Indoor mass modification factor	3	
Explosion parameters	Explosion method (Consequence calculations only)	Explosion method	Multi-Energy: User-defined	
	Ignition	Supply late ignition location	No ignition location	
		Location of late ignition		m
	Vapour liquid method	Use explosion mass modification factor	Yes	
		Explosion mass modification factor	3	
Multi-Energy	Multi-Energy: User-defined	Unconfined explosion strength	6	
		Unconfined explosion efficiency	100	%
	Confined explosion sources	Number of confined sources	0	
		Option for specifying size of confined sources	Use volumes	
		Strength of confined source		
		Volume of confined source		m3
		Volume fraction of confined source		fraction
Jet fire	Jet fire method	Jet fire method	Cone model	
	Result types to calculate	Calculate probit	No	
		Calculate dose	No	
		Calculate lethality	No	
	Radiation levels	Number of input radiation levels	3	
		Intensity levels	7; 5; 3	kW/m2
		Probit levels	2,73; 3,72; 7,5	

		Dose levels	1,27E+06; 5,8E+06; 2,51E+07	
		Lethality levels	0,01; 0,1; 0,99	fraction
	Parameters	Rate modification factor	3	
		Jet fire maximum exposure duration	20	s
	Cone model data	Horizontal options	Use standard method	
		Correlation	Recommended	
		Flame-shape adjustment if grounded	Yes	
	Surface emissive power	Calculation method for surface emissive power	Calculate SEP	
		Flame emissive power		kW/m2
		Emissivity fraction		fraction
Pool fire	Result types to calculate	Calculate probit	No	
		Calculate dose	No	
		Calculate lethality	No	
	Radiation levels	Number of input radiation levels	3	
		Intensity levels	7; 5; 3	kW/m2
		Probit levels	2,73; 3,72; 7,5	
		Dose levels	1,27E+06; 5,8E+06; 2,51E+07	
		Lethality levels	0,01; 0,1; 0,99	fraction
	Parameters	Radiative fraction for general fires	0,4	fraction
		Pool fire maximum exposure duration	20	s
Geometry	Geometry	East	0	m
		North	0	m

Catastrophic rupture

Catastrophic rupture
CPA_rev_Resposta_APA\3600 s\01_Rotura catastrófica de tanque auxiliar

Tab	Group	Field	Value	Units
Scenario	Release location	Elevation	0,1	m
		Tank head	1,85	m
	Fireball emissive power	Use vessel burst pressure	No	
		Vessel burst pressure - gauge		bar
Material	Material	Material characteristics	Flammable only	
		Material to track	CYCLOPENTANE	
		Type of risk effects to model	Flammable only	
Discharge parameters	Droplet break-up mechanism	Droplet break-up mechanism - instantaneous	Use flashing correlation	
Dispersion	Dispersion scope	Concentration of interest		ppm
		Averaging time for concentration of interest		
		Specify user-defined averaging time	No	
		User defined averaging time		s
	Distances of interest	Distances of interest		m
	Averaging time for reports	ERPG [1 hr]	No	
		IDLH [30 mins]	No	
		STEL [15 mins]	No	
Bund, building and terrain	Terrain and bund definition	Type of terrain for dispersion	Land	
		Type of pool substrate and bunds	WHR_BR_Tk_Auxiliar	
Explosion parameters	Explosion method	Explosion method	Multi-Energy: User-defined	
	Ignition	Supply late ignition location	No ignition location	
		Location of late ignition		m
	Vapour liquid method	Use explosion mass modification factor	Yes	
		Explosion mass modification factor	3	

