Input Report

Workspace: EAR_IMETAME_REV 01

PORTO IMETAME

Study
EAR_IMETAME_REV 01

Tab	Group	Field	Value	Units
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)		
Dispersion	Distances of interest	Distances of interest		m

Ship to Ship

Pressure vessel
EAR_IMETAME_REV 01\PORTO IMETAME\H01_Ship to Ship - Mangote 12"

Tab	Group	Field	Value	Units
Material	Material	Material	N-NONANE	
		Specify volume inventory?	Yes	
		Mass inventory	138641	kg
		Volume inventory	200	m3
		Material to track	N-NONANE	
		Type of risk effects to model	Flammable only	
	Phase	Specified condition	Pressure/temperature	
		Temperature	55	degC
		Pressure (gauge)	7	bar
		Fluid state	Liquid	
		Liquid mole fraction	1	fraction
	Modelling of mixtures	Multi or pseudo-component modelling	PC modelling	
Risk	Type of risk effects to model	Jet fire modelling for horizontal releases	Horizontal jet only	
		Reduce risks for mounded / underground tanks	No	
	Non-ignition probabilities	Specify probability of non-ignition	Calculate non-ignition probability	
		Non-ignition probability		fraction
	Immediate ignition probabilities	Probability of immediate ignition	Stationary - use material reactivity	
		Immediate ignition probability		fraction
	Delayed ignition probabilities	Specify minimum probability of delayed ignition	Calculate minimum probability of delayed ignition	
		Minimum probability of delayed ignition		fraction
		Specify conditional explosion probability	Calculate conditional probability	
		Conditional explosion probability		fraction
	Cox-Lees-Ang and UKOOA ignition modelling	Fraction of ignition probability for immediate ignition	0,3	
		Release type for CLA / UKOOA		

Scenario	Pipe dimensions	Pipe length		m
	Release location	Elevation	1	m
		Tank head	0	m
	Direction	Outdoor release direction	Horizontal	
		Outdoor release angle	0	deg
Discharge parameters	Model settings	Atmospheric expansion method	DNV GL recommended	
		Phase change upstream of orifice?	Disallow liquid phase change only (metastable liquid)	
	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	200	m3
		Tank vapour volume	0	m3
		Tank liquid volume	200	m3
		Tank liquid level	0	m
		Maximum vapour release height		m
		Minimum mass inventory	0,1	kg
		Maximum mass inventory	1E+09	kg
	Safety system modelling for time-varying releases	Safety system modelling (isolation and blowdown)	No	
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	Water	
		Type of pool substrate and bunds	Water	
	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: Uniform confined	
	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	
Fireball	Result types to calculate	Calculate probit	No	
		Calculate dose	No	
		Calculate lethality	No	
	Radiation levels	Number of input radiation levels	3	
		Intensity levels	9,8; 19,45; 35	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	9,8; 19,45; 35	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	Crosswind angle	0	deg
		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	9,8; 19,45; 35	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	-6946,4	m
		North	6434,46	m
		Apply location offset	No	

H01

Short pipe

EAR_IMETAME_REV 01\PORTO IMETAME\H01_Ship to Ship - Mangote 12"\Ship to Ship

Tab	Group	Field	Value	Units
Scenario	Scenario	Scenario type	Line rupture	
	Pipe dimensions	Pipe internal diameter	304,8	mm
		Pipe length	1	m
	Hole	Orifice diameter		mm
	Release location	Elevation	14	m
		Tank head	0	m
	Flow control	Flow controller	None	
		Input option	Not applicable	
		Fixed flow rate		kg/s
		Pump head		m
	Direction	Outdoor release direction	Horizontal	
		Outdoor release angle	0	deg
Risk	Event frequency	Event frequency	4E-06	/AvgeYear
	Type of risk effects to model	Reduce risks for mounded / underground tanks	No	
	Non-ignition probabilities	Specify probability of non-ignition	Calculate non-ignition probability	
		Non-ignition probability		fraction
	Immediate ignition probabilities	Probability of immediate ignition	Stationary - use material reactivity	
		Immediate ignition probability		fraction
	Delayed ignition probabilities	Specify minimum probability of delayed ignition	Calculate minimum probability of delayed ignition	
		Minimum probability of delayed ignition		fraction
		Specify conditional explosion probability	Calculate conditional probability	
		Conditional explosion probability		fraction
	Cox-Lees-Ang and UKOOA ignition modelling	Release type for CLA / UKOOA		
Material	Material	Material characteristics	Flammable only	
		Material to track	N-NONANE	
		Type of risk effects to model	Flammable only	
	Phase	Phase to be released	Liquid	
Discharge parameters	Model settings	Atmospheric expansion method	DNV GL recommended	
	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	
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	Water	
		Type of pool substrate and bunds	Water	
Explosion parameters	Explosion method	Explosion method	Multi-Energy: Uniform confined	
	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	
Fireball	Result types to calculate	Calculate probit	No	
		Calculate dose	No	
		Calculate lethality	No	
	Radiation levels	Number of input radiation levels	3	
		Intensity levels	9,8; 19,45; 35	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	9,8; 19,45; 35	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	9,8; 19,45; 35	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

Ship to Ship (1)

Pressure vessel
EAR_IMETAME_REV 01\PORTO IMETAME\H01_Ship to Ship - Mangote 12"

Tab	Group	Field	Value	Units
Material	Material	Material	N-NONANE	
		Specify volume inventory?	Yes	
		Mass inventory	138641	kg
		Volume inventory	200	m3
		Material to track	N-NONANE	
		Type of risk effects to model	Flammable only	
	Phase	Specified condition	Pressure/temperature	
		Temperature	55	degC
		Pressure (gauge)	7	bar
		Fluid state	Liquid	
		Liquid mole fraction	1	fraction
	Modelling of mixtures	Multi or pseudo-component modelling	PC modelling	
Risk	Type of risk effects to model	Jet fire modelling for horizontal releases	Horizontal jet only	
		Reduce risks for mounded / underground tanks	No	
	Non-ignition probabilities	Specify probability of non-ignition	Calculate non-ignition probability	
		Non-ignition probability		fraction
	Immediate ignition probabilities	Probability of immediate ignition	Stationary - use material reactivity	
		Immediate ignition probability		fraction
	Delayed ignition probabilities	Specify minimum probability of delayed ignition	Calculate minimum probability of delayed ignition	
		Minimum probability of delayed ignition		fraction
		Specify conditional explosion probability	Calculate conditional probability	
		Conditional explosion probability		fraction

	Cox-Lees-Ang and UKOOA ignition modelling	Fraction of ignition probability for immediate ignition	0,3	
		Release type for CLA / UKOOA		
Scenario	Pipe dimensions	Pipe length		m
	Release location	Elevation	1	m
		Tank head	0	m
	Direction	Outdoor release direction	Horizontal	
		Outdoor release angle	0	deg
Discharge parameters	Model settings	Atmospheric expansion method	DNV GL recommended	
		Phase change upstream of orifice?	Disallow liquid phase change only (metastable liquid)	
	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	200	m3
		Tank vapour volume	0	m3
		Tank liquid volume	200	m3
		Tank liquid level	0	m
		Maximum vapour release height		m
		Minimum mass inventory	0,1	kg
		Maximum mass inventory	1E+09	kg
	Safety system modelling for time-varying releases	Safety system modelling (isolation and blowdown)	No	
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	Water	
		Type of pool substrate and bunds	Water	
	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: Uniform confined	
	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	
Fireball	Result types to calculate	Calculate probit	No	
		Calculate dose	No	
		Calculate lethality	No	
	Radiation levels	Number of input radiation levels	3	
		Intensity levels	9,8; 19,45; 35	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	9,8; 19,45; 35	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	Crosswind angle	0	deg
		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	9,8; 19,45; 35	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	-7259,82	m
		North	6211,13	m
		Apply location offset	No	

H01

Short pipe

EAR_IMETAME_REV 01\PORTO IMETAME\H01_Ship to Ship - Mangote 12"\Ship to Ship (1)

Tab	Group	Field	Value	Units
Scenario	Scenario	Scenario type	Line rupture	
	Pipe dimensions	Pipe internal diameter	304,8	mm
		Pipe length	1	m
	Hole	Orifice diameter		mm
	Release location	Elevation	14	m
		Tank head	0	m
	Flow control	Flow controller	None	
		Input option	Not applicable	
		Fixed flow rate		kg/s
		Pump head		m
	Direction	Outdoor release direction	Horizontal	
		Outdoor release angle	0	deg
Risk	Event frequency	Event frequency	4E-06	/AvgeYear
	Type of risk effects to model	Reduce risks for mounded / underground tanks	No	
	Non-ignition probabilities	Specify probability of non-ignition	Calculate non-ignition probability	
		Non-ignition probability		fraction
	Immediate ignition probabilities	Probability of immediate ignition	Stationary - use material reactivity	
		Immediate ignition probability		fraction
	Delayed ignition probabilities	Specify minimum probability of delayed ignition	Calculate minimum probability of delayed ignition	
		Minimum probability of delayed ignition		fraction
		Specify conditional explosion probability	Calculate conditional probability	
		Conditional explosion probability		fraction
	Cox-Lees-Ang and UKOOA ignition modelling	Release type for CLA / UKOOA		
Material	Material	Material characteristics	Flammable only	
		Material to track	N-NONANE	
		Type of risk effects to model	Flammable only	
	Phase	Phase to be released	Liquid	
Discharge parameters	Model settings	Atmospheric expansion method	DNV GL recommended	
	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	
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	Water	
		Type of pool substrate and bunds	Water	
Explosion parameters	Explosion method	Explosion method	Multi-Energy: Uniform confined	
	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	
Fireball	Result types to calculate	Calculate probit	No	
		Calculate dose	No	
		Calculate lethality	No	
	Radiation levels	Number of input radiation levels	3	
		Intensity levels	9,8; 19,45; 35	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	9,8; 19,45; 35	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	9,8; 19,45; 35	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

Shore to Ship

Pressure vessel
EAR_IMETAME_REV 01\PORTO IMETAME\H02_Ship to Shore - Mangote 10"

Tab	Group	Field	Value	Units
Material	Material	Material	N-NONANE	
		Specify volume inventory?	Yes	
		Mass inventory	115557	kg
		Volume inventory	166,7	m3
		Material to track	N-NONANE	
		Type of risk effects to model	Flammable only	
	Phase	Specified condition	Pressure/temperature	
		Temperature	55	degC
		Pressure (gauge)	7	bar
		Fluid state	Liquid	
		Liquid mole fraction	1	fraction
	Modelling of mixtures	Multi or pseudo-component modelling	PC modelling	
Risk	Type of risk effects to model	Jet fire modelling for horizontal releases	Horizontal jet only	
		Reduce risks for mounded / underground tanks	No	
	Non-ignition probabilities	Specify probability of non-ignition	Calculate non-ignition probability	
		Non-ignition probability		fraction
	Immediate ignition probabilities	Probability of immediate ignition	Stationary - use material reactivity	
		Immediate ignition probability		fraction
	Delayed ignition probabilities	Specify minimum probability of delayed ignition	Calculate minimum probability of delayed ignition	
		Minimum probability of delayed		fraction

		ignition		
		Specify conditional explosion probability	Calculate conditional probability	
		Conditional explosion probability		fraction
	Cox-Lees-Ang and UKOOA ignition modelling	Fraction of ignition probability for immediate ignition	0,3	
		Release type for CLA / UKOOA		
Scenario	Pipe dimensions	Pipe length		m
	Release location	Elevation	7	m
		Tank head	0	m
	Direction	Outdoor release direction	Horizontal	
		Outdoor release angle	0	deg
Discharge parameters	Model settings	Atmospheric expansion method	DNV GL recommended	
		Phase change upstream of orifice?	Disallow liquid phase change only (metastable liquid)	
	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	166,7	m3
		Tank vapour volume	0	m3
		Tank liquid volume	166,7	m3
		Tank liquid level	0	m
		Maximum vapour release height		m
		Minimum mass inventory	0,1	kg
		Maximum mass inventory	1E+09	kg
	Safety system modelling for time-varying releases	Safety system modelling (isolation and blowdown)	No	
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	Concrete, no bund	
	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: Uniform confined	
	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	
Fireball	Result types to calculate	Calculate probit	No	
		Calculate dose	No	
		Calculate lethality	No	
	Radiation levels	Number of input radiation levels	3	
		Intensity levels	9,8; 19,45; 35	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	9,8; 19,45; 35	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	Crosswind angle	0	deg
		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	9,8; 19,45; 35	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	-6904,13	m
		North	6378,92	m
		Apply location offset	No	

H02

Short pipe

EAR_IMETAME_REV 01\PORTO IMETAME\H02_Ship to Shore - Mangote 10"\Shore to Ship

Tab	Group	Field	Value	Units
Scenario	Scenario	Scenario type	Line rupture	
	Pipe dimensions	Pipe internal diameter	254	mm
		Pipe length	1	m
	Hole	Orifice diameter		mm
	Release location	Elevation	7	m
		Tank head	0	m
	Flow control	Flow controller	None	
		Input option	Not applicable	
		Fixed flow rate		kg/s
		Pump head		m
	Direction	Outdoor release direction	Horizontal	
		Outdoor release angle	0	deg
Risk	Event frequency	Event frequency	4E-06	/AvgeYear
	Type of risk effects to model	Reduce risks for mounded / underground tanks	No	
	Non-ignition probabilities	Specify probability of non-ignition	Calculate non-ignition probability	
		Non-ignition probability		fraction
	Immediate ignition probabilities	Probability of immediate ignition	Stationary - use material reactivity	
		Immediate ignition probability		fraction
	Delayed ignition probabilities	Specify minimum probability of delayed ignition	Calculate minimum probability of delayed ignition	
		Minimum probability of delayed ignition		fraction
		Specify conditional explosion probability	Calculate conditional probability	
		Conditional explosion probability		fraction
	Cox-Lees-Ang and UKOOA ignition modelling	Release type for CLA / UKOOA		
Material	Material	Material characteristics	Flammable only	
		Material to track	N-NONANE	
		Type of risk effects to model	Flammable only	
	Phase	Phase to be released	Liquid	

Discharge parameters	Model settings	Atmospheric expansion method	DNV GL recommended	
	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	
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	Concrete, no bund	
Explosion parameters	Explosion method	Explosion method	Multi-Energy: Uniform confined	
	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	
Fireball	Result types to calculate	Calculate probit	No	
		Calculate dose	No	
		Calculate lethality	No	
	Radiation levels	Number of input radiation levels	3	
		Intensity levels	9,8; 19,45; 35	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	9,8; 19,45; 35	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	9,8; 19,45; 35	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

Shore to Ship (1)

Pressure vessel

EAR_IMETAME_REV 01\PORTO IMETAME\H02_Ship to Shore - Mangote 10"

Tab	Group	Field	Value	Units
Material	Material	Material	N-NONANE	
		Specify volume inventory?	Yes	
		Mass inventory	115557	kg
		Volume inventory	166,7	m3
		Material to track	N-NONANE	
		Type of risk effects to model	Flammable only	
	Phase	Specified condition	Pressure/temperature	
		Temperature	55	degC
		Pressure (gauge)	7	bar
		Fluid state	Liquid	
		Liquid mole fraction	1	fraction
	Modelling of mixtures	Multi or pseudo-component modelling	PC modelling	
Risk	Type of risk effects to model	Jet fire modelling for horizontal releases	Horizontal jet only	
		Reduce risks for mounded / underground tanks	No	
	Non-ignition probabilities	Specify probability of non-ignition	Calculate non-ignition probability	
		Non-ignition probability		fraction
	Immediate ignition probabilities	Probability of immediate ignition	Stationary - use material reactivity	
		Immediate ignition probability		fraction