Multi-Energy	Multi-Energy: User-defined	Unconfined explosion strength	6	
		Unconfined explosion efficiency	100	%
	Confined explosion sources	Number of confined sources	0	
		Option for specifying size of confined sources	Use volumes	
		Strength of confined source		
		Volume of confined source		m3
		Volume fraction of confined source		fraction
Fireball	Result types to calculate	Calculate probit	No	
		Calculate dose	No	
		Calculate lethality	No	
	Radiation levels	Number of input radiation levels	3	
		Intensity levels	7; 5; 3	kW/m2
		Probit levels	2,73; 3,72; 7,5	
		Dose levels	1,27E+06; 5,8E+06; 2,51E+07	
		Lethality levels	0,01; 0,1; 0,99	fraction
	Parameters	Mass modification factor	3	
		Fireball maximum exposure duration	20	s
	Calculation method	Fireball model	Martinsen time varying	
		TNO model flame temperature	1726,85	degC
Pool fire	Result types to calculate	Calculate probit	No	
		Calculate dose	No	
		Calculate lethality	No	
	Radiation levels	Number of input radiation levels	3	
		Intensity levels	7; 5; 3	kW/m2
		Probit levels	2,73; 3,72; 7,5	
		Dose levels	1,27E+06; 5,8E+06; 2,51E+07	
		Lethality levels	0,01; 0,1; 0,99	fraction
	Parameters	Radiative fraction for general fires	0,4	fraction

		Pool fire maximum exposure duration	20	s

02_Rotura de 100 m no tanque auxiliar

Atmospheric storage tank

CPA_rev_Resposta_APA\3600 s

Tab	Group	Field	Value	Units
Material	Material	Material	CYCLOPENTANE	
		Specify volume inventory?	No	
		Mass inventory	14050	kg
		Volume inventory	4732,51	m3
		Material to track	CYCLOPENTANE	
	Phase	Specified condition	Temperature and atmospheric pressure	
		Temperature	25,9	degC
		Pressure (gauge)		bar
		Fluid state	Liquid	
		Liquid mole fraction	1	fraction
	Modelling of mixtures	Multi or pseudo-component modelling	PC modelling	
Scenario	Pipe dimensions	Pipe length		m
	Release location	Elevation	0,1	m
		Tank head	1,85	m
	Direction	Outdoor release direction	Horizontal	
		Outdoor release angle	0	deg
Discharge parameters	Model settings	Atmospheric expansion method	DNV recommended	
		Phase change upstream of orifice?	Allow phase change (equilibrium)	
	Droplet break-up mechanism	Droplet break-up mechanism - instantaneous	Use flashing correlation	
		Droplet break-up mechanism - continuous	Do not force correlation	
Short pipe	Pipe characteristics	Pipe roughness	0,045	mm
	Frequencies	Frequency of bends in pipe	0	/m
		Frequency of couplings in pipe	0	/m
		Frequency of junctions in pipe	0	/m
	Frequencies of valves	Frequency of excess	0	/m

		flow valves		
		Frequency of non-return valves	0	/m
		Frequency of shut-off valves	0	/m
	Velocity head losses	Excess flow valve velocity head losses	0	
		Non-return valve velocity head losses	0	
		Shut-off valve velocity head losses	0	
Time varying releases	Modelling of time-varying leaks and line ruptures	Vacuum relief valve	Operating	
		Vacuum relief valve set point	0	bar
	Inventory data for time-varying releases	Tank volume	4732,51	m3
		Tank vapour volume	4732,51	m3
		Tank liquid volume	0	m3
		Tank liquid level	0	m
		Maximum vapour release height		m
		Minimum mass inventory	0,1	kg
		Maximum mass inventory	1E+09	kg
Dispersion	Dispersion scope	Concentration of interest		ppm
		Averaging time for concentration of interest		
		Specify user-defined averaging time	No	
		User defined averaging time		s
	Distances of interest	Distances of interest		m
	Averaging time for reports	ERPG [1 hr]	No	
		IDLH [30 mins]	No	
		STEL [15 mins]	No	
Bund, building and terrain	Terrain and bund definition	Type of terrain for dispersion	Land	

		Type of pool substrate and bunds	WHR_BR_Tk_Auxiliar	
	Building definition	Release building		
		In-building release?	Outdoor	
		Building wake effect	Roof/lee	
		Wind or release angle from North	0	deg
		Handling of droplets	Trapped	
		Indoor mass modification factor	3	
Explosion parameters	Explosion method (Consequence calculations only)	Explosion method	Multi-Energy: User-defined	
	Ignition	Supply late ignition location	No ignition location	
		Location of late ignition		m
	Vapour liquid method	Use explosion mass modification factor	Yes	
		Explosion mass modification factor	3	
Multi-Energy	Multi-Energy: User-defined	Unconfined explosion strength	6	
		Unconfined explosion efficiency	100	%
	Confined explosion sources	Number of confined sources	0	
		Option for specifying size of confined sources	Use volumes	
		Strength of confined source		
		Volume of confined source		m3
		Volume fraction of confined source		fraction
Jet fire	Jet fire method	Jet fire method	Cone model	
	Result types to calculate	Calculate probit	No	
		Calculate dose	No	
		Calculate lethality	No	
	Radiation levels	Number of input radiation levels	3	
		Intensity levels	7; 5; 3	kW/m2
		Probit levels	2,73; 3,72; 7,5	

		Dose levels	1,27E+06; 5,8E+06; 2,51E+07	
		Lethality levels	0,01; 0,1; 0,99	fraction
	Parameters	Rate modification factor	3	
		Jet fire maximum exposure duration	20	s
	Cone model data	Horizontal options	Use standard method	
		Correlation	Recommended	
		Flame-shape adjustment if grounded	Yes	
	Surface emissive power	Calculation method for surface emissive power	Calculate SEP	
		Flame emissive power		kW/m2
		Emissivity fraction		fraction
Pool fire	Result types to calculate	Calculate probit	No	
		Calculate dose	No	
		Calculate lethality	No	
	Radiation levels	Number of input radiation levels	3	
		Intensity levels	7; 5; 3	kW/m2
		Probit levels	2,73; 3,72; 7,5	
		Dose levels	1,27E+06; 5,8E+06; 2,51E+07	
		Lethality levels	0,01; 0,1; 0,99	fraction
	Parameters	Radiative fraction for general fires	0,4	fraction
		Pool fire maximum exposure duration	20	s
Geometry	Geometry	East	0	m
		North	0	m

Leak

Leak

CPA_rev_Resposta_APA\3600 s\02_Rotura de 100 m no tanque auxiliar

Tab	Group	Field	Value	Units
Scenario	Hole	Orifice diameter	100	mm
		Use specified discharge coefficient?	Yes	
		Discharge coefficient	0,62	fraction
	Release location	Elevation	0,1	m
		Tank head	1,85	m
	Direction	Outdoor release direction	Horizontal	
		Outdoor release angle	0	deg
Material	Material	Material characteristics	Flammable only	
		Material to track	CYCLOPENTANE	
		Type of risk effects to model	Flammable only	
	Phase	Phase to be released	Liquid	
Discharge parameters	Model settings	Atmospheric expansion method	DNV recommended	
		Phase change upstream of orifice?	Allow phase change (equilibrium)	
	Droplet break-up mechanism	Droplet break-up mechanism - continuous	Do not force correlation	
Dispersion	Dispersion scope	Concentration of interest		ppm
		Averaging time for concentration of interest		
		Specify user-defined averaging time	No	
		User defined averaging time		s
	Distances of interest	Distances of interest		m
	Averaging time for reports	ERPG [1 hr]	No	
		IDLH [30 mins]	No	
		STEL [15 mins]	No	
Bund, building and terrain	Terrain and bund definition	Type of terrain for dispersion	Land	
		Type of pool substrate and bunds	WHR_ACC	
Explosion parameters	Explosion method	Explosion method	Multi-Energy: User-defined	