	Delayed ignition probabilities	Specify minimum probability of delayed ignition	Calculate minimum probability of delayed ignition	
		Minimum probability of delayed ignition		fraction
		Specify conditional explosion probability	Calculate conditional probability	
		Conditional explosion probability		fraction
	Cox-Lees-Ang and UKOOA ignition modelling	Fraction of ignition probability for immediate ignition	0,3	
		Release type for CLA / UKOOA		
Scenario	Pipe dimensions	Pipe length		m
	Release location	Elevation	1	m
		Tank head	0	m
	Direction	Outdoor release direction	Horizontal	
		Outdoor release angle	0	deg
Discharge parameters	Model settings	Atmospheric expansion method	DNV GL recommended	
		Phase change upstream of orifice?	Disallow liquid phase change only (metastable liquid)	
	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	166,7	m3
		Tank vapour volume	0	m3
		Tank liquid volume	166,7	m3
		Tank liquid level	0	m
		Maximum vapour release height		m
		Minimum mass inventory	0,1	kg
		Maximum mass inventory	1E+09	kg
	Safety system modelling for time-varying releases	Safety system modelling (isolation and blowdown)	No	
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	Concrete, no bund	
	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: Uniform confined	
	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	
Fireball	Result types to calculate	Calculate probit	No	
		Calculate dose	No	
		Calculate lethality	No	
	Radiation levels	Number of input radiation levels	3	
		Intensity levels	9,8; 19,45; 35	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	9,8; 19,45; 35	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	Crosswind angle	0	deg
		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	9,8; 19,45; 35	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	-7220	m
		North	6154	m
		Apply location offset	No	

H02

Short pipe

EAR_IMETAME_REV 01\PORTO IMETAME\H02_Ship to Shore - Mangote 10"\Shore to Ship (1)

Tab	Group	Field	Value	Units
Scenario	Scenario	Scenario type	Line rupture	
	Pipe dimensions	Pipe internal diameter	254	mm
		Pipe length	1	m
	Hole	Orifice diameter		mm
	Release location	Elevation	7	m
		Tank head	0	m
	Flow control	Flow controller	None	
		Input option	Not applicable	
		Fixed flow rate		kg/s
		Pump head		m
	Direction	Outdoor release direction	Horizontal	
		Outdoor release angle	0	deg
Risk	Event frequency	Event frequency	4E-06	/AvgeYear
	Type of risk effects to model	Reduce risks for mounded / underground tanks	No	
	Non-ignition probabilities	Specify probability of non-ignition	Calculate non-ignition probability	
		Non-ignition probability		fraction
	Immediate ignition probabilities	Probability of immediate ignition	Stationary - use material reactivity	
		Immediate ignition probability		fraction
	Delayed ignition probabilities	Specify minimum probability of delayed ignition	Calculate minimum probability of delayed ignition	
		Minimum probability of delayed ignition		fraction
		Specify conditional explosion probability	Calculate conditional probability	
		Conditional explosion probability		fraction
	Cox-Lees-Ang and UKOOA ignition modelling	Release type for CLA / UKOOA		
Material	Material	Material characteristics	Flammable only	
		Material to track	N-NONANE	

		Type of risk effects to model	Flammable only	
	Phase	Phase to be released	Liquid	
Discharge parameters	Model settings	Atmospheric expansion method	DNV GL recommended	
	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	
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	Concrete, no bund	
Explosion parameters	Explosion method	Explosion method	Multi-Energy: Uniform confined	
	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	
Fireball	Result types to calculate	Calculate probit	No	
		Calculate dose	No	
		Calculate lethality	No	
	Radiation levels	Number of input radiation levels	3	
		Intensity levels	9,8; 19,45; 35	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	9,8; 19,45; 35	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	9,8; 19,45; 35	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

Shore to Ship (2)

Pressure vessel
EAR_IMETAME_REV 01\PORTO IMETAME\H02_Ship to Shore - Mangote 10"

Tab	Group	Field	Value	Units
Material	Material	Material	N-NONANE	
		Specify volume inventory?	Yes	
		Mass inventory	115557	kg
		Volume inventory	166,7	m3
		Material to track	N-NONANE	
		Type of risk effects to model	Flammable only	
	Phase	Specified condition	Pressure/temperature	
		Temperature	55	degC
		Pressure (gauge)	7	bar
		Fluid state	Liquid	
		Liquid mole fraction	1	fraction
	Modelling of mixtures	Multi or pseudo-component modelling	PC modelling	
Risk	Type of risk effects to model	Jet fire modelling for horizontal releases	Horizontal jet only	
		Reduce risks for mounded / underground tanks	No	
	Non-ignition probabilities	Specify probability of non-ignition	Calculate non-ignition probability	
		Non-ignition probability		fraction

	Immediate ignition probabilities	Probability of immediate ignition	Stationary - use material reactivity	
		Immediate ignition probability		fraction
	Delayed ignition probabilities	Specify minimum probability of delayed ignition	Calculate minimum probability of delayed ignition	
		Minimum probability of delayed ignition		fraction
		Specify conditional explosion probability	Calculate conditional probability	
		Conditional explosion probability		fraction
	Cox-Lees-Ang and UKOOA ignition modelling	Fraction of ignition probability for immediate ignition	0,3	
		Release type for CLA / UKOOA		
Scenario	Pipe dimensions	Pipe length		m
	Release location	Elevation	1	m
		Tank head	0	m
	Direction	Outdoor release direction	Horizontal	
		Outdoor release angle	0	deg
Discharge parameters	Model settings	Atmospheric expansion method	DNV GL recommended	
		Phase change upstream of orifice?	Disallow liquid phase change only (metastable liquid)	
	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	166,7	m3
		Tank vapour volume	0	m3
		Tank liquid volume	166,7	m3
		Tank liquid level	0	m
		Maximum vapour release height		m
		Minimum mass inventory	0,1	kg
		Maximum mass inventory	1E+09	kg
	Safety system modelling for time-varying releases	Safety system modelling (isolation and blowdown)	No	
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	Concrete, no bund	
	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: Uniform confined	
	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	
Fireball	Result types to calculate	Calculate probit	No	
		Calculate dose	No	
		Calculate lethality	No	
	Radiation levels	Number of input radiation levels	3	
		Intensity levels	9,8; 19,45; 35	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	9,8; 19,45; 35	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	Crosswind angle	0	deg
		Horizontal options	Use standard method	
		Correlation	Recommended	
		Flame-shape adjustment if grounded	Yes	
	Surface emissive power	Calculation method for surface	Calculate SEP	

		emissive power		
		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	9,8; 19,45; 35	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	-7719,69	m
		North	6087,97	m
		Apply location offset	No	

H02

Short pipe

EAR_IMETAME_REV 01\PORTO IMETAME\H02_Ship to Shore - Mangote 10"\Shore to Ship (2)

Tab	Group	Field	Value	Units
Scenario	Scenario	Scenario type	Line rupture	
	Pipe dimensions	Pipe internal diameter	254	mm
		Pipe length	1	m
	Hole	Orifice diameter		mm
	Release location	Elevation	7	m
		Tank head	0	m
	Flow control	Flow controller	None	
		Input option	Not applicable	
		Fixed flow rate		kg/s
		Pump head		m
	Direction	Outdoor release direction	Horizontal	
		Outdoor release angle	0	deg
Risk	Event frequency	Event frequency	4E-06	/AvgeYear
	Type of risk effects to model	Reduce risks for mounded / underground tanks	No	
	Non-ignition probabilities	Specify probability of non-ignition	Calculate non-ignition probability	
		Non-ignition probability		fraction
	Immediate ignition probabilities	Probability of immediate ignition	Stationary - use material reactivity	
		Immediate ignition probability		fraction
	Delayed ignition probabilities	Specify minimum probability of delayed ignition	Calculate minimum probability of delayed ignition	
		Minimum probability of delayed ignition		fraction
		Specify conditional explosion probability	Calculate conditional probability	
		Conditional explosion probability		fraction
	Cox-Lees-Ang and UKOOA ignition modelling	Release type for CLA / UKOOA		

Material	Material	Material characteristics	Flammable only	
		Material to track	N-NONANE	
		Type of risk effects to model	Flammable only	
	Phase	Phase to be released	Liquid	
Discharge parameters	Model settings	Atmospheric expansion method	DNV GL recommended	
	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	
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	Concrete, no bund	
Explosion parameters	Explosion method	Explosion method	Multi-Energy: Uniform confined	
	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	
Fireball	Result types to calculate	Calculate probit	No	
		Calculate dose	No	
		Calculate lethality	No	
	Radiation levels	Number of input radiation levels	3	
		Intensity levels	9,8; 19,45; 35	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	9,8; 19,45; 35	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	9,8; 19,45; 35	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

Shore to Ship

Pressure vessel
EAR_IMETAME_REV 01\PORTO IMETAME\H03_Ship to Shore - Mangote 8"

Tab	Group	Field	Value	Units
Material	Material	Material	N-NONANE	
		Specify volume inventory?	Yes	
		Mass inventory	92404,2	kg
		Volume inventory	133,3	m3
		Material to track	N-NONANE	
		Type of risk effects to model	Flammable only	
	Phase	Specified condition	Pressure/temperature	
		Temperature	55	degC
		Pressure (gauge)	7	bar
		Fluid state	Liquid	
		Liquid mole fraction	1	fraction
	Modelling of mixtures	Multi or pseudo-component modelling	PC modelling	
Risk	Type of risk effects to model	Jet fire modelling for horizontal releases	Horizontal jet only	
		Reduce risks for mounded / underground tanks	No	

	Non-ignition probabilities	Specify probability of non-ignition	Calculate non-ignition probability	
		Non-ignition probability		fraction
	Immediate ignition probabilities	Probability of immediate ignition	Stationary - use material reactivity	
		Immediate ignition probability		fraction
	Delayed ignition probabilities	Specify minimum probability of delayed ignition	Calculate minimum probability of delayed ignition	
		Minimum probability of delayed ignition		fraction
		Specify conditional explosion probability	Calculate conditional probability	
		Conditional explosion probability		fraction
	Cox-Lees-Ang and UKOOA ignition modelling	Fraction of ignition probability for immediate ignition	0,3	
		Release type for CLA / UKOOA		
Scenario	Pipe dimensions	Pipe length		m
	Release location	Elevation	7	m
		Tank head	0	m
	Direction	Outdoor release direction	Horizontal	
		Outdoor release angle	0	deg
Discharge parameters	Model settings	Atmospheric expansion method	DNV GL recommended	
		Phase change upstream of orifice?	Disallow liquid phase change only (metastable liquid)	
	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	133,3	m3
		Tank vapour volume	0	m3
		Tank liquid volume	133,3	m3
		Tank liquid level	0	m
		Maximum vapour release height		m
		Minimum mass inventory	0,1	kg
		Maximum mass inventory	1E+09	kg
	Safety system modelling for time-varying releases	Safety system modelling (isolation and blowdown)	No	
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	Concrete, no bund	
	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: Uniform confined	
	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	
Fireball	Result types to calculate	Calculate probit	No	
		Calculate dose	No	
		Calculate lethality	No	
	Radiation levels	Number of input radiation levels	3	
		Intensity levels	9,8; 19,45; 35	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	9,8; 19,45; 35	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	Crosswind angle	0	deg
		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	9,8; 19,45; 35	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	-6904,13	m
		North	6378,92	m
		Apply location offset	No	

H03

Short pipe

EAR_IMETAME_REV 01\PORTO IMETAME\H03_Ship to Shore - Mangote 8"\Shore to Ship

Tab	Group	Field	Value	Units
Scenario	Scenario	Scenario type	Line rupture	
	Pipe dimensions	Pipe internal diameter	203,2	mm
		Pipe length	1	m
	Hole	Orifice diameter		mm
	Release location	Elevation	7	m
		Tank head	0	m
	Flow control	Flow controller	None	
		Input option	Not applicable	
		Fixed flow rate		kg/s
		Pump head		m
	Direction	Outdoor release direction	Horizontal	
		Outdoor release angle	0	deg
Risk	Event frequency	Event frequency	4E-06	/AvgeYear
	Type of risk effects to model	Reduce risks for mounded / underground tanks	No	
	Non-ignition probabilities	Specify probability of non-ignition	Calculate non-ignition probability	
		Non-ignition probability		fraction
	Immediate ignition probabilities	Probability of immediate ignition	Stationary - use material reactivity	
		Immediate ignition probability		fraction
	Delayed ignition probabilities	Specify minimum probability of delayed ignition	Calculate minimum probability of delayed ignition	
		Minimum probability of delayed ignition		fraction
		Specify conditional explosion probability	Calculate conditional probability	

		Conditional explosion probability		fraction
	Cox-Lees-Ang and UKOOA ignition modelling	Release type for CLA / UKOOA		
Material	Material	Material characteristics	Flammable only	
		Material to track	N-NONANE	
		Type of risk effects to model	Flammable only	
	Phase	Phase to be released	Liquid	
Discharge parameters	Model settings	Atmospheric expansion method	DNV GL recommended	
	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	
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	Concrete, no bund	
Explosion parameters	Explosion method	Explosion method	Multi-Energy: Uniform confined	
	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	
Fireball	Result types to calculate	Calculate probit	No	
		Calculate dose	No	
		Calculate lethality	No	
	Radiation levels	Number of input radiation levels	3	
		Intensity levels	9,8; 19,45; 35	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	9,8; 19,45; 35	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	9,8; 19,45; 35	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

Shore to Ship (1)

Pressure vessel
EAR_IMETAME_REV 01\PORTO IMETAME\H03_Ship to Shore - Mangote 8"

Tab	Group	Field	Value	Units
Material	Material	Material	N-NONANE	
		Specify volume inventory?	Yes	
		Mass inventory	92404,2	kg
		Volume inventory	133,3	m3
		Material to track	N-NONANE	
		Type of risk effects to model	Flammable only	
	Phase	Specified condition	Pressure/temperature	
		Temperature	55	degC
		Pressure (gauge)	7	bar
		Fluid state	Liquid	
		Liquid mole fraction	1	fraction
	Modelling of mixtures	Multi or pseudo-component modelling	PC modelling	

Risk	Type of risk effects to model	Jet fire modelling for horizontal releases	Horizontal jet only	
		Reduce risks for mounded / underground tanks	No	
	Non-ignition probabilities	Specify probability of non-ignition	Calculate non-ignition probability	
		Non-ignition probability		fraction
	Immediate ignition probabilities	Probability of immediate ignition	Stationary - use material reactivity	
		Immediate ignition probability		fraction
	Delayed ignition probabilities	Specify minimum probability of delayed ignition	Calculate minimum probability of delayed ignition	
		Minimum probability of delayed ignition		fraction
		Specify conditional explosion probability	Calculate conditional probability	
		Conditional explosion probability		fraction
	Cox-Lees-Ang and UKOOA ignition modelling	Fraction of ignition probability for immediate ignition	0,3	
		Release type for CLA / UKOOA		
Scenario	Pipe dimensions	Pipe length		m
	Release location	Elevation	1	m
		Tank head	0	m
	Direction	Outdoor release direction	Horizontal	
		Outdoor release angle	0	deg
Discharge parameters	Model settings	Atmospheric expansion method	DNV GL recommended	
		Phase change upstream of orifice?	Disallow liquid phase change only (metastable liquid)	
	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	133,3	m3
		Tank vapour volume	0	m3
		Tank liquid volume	133,3	m3
		Tank liquid level	0	m
		Maximum vapour release height		m
		Minimum mass inventory	0,1	kg
		Maximum mass inventory	1E+09	kg
	Safety system modelling for time-varying releases	Safety system modelling (isolation and blowdown)	No	

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	Concrete, no bund	
	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: Uniform confined	
	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	
Fireball	Result types to calculate	Calculate probit	No	
		Calculate dose	No	
		Calculate lethality	No	
	Radiation levels	Number of input radiation levels	3	
		Intensity levels	9,8; 19,45; 35	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	9,8; 19,45; 35	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	Crosswind angle	0	deg
		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	9,8; 19,45; 35	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	-7220	m
		North	6154	m
		Apply location offset	No	

H03

Short pipe

EAR_IMETAME_REV 01\PORTO IMETAME\H03_Ship to Shore - Mangote 8"\Shore to Ship (1)

Tab	Group	Field	Value	Units
Scenario	Scenario	Scenario type	Line rupture	
	Pipe dimensions	Pipe internal diameter	203,2	mm
		Pipe length	1	m
	Hole	Orifice diameter		mm
	Release location	Elevation	7	m
		Tank head	0	m
	Flow control	Flow controller	None	
		Input option	Not applicable	
		Fixed flow rate		kg/s
		Pump head		m
	Direction	Outdoor release direction	Horizontal	
		Outdoor release angle	0	deg
Risk	Event frequency	Event frequency	4E-06	/AvgeYear
	Type of risk effects to model	Reduce risks for mounded / underground tanks	No	
	Non-ignition probabilities	Specify probability of non-ignition	Calculate non-ignition probability	
		Non-ignition probability		fraction
	Immediate ignition probabilities	Probability of immediate ignition	Stationary - use material reactivity	
		Immediate ignition probability		fraction
	Delayed ignition probabilities	Specify minimum probability of delayed ignition	Calculate minimum probability of delayed ignition	

		Minimum probability of delayed ignition		fraction
		Specify conditional explosion probability	Calculate conditional probability	
		Conditional explosion probability		fraction
	Cox-Lees-Ang and UKOOA ignition modelling	Release type for CLA / UKOOA		
Material	Material	Material characteristics	Flammable only	
		Material to track	N-NONANE	
		Type of risk effects to model	Flammable only	
	Phase	Phase to be released	Liquid	
Discharge parameters	Model settings	Atmospheric expansion method	DNV GL recommended	
	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	
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	Concrete, no bund	
Explosion parameters	Explosion method	Explosion method	Multi-Energy: Uniform confined	
	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	
Fireball	Result types to calculate	Calculate probit	No	
		Calculate dose	No	
		Calculate lethality	No	
	Radiation levels	Number of input radiation levels	3	
		Intensity levels	9,8; 19,45; 35	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	9,8; 19,45; 35	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	9,8; 19,45; 35	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

Shore to Ship (2)

Pressure vessel

EAR_IMETAME_REV 01\PORTO IMETAME\H03_Ship to Shore - Mangote 8"

Tab	Group	Field	Value	Units
Material	Material	Material	N-NONANE	
		Specify volume inventory?	Yes	
		Mass inventory	92404,2	kg
		Volume inventory	133,3	m3
		Material to track	N-NONANE	
		Type of risk effects to model	Flammable only	
	Phase	Specified condition	Pressure/temperature	
		Temperature	55	degC
		Pressure (gauge)	7	bar

		Fluid state	Liquid	
		Liquid mole fraction	1	fraction
	Modelling of mixtures	Multi or pseudo-component modelling	PC modelling	
Risk	Type of risk effects to model	Jet fire modelling for horizontal releases	Horizontal jet only	
		Reduce risks for mounded / underground tanks	No	
	Non-ignition probabilities	Specify probability of non-ignition	Calculate non-ignition probability	
		Non-ignition probability		fraction
	Immediate ignition probabilities	Probability of immediate ignition	Stationary - use material reactivity	
		Immediate ignition probability		fraction
	Delayed ignition probabilities	Specify minimum probability of delayed ignition	Calculate minimum probability of delayed ignition	
		Minimum probability of delayed ignition		fraction
		Specify conditional explosion probability	Calculate conditional probability	
		Conditional explosion probability		fraction
	Cox-Lees-Ang and UKOOA ignition modelling	Fraction of ignition probability for immediate ignition	0,3	
		Release type for CLA / UKOOA		
Scenario	Pipe dimensions	Pipe length		m
	Release location	Elevation	1	m
		Tank head	0	m
	Direction	Outdoor release direction	Horizontal	
		Outdoor release angle	0	deg
Discharge parameters	Model settings	Atmospheric expansion method	DNV GL recommended	
		Phase change upstream of orifice?	Disallow liquid phase change only (metastable liquid)	
	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	133,3	m3
		Tank vapour volume	0	m3
		Tank liquid volume	133,3	m3
		Tank liquid level	0	m
		Maximum vapour release height		m

		Minimum mass inventory	0,1	kg
		Maximum mass inventory	1E+09	kg
	Safety system modelling for time-varying releases	Safety system modelling (isolation and blowdown)	No	
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	Concrete, no bund	
	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: Uniform confined	
	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	
Fireball	Result types to calculate	Calculate probit	No	
		Calculate dose	No	
		Calculate lethality	No	
	Radiation levels	Number of input radiation levels	3	
		Intensity levels	9,8; 19,45; 35	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	9,8; 19,45; 35	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	Crosswind angle	0	deg
		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	9,8; 19,45; 35	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	-7719,69	m
		North	6087,97	m
		Apply location offset	No	

H03

Short pipe

EAR_IMETAME_REV 01\PORTO IMETAME\H03_Ship to Shore - Mangote 8"\Shore to Ship (2)

Tab	Group	Field	Value	Units
Scenario	Scenario	Scenario type	Line rupture	
	Pipe dimensions	Pipe internal diameter	203,2	mm
		Pipe length	1	m
	Hole	Orifice diameter		mm
	Release location	Elevation	7	m
		Tank head	0	m
	Flow control	Flow controller	None	
		Input option	Not applicable	
		Fixed flow rate		kg/s
		Pump head		m
	Direction	Outdoor release direction	Horizontal	
		Outdoor release angle	0	deg
Risk	Event frequency	Event frequency	4E-06	/AvgeYear
	Type of risk effects to model	Reduce risks for mounded / underground tanks	No	
	Non-ignition probabilities	Specify probability of non-ignition	Calculate non-ignition probability	
		Non-ignition probability		fraction

	Immediate ignition probabilities	Probability of immediate ignition	Stationary - use material reactivity	
		Immediate ignition probability		fraction
	Delayed ignition probabilities	Specify minimum probability of delayed ignition	Calculate minimum probability of delayed ignition	
		Minimum probability of delayed ignition		fraction
		Specify conditional explosion probability	Calculate conditional probability	
		Conditional explosion probability		fraction
	Cox-Lees-Ang and UKOOA ignition modelling	Release type for CLA / UKOOA		
Material	Material	Material characteristics	Flammable only	
		Material to track	N-NONANE	
		Type of risk effects to model	Flammable only	
	Phase	Phase to be released	Liquid	
Discharge parameters	Model settings	Atmospheric expansion method	DNV GL recommended	
	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	
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	Concrete, no bund	
Explosion parameters	Explosion method	Explosion method	Multi-Energy: Uniform confined	
	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	
Fireball	Result types to calculate	Calculate probit	No	
		Calculate dose	No	
		Calculate lethality	No	
	Radiation levels	Number of input radiation levels	3	

		Intensity levels	9,8; 19,45; 35	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	9,8; 19,45; 35	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	9,8; 19,45; 35	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

Shore to Ship

Pressure vessel
EAR_IMETAME_REV 01\PORTO IMETAME\H04_Ship to Shore - Mangote 6"

Tab	Group	Field	Value	Units
Material	Material	Material	N-NONANE	
		Specify volume inventory?	Yes	
		Mass inventory	46236,7	kg
		Volume inventory	66,7	m3
		Material to track	N-NONANE	
		Type of risk effects to model	Flammable only	

	Phase	Specified condition	Pressure/temperature	
		Temperature	55	degC
		Pressure (gauge)	7	bar
		Fluid state	Liquid	
		Liquid mole fraction	1	fraction
	Modelling of mixtures	Multi or pseudo-component modelling	PC modelling	
Risk	Type of risk effects to model	Jet fire modelling for horizontal releases	Horizontal jet only	
		Reduce risks for mounded / underground tanks	No	
	Non-ignition probabilities	Specify probability of non-ignition	Calculate non-ignition probability	
		Non-ignition probability		fraction
	Immediate ignition probabilities	Probability of immediate ignition	Stationary - use material reactivity	
		Immediate ignition probability		fraction
	Delayed ignition probabilities	Specify minimum probability of delayed ignition	Calculate minimum probability of delayed ignition	
		Minimum probability of delayed ignition		fraction
		Specify conditional explosion probability	Calculate conditional probability	
		Conditional explosion probability		fraction
	Cox-Lees-Ang and UKOOA ignition modelling	Fraction of ignition probability for immediate ignition	0,3	
		Release type for CLA / UKOOA		
Scenario	Pipe dimensions	Pipe length		m
	Release location	Elevation	7	m
		Tank head	0	m
	Direction	Outdoor release direction	Horizontal	
		Outdoor release angle	0	deg
Discharge parameters	Model settings	Atmospheric expansion method	DNV GL recommended	
		Phase change upstream of orifice?	Disallow liquid phase change only (metastable liquid)	
	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	66,7	m3
		Tank vapour volume	0	m3

		Tank liquid volume	66,7	m3
		Tank liquid level	0	m
		Maximum vapour release height		m
		Minimum mass inventory	0,1	kg
		Maximum mass inventory	1E+09	kg
	Safety system modelling for time-varying releases	Safety system modelling (isolation and blowdown)	No	
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	Concrete, no bund	
	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: Uniform confined	
	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	
Fireball	Result types to calculate	Calculate probit	No	
		Calculate dose	No	
		Calculate lethality	No	
	Radiation levels	Number of input radiation levels	3	
		Intensity levels	9,8; 19,45; 35	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	9,8; 19,45; 35	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	Crosswind angle	0	deg
		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	9,8; 19,45; 35	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	-6904,13	m
		North	6378,92	m
		Apply location offset	No	

H04

Short pipe

EAR_IMETAME_REV 01\PORTO IMETAME\H04_Ship to Shore - Mangote 6"\Shore to Ship

Tab	Group	Field	Value	Units
Scenario	Scenario	Scenario type	Line rupture	
	Pipe dimensions	Pipe internal diameter	152,4	mm
		Pipe length	1	m
	Hole	Orifice diameter		mm
	Release location	Elevation	7	m
		Tank head	0	m
	Flow control	Flow controller	None	
		Input option	Not applicable	
		Fixed flow rate		kg/s
		Pump head		m
	Direction	Outdoor release direction	Horizontal	
		Outdoor release angle	0	deg
Risk	Event frequency	Event frequency	4E-06	/AvgeYear
	Type of risk effects to model	Reduce risks for mounded /	No	

		underground tanks		
	Non-ignition probabilities	Specify probability of non-ignition	Calculate non-ignition probability	
		Non-ignition probability		fraction
	Immediate ignition probabilities	Probability of immediate ignition	Stationary - use material reactivity	
		Immediate ignition probability		fraction
	Delayed ignition probabilities	Specify minimum probability of delayed ignition	Calculate minimum probability of delayed ignition	
		Minimum probability of delayed ignition		fraction
		Specify conditional explosion probability	Calculate conditional probability	
		Conditional explosion probability		fraction
	Cox-Lees-Ang and UKOOA ignition modelling	Release type for CLA / UKOOA		
Material	Material	Material characteristics	Flammable only	
		Material to track	N-NONANE	
		Type of risk effects to model	Flammable only	
	Phase	Phase to be released	Liquid	
Discharge parameters	Model settings	Atmospheric expansion method	DNV GL recommended	
	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	
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	Concrete, no bund	
Explosion parameters	Explosion method	Explosion method	Multi-Energy: Uniform confined	
	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	
Fireball	Result types to calculate	Calculate probit	No	

		Calculate dose	No	
		Calculate lethality	No	
	Radiation levels	Number of input radiation levels	3	
		Intensity levels	9,8; 19,45; 35	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	9,8; 19,45; 35	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	9,8; 19,45; 35	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

Shore to Ship (1)

Pressure vessel
EAR_IMETAME_REV 01\PORTO IMETAME\H04_Ship to Shore - Mangote 6"

Tab	Group	Field	Value	Units
Material	Material	Material	N-NONANE	
		Specify volume inventory?	Yes	
		Mass inventory	46236,7	kg

		Volume inventory	66,7	m3
		Material to track	N-NONANE	
		Type of risk effects to model	Flammable only	
	Phase	Specified condition	Pressure/temperature	
		Temperature	55	degC
		Pressure (gauge)	7	bar
		Fluid state	Liquid	
		Liquid mole fraction	1	fraction
	Modelling of mixtures	Multi or pseudo-component modelling	PC modelling	
Risk	Type of risk effects to model	Jet fire modelling for horizontal releases	Horizontal jet only	
		Reduce risks for mounded / underground tanks	No	
	Non-ignition probabilities	Specify probability of non-ignition	Calculate non-ignition probability	
		Non-ignition probability		fraction
	Immediate ignition probabilities	Probability of immediate ignition	Stationary - use material reactivity	
		Immediate ignition probability		fraction
	Delayed ignition probabilities	Specify minimum probability of delayed ignition	Calculate minimum probability of delayed ignition	
		Minimum probability of delayed ignition		fraction
		Specify conditional explosion probability	Calculate conditional probability	
		Conditional explosion probability		fraction
	Cox-Lees-Ang and UKOOA ignition modelling	Fraction of ignition probability for immediate ignition	0,3	
		Release type for CLA / UKOOA		
Scenario	Pipe dimensions	Pipe length		m
	Release location	Elevation	1	m
		Tank head	0	m
	Direction	Outdoor release direction	Horizontal	
		Outdoor release angle	0	deg
Discharge parameters	Model settings	Atmospheric expansion method	DNV GL recommended	
		Phase change upstream of orifice?	Disallow liquid phase change only (metastable liquid)	
	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	66,7	m3
		Tank vapour volume	0	m3
		Tank liquid volume	66,7	m3
		Tank liquid level	0	m
		Maximum vapour release height		m
		Minimum mass inventory	0,1	kg
		Maximum mass inventory	1E+09	kg
	Safety system modelling for time-varying releases	Safety system modelling (isolation and blowdown)	No	
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	Concrete, no bund	
	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: Uniform confined	
	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	
Fireball	Result types to calculate	Calculate probit	No	
		Calculate dose	No	
		Calculate lethality	No	
	Radiation levels	Number of input radiation levels	3	
		Intensity levels	9,8; 19,45; 35	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	9,8; 19,45; 35	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	Crosswind angle	0	deg
		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	9,8; 19,45; 35	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	-7220	m
		North	6154	m
		Apply location offset	No	

H04

Short pipe

EAR_IMETAME_REV 01\PORTO IMETAME\H04_Ship to Shore - Mangote 6"\Shore to Ship (1)

Tab	Group	Field	Value	Units
Scenario	Scenario	Scenario type	Line rupture	
	Pipe dimensions	Pipe internal diameter	152,4	mm
		Pipe length	1	m
	Hole	Orifice diameter		mm
	Release location	Elevation	7	m
		Tank head	0	m
	Flow control	Flow controller	None	
		Input option	Not applicable	
		Fixed flow rate		kg/s
		Pump head		m
	Direction	Outdoor release direction	Horizontal	

		Outdoor release angle	0	deg
Risk	Event frequency	Event frequency	4E-06	/AvgeYear
	Type of risk effects to model	Reduce risks for mounded / underground tanks	No	
	Non-ignition probabilities	Specify probability of non-ignition	Calculate non-ignition probability	
		Non-ignition probability		fraction
	Immediate ignition probabilities	Probability of immediate ignition	Stationary - use material reactivity	
		Immediate ignition probability		fraction
	Delayed ignition probabilities	Specify minimum probability of delayed ignition	Calculate minimum probability of delayed ignition	
		Minimum probability of delayed ignition		fraction
		Specify conditional explosion probability	Calculate conditional probability	
		Conditional explosion probability		fraction
	Cox-Lees-Ang and UKOOA ignition modelling	Release type for CLA / UKOOA		
Material	Material	Material characteristics	Flammable only	
		Material to track	N-NONANE	
		Type of risk effects to model	Flammable only	
	Phase	Phase to be released	Liquid	
Discharge parameters	Model settings	Atmospheric expansion method	DNV GL recommended	
	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	
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	Concrete, no bund	
Explosion parameters	Explosion method	Explosion method	Multi-Energy: Uniform confined	
	Ignition	Supply late ignition location	No ignition location	
		Location of late ignition		m
	Vapour liquid method	Use explosion mass modification	Yes	

		factor		
		Explosion mass modification factor	3	
Fireball	Result types to calculate	Calculate probit	No	
		Calculate dose	No	
		Calculate lethality	No	
	Radiation levels	Number of input radiation levels	3	
		Intensity levels	9,8; 19,45; 35	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	9,8; 19,45; 35	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	9,8; 19,45; 35	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

Shore to Ship (2)

Pressure vessel
EAR_IMETAME_REV 01\PORTO IMETAME\H04_Ship to Shore - Mangote 6"