	Ignition	Supply late ignition location	No ignition location	
		Location of late ignition		m
	Vapour liquid method	Use explosion mass modification factor	Yes	
		Explosion mass modification factor	3	
Multi-Energy	Multi-Energy: User-defined	Unconfined explosion strength	6	
		Unconfined explosion efficiency	100	%
	Confined explosion sources	Number of confined sources	0	
		Option for specifying size of confined sources	Use volumes	
		Strength of confined source		
		Volume of confined source		m3
		Volume fraction of confined source		fraction
Fireball	Result types to calculate	Calculate probit	No	
		Calculate dose	No	
		Calculate lethality	No	
	Radiation levels	Number of input radiation levels	3	
		Intensity levels	7; 5; 3	kW/m2
		Probit levels	2,73; 3,72; 7,5	
		Dose levels	1,27E+06; 5,8E+06; 2,51E+07	
		Lethality levels	0,01; 0,1; 0,99	fraction
	Parameters	Mass modification factor	3	
		Fireball maximum exposure duration	20	s
	Calculation method	Fireball model	Martinsen time varying	
		TNO model flame temperature	1726,85	degC
Jet fire	Jet fire method	Jet fire method	Cone model	
	Result types to calculate	Calculate probit	No	
		Calculate dose	No	
		Calculate lethality	No	
	Radiation levels	Number of input radiation	3	

		levels		
		Intensity levels	7; 5; 3	kW/m2
		Probit levels	2,73; 3,72; 7,5	
		Dose levels	1,27E+06; 5,8E+06; 2,51E+07	
		Lethality levels	0,01; 0,1; 0,99	fraction
	Parameters	Rate modification factor	3	
		Jet fire maximum exposure duration	20	s
	Cone model data	Correlation	Recommended	
		Horizontal options	Use standard method	
		Flame-shape adjustment if grounded	Yes	
	Surface emissive power	Calculation method for surface emissive power	Calculate SEP	
		Flame emissive power		kW/m2
		Emissivity fraction		fraction
Pool fire	Result types to calculate	Calculate probit	No	
		Calculate dose	No	
		Calculate lethality	No	
	Radiation levels	Number of input radiation levels	3	
		Intensity levels	7; 5; 3	kW/m2
		Probit levels	2,73; 3,72; 7,5	
		Dose levels	1,27E+06; 5,8E+06; 2,51E+07	
		Lethality levels	0,01; 0,1; 0,99	fraction
	Parameters	Radiative fraction for general fires	0,4	fraction
		Pool fire maximum exposure duration	20	s

03_Rotura de 10 mm no tanque auxiliar

Atmospheric storage tank
CPA_rev_Resposta_APA\3600 s

Tab	Group	Field	Value	Units
Material	Material	Material	CYCLOPENTANE	
		Specify volume inventory?	No	
		Mass inventory	14050	kg
		Volume inventory	4732,51	m3
		Material to track	CYCLOPENTANE	
	Phase	Specified condition	Temperature and atmospheric pressure	
		Temperature	25,9	degC
		Pressure (gauge)		bar
		Fluid state	Liquid	
		Liquid mole fraction	1	fraction
	Modelling of mixtures	Multi or pseudo-component modelling	PC modelling	
Scenario	Pipe dimensions	Pipe length		m
	Release location	Elevation	0,1	m
		Tank head	1,85	m
	Direction	Outdoor release direction	Horizontal	
		Outdoor release angle	0	deg
Discharge parameters	Model settings	Atmospheric expansion method	DNV recommended	
		Phase change upstream of orifice?	Allow phase change (equilibrium)	
	Droplet break-up mechanism	Droplet break-up mechanism - instantaneous	Use flashing correlation	
		Droplet break-up mechanism - continuous	Do not force correlation	
Short pipe	Pipe characteristics	Pipe roughness	0,045	mm
	Frequencies	Frequency of bends in pipe	0	/m
		Frequency of couplings in pipe	0	/m
		Frequency of junctions in pipe	0	/m
	Frequencies of valves	Frequency of excess	0	/m