Tab	Group	Field	Value	Units

Material	Material	Material	N-NONANE	
		Specify volume inventory?	Yes	
		Mass inventory	46236,7	kg
		Volume inventory	66,7	m3
		Material to track	N-NONANE	
		Type of risk effects to model	Flammable only	
	Phase	Specified condition	Pressure/temperature	
		Temperature	55	degC
		Pressure (gauge)	7	bar
		Fluid state	Liquid	
		Liquid mole fraction	1	fraction
	Modelling of mixtures	Multi or pseudo-component modelling	PC modelling	
Risk	Type of risk effects to model	Jet fire modelling for horizontal releases	Horizontal jet only	
		Reduce risks for mounded / underground tanks	No	
	Non-ignition probabilities	Specify probability of non-ignition	Calculate non-ignition probability	
		Non-ignition probability		fraction
	Immediate ignition probabilities	Probability of immediate ignition	Stationary - use material reactivity	
		Immediate ignition probability		fraction
	Delayed ignition probabilities	Specify minimum probability of delayed ignition	Calculate minimum probability of delayed ignition	
		Minimum probability of delayed ignition		fraction
		Specify conditional explosion probability	Calculate conditional probability	
		Conditional explosion probability		fraction
	Cox-Lees-Ang and UKOOA ignition modelling	Fraction of ignition probability for immediate ignition	0,3	
		Release type for CLA / UKOOA		
Scenario	Pipe dimensions	Pipe length		m
	Release location	Elevation	1	m
		Tank head	0	m
	Direction	Outdoor release direction	Horizontal	
		Outdoor release angle	0	deg
Discharge parameters	Model settings	Atmospheric expansion method	DNV GL recommended	
		Phase change upstream of orifice?	Disallow liquid phase change only (metastable liquid)	
	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	66,7	m3
		Tank vapour volume	0	m3
		Tank liquid volume	66,7	m3
		Tank liquid level	0	m
		Maximum vapour release height		m
		Minimum mass inventory	0,1	kg
		Maximum mass inventory	1E+09	kg
	Safety system modelling for time-varying releases	Safety system modelling (isolation and blowdown)	No	
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	Concrete, no bund	
	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: Uniform confined	
	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	
Fireball	Result types to calculate	Calculate probit	No	
		Calculate dose	No	
		Calculate lethality	No	
	Radiation levels	Number of input radiation levels	3	
		Intensity levels	9,8; 19,45; 35	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	9,8; 19,45; 35	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	Crosswind angle	0	deg
		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	9,8; 19,45; 35	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	-7719,69	m
		North	6087,97	m
		Apply location offset	No	

H04

Short pipe

EAR_IMETAME_REV 01\PORTO IMETAME\H04_Ship to Shore - Mangote 6"\Shore to Ship (2)

Tab	Group	Field	Value	Units
Scenario	Scenario	Scenario type	Line rupture	
	Pipe dimensions	Pipe internal diameter	152,4	mm
		Pipe length	1	m
	Hole	Orifice diameter		mm
	Release location	Elevation	7	m
		Tank head	0	m
	Flow control	Flow controller	None	
		Input option	Not applicable	

		Fixed flow rate		kg/s
		Pump head		m
	Direction	Outdoor release direction	Horizontal	
		Outdoor release angle	0	deg
Risk	Event frequency	Event frequency	4E-06	/AvgeYear
	Type of risk effects to model	Reduce risks for mounded / underground tanks	No	
	Non-ignition probabilities	Specify probability of non-ignition	Calculate non-ignition probability	
		Non-ignition probability		fraction
	Immediate ignition probabilities	Probability of immediate ignition	Stationary - use material reactivity	
		Immediate ignition probability		fraction
	Delayed ignition probabilities	Specify minimum probability of delayed ignition	Calculate minimum probability of delayed ignition	
		Minimum probability of delayed ignition		fraction
		Specify conditional explosion probability	Calculate conditional probability	
		Conditional explosion probability		fraction
	Cox-Lees-Ang and UKOOA ignition modelling	Release type for CLA / UKOOA		
Material	Material	Material characteristics	Flammable only	
		Material to track	N-NONANE	
		Type of risk effects to model	Flammable only	
	Phase	Phase to be released	Liquid	
Discharge parameters	Model settings	Atmospheric expansion method	DNV GL recommended	
	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	
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	Concrete, no bund	
Explosion parameters	Explosion method	Explosion method	Multi-Energy: Uniform confined	

	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	
Fireball	Result types to calculate	Calculate probit	No	
		Calculate dose	No	
		Calculate lethality	No	
	Radiation levels	Number of input radiation levels	3	
		Intensity levels	9,8; 19,45; 35	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	9,8; 19,45; 35	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	9,8; 19,45; 35	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

Tanque de 10.000 m³ (1)

Atmospheric storage tank
EAR_IMETAME_REV 01\PORTO IMETAME\H05_Ruptura de Tanque 10.000 m³

Tab	Group	Field	Value	Units
Material	Material	Material	N-NONANE	
		Specify volume inventory?	Yes	
		Mass inventory	7,01233E+06	kg
		Volume inventory	10000	m3
		Material to track	N-NONANE	
		Type of risk effects to model	Flammable only	
	Phase	Specified condition	Temperature and atmospheric pressure	
		Temperature	45	degC
		Pressure (gauge)		bar
		Fluid state	Liquid	
		Liquid mole fraction	1	fraction
	Modelling of mixtures	Multi or pseudo-component modelling	PC modelling	
Risk	Type of risk effects to model	Jet fire modelling for horizontal releases	Horizontal jet only	
		Reduce risks for mounded / underground tanks	No	
	Non-ignition probabilities	Specify probability of non-ignition	Calculate non-ignition probability	
		Non-ignition probability		fraction
	Immediate ignition probabilities	Probability of immediate ignition	Stationary - use material reactivity	
		Immediate ignition probability		fraction
	Delayed ignition probabilities	Specify minimum probability of delayed ignition	Calculate minimum probability of delayed ignition	
		Minimum probability of delayed ignition		fraction
		Specify conditional explosion probability	Calculate conditional probability	
		Conditional explosion probability		fraction
	Cox-Lees-Ang and UKOOA ignition modelling	Release type for CLA / UKOOA		
		Fraction of ignition probability for immediate ignition	0,3	
Scenario	Pipe dimensions	Pipe length		m
	Release location	Elevation	1	m
		Tank head	14	m
	Direction	Outdoor release direction	Horizontal	
		Outdoor release angle	0	deg
Discharge parameters	Model settings	Atmospheric expansion method	DNV GL recommended	
		Phase change upstream of orifice?	Disallow liquid phase change only (metastable liquid)	
	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	10000	m3
		Tank vapour volume	0	m3
		Tank liquid volume	10000	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	Dique	
	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: Uniform confined	
	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	
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	9,8; 19,45; 35	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	Crosswind angle	0	deg
		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	9,8; 19,45; 35	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	-10149,1	m
		North	6944,13	m
		Apply location offset	No	

H05

Catastrophic rupture

EAR_IMETAME_REV 01\PORTO IMETAME\H05_Ruptura de Tanque 10.000 m³\Tanque de 10.000 m³ (1)

Tab	Group	Field	Value	Units
Scenario	Release location	Elevation	1	m
		Tank head	14	m
	Fireball emissive power	Use vessel burst pressure	No	
		Vessel burst pressure - gauge		bar
Risk	Event frequency	Event frequency	5E-06	/AvgeYear
	Type of risk effects to model	Reduce risks for mounded / underground tanks	No	
	Non-ignition probabilities	Specify probability of non-ignition	Calculate non-ignition probability	
		Non-ignition probability		fraction
	Immediate ignition probabilities	Probability of immediate ignition	Stationary - use material reactivity	
		Immediate ignition probability		fraction
	Delayed ignition probabilities	Specify minimum probability of delayed ignition	Calculate minimum probability of delayed ignition	
		Minimum probability of delayed ignition		fraction
		Specify conditional explosion probability	Calculate conditional probability	
		Conditional explosion probability		fraction
	Cox-Lees-Ang and UKOOA ignition modelling	Release type for CLA / UKOOA		
Material	Material	Material characteristics	Flammable only	
		Material to track	N-NONANE	
		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	Concrete, no bund	
Explosion parameters	Explosion method	Explosion method	Multi-Energy: Uniform confined	
	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	
Fireball	Result types to calculate	Calculate probit	No	
		Calculate dose	No	
		Calculate lethality	No	
	Radiation levels	Number of input radiation levels	3	
		Intensity levels	9,8; 19,45; 35	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	9,8; 19,45; 35	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

Tanque de 10.000 m³ (2)

Atmospheric storage tank
EAR_IMETAME_REV 01\PORTO IMETAME\H05_Ruptura de Tanque 10.000 m³

Tab	Group	Field	Value	Units
Material	Material	Material	N-NONANE	
		Specify volume inventory?	Yes	
		Mass inventory	7,01233E+06	kg
		Volume inventory	10000	m3
		Material to track	N-NONANE	

		Type of risk effects to model	Flammable only	
	Phase	Specified condition	Temperature and atmospheric pressure	
		Temperature	45	degC
		Pressure (gauge)		bar
		Fluid state	Liquid	
		Liquid mole fraction	1	fraction
	Modelling of mixtures	Multi or pseudo-component modelling	PC modelling	
Risk	Type of risk effects to model	Jet fire modelling for horizontal releases	Horizontal jet only	
		Reduce risks for mounded / underground tanks	No	
	Non-ignition probabilities	Specify probability of non-ignition	Calculate non-ignition probability	
		Non-ignition probability		fraction
	Immediate ignition probabilities	Probability of immediate ignition	Stationary - use material reactivity	
		Immediate ignition probability		fraction
	Delayed ignition probabilities	Specify minimum probability of delayed ignition	Calculate minimum probability of delayed ignition	
		Minimum probability of delayed ignition		fraction
		Specify conditional explosion probability	Calculate conditional probability	
		Conditional explosion probability		fraction
	Cox-Lees-Ang and UKOOA ignition modelling	Release type for CLA / UKOOA		
		Fraction of ignition probability for immediate ignition	0,3	
Scenario	Pipe dimensions	Pipe length		m
	Release location	Elevation	1	m
		Tank head	14	m
	Direction	Outdoor release direction	Horizontal	
		Outdoor release angle	0	deg
Discharge parameters	Model settings	Atmospheric expansion method	DNV GL recommended	
		Phase change upstream of orifice?	Disallow liquid phase change only (metastable liquid)	
	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	10000	m3

		Tank vapour volume	0	m3
		Tank liquid volume	10000	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	Dique	
	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: Uniform confined	
	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	
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	9,8; 19,45; 35	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	Crosswind angle	0	deg
		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	9,8; 19,45; 35	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	-10149,1	m
		North	6904,13	m
		Apply location offset	No	

H05

Catastrophic rupture

EAR_IMETAME_REV 01\PORTO IMETAME\H05_Ruptura de Tanque 10.000 m³\Tanque de 10.000 m³ (2)

Tab	Group	Field	Value	Units
Scenario	Release location	Elevation	1	m
		Tank head	14	m
	Fireball emissive power	Use vessel burst pressure	No	
		Vessel burst pressure - gauge		bar
Risk	Event frequency	Event frequency	5E-06	/AvgeYear
	Type of risk effects to model	Reduce risks for mounded / underground tanks	No	
	Non-ignition probabilities	Specify probability of non-ignition	Calculate non-ignition probability	
		Non-ignition probability		fraction
	Immediate ignition probabilities	Probability of immediate ignition	Stationary - use material reactivity	
		Immediate ignition probability		fraction
	Delayed ignition probabilities	Specify minimum probability of delayed ignition	Calculate minimum probability of delayed ignition	
		Minimum probability of delayed ignition		fraction
		Specify conditional explosion probability	Calculate conditional probability	
		Conditional explosion probability		fraction
	Cox-Lees-Ang and UKOOA ignition modelling	Release type for CLA / UKOOA		
Material	Material	Material characteristics	Flammable only	
		Material to track	N-NONANE	
		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	Concrete, no bund	
Explosion parameters	Explosion method	Explosion method	Multi-Energy: Uniform confined	
	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	
Fireball	Result types to calculate	Calculate probit	No	
		Calculate dose	No	
		Calculate lethality	No	
	Radiation levels	Number of input radiation levels	3	
		Intensity levels	9,8; 19,45; 35	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	9,8; 19,45; 35	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

Tanque de 10.000 m³ (3)

Atmospheric storage tank
EAR_IMETAME_REV 01\PORTO IMETAME\H05_Ruptura de Tanque 10.000 m³

Tab	Group	Field	Value	Units
Material	Material	Material	N-NONANE	
		Specify volume inventory?	Yes	
		Mass inventory	7,01233E+06	kg
		Volume inventory	10000	m3
		Material to track	N-NONANE	
		Type of risk effects to model	Flammable only	
	Phase	Specified condition	Temperature and atmospheric pressure	
		Temperature	45	degC
		Pressure (gauge)		bar
		Fluid state	Liquid	
		Liquid mole fraction	1	fraction

	Modelling of mixtures	Multi or pseudo-component modelling	PC modelling	
Risk	Type of risk effects to model	Jet fire modelling for horizontal releases	Horizontal jet only	
		Reduce risks for mounded / underground tanks	No	
	Non-ignition probabilities	Specify probability of non-ignition	Calculate non-ignition probability	
		Non-ignition probability		fraction
	Immediate ignition probabilities	Probability of immediate ignition	Stationary - use material reactivity	
		Immediate ignition probability		fraction
	Delayed ignition probabilities	Specify minimum probability of delayed ignition	Calculate minimum probability of delayed ignition	
		Minimum probability of delayed ignition		fraction
		Specify conditional explosion probability	Calculate conditional probability	
		Conditional explosion probability		fraction
	Cox-Lees-Ang and UKOOA ignition modelling	Release type for CLA / UKOOA		
		Fraction of ignition probability for immediate ignition	0,3	
Scenario	Pipe dimensions	Pipe length		m
	Release location	Elevation	1	m
		Tank head	14	m
	Direction	Outdoor release direction	Horizontal	
		Outdoor release angle	0	deg
Discharge parameters	Model settings	Atmospheric expansion method	DNV GL recommended	
		Phase change upstream of orifice?	Disallow liquid phase change only (metastable liquid)	
	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	10000	m3
		Tank vapour volume	0	m3
		Tank liquid volume	10000	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	Dique	
	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: Uniform confined	
	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	
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	9,8; 19,45; 35	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	Crosswind angle	0	deg
		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	9,8; 19,45; 35	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	-10149,1	m
		North	6869,16	m
		Apply location offset	No	

H05

Catastrophic rupture

EAR_IMETAME_REV 01\PORTO IMETAME\H05_Ruptura de Tanque 10.000 m³\Tanque de 10.000 m³ (3)

Tab	Group	Field	Value	Units
Scenario	Release location	Elevation	1	m
		Tank head	14	m
	Fireball emissive power	Use vessel burst pressure	No	
		Vessel burst pressure - gauge		bar
Risk	Event frequency	Event frequency	5E-06	/AvgeYear
	Type of risk effects to model	Reduce risks for mounded / underground tanks	No	
	Non-ignition probabilities	Specify probability of non-ignition	Calculate non-ignition probability	
		Non-ignition probability		fraction
	Immediate ignition probabilities	Probability of immediate ignition	Stationary - use material reactivity	
		Immediate ignition probability		fraction
	Delayed ignition probabilities	Specify minimum probability of delayed ignition	Calculate minimum probability of delayed ignition	
		Minimum probability of delayed ignition		fraction
		Specify conditional explosion probability	Calculate conditional probability	
		Conditional explosion probability		fraction
	Cox-Lees-Ang and UKOOA ignition modelling	Release type for CLA / UKOOA		
Material	Material	Material characteristics	Flammable only	
		Material to track	N-NONANE	
		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	Concrete, no bund	
Explosion parameters	Explosion method	Explosion method	Multi-Energy: Uniform confined	
	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	
Fireball	Result types to calculate	Calculate probit	No	
		Calculate dose	No	
		Calculate lethality	No	
	Radiation levels	Number of input radiation levels	3	
		Intensity levels	9,8; 19,45; 35	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	9,8; 19,45; 35	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

Tanque de 5.000 m^3

Atmospheric storage tank
EAR_IMETAME_REV 01\PORTO IMETAME\H06_Ruptura de Tanque 5.000 m^3

Tab	Group	Field	Value	Units
Material	Material	Material	N-NONANE	
		Specify volume inventory?	Yes	
		Mass inventory	3,50617E+06	kg
		Volume inventory	5000	m3
		Material to track	N-NONANE	
		Type of risk effects to model	Flammable only	
	Phase	Specified condition	Temperature and atmospheric pressure	
		Temperature	45	degC
		Pressure (gauge)		bar
		Fluid state	Liquid	
		Liquid mole fraction	1	fraction
	Modelling of mixtures	Multi or pseudo-component modelling	PC modelling	
Risk	Type of risk effects to model	Jet fire modelling for horizontal releases	Horizontal jet only	
		Reduce risks for mounded / underground tanks	No	
	Non-ignition probabilities	Specify probability of non-ignition	Calculate non-ignition probability	
		Non-ignition probability		fraction

	Immediate ignition probabilities	Probability of immediate ignition	Stationary - use material reactivity	
		Immediate ignition probability		fraction
	Delayed ignition probabilities	Specify minimum probability of delayed ignition	Calculate minimum probability of delayed ignition	
		Minimum probability of delayed ignition		fraction
		Specify conditional explosion probability	Calculate conditional probability	
		Conditional explosion probability		fraction
	Cox-Lees-Ang and UKOOA ignition modelling	Release type for CLA / UKOOA		
		Fraction of ignition probability for immediate ignition	0,3	
Scenario	Pipe dimensions	Pipe length		m
	Release location	Elevation	1	m
		Tank head	19	m
	Direction	Outdoor release direction	Horizontal	
		Outdoor release angle	0	deg
Discharge parameters	Model settings	Atmospheric expansion method	DNV GL recommended	
		Phase change upstream of orifice?	Disallow liquid phase change only (metastable liquid)	
	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	5000	m3
		Tank vapour volume	0	m3
		Tank liquid volume	5000	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	Dique	
	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: Uniform confined	
	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	
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	9,8; 19,45; 35	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	Crosswind angle	0	deg
		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	9,8; 19,45; 35	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	-10148,9	m
		North	6975,64	m
		Apply location offset	No	

H06

Catastrophic rupture

EAR_IMETAME_REV 01\PORTO IMETAME\H06_Ruptura de Tanque 5.000 m³\Tanque de 5.000 m³

Tab	Group	Field	Value	Units
Scenario	Release location	Elevation	1	m
		Tank head	19	m
	Fireball emissive power	Use vessel burst pressure	No	
		Vessel burst pressure - gauge		bar
Risk	Event frequency	Event frequency	5E-06	/AvgeYear
	Type of risk effects to model	Reduce risks for mounded / underground tanks	No	
	Non-ignition probabilities	Specify probability of non-ignition	Calculate non-ignition probability	
		Non-ignition probability		fraction
	Immediate ignition probabilities	Probability of immediate ignition	Stationary - use material reactivity	
		Immediate ignition probability		fraction
	Delayed ignition probabilities	Specify minimum probability of delayed ignition	Calculate minimum probability of delayed ignition	
		Minimum probability of delayed ignition		fraction
		Specify conditional explosion probability	Calculate conditional probability	
		Conditional explosion probability		fraction
	Cox-Lees-Ang and UKOOA ignition modelling	Release type for CLA / UKOOA		
Material	Material	Material characteristics	Flammable only	
		Material to track	N-NONANE	
		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	Concrete, no bund	
Explosion parameters	Explosion method	Explosion method	Multi-Energy: Uniform confined	
	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	
Fireball	Result types to calculate	Calculate probit	No	
		Calculate dose	No	
		Calculate lethality	No	
	Radiation levels	Number of input radiation levels	3	

		Intensity levels	9,8; 19,45; 35	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	9,8; 19,45; 35	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

Bombas de Exportação

Pressure vessel
EAR_IMETAME_REV 01\PORTO IMETAME\H07_Ruptura em linha - Bombas de Exportação e Importação

Tab	Group	Field	Value	Units
Material	Material	Material	N-NONANE	
		Specify volume inventory?	Yes	
		Mass inventory	116896	kg
		Volume inventory	166,7	m3
		Material to track	N-NONANE	
		Type of risk effects to model	Flammable only	
	Phase	Specified condition	Pressure/temperature	
		Temperature	45	degC
		Pressure (gauge)	7	bar
		Fluid state	Liquid	
		Liquid mole fraction	1	fraction
	Modelling of mixtures	Multi or pseudo-component modelling	PC modelling	
Risk	Type of risk effects to model	Jet fire modelling for horizontal releases	Horizontal jet only	
		Reduce risks for mounded / underground tanks	No	
	Non-ignition probabilities	Specify probability of non-ignition	Calculate non-ignition probability	
		Non-ignition probability		fraction
	Immediate ignition probabilities	Probability of immediate ignition	Stationary - use material reactivity	
		Immediate ignition probability		fraction
	Delayed ignition probabilities	Specify minimum probability of delayed ignition	Calculate minimum probability of delayed ignition	
		Minimum probability of delayed ignition		fraction
		Specify conditional explosion	Calculate conditional probability	

		probability		
		Conditional explosion probability		fraction
	Cox-Lees-Ang and UKOOA ignition modelling	Fraction of ignition probability for immediate ignition	0,3	
		Release type for CLA / UKOOA		
Scenario	Pipe dimensions	Pipe length		m
	Release location	Elevation	1	m
		Tank head	0	m
	Direction	Outdoor release direction	Horizontal	
		Outdoor release angle	0	deg
Discharge parameters	Model settings	Atmospheric expansion method	DNV GL recommended	
		Phase change upstream of orifice?	Disallow liquid phase change only (metastable liquid)	
	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	166,7	m3
		Tank vapour volume	0	m3
		Tank liquid volume	166,7	m3
		Tank liquid level	0	m
		Maximum vapour release height		m
		Minimum mass inventory	0,1	kg
		Maximum mass inventory	1E+09	kg
	Safety system modelling for time-varying releases	Safety system modelling (isolation and blowdown)	No	
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	Concrete, no bund	
	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: Uniform confined	
	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	
Fireball	Result types to calculate	Calculate probit	No	
		Calculate dose	No	
		Calculate lethality	No	
	Radiation levels	Number of input radiation levels	3	
		Intensity levels	9,8; 19,45; 35	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	9,8; 19,45; 35	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	Crosswind angle	0	deg
		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	9,8; 19,45; 35	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	-10199,2	m
		North	7005,38	m
		Apply location offset	No	

H07

Short pipe

EAR_IMETAME_REV 01\PORTO IMETAME\H07_Ruptura em linha - Bombas de Exportação e Importação\Bombas de Exportação

Tab	Group	Field	Value	Units
Scenario	Scenario	Scenario type	Line rupture	
	Pipe dimensions	Pipe internal diameter	254	mm
		Pipe length	1	m
	Hole	Orifice diameter		mm
	Release location	Elevation	1	m
		Tank head	0	m
	Flow control	Flow controller	None	
		Input option	Not applicable	
		Fixed flow rate		kg/s
		Pump head		m
	Direction	Outdoor release direction	Horizontal	
		Outdoor release angle	0	deg
Risk	Event frequency	Event frequency	2E-05	/AvgeYear
	Type of risk effects to model	Reduce risks for mounded / underground tanks	No	
	Non-ignition probabilities	Specify probability of non-ignition	Calculate non-ignition probability	
		Non-ignition probability		fraction
	Immediate ignition probabilities	Probability of immediate ignition	Stationary - use material reactivity	
		Immediate ignition probability		fraction
	Delayed ignition probabilities	Specify minimum probability of delayed ignition	Calculate minimum probability of delayed ignition	
		Minimum probability of delayed ignition		fraction
		Specify conditional explosion probability	Calculate conditional probability	
		Conditional explosion probability		fraction
	Cox-Lees-Ang and UKOOA ignition modelling	Release type for CLA / UKOOA		
Material	Material	Material characteristics	Flammable only	
		Material to track	N-NONANE	
		Type of risk effects to model	Flammable only	
	Phase	Phase to be released	Liquid	
Discharge parameters	Model settings	Atmospheric expansion method	DNV GL recommended	

	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	
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	Concrete, no bund	
Explosion parameters	Explosion method	Explosion method	Multi-Energy: Uniform confined	
	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	
Fireball	Result types to calculate	Calculate probit	No	
		Calculate dose	No	
		Calculate lethality	No	
	Radiation levels	Number of input radiation levels	3	
		Intensity levels	9,8; 19,45; 35	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	9,8; 19,45; 35	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	9,8; 19,45; 35	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

Bombas de Distribuição

Pressure vessel
EAR_IMETAME_REV 01\PORTO IMETAME\H08_Ruptura em linha - Bombas de Distribuição

Tab	Group	Field	Value	Units
Material	Material	Material	N-NONANE	
		Specify volume inventory?	Yes	
		Mass inventory	93474,4	kg
		Volume inventory	133,3	m3
		Material to track	N-NONANE	
		Type of risk effects to model	Flammable only	
	Phase	Specified condition	Pressure/temperature	
		Temperature	45	degC
		Pressure (gauge)	7	bar
		Fluid state	Liquid	
		Liquid mole fraction	1	fraction
	Modelling of mixtures	Multi or pseudo-component modelling	PC modelling	
Risk	Type of risk effects to model	Jet fire modelling for horizontal releases	Horizontal jet only	
		Reduce risks for mounded / underground tanks	No	
	Non-ignition probabilities	Specify probability of non-ignition	Calculate non-ignition probability	
		Non-ignition probability		fraction
	Immediate ignition probabilities	Probability of immediate ignition	Stationary - use material reactivity	
		Immediate ignition probability		fraction

	Delayed ignition probabilities	Specify minimum probability of delayed ignition	Calculate minimum probability of delayed ignition	
		Minimum probability of delayed ignition		fraction
		Specify conditional explosion probability	Calculate conditional probability	
		Conditional explosion probability		fraction
	Cox-Lees-Ang and UKOOA ignition modelling	Fraction of ignition probability for immediate ignition	0,3	
		Release type for CLA / UKOOA		
Scenario	Pipe dimensions	Pipe length		m
	Release location	Elevation	1	m
		Tank head	0	m
	Direction	Outdoor release direction	Horizontal	
		Outdoor release angle	0	deg
Discharge parameters	Model settings	Atmospheric expansion method	DNV GL recommended	
		Phase change upstream of orifice?	Disallow liquid phase change only (metastable liquid)	
	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	133,3	m3
		Tank vapour volume	0	m3
		Tank liquid volume	133,3	m3
		Tank liquid level	0	m
		Maximum vapour release height		m
		Minimum mass inventory	0,1	kg
		Maximum mass inventory	1E+09	kg
	Safety system modelling for time-varying releases	Safety system modelling (isolation and blowdown)	No	
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	Concrete, no bund	
	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: Uniform confined	
	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	
Fireball	Result types to calculate	Calculate probit	No	
		Calculate dose	No	
		Calculate lethality	No	
	Radiation levels	Number of input radiation levels	3	
		Intensity levels	9,8; 19,45; 35	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	9,8; 19,45; 35	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	Crosswind angle	0	deg
		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	9,8; 19,45; 35	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	-10166,2	m
		North	6963,21	m
		Apply location offset	No	

H08

Short pipe

EAR_IMETAME_REV 01\PORTO IMETAME\H08_Ruptura em linha - Bombas de Distribuição\Bombas de Distribuição

Tab	Group	Field	Value	Units
Scenario	Scenario	Scenario type	Line rupture	
	Pipe dimensions	Pipe internal diameter	203,2	mm
		Pipe length	1	m
	Hole	Orifice diameter		mm
	Release location	Elevation	1	m
		Tank head	0	m
	Flow control	Flow controller	None	
		Input option	Not applicable	
		Fixed flow rate		kg/s
		Pump head		m
	Direction	Outdoor release direction	Horizontal	
		Outdoor release angle	0	deg
Risk	Event frequency	Event frequency	2E-05	/AvgeYear
	Type of risk effects to model	Reduce risks for mounded / underground tanks	No	
	Non-ignition probabilities	Specify probability of non-ignition	Calculate non-ignition probability	
		Non-ignition probability		fraction
	Immediate ignition probabilities	Probability of immediate ignition	Stationary - use material reactivity	
		Immediate ignition probability		fraction
	Delayed ignition probabilities	Specify minimum probability of delayed ignition	Calculate minimum probability of delayed ignition	
		Minimum probability of delayed ignition		fraction
		Specify conditional explosion probability	Calculate conditional probability	
		Conditional explosion probability		fraction
	Cox-Lees-Ang and UKOOA ignition modelling	Release type for CLA / UKOOA		
Material	Material	Material characteristics	Flammable only	
		Material to track	N-NONANE	

		Type of risk effects to model	Flammable only	
	Phase	Phase to be released	Liquid	
Discharge parameters	Model settings	Atmospheric expansion method	DNV GL recommended	
	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	
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	Concrete, no bund	
Explosion parameters	Explosion method	Explosion method	Multi-Energy: Uniform confined	
	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	
Fireball	Result types to calculate	Calculate probit	No	
		Calculate dose	No	
		Calculate lethality	No	
	Radiation levels	Number of input radiation levels	3	
		Intensity levels	9,8; 19,45; 35	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	9,8; 19,45; 35	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	9,8; 19,45; 35	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

H09

Long pipeline

EAR_IMETAME_REV 01\PORTO IMETAME\H09_Ruptura Duto 14" de Transferência 1000 m^3/h

Tab	Group	Field	Value	Units
Material	Material	Material	N-NONANE	
		Material to track	N-NONANE	
		Type of risk effects to model	Flammable only	
	Phase	Specified condition	Pressure/temperature	
		Temperature	55	degC
		Pressure (gauge)	7	bar
		Fluid state	Liquid	
		Liquid mole fraction	1	fraction
Risk	Failure frequencies	Failure frequency model	Use pipeline thickness correlation	
		Use correlation?	Use exponential curve fit	
		Failure frequency specified	Per pipeline	
		Failure frequency		/AvgeYear
		Supplied length		m
	Event spacing	Event spacing method	Automatic	
		User-defined event spacing		m
	Type of risk effects to model	Jet fire modelling for horizontal releases	Horizontal jet only	
		Reduce risks for mounded /	No	

		underground tanks		
	Non-ignition probabilities	Specify probability of non-ignition	Calculate non-ignition probability	
		Non-ignition probability		fraction
	Immediate ignition probabilities	Probability of immediate ignition	Stationary - use material reactivity	
		Immediate ignition probability		fraction
	Delayed ignition probabilities	Specify minimum probability of delayed ignition	Calculate minimum probability of delayed ignition	
		Minimum probability of delayed ignition		fraction
		Specify conditional explosion probability	Calculate conditional probability	
		Conditional explosion probability		fraction
	Cox-Lees-Ang and UKOOA ignition modelling	Release type for CLA / UKOOA		
		Fraction of ignition probability for immediate ignition	0,3	
Scenario	Pipe dimensions	Supply pipeline length longer than drawn on GIS	No	
		Entire pipeline length	3631,69	m
		Length upstream of first geometry point	0	m
		Length calculated from the geometry tab	3631,69	m
		Length downstream of last geometry point	0	m
		Pipe internal diameter	355,6	mm
	Release location	Elevation	1	m
	Direction	Outdoor release direction	Horizontal	
		Outdoor release angle	0	deg
	Pump data	Pumped inflow	199,444	kg/s
	Breach data	Breach sizing method	Actual size	
Long pipe	Pipe characteristics	Pipe roughness	0,045	mm
		Construction material (enabled in discharge parameters)		
		Pipe wall thickness	10	mm
	Valves	Number of valves	0	
		Valve type		
		Valve distance from upstream end of pipeline		m
		Valve closing time		s
		Valve excess flow		kg/s
		Probability of failure on demand		fraction
	Small holes method	Small hole size discharge method	Steady state orifice model	
		Relative size for "small" breach - liquid	0,2	
		Relative size for "small" breach - vapour	0,04	
		Use specified discharge coefficient?	No	
		Discharge coefficient	1	fraction
	Pipeline surrounding characteristics and crater modelling	Pipeline surrounding	Above ground	
		Depth of soil cover		m