		flow valves		
		Frequency of non-return valves	0	/m
		Frequency of shut-off valves	0	/m
	Velocity head losses	Excess flow valve velocity head losses	0	
		Non-return valve velocity head losses	0	
		Shut-off valve velocity head losses	0	
Time varying releases	Modelling of time-varying leaks and line ruptures	Vacuum relief valve	Operating	
		Vacuum relief valve set point	0	bar
	Inventory data for time-varying releases	Tank volume	4732,51	m3
		Tank vapour volume	4732,51	m3
		Tank liquid volume	0	m3
		Tank liquid level	0	m
		Maximum vapour release height		m
		Minimum mass inventory	0,1	kg
		Maximum mass inventory	1E+09	kg
Dispersion	Dispersion scope	Concentration of interest		ppm
		Averaging time for concentration of interest		
		Specify user-defined averaging time	No	
		User defined averaging time		s
	Distances of interest	Distances of interest		m
	Averaging time for reports	ERPG [1 hr]	No	
		IDLH [30 mins]	No	
		STEL [15 mins]	No	
Bund, building and terrain	Terrain and bund definition	Type of terrain for dispersion	Land	

		Type of pool substrate and bunds	WHR_BR_Tk_Auxiliar	
	Building definition	Release building		
		In-building release?	Outdoor	
		Building wake effect	Roof/lee	
		Wind or release angle from North	0	deg
		Handling of droplets	Trapped	
		Indoor mass modification factor	3	
Explosion parameters	Explosion method (Consequence calculations only)	Explosion method	Multi-Energy: User-defined	
	Ignition	Supply late ignition location	No ignition location	
		Location of late ignition		m
	Vapour liquid method	Use explosion mass modification factor	Yes	
		Explosion mass modification factor	3	
Multi-Energy	Multi-Energy: User-defined	Unconfined explosion strength	6	
		Unconfined explosion efficiency	100	%
	Confined explosion sources	Number of confined sources	0	
		Option for specifying size of confined sources	Use volumes	
		Strength of confined source		
		Volume of confined source		m3
		Volume fraction of confined source		fraction
Jet fire	Jet fire method	Jet fire method	Cone model	
	Result types to calculate	Calculate probit	No	
		Calculate dose	No	
		Calculate lethality	No	
	Radiation levels	Number of input radiation levels	3	
		Intensity levels	7; 5; 3	kW/m2
		Probit levels	2,73; 3,72; 7,5	

		Dose levels	1,27E+06; 5,8E+06; 2,51E+07	
		Lethality levels	0,01; 0,1; 0,99	fraction
	Parameters	Rate modification factor	3	
		Jet fire maximum exposure duration	20	s
	Cone model data	Horizontal options	Use standard method	
		Correlation	Recommended	
		Flame-shape adjustment if grounded	Yes	
	Surface emissive power	Calculation method for surface emissive power	Calculate SEP	
		Flame emissive power		kW/m2
		Emissivity fraction		fraction
Pool fire	Result types to calculate	Calculate probit	No	
		Calculate dose	No	
		Calculate lethality	No	
	Radiation levels	Number of input radiation levels	3	
		Intensity levels	7; 5; 3	kW/m2
		Probit levels	2,73; 3,72; 7,5	
		Dose levels	1,27E+06; 5,8E+06; 2,51E+07	
		Lethality levels	0,01; 0,1; 0,99	fraction
	Parameters	Radiative fraction for general fires	0,4	fraction
		Pool fire maximum exposure duration	20	s
Geometry	Geometry	East	0	m
		North	0	m