		Soil cover type	Clay	
	Variations from default	Number of user defined pipeline sections	0	
		Failure frequency model		
		Failure frequency specified		
		Failure frequency		/AvgeYear
		Supplied length		m
		Section start distance		m
		Section end distance		m
		Pipe internal diameter		mm
		Pipe wall thickness		mm
		Section height		m
		Section surrounding		
		Depth of soil cover		m
		Soil cover type		
		User-defined section start and end section validation	Sections are valid	
Time varying releases	Time averaging	Duration of interest	3600	s
		Method for calculating average rate	Average between 2 times	
		Expected number of average rates		
		Time at which release rate is calculated		s
		First time value for rate between two times	0	s
		Second time value for rate between two times	20	s
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	Concrete, no bund	
Explosion parameters	Explosion method (Consequence calculations only)	Explosion method	Multi-Energy: Uniform confined	
	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	
Fireball	Result types to calculate	Calculate probit	No	
		Calculate dose	No	
		Calculate lethality	No	
	Radiation levels	Number of input radiation levels	3	
		Intensity levels	9,8; 19,45; 35	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	9,8; 19,45; 35	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	Crosswind angle	0	deg
		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	9,8; 19,45; 35	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	-10191,3; -8575,27; -8157,43; -7447,22; -6895,62	m
		North	7004,37; 6467,79; 6184,89; 5969,46; 6370,73	m
		Length	3,63169	km
		Apply location offset	No	

Auto-generated sections

Auto-generated sections
EAR_IMETAME_REV 01\PORTO IMETAME\H09_Ruptura Duto 14" de Transferência 1000 m^3/h\H09

Tab	Group	Field	Value	Units
Scenario group	Sum of probabilities for the scenario group	Probability	0	fraction
Auto-section results	Auto-section results	Total number of pipeline sections	1	
		Pipeline section identifiers	0	
		Pipeline sub-sections per pipeline section	5	
		Section lengths	3631,69	m
		Section start X- Coordinates	-10191,3	m
		Section start Y- Coordinates	7004,37	m
		Section start distances from upstream end	0	m
		Section end X- Coordinates	-6895,62	m
		Section end Y- Coordinates	6370,73	m
		Section end distances from upstream end	3631,69	m
		Failure frequencies for sections (per segment)	0,000348549	/AvgeYear

H09.1_Furo

Location specific breach

EAR_IMETAME_REV 01\PORTO IMETAME\H09_Ruptura Duto 14" de Transferência 1000 m^3/h\H09

Tab	Group	Field	Value	Units
Scenario	Breach data	Breach sizing method	Actual size	
		Hole diameter	17,78	mm
		Relative branch aperture (area)	0,00125	fraction
	Release location	Distance to break	10	m
		Minimum distance to break	0	m
		Maximum distance to break	3631,69	m
		Breach calculated east location	-10181,8	m
		Breach calculated north location	7001,22	m
		Elevation	1	m
	Pipe dimensions	Entire pipeline length	3631,69	m
		Pipe internal diameter	355,6	mm
	Direction	Outdoor release direction	Horizontal	
		Outdoor release angle	0	deg
	Isolation	Isolation	No Isolation	
	Crater modelling	Accident type for buried sections	Full bore rupture	
Risk	Event frequency	Event frequency	3E-05	/AvgeYear
	Type of risk effects to model	Reduce risks for mounded / underground tanks	No	
	Non-ignition probabilities	Specify probability of non-ignition	Calculate non-ignition probability	
		Non-ignition probability		fraction
	Immediate ignition probabilities	Probability of immediate ignition	Stationary - use material reactivity	
		Immediate ignition probability		fraction
	Delayed ignition probabilities	Specify minimum probability of delayed ignition	Calculate minimum probability of delayed ignition	
		Minimum probability of delayed ignition		fraction
		Specify conditional explosion probability	Calculate conditional probability	

		Conditional explosion probability		fraction
	Cox-Lees-Ang and UKOOA ignition modelling	Release type for CLA / UKOOA		
Material	Material	Material characteristics	Flammable only	
		Material to track	N-NONANE	
		Type of risk effects to model	Flammable only	
Discharge parameters	Model settings	Atmospheric expansion method	DNV GL recommended	
		Phase change upstream of orifice?	Disallow liquid phase change only (metastable liquid)	
	Droplet break-up mechanism	Droplet break-up mechanism - continuous	Do not force correlation	
Long pipe	Crater modelling	Fracture length	12	m
Time varying releases	Time averaging	Duration of interest	3600	s
		Method for calculating average rate	Average between 2 times	
		Expected number of average rates		
		Time at which release rate is calculated		s
		First time value for rate between two times	0	s
		Second time value for rate between two times	20	s
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	Concrete, no bund	
Explosion parameters	Explosion method	Explosion method	Multi-Energy: Uniform confined	
	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	
Fireball	Result types to calculate	Calculate probit	No	
		Calculate dose	No	
		Calculate lethality	No	
	Radiation levels	Number of input radiation levels	3	
		Intensity levels	9,8; 19,45; 35	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	9,8; 19,45; 35	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	9,8; 19,45; 35	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

H09.1_Furo (1)

Location specific breach

EAR_IMETAME_REV 01\PORTO IMETAME\H09_Ruptura Duto 14" de Transferência 1000 m³/h\H09

Tab	Group	Field	Value	Units
Scenario	Breach data	Breach sizing method	Actual size	
		Hole diameter	17,78	mm
		Relative branch aperture (area)	0,00125	fraction
	Release location	Distance to break	300	m
		Minimum distance to break	0	m
		Maximum distance to break	3631,69	m
		Breach calculated east location	-9906,61	m
		Breach calculated north location	6909,84	m
		Elevation	1	m
	Pipe dimensions	Entire pipeline length	3631,69	m
		Pipe internal diameter	355,6	mm
	Direction	Outdoor release direction	Horizontal	
		Outdoor release angle	0	deg
	Isolation	Isolation	No Isolation	
	Crater modelling	Accident type for buried sections	Full bore rupture	
Risk	Event frequency	Event frequency	3E-05	/AvgeYear

	Type of risk effects to model	Reduce risks for mounded / underground tanks	No	
	Non-ignition probabilities	Specify probability of non-ignition	Calculate non-ignition probability	
		Non-ignition probability		fraction
	Immediate ignition probabilities	Probability of immediate ignition	Stationary - use material reactivity	
		Immediate ignition probability		fraction
	Delayed ignition probabilities	Specify minimum probability of delayed ignition	Calculate minimum probability of delayed ignition	
		Minimum probability of delayed ignition		fraction
		Specify conditional explosion probability	Calculate conditional probability	
		Conditional explosion probability		fraction
	Cox-Lees-Ang and UKOOA ignition modelling	Release type for CLA / UKOOA		
Material	Material	Material characteristics	Flammable only	
		Material to track	N-NONANE	
		Type of risk effects to model	Flammable only	
Discharge parameters	Model settings	Atmospheric expansion method	DNV GL recommended	
		Phase change upstream of orifice?	Disallow liquid phase change only (metastable liquid)	
	Droplet break-up mechanism	Droplet break-up mechanism - continuous	Do not force correlation	
Long pipe	Crater modelling	Fracture length	12	m
Time varying releases	Time averaging	Duration of interest	3600	s
		Method for calculating average rate	Average between 2 times	
		Expected number of average rates		
		Time at which release rate is calculated		s
		First time value for rate between two times	0	s
		Second time value for rate between two times	20	s
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	Concrete, no bund	
Explosion parameters	Explosion method	Explosion method	Multi-Energy: Uniform confined	
	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	
Fireball	Result types to calculate	Calculate probit	No	
		Calculate dose	No	
		Calculate lethality	No	
	Radiation levels	Number of input radiation levels	3	

		Intensity levels	9,8; 19,45; 35	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	9,8; 19,45; 35	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	9,8; 19,45; 35	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

H09.1_Furo (2)

Location specific breach

EAR_IMETAME_REV 01\PORTO IMETAME\H09_Ruptura Duto 14" de Transferência 1000 m³/h\H09

Tab	Group	Field	Value	Units
Scenario	Breach data	Breach sizing method	Actual size	
		Hole diameter	17,78	mm
		Relative branch aperture (area)	0,00125	fraction
	Release location	Distance to break	600	m
		Minimum distance to break	0	m
		Maximum distance to break	3631,69	m

		Breach calculated east location	-9621,89	m
		Breach calculated north location	6815,3	m
		Elevation	1	m
	Pipe dimensions	Entire pipeline length	3631,69	m
		Pipe internal diameter	355,6	mm
	Direction	Outdoor release direction	Horizontal	
		Outdoor release angle	0	deg
	Isolation	Isolation	No Isolation	
	Crater modelling	Accident type for buried sections	Full bore rupture	
Risk	Event frequency	Event frequency	3E-05	/AvgeYear
	Type of risk effects to model	Reduce risks for mounded / underground tanks	No	
	Non-ignition probabilities	Specify probability of non-ignition	Calculate non-ignition probability	
		Non-ignition probability		fraction
	Immediate ignition probabilities	Probability of immediate ignition	Stationary - use material reactivity	
		Immediate ignition probability		fraction
	Delayed ignition probabilities	Specify minimum probability of delayed ignition	Calculate minimum probability of delayed ignition	
		Minimum probability of delayed ignition		fraction
		Specify conditional explosion probability	Calculate conditional probability	
		Conditional explosion probability		fraction
	Cox-Lees-Ang and UKOOA ignition modelling	Release type for CLA / UKOOA		
Material	Material	Material characteristics	Flammable only	
		Material to track	N-NONANE	
		Type of risk effects to model	Flammable only	
Discharge parameters	Model settings	Atmospheric expansion method	DNV GL recommended	
		Phase change upstream of orifice?	Disallow liquid phase change only (metastable liquid)	
	Droplet break-up mechanism	Droplet break-up mechanism - continuous	Do not force correlation	
Long pipe	Crater modelling	Fracture length	12	m
Time varying releases	Time averaging	Duration of interest	3600	s
		Method for calculating average rate	Average between 2 times	
		Expected number of average rates		
		Time at which release rate is calculated		s
		First time value for rate between two times	0	s
		Second time value for rate between two times	20	s
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	Concrete, no bund	
Explosion parameters	Explosion method	Explosion method	Multi-Energy: Uniform confined	
	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	
Fireball	Result types to calculate	Calculate probit	No	
		Calculate dose	No	
		Calculate lethality	No	
	Radiation levels	Number of input radiation levels	3	
		Intensity levels	9,8; 19,45; 35	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	9,8; 19,45; 35	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	9,8; 19,45; 35	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

Location specific breach
EAR_IMETAME_REV 01\PORTO IMETAME\H09_Ruptura Duto 14" de Transferência 1000 m³/h\H09

Tab	Group	Field	Value	Units
Scenario	Breach data	Breach sizing method	Actual size	
		Hole diameter	17,78	mm
		Relative branch aperture (area)	0,00125	fraction
	Release location	Distance to break	900	m
		Minimum distance to break	0	m
		Maximum distance to break	3631,69	m
		Breach calculated east location	-9337,18	m
		Breach calculated north location	6720,77	m
		Elevation	1	m
	Pipe dimensions	Entire pipeline length	3631,69	m
		Pipe internal diameter	355,6	mm
	Direction	Outdoor release direction	Horizontal	
		Outdoor release angle	0	deg
	Isolation	Isolation	No Isolation	
	Crater modelling	Accident type for buried sections	Full bore rupture	
Risk	Event frequency	Event frequency	3E-05	/AvgeYear
	Type of risk effects to model	Reduce risks for mounded / underground tanks	No	
	Non-ignition probabilities	Specify probability of non-ignition	Calculate non-ignition probability	
		Non-ignition probability		fraction
	Immediate ignition probabilities	Probability of immediate ignition	Stationary - use material reactivity	
		Immediate ignition probability		fraction
	Delayed ignition probabilities	Specify minimum probability of delayed ignition	Calculate minimum probability of delayed ignition	
		Minimum probability of delayed ignition		fraction
		Specify conditional explosion probability	Calculate conditional probability	
		Conditional explosion probability		fraction
	Cox-Lees-Ang and UKOOA ignition modelling	Release type for CLA / UKOOA		
Material	Material	Material characteristics	Flammable only	
		Material to track	N-NONANE	
		Type of risk effects to model	Flammable only	
Discharge parameters	Model settings	Atmospheric expansion method	DNV GL recommended	
		Phase change upstream of orifice?	Disallow liquid phase change only (metastable liquid)	
	Droplet break-up mechanism	Droplet break-up mechanism - continuous	Do not force correlation	
Long pipe	Crater modelling	Fracture length	12	m
Time varying releases	Time averaging	Duration of interest	3600	s
		Method for calculating average rate	Average between 2 times	
		Expected number of average rates		
		Time at which release rate is calculated		s
		First time value for rate between two times	0	s
		Second time value for rate between two times	20	s

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	Concrete, no bund	
Explosion parameters	Explosion method	Explosion method	Multi-Energy: Uniform confined	
	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	
Fireball	Result types to calculate	Calculate probit	No	
		Calculate dose	No	
		Calculate lethality	No	
	Radiation levels	Number of input radiation levels	3	
		Intensity levels	9,8; 19,45; 35	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	9,8; 19,45; 35	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	9,8; 19,45; 35	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

H09.2_Fenda

Location specific breach

EAR_IMETAME_REV 01\PORTO IMETAME\H09_Ruptura Duto 14" de Transferência 1000 m³/h\H09

Tab	Group	Field	Value	Units
Scenario	Breach data	Breach sizing method	Actual size	
		Hole diameter	71,12	mm
		Relative branch aperture (area)	0,02	fraction
	Release location	Distance to break	10	m
		Minimum distance to break	0	m
		Maximum distance to break	3631,69	m
		Breach calculated east location	-10181,8	m
		Breach calculated north location	7001,22	m
		Elevation	1	m
	Pipe dimensions	Entire pipeline length	3631,69	m
		Pipe internal diameter	355,6	mm
	Direction	Outdoor release direction	Horizontal	
		Outdoor release angle	0	deg
	Isolation	Isolation	No Isolation	
	Crater modelling	Accident type for buried sections	Full bore rupture	
Risk	Event frequency	Event frequency	3E-05	/AvgeYear
	Type of risk effects to model	Reduce risks for mounded / underground tanks	No	
	Non-ignition probabilities	Specify probability of non-ignition	Calculate non-ignition probability	
		Non-ignition probability		fraction
	Immediate ignition probabilities	Probability of immediate ignition	Stationary - use material reactivity	
		Immediate ignition probability		fraction
	Delayed ignition probabilities	Specify minimum probability of delayed ignition	Calculate minimum probability of delayed ignition	
		Minimum probability of delayed ignition		fraction
		Specify conditional explosion probability	Calculate conditional probability	
		Conditional explosion probability		fraction
	Cox-Lees-Ang and UKOOA ignition modelling	Release type for CLA / UKOOA		
Material	Material	Material characteristics	Flammable only	
		Material to track	N-NONANE	
		Type of risk effects to model	Flammable only	
Discharge parameters	Model settings	Atmospheric expansion method	DNV GL recommended	
		Phase change upstream of orifice?	Disallow liquid phase change only (metastable liquid)	
	Droplet break-up mechanism	Droplet break-up mechanism -	Do not force correlation	

		continuous		
Long pipe	Crater modelling	Fracture length	12	m
Time varying releases	Time averaging	Duration of interest	3600	s
		Method for calculating average rate	Average between 2 times	
		Expected number of average rates		
		Time at which release rate is calculated		s
		First time value for rate between two times	0	s
		Second time value for rate between two times	20	s
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	Concrete, no bund	
Explosion parameters	Explosion method	Explosion method	Multi-Energy: Uniform confined	
	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	
Fireball	Result types to calculate	Calculate probit	No	
		Calculate dose	No	
		Calculate lethality	No	
	Radiation levels	Number of input radiation levels	3	
		Intensity levels	9,8; 19,45; 35	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	9,8; 19,45; 35	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	9,8; 19,45; 35	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

H09.2_Fenda (1)

Location specific breach

EAR_IMETAME_REV 01\PORTO IMETAME\H09_Ruptura Duto 14" de Transferência 1000 m³/h\H09