Leak

Leak

CPA_rev_Resposta_APA\3600 s\03_Rotura de 10 mm no tanque auxiliar

Tab	Group	Field	Value	Units
Scenario	Hole	Orifice diameter	10	mm
		Use specified discharge coefficient?	Yes	
		Discharge coefficient	0,62	fraction
	Release location	Elevation	0,1	m
		Tank head	1,85	m
	Direction	Outdoor release direction	Horizontal	
		Outdoor release angle	0	deg
Material	Material	Material characteristics	Flammable only	
		Material to track	CYCLOPENTANE	
		Type of risk effects to model	Flammable only	
	Phase	Phase to be released	Liquid	
Discharge parameters	Model settings	Atmospheric expansion method	DNV recommended	
		Phase change upstream of orifice?	Allow phase change (equilibrium)	
	Droplet break-up mechanism	Droplet break-up mechanism - continuous	Do not force correlation	
Dispersion	Dispersion scope	Concentration of interest		ppm
		Averaging time for concentration of interest		
		Specify user-defined averaging time	No	
		User defined averaging time		s
	Distances of interest	Distances of interest		m
	Averaging time for reports	ERPG [1 hr]	No	
		IDLH [30 mins]	No	
		STEL [15 mins]	No	
Bund, building and terrain	Terrain and bund definition	Type of terrain for dispersion	Land	
		Type of pool substrate and bunds	WHR_BR_Tk_Auxiliar	
Explosion parameters	Explosion method	Explosion method	Multi-Energy: User-defined	

	Ignition	Supply late ignition location	No ignition location	
		Location of late ignition		m
	Vapour liquid method	Use explosion mass modification factor	Yes	
		Explosion mass modification factor	3	
Multi-Energy	Multi-Energy: User-defined	Unconfined explosion strength	6	
		Unconfined explosion efficiency	100	%
	Confined explosion sources	Number of confined sources	0	
		Option for specifying size of confined sources	Use volumes	
		Strength of confined source		
		Volume of confined source		m3
		Volume fraction of confined source		fraction
Fireball	Result types to calculate	Calculate probit	No	
		Calculate dose	No	
		Calculate lethality	No	
	Radiation levels	Number of input radiation levels	3	
		Intensity levels	7; 5; 3	kW/m2
		Probit levels	2,73; 3,72; 7,5	
		Dose levels	1,27E+06; 5,8E+06; 2,51E+07	
		Lethality levels	0,01; 0,1; 0,99	fraction
	Parameters	Mass modification factor	3	
		Fireball maximum exposure duration	20	s
	Calculation method	Fireball model	Martinsen time varying	
		TNO model flame temperature	1726,85	degC
Jet fire	Jet fire method	Jet fire method	Cone model	
	Result types to calculate	Calculate probit	No	
		Calculate dose	No	
		Calculate lethality	No	

	Radiation levels	Number of input radiation levels	3	
		Intensity levels	7; 5; 3	kW/m2
		Probit levels	2,73; 3,72; 7,5	
		Dose levels	1,27E+06; 5,8E+06; 2,51E+07	
		Lethality levels	0,01; 0,1; 0,99	fraction
	Parameters	Rate modification factor	3	
		Jet fire maximum exposure duration	20	s
	Cone model data	Correlation	Recommended	
		Horizontal options	Use standard method	
		Flame-shape adjustment if grounded	Yes	
	Surface emissive power	Calculation method for surface emissive power	Calculate SEP	
		Flame emissive power		kW/m2
		Emissivity fraction		fraction
Pool fire	Result types to calculate	Calculate probit	No	
		Calculate dose	No	
		Calculate lethality	No	
	Radiation levels	Number of input radiation levels	3	
		Intensity levels	7; 5; 3	kW/m2
		Probit levels	2,73; 3,72; 7,5	
		Dose levels	1,27E+06; 5,8E+06; 2,51E+07	
		Lethality levels	0,01; 0,1; 0,99	fraction
	Parameters	Radiative fraction for general fires	0,4	fraction
		Pool fire maximum exposure duration	20	s

12_Rotura catastrófica de cisterna de Ciclopentano

Atmospheric storage tank
CPA_rev_Resposta_APA\3600 s

Tab	Group	Field	Value	Units
Material	Material	Material	CYCLOPENTANE	
		Specify volume inventory?	No	
		Mass inventory	14050	kg
		Volume inventory	18,8642	m3
		Material to track	CYCLOPENTANE	
	Phase	Specified condition	Temperature and atmospheric pressure	
		Temperature	21	degC
		Pressure (gauge)		bar
		Fluid state	Liquid	
		Liquid mole fraction	1	fraction
	Modelling of mixtures	Multi or pseudo-component modelling	PC modelling	
Scenario	Pipe dimensions	Pipe length		m
	Release location	Elevation	0,1	m
		Tank head	3	m
	Direction	Outdoor release direction	Horizontal	
		Outdoor release angle	0	deg
Discharge parameters	Model settings	Atmospheric expansion method	DNV recommended	
		Phase change upstream of orifice?	Allow phase change (equilibrium)	
	Droplet break-up mechanism	Droplet break-up mechanism - instantaneous	Use flashing correlation	
		Droplet break-up mechanism - continuous	Do not force correlation	
Short pipe	Pipe characteristics	Pipe roughness	0,045	mm
	Frequencies	Frequency of bends in pipe	0	/m
		Frequency of couplings in pipe	0	/m
		Frequency of junctions in pipe	0	/m
	Frequencies of valves	Frequency of excess flow valves	0	/m

		Frequency of non-return valves	0	/m
		Frequency of shut-off valves	0	/m
	Velocity head losses	Excess flow valve velocity head losses	0	
		Non-return valve velocity head losses	0	
		Shut-off valve velocity head losses	0	
Time varying releases	Modelling of time-varying leaks and line ruptures	Vacuum relief valve	Operating	
		Vacuum relief valve set point	0	bar
	Inventory data for time-varying releases	Tank volume	18,8642	m3
		Tank vapour volume	0	m3
		Tank liquid volume	18,8642	m3
		Tank liquid level	0	m
		Maximum vapour release height		m
		Minimum mass inventory	0,1	kg
		Maximum mass inventory	1E+09	kg
Dispersion	Dispersion scope	Concentration of interest		ppm
		Averaging time for concentration of interest		
		Specify user-defined averaging time	No	
		User defined averaging time		s
	Distances of interest	Distances of interest		m
	Averaging time for reports	ERPG [1 hr]	No	
		IDLH [30 mins]	No	
		STEL [15 mins]	No	
Bund, building and terrain	Terrain and bund definition	Type of terrain for dispersion	Land	
		Type of pool substrate and bunds	Contenção cisternas	
	Building definition	Release building		
		In-building release?	Outdoor	
		Building wake effect	Roof/lee	

		Wind or release angle from North	0	deg
		Handling of droplets	Trapped	
		Indoor mass modification factor	3	
Explosion parameters	Explosion method (Consequence calculations only)	Explosion method	Multi-Energy: User-defined	
	Ignition	Supply late ignition location	No ignition location	
		Location of late ignition		m
	Vapour liquid method	Use explosion mass modification factor	Yes	
		Explosion mass modification factor	3	
Multi-Energy	Multi-Energy: User-defined	Unconfined explosion strength	6	
		Unconfined explosion efficiency	100	%
	Confined explosion sources	Number of confined sources	0	
		Option for specifying size of confined sources	Use volumes	
		Strength of confined source		
		Volume of confined source		m3
		Volume fraction of confined source		fraction
Jet fire	Jet fire method	Jet fire method	Cone model	
	Result types to calculate	Calculate probit	No	
		Calculate dose	No	
		Calculate lethality	No	
	Radiation levels	Number of input radiation levels	3	
		Intensity levels	7; 5; 3	kW/m2
		Probit levels	2,73; 3,72; 7,5	
		Dose levels	1,27E+06; 5,8E+06; 2,51E+07	
		Lethality levels	0,01; 0,1; 0,99	fraction
	Parameters	Rate modification factor	3	
		Jet fire maximum exposure duration	20	s