Tab	Group	Field	Value	Units
Scenario	Breach data	Breach sizing method	Actual size	
		Hole diameter	71,12	mm
		Relative branch aperture (area)	0,02	fraction
	Release location	Distance to break	300	m
		Minimum distance to break	0	m
		Maximum distance to break	3631,69	m
		Breach calculated east location	-9906,61	m
		Breach calculated north location	6909,84	m
		Elevation	1	m
	Pipe dimensions	Entire pipeline length	3631,69	m
		Pipe internal diameter	355,6	mm
	Direction	Outdoor release direction	Horizontal	
		Outdoor release angle	0	deg
	Isolation	Isolation	No Isolation	
	Crater modelling	Accident type for buried sections	Full bore rupture	
Risk	Event frequency	Event frequency	3E-05	/AvgeYear
	Type of risk effects to model	Reduce risks for mounded / underground tanks	No	
	Non-ignition probabilities	Specify probability of non-ignition	Calculate non-ignition probability	
		Non-ignition probability		fraction
	Immediate ignition probabilities	Probability of immediate ignition	Stationary - use material reactivity	
		Immediate ignition probability		fraction
	Delayed ignition probabilities	Specify minimum probability of delayed ignition	Calculate minimum probability of delayed ignition	
		Minimum probability of delayed ignition		fraction
		Specify conditional explosion	Calculate conditional probability	

		probability		
		Conditional explosion probability		fraction
	Cox-Lees-Ang and UKOOA ignition modelling	Release type for CLA / UKOOA		
Material	Material	Material characteristics	Flammable only	
		Material to track	N-NONANE	
		Type of risk effects to model	Flammable only	
Discharge parameters	Model settings	Atmospheric expansion method	DNV GL recommended	
		Phase change upstream of orifice?	Disallow liquid phase change only (metastable liquid)	
	Droplet break-up mechanism	Droplet break-up mechanism - continuous	Do not force correlation	
Long pipe	Crater modelling	Fracture length	12	m
Time varying releases	Time averaging	Duration of interest	3600	s
		Method for calculating average rate	Average between 2 times	
		Expected number of average rates		
		Time at which release rate is calculated		s
		First time value for rate between two times	0	s
		Second time value for rate between two times	20	s
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	Concrete, no bund	
Explosion parameters	Explosion method	Explosion method	Multi-Energy: Uniform confined	
	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	
Fireball	Result types to calculate	Calculate probit	No	
		Calculate dose	No	
		Calculate lethality	No	
	Radiation levels	Number of input radiation levels	3	
		Intensity levels	9,8; 19,45; 35	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	9,8; 19,45; 35	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	9,8; 19,45; 35	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

H09.2_Fenda (2)

Location specific breach

EAR_IMETAME_REV 01\PORTO IMETAME\H09_Ruptura Duto 14" de Transferência 1000 m^3/h\H09

Tab	Group	Field	Value	Units
Scenario	Breach data	Breach sizing method	Actual size	
		Hole diameter	71,12	mm
		Relative branch aperture (area)	0,02	fraction
	Release location	Distance to break	600	m
		Minimum distance to break	0	m
		Maximum distance to break	3631,69	m
		Breach calculated east location	-9621,89	m
		Breach calculated north location	6815,3	m
		Elevation	1	m
	Pipe dimensions	Entire pipeline length	3631,69	m
		Pipe internal diameter	355,6	mm
	Direction	Outdoor release direction	Horizontal	
		Outdoor release angle	0	deg
	Isolation	Isolation	No Isolation	
	Crater modelling	Accident type for buried sections	Full bore rupture	

Risk	Event frequency	Event frequency	3E-05	/AvgeYear
	Type of risk effects to model	Reduce risks for mounded / underground tanks	No	
	Non-ignition probabilities	Specify probability of non-ignition	Calculate non-ignition probability	
		Non-ignition probability		fraction
	Immediate ignition probabilities	Probability of immediate ignition	Stationary - use material reactivity	
		Immediate ignition probability		fraction
	Delayed ignition probabilities	Specify minimum probability of delayed ignition	Calculate minimum probability of delayed ignition	
		Minimum probability of delayed ignition		fraction
		Specify conditional explosion probability	Calculate conditional probability	
		Conditional explosion probability		fraction
	Cox-Lees-Ang and UKOOA ignition modelling	Release type for CLA / UKOOA		
Material	Material	Material characteristics	Flammable only	
		Material to track	N-NONANE	
		Type of risk effects to model	Flammable only	
Discharge parameters	Model settings	Atmospheric expansion method	DNV GL recommended	
		Phase change upstream of orifice?	Disallow liquid phase change only (metastable liquid)	
	Droplet break-up mechanism	Droplet break-up mechanism - continuous	Do not force correlation	
Long pipe	Crater modelling	Fracture length	12	m
Time varying releases	Time averaging	Duration of interest	3600	s
		Method for calculating average rate	Average between 2 times	
		Expected number of average rates		
		Time at which release rate is calculated		s
		First time value for rate between two times	0	s
		Second time value for rate between two times	20	s
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	Concrete, no bund	
Explosion parameters	Explosion method	Explosion method	Multi-Energy: Uniform confined	
	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	
Fireball	Result types to calculate	Calculate probit	No	
		Calculate dose	No	
		Calculate lethality	No	

	Radiation levels	Number of input radiation levels	3	
		Intensity levels	9,8; 19,45; 35	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	9,8; 19,45; 35	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	9,8; 19,45; 35	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

H09.2_Fenda (3)

Location specific breach

EAR_IMETAME_REV 01\PORTO IMETAME\H09_Ruptura Duto 14" de Transferência 1000 m³/h\H09

Tab	Group	Field	Value	Units
Scenario	Breach data	Breach sizing method	Actual size	
		Hole diameter	71,12	mm
		Relative branch aperture (area)	0,02	fraction
	Release location	Distance to break	900	m
		Minimum distance to break	0	m

		Maximum distance to break	3631,69	m
		Breach calculated east location	-9337,18	m
		Breach calculated north location	6720,77	m
		Elevation	1	m
	Pipe dimensions	Entire pipeline length	3631,69	m
		Pipe internal diameter	355,6	mm
	Direction	Outdoor release direction	Horizontal	
		Outdoor release angle	0	deg
	Isolation	Isolation	No Isolation	
	Crater modelling	Accident type for buried sections	Full bore rupture	
Risk	Event frequency	Event frequency	3E-05	/AvgeYear
	Type of risk effects to model	Reduce risks for mounded / underground tanks	No	
	Non-ignition probabilities	Specify probability of non-ignition	Calculate non-ignition probability	
		Non-ignition probability		fraction
	Immediate ignition probabilities	Probability of immediate ignition	Stationary - use material reactivity	
		Immediate ignition probability		fraction
	Delayed ignition probabilities	Specify minimum probability of delayed ignition	Calculate minimum probability of delayed ignition	
		Minimum probability of delayed ignition		fraction
		Specify conditional explosion probability	Calculate conditional probability	
		Conditional explosion probability		fraction
	Cox-Lees-Ang and UKOOA ignition modelling	Release type for CLA / UKOOA		
Material	Material	Material characteristics	Flammable only	
		Material to track	N-NONANE	
		Type of risk effects to model	Flammable only	
Discharge parameters	Model settings	Atmospheric expansion method	DNV GL recommended	
		Phase change upstream of orifice?	Disallow liquid phase change only (metastable liquid)	
	Droplet break-up mechanism	Droplet break-up mechanism - continuous	Do not force correlation	
Long pipe	Crater modelling	Fracture length	12	m
Time varying releases	Time averaging	Duration of interest	3600	s
		Method for calculating average rate	Average between 2 times	
		Expected number of average rates		
		Time at which release rate is calculated		s
		First time value for rate between two times	0	s
		Second time value for rate between two times	20	s
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	Concrete, no bund	
Explosion parameters	Explosion method	Explosion method	Multi-Energy: Uniform confined	
	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	
Fireball	Result types to calculate	Calculate probit	No	
		Calculate dose	No	
		Calculate lethality	No	
	Radiation levels	Number of input radiation levels	3	
		Intensity levels	9,8; 19,45; 35	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	9,8; 19,45; 35	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	9,8; 19,45; 35	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

H09.3_Ruptura

Location specific breach

EAR_IMETAME_REV 01\PORTO IMETAME\H09_Ruptura Duto 14" de Transferência 1000 m³/h\H09

Tab	Group	Field	Value	Units
Scenario	Breach data	Breach sizing method	Actual size	
		Hole diameter	355,6	mm
		Relative branch aperture (area)	0,5	fraction
	Release location	Distance to break	10	m
		Minimum distance to break	0	m
		Maximum distance to break	3631,69	m
		Breach calculated east location	-10181,8	m
		Breach calculated north location	7001,22	m
		Elevation	1	m
	Pipe dimensions	Entire pipeline length	3631,69	m
		Pipe internal diameter	355,6	mm
	Direction	Outdoor release direction	Horizontal	
		Outdoor release angle	0	deg
	Isolation	Isolation	No Isolation	
	Crater modelling	Accident type for buried sections	Full bore rupture	
Risk	Event frequency	Event frequency	3E-05	/AvgeYear
	Type of risk effects to model	Reduce risks for mounded / underground tanks	No	
	Non-ignition probabilities	Specify probability of non-ignition	Calculate non-ignition probability	
		Non-ignition probability		fraction
	Immediate ignition probabilities	Probability of immediate ignition	Stationary - use material reactivity	
		Immediate ignition probability		fraction
	Delayed ignition probabilities	Specify minimum probability of delayed ignition	Calculate minimum probability of delayed ignition	
		Minimum probability of delayed ignition		fraction
		Specify conditional explosion probability	Calculate conditional probability	
		Conditional explosion probability		fraction
	Cox-Lees-Ang and UKOOA ignition modelling	Release type for CLA / UKOOA		
Material	Material	Material characteristics	Flammable only	
		Material to track	N-NONANE	
		Type of risk effects to model	Flammable only	
Discharge parameters	Model settings	Atmospheric expansion method	DNV GL recommended	
		Phase change upstream of orifice?	Disallow liquid phase change only (metastable liquid)	
	Droplet break-up mechanism	Droplet break-up mechanism - continuous	Do not force correlation	
Long pipe	Crater modelling	Fracture length	12	m
Time varying releases	Time averaging	Duration of interest	3600	s
		Method for calculating average rate	Average between 2 times	
		Expected number of average rates		
		Time at which release rate is calculated		s
		First time value for rate between two times	0	s
		Second time value for rate between	20	s

		two times		
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	Concrete, no bund	
Explosion parameters	Explosion method	Explosion method	Multi-Energy: Uniform confined	
	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	
Fireball	Result types to calculate	Calculate probit	No	
		Calculate dose	No	
		Calculate lethality	No	
	Radiation levels	Number of input radiation levels	3	
		Intensity levels	9,8; 19,45; 35	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	9,8; 19,45; 35	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	9,8; 19,45; 35	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

H09.3_Ruptura (1)

Location specific breach

EAR_IMETAME_REV 01\PORTO IMETAME\H09_Ruptura Duto 14" de Transferência 1000 m³/h\H09

Tab	Group	Field	Value	Units
Scenario	Breach data	Breach sizing method	Actual size	
		Hole diameter	355,6	mm
		Relative branch aperture (area)	0,5	fraction
	Release location	Distance to break	300	m
		Minimum distance to break	0	m
		Maximum distance to break	3631,69	m
		Breach calculated east location	-9906,61	m
		Breach calculated north location	6909,84	m
		Elevation	1	m
	Pipe dimensions	Entire pipeline length	3631,69	m
		Pipe internal diameter	355,6	mm
	Direction	Outdoor release direction	Horizontal	
		Outdoor release angle	0	deg
	Isolation	Isolation	No Isolation	
	Crater modelling	Accident type for buried sections	Full bore rupture	
Risk	Event frequency	Event frequency	3E-05	/AvgeYear
	Type of risk effects to model	Reduce risks for mounded / underground tanks	No	
	Non-ignition probabilities	Specify probability of non-ignition	Calculate non-ignition probability	
		Non-ignition probability		fraction
	Immediate ignition probabilities	Probability of immediate ignition	Stationary - use material reactivity	
		Immediate ignition probability		fraction
	Delayed ignition probabilities	Specify minimum probability of delayed ignition	Calculate minimum probability of delayed ignition	
		Minimum probability of delayed ignition		fraction
		Specify conditional explosion probability	Calculate conditional probability	
		Conditional explosion probability		fraction
	Cox-Lees-Ang and UKOOA ignition modelling	Release type for CLA / UKOOA		
Material	Material	Material characteristics	Flammable only	
		Material to track	N-NONANE	
		Type of risk effects to model	Flammable only	
Discharge parameters	Model settings	Atmospheric expansion method	DNV GL recommended	
		Phase change upstream of orifice?	Disallow liquid phase change only (metastable liquid)	

	Droplet break-up mechanism	Droplet break-up mechanism - continuous	Do not force correlation	
Long pipe	Crater modelling	Fracture length	12	m
Time varying releases	Time averaging	Duration of interest	3600	s
		Method for calculating average rate	Average between 2 times	
		Expected number of average rates		
		Time at which release rate is calculated		s
		First time value for rate between two times	0	s
		Second time value for rate between two times	20	s
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	Concrete, no bund	
Explosion parameters	Explosion method	Explosion method	Multi-Energy: Uniform confined	
	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	
Fireball	Result types to calculate	Calculate probit	No	
		Calculate dose	No	
		Calculate lethality	No	
	Radiation levels	Number of input radiation levels	3	
		Intensity levels	9,8; 19,45; 35	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	9,8; 19,45; 35	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	9,8; 19,45; 35	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

H09.3_Ruptura (2)

Location specific breach

EAR_IMETAME_REV 01\PORTO IMETAME\H09_Ruptura Duto 14" de Transferência 1000 m³/h\H09

Tab	Group	Field	Value	Units
Scenario	Breach data	Breach sizing method	Actual size	
		Hole diameter	355,6	mm
		Relative branch aperture (area)	0,5	fraction
	Release location	Distance to break	600	m
		Minimum distance to break	0	m
		Maximum distance to break	3631,69	m
		Breach calculated east location	-9621,89	m
		Breach calculated north location	6815,3	m
		Elevation	1	m
	Pipe dimensions	Entire pipeline length	3631,69	m
		Pipe internal diameter	355,6	mm
	Direction	Outdoor release direction	Horizontal	
		Outdoor release angle	0	deg
	Isolation	Isolation	No Isolation	
	Crater modelling	Accident type for buried sections	Full bore rupture	
Risk	Event frequency	Event frequency	3E-05	/AvgeYear
	Type of risk effects to model	Reduce risks for mounded / underground tanks	No	
	Non-ignition probabilities	Specify probability of non-ignition	Calculate non-ignition probability	
		Non-ignition probability		fraction
	Immediate ignition probabilities	Probability of immediate ignition	Stationary - use material reactivity	
		Immediate ignition probability		fraction
	Delayed ignition probabilities	Specify minimum probability of delayed ignition	Calculate minimum probability of delayed ignition	
		Minimum probability of delayed ignition		fraction

		Specify conditional explosion probability	Calculate conditional probability	
		Conditional explosion probability		fraction
	Cox-Lees-Ang and UKOOA ignition modelling	Release type for CLA / UKOOA		
Material	Material	Material characteristics	Flammable only	
		Material to track	N-NONANE	
		Type of risk effects to model	Flammable only	
Discharge parameters	Model settings	Atmospheric expansion method	DNV GL recommended	
		Phase change upstream of orifice?	Disallow liquid phase change only (metastable liquid)	
	Droplet break-up mechanism	Droplet break-up mechanism - continuous	Do not force correlation	
Long pipe	Crater modelling	Fracture length	12	m
Time varying releases	Time averaging	Duration of interest	3600	s
		Method for calculating average rate	Average between 2 times	
		Expected number of average rates		
		Time at which release rate is calculated		s
		First time value for rate between two times	0	s
		Second time value for rate between two times	20	s
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	Concrete, no bund	
Explosion parameters	Explosion method	Explosion method	Multi-Energy: Uniform confined	
	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	
Fireball	Result types to calculate	Calculate probit	No	
		Calculate dose	No	
		Calculate lethality	No	
	Radiation levels	Number of input radiation levels	3	
		Intensity levels	9,8; 19,45; 35	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	9,8; 19,45; 35	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	9,8; 19,45; 35	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

H09.3_Ruptura (3)

Location specific breach

EAR_IMETAME_REV 01\PORTO IMETAME\H09_Ruptura Duto 14" de Transferência 1000 m³/h\H09