	Cone model data	Horizontal options	Use standard method	
		Correlation	Recommended	
		Flame-shape adjustment if grounded	Yes	
	Surface emissive power	Calculation method for surface emissive power	Calculate SEP	
		Flame emissive power		kW/m2
		Emissivity fraction		fraction
Pool fire	Result types to calculate	Calculate probit	No	
		Calculate dose	No	
		Calculate lethality	No	
	Radiation levels	Number of input radiation levels	3	
		Intensity levels	7; 5; 3	kW/m2
		Probit levels	2,73; 3,72; 7,5	
		Dose levels	1,27E+06; 5,8E+06; 2,51E+07	
		Lethality levels	0,01; 0,1; 0,99	fraction
	Parameters	Radiative fraction for general fires	0,4	fraction
		Pool fire maximum exposure duration	20	s
Geometry	Geometry	East	0	m
		North	0	m

Catastrophic rupture

Catastrophic rupture
CPA_rev_Resposta_APA\3600 s\12_Rotura catastrófica de cisterna de Ciclopentano

Tab	Group	Field	Value	Units
Scenario	Release location	Elevation	0,1	m
		Tank head	3	m
	Fireball emissive power	Use vessel burst pressure	No	
		Vessel burst pressure - gauge		bar
Material	Material	Material characteristics	Flammable only	
		Material to track	CYCLOPENTANE	
		Type of risk effects to model	Flammable only	
Discharge parameters	Droplet break-up mechanism	Droplet break-up mechanism - instantaneous	Use flashing correlation	
Dispersion	Dispersion scope	Concentration of interest		ppm
		Averaging time for concentration of interest		
		Specify user-defined averaging time	No	
		User defined averaging time		s
	Distances of interest	Distances of interest		m
	Averaging time for reports	ERPG [1 hr]	No	
		IDLH [30 mins]	No	
		STEL [15 mins]	No	
Bund, building and terrain	Terrain and bund definition	Type of terrain for dispersion	Land	
		Type of pool substrate and bunds	Contenção cisternas	
Explosion parameters	Explosion method	Explosion method	Multi-Energy: User-defined	
	Ignition	Supply late ignition location	No ignition location	
		Location of late ignition		m
	Vapour liquid method	Use explosion mass modification factor	Yes	
		Explosion mass modification factor	3	
Multi-Energy	Multi-Energy: User-	Unconfined explosion	6	

	defined	strength		
		Unconfined explosion efficiency	100	%
	Confined explosion sources	Number of confined sources	0	
		Option for specifying size of confined sources	Use volumes	
		Strength of confined source		
		Volume of confined source		m3
		Volume fraction of confined source		fraction
Fireball	Result types to calculate	Calculate probit	No	
		Calculate dose	No	
		Calculate lethality	No	
	Radiation levels	Number of input radiation levels	3	
		Intensity levels	7; 5; 3	kW/m2
		Probit levels	2,73; 3,72; 7,5	
		Dose levels	1,27E+06; 5,8E+06; 2,51E+07	
		Lethality levels	0,01; 0,1; 0,99	fraction
	Parameters	Mass modification factor	3	
		Fireball maximum exposure duration	20	s
	Calculation method	Fireball model	Martinsen time varying	
		TNO model flame temperature	1726,85	degC
Pool fire	Result types to calculate	Calculate probit	No	
		Calculate dose	No	
		Calculate lethality	No	
	Radiation levels	Number of input radiation levels	3	
		Intensity levels	7; 5; 3	kW/m2
		Probit levels	2,73; 3,72; 7,5	
		Dose levels	1,27E+06; 5,8E+06; 2,51E+07	
		Lethality levels	0,01; 0,1; 0,99	fraction
	Parameters	Radiative fraction for general fires	0,4	fraction
		Pool fire maximum exposure duration	20	s