Tab	Group	Field	Value	Units
Scenario	Breach data	Breach sizing method	Actual size	
		Hole diameter	355,6	mm
		Relative branch aperture (area)	0,5	fraction
	Release location	Distance to break	900	m
		Minimum distance to break	0	m
		Maximum distance to break	3631,69	m
		Breach calculated east location	-9337,18	m
		Breach calculated north location	6720,77	m
		Elevation	1	m
	Pipe dimensions	Entire pipeline length	3631,69	m
		Pipe internal diameter	355,6	mm
	Direction	Outdoor release direction	Horizontal	
		Outdoor release angle	0	deg
	Isolation	Isolation	No Isolation	

	Crater modelling	Accident type for buried sections	Full bore rupture	
Risk	Event frequency	Event frequency	3E-05	/AvgeYear
	Type of risk effects to model	Reduce risks for mounded / underground tanks	No	
	Non-ignition probabilities	Specify probability of non-ignition	Calculate non-ignition probability	
		Non-ignition probability		fraction
	Immediate ignition probabilities	Probability of immediate ignition	Stationary - use material reactivity	
		Immediate ignition probability		fraction
	Delayed ignition probabilities	Specify minimum probability of delayed ignition	Calculate minimum probability of delayed ignition	
		Minimum probability of delayed ignition		fraction
		Specify conditional explosion probability	Calculate conditional probability	
		Conditional explosion probability		fraction
	Cox-Lees-Ang and UKOOA ignition modelling	Release type for CLA / UKOOA		
Material	Material	Material characteristics	Flammable only	
		Material to track	N-NONANE	
		Type of risk effects to model	Flammable only	
Discharge parameters	Model settings	Atmospheric expansion method	DNV GL recommended	
		Phase change upstream of orifice?	Disallow liquid phase change only (metastable liquid)	
	Droplet break-up mechanism	Droplet break-up mechanism - continuous	Do not force correlation	
Long pipe	Crater modelling	Fracture length	12	m
Time varying releases	Time averaging	Duration of interest	3600	s
		Method for calculating average rate	Average between 2 times	
		Expected number of average rates		
		Time at which release rate is calculated		s
		First time value for rate between two times	0	s
		Second time value for rate between two times	20	s
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	Concrete, no bund	
Explosion parameters	Explosion method	Explosion method	Multi-Energy: Uniform confined	
	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	
Fireball	Result types to calculate	Calculate probit	No	
		Calculate dose	No	

		Calculate lethality	No	
	Radiation levels	Number of input radiation levels	3	
		Intensity levels	9,8; 19,45; 35	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	9,8; 19,45; 35	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	9,8; 19,45; 35	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

Long pipeline

Long pipeline

EAR_IMETAME_REV 01\PORTO IMETAME\H10_Ruptura Duto 12" de Transferência 800 m^3/h

Tab	Group	Field	Value	Units
Material	Material	Material	N-NONANE	
		Material to track	N-NONANE	
		Type of risk effects to model	Flammable only	
	Phase	Specified condition	Pressure/temperature	

		Temperature	55	degC
		Pressure (gauge)	7	bar
		Fluid state	Liquid	
		Liquid mole fraction	1	fraction
Risk	Failure frequencies	Failure frequency model	Use pipeline thickness correlation	
		Use correlation?	Use exponential curve fit	
		Failure frequency specified	Per pipeline	
		Failure frequency		/AvgeYear
		Supplied length		m
	Event spacing	Event spacing method	Automatic	
		User-defined event spacing		m
	Type of risk effects to model	Jet fire modelling for horizontal releases	Horizontal jet only	
		Reduce risks for mounded / underground tanks	No	
	Non-ignition probabilities	Specify probability of non-ignition	Calculate non-ignition probability	
		Non-ignition probability		fraction
	Immediate ignition probabilities	Probability of immediate ignition	Stationary - use material reactivity	
		Immediate ignition probability		fraction
	Delayed ignition probabilities	Specify minimum probability of delayed ignition	Calculate minimum probability of delayed ignition	
		Minimum probability of delayed ignition		fraction
		Specify conditional explosion probability	Calculate conditional probability	
		Conditional explosion probability		fraction
	Cox-Lees-Ang and UKOOA ignition modelling	Release type for CLA / UKOOA		
		Fraction of ignition probability for immediate ignition	0,3	
Scenario	Pipe dimensions	Supply pipeline length longer than drawn on GIS	No	
		Entire pipeline length	3631,69	m
		Length upstream of first geometry point	0	m
		Length calculated from the geometry tab	3631,69	m
		Length downstream of last geometry point	0	m
		Pipe internal diameter	304,8	mm
	Release location	Elevation	1	m
	Direction	Outdoor release direction	Horizontal	
		Outdoor release angle	0	deg
	Pump data	Pumped inflow	159,556	kg/s
	Breach data	Breach sizing method	Actual size	
Long pipe	Pipe characteristics	Pipe roughness	0,045	mm
		Construction material (enabled in discharge parameters)		
		Pipe wall thickness	10	mm
	Valves	Number of valves	0	
		Valve type		
		Valve distance from upstream end of pipeline		m

		Valve closing time		s
		Valve excess flow		kg/s
		Probability of failure on demand		fraction
	Small holes method	Small hole size discharge method	Steady state orifice model	
		Relative size for "small" breach - liquid	0,2	
		Relative size for "small" breach - vapour	0,04	
		Use specified discharge coefficient?	No	
		Discharge coefficient	1	fraction
	Pipeline surrounding characteristics and crater modelling	Pipeline surrounding	Above ground	
		Depth of soil cover		m
		Soil cover type	Clay	
	Variations from default	Number of user defined pipeline sections	0	
		Failure frequency model		
		Failure frequency specified		
		Failure frequency		/AvgeYear
		Supplied length		m
		Section start distance		m
		Section end distance		m
		Pipe internal diameter		mm
		Pipe wall thickness		mm
		Section height		m
		Section surrounding		
		Depth of soil cover		m
		Soil cover type		
		User-defined section start and end section validation	Sections are valid	
Time varying releases	Time averaging	Duration of interest	3600	s
		Method for calculating average rate	Average between 2 times	
		Expected number of average rates		
		Time at which release rate is calculated		s
		First time value for rate between two times	0	s
		Second time value for rate between two times	20	s
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	Concrete, no bund	
Explosion parameters	Explosion method (Consequence calculations only)	Explosion method	Multi-Energy: Uniform confined	
	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	
Fireball	Result types to calculate	Calculate probit	No	
		Calculate dose	No	
		Calculate lethality	No	
	Radiation levels	Number of input radiation levels	3	
		Intensity levels	9,8; 19,45; 35	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	9,8; 19,45; 35	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	Crosswind angle	0	deg
		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	9,8; 19,45; 35	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	-10191,3; -8575,27; -8157,43; -7447,22; -6895,62	m
		North	7004,37; 6467,79; 6184,89; 5969,46; 6370,73	m
		Length	3,63169	km
		Apply location offset	No	

Auto-generated sections

Auto-generated sections
EAR_IMETAME_REV 01\PORTO IMETAME\H10_Ruptura Duto 12" de Transferência 800 m³/h\Long pipeline

Tab	Group	Field	Value	Units
Scenario group	Sum of probabilities for the scenario group	Probability	0	fraction
Auto-section results	Auto-section results	Total number of pipeline sections	1	
		Pipeline section identifiers	0	
		Pipeline sub-sections per pipeline section	6	
		Section lengths	3631,69	m
		Section start X- Coordinates	-10191,3	m
		Section start Y- Coordinates	7004,37	m
		Section start distances from upstream end	0	m
		Section end X- Coordinates	-6895,62	m
		Section end Y- Coordinates	6370,73	m
		Section end distances from upstream end	3631,69	m
		Failure frequencies for sections (per segment)	0,000348549	/AvgeYear

H10.1_Furo

Location specific breach
EAR_IMETAME_REV 01\PORTO IMETAME\H10_Ruptura Duto 12" de Transferência 800 m³/h\Long pipeline

Tab	Group	Field	Value	Units
Scenario	Breach data	Breach sizing method	Actual size	
		Hole diameter	15,24	mm
		Relative branch aperture (area)	0,00125	fraction
	Release location	Distance to break	10	m
		Minimum distance to break	0	m
		Maximum distance to break	3631,69	m
		Breach calculated east location	-10181,8	m
		Breach calculated north location	7001,22	m
		Elevation	1	m
	Pipe dimensions	Entire pipeline length	3631,69	m
		Pipe internal diameter	304,8	mm
	Direction	Outdoor release direction	Horizontal	
		Outdoor release angle	0	deg

	Isolation	Isolation	No Isolation	
	Crater modelling	Accident type for buried sections	Full bore rupture	
Risk	Event frequency	Event frequency	3E-05	/AvgeYear
	Type of risk effects to model	Reduce risks for mounded / underground tanks	No	
	Non-ignition probabilities	Specify probability of non-ignition	Calculate non-ignition probability	
		Non-ignition probability		fraction
	Immediate ignition probabilities	Probability of immediate ignition	Stationary - use material reactivity	
		Immediate ignition probability		fraction
	Delayed ignition probabilities	Specify minimum probability of delayed ignition	Calculate minimum probability of delayed ignition	
		Minimum probability of delayed ignition		fraction
		Specify conditional explosion probability	Calculate conditional probability	
		Conditional explosion probability		fraction
	Cox-Lees-Ang and UKOOA ignition modelling	Release type for CLA / UKOOA		
Material	Material	Material characteristics	Flammable only	
		Material to track	N-NONANE	
		Type of risk effects to model	Flammable only	
Discharge parameters	Model settings	Atmospheric expansion method	DNV GL recommended	
		Phase change upstream of orifice?	Disallow liquid phase change only (metastable liquid)	
	Droplet break-up mechanism	Droplet break-up mechanism - continuous	Do not force correlation	
Long pipe	Crater modelling	Fracture length	12	m
Time varying releases	Time averaging	Duration of interest	3600	s
		Method for calculating average rate	Average between 2 times	
		Expected number of average rates		
		Time at which release rate is calculated		s
		First time value for rate between two times	0	s
		Second time value for rate between two times	20	s
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	Concrete, no bund	
Explosion parameters	Explosion method	Explosion method	Multi-Energy: Uniform confined	
	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	
Fireball	Result types to calculate	Calculate probit	No	

		Calculate dose	No	
		Calculate lethality	No	
	Radiation levels	Number of input radiation levels	3	
		Intensity levels	9,8; 19,45; 35	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	9,8; 19,45; 35	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	9,8; 19,45; 35	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

H10.2_Fenda

Location specific breach

EAR_IMETAME_REV 01\PORTO IMETAME\H10_Ruptura Duto 12" de Transferência 800 m^3/h\Long pipeline

Tab	Group	Field	Value	Units
Scenario	Breach data	Breach sizing method	Actual size	
		Hole diameter	60,96	mm
		Relative branch aperture (area)	0,02	fraction

	Release location	Distance to break	10	m
		Minimum distance to break	0	m
		Maximum distance to break	3631,69	m
		Breach calculated east location	-10181,8	m
		Breach calculated north location	7001,22	m
		Elevation	1	m
	Pipe dimensions	Entire pipeline length	3631,69	m
		Pipe internal diameter	304,8	mm
	Direction	Outdoor release direction	Horizontal	
		Outdoor release angle	0	deg
	Isolation	Isolation	No Isolation	
	Crater modelling	Accident type for buried sections	Full bore rupture	
Risk	Event frequency	Event frequency	3E-05	/AvgeYear
	Type of risk effects to model	Reduce risks for mounded / underground tanks	No	
	Non-ignition probabilities	Specify probability of non-ignition	Calculate non-ignition probability	
		Non-ignition probability		fraction
	Immediate ignition probabilities	Probability of immediate ignition	Stationary - use material reactivity	
		Immediate ignition probability		fraction
	Delayed ignition probabilities	Specify minimum probability of delayed ignition	Calculate minimum probability of delayed ignition	
		Minimum probability of delayed ignition		fraction
		Specify conditional explosion probability	Calculate conditional probability	
		Conditional explosion probability		fraction
	Cox-Lees-Ang and UKOOA ignition modelling	Release type for CLA / UKOOA		
Material	Material	Material characteristics	Flammable only	
		Material to track	N-NONANE	
		Type of risk effects to model	Flammable only	
Discharge parameters	Model settings	Atmospheric expansion method	DNV GL recommended	
		Phase change upstream of orifice?	Disallow liquid phase change only (metastable liquid)	
	Droplet break-up mechanism	Droplet break-up mechanism - continuous	Do not force correlation	
Long pipe	Crater modelling	Fracture length	12	m
Time varying releases	Time averaging	Duration of interest	3600	s
		Method for calculating average rate	Average between 2 times	
		Expected number of average rates		
		Time at which release rate is calculated		s
		First time value for rate between two times	0	s
		Second time value for rate between two times	20	s
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	Concrete, no bund	
Explosion parameters	Explosion method	Explosion method	Multi-Energy: Uniform confined	
	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	
Fireball	Result types to calculate	Calculate probit	No	
		Calculate dose	No	
		Calculate lethality	No	
	Radiation levels	Number of input radiation levels	3	
		Intensity levels	9,8; 19,45; 35	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	9,8; 19,45; 35	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	9,8; 19,45; 35	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

H10.3_Ruptura

Location specific breach

EAR_IMETAME_REV 01\PORTO IMETAME\H10_Ruptura Duto 12" de Transferência 800 m³/h\Long pipeline

Tab	Group	Field	Value	Units
Scenario	Breach data	Breach sizing method	Actual size	
		Hole diameter	304,8	mm
		Relative branch aperture (area)	0,5	fraction
	Release location	Distance to break	10	m
		Minimum distance to break	0	m
		Maximum distance to break	3631,69	m
		Breach calculated east location	-10181,8	m
		Breach calculated north location	7001,22	m
		Elevation	1	m
	Pipe dimensions	Entire pipeline length	3631,69	m
		Pipe internal diameter	304,8	mm
	Direction	Outdoor release direction	Horizontal	
		Outdoor release angle	0	deg
	Isolation	Isolation	No Isolation	
	Crater modelling	Accident type for buried sections	Full bore rupture	
Risk	Event frequency	Event frequency	3E-05	/AvgeYear
	Type of risk effects to model	Reduce risks for mounded / underground tanks	No	
	Non-ignition probabilities	Specify probability of non-ignition	Calculate non-ignition probability	
		Non-ignition probability		fraction
	Immediate ignition probabilities	Probability of immediate ignition	Stationary - use material reactivity	
		Immediate ignition probability		fraction
	Delayed ignition probabilities	Specify minimum probability of delayed ignition	Calculate minimum probability of delayed ignition	
		Minimum probability of delayed ignition		fraction
		Specify conditional explosion probability	Calculate conditional probability	
		Conditional explosion probability		fraction
	Cox-Lees-Ang and UKOOA ignition modelling	Release type for CLA / UKOOA		
Material	Material	Material characteristics	Flammable only	
		Material to track	N-NONANE	
		Type of risk effects to model	Flammable only	
Discharge parameters	Model settings	Atmospheric expansion method	DNV GL recommended	
		Phase change upstream of orifice?	Disallow liquid phase change only (metastable liquid)	
	Droplet break-up mechanism	Droplet break-up mechanism - continuous	Do not force correlation	
Long pipe	Crater modelling	Fracture length	12	m
Time varying releases	Time averaging	Duration of interest	3600	s
		Method for calculating average rate	Average between 2 times	
		Expected number of average rates		
		Time at which release rate is calculated		s

		First time value for rate between two times	0	s
		Second time value for rate between two times	20	s
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	Concrete, no bund	
Explosion parameters	Explosion method	Explosion method	Multi-Energy: Uniform confined	
	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	
Fireball	Result types to calculate	Calculate probit	No	
		Calculate dose	No	
		Calculate lethality	No	
	Radiation levels	Number of input radiation levels	3	
		Intensity levels	9,8; 19,45; 35	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	9,8; 19,45; 35	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	9,8; 19,45; 35	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

Caminhão Tanque

Pressure vessel
EAR_IMETAME_REV 01\PORTO IMETAME\H11_Plataforma de Carregamento Caminhão

Tab	Group	Field	Value	Units
Material	Material	Material	N-NONANE	
		Specify volume inventory?	Yes	
		Mass inventory	21037	kg
		Volume inventory	30	m3
		Material to track	N-NONANE	
		Type of risk effects to model	Flammable only	
	Phase	Specified condition	Pressure/temperature	
		Temperature	45	degC
		Pressure (gauge)	1	bar
		Fluid state	Liquid	
		Liquid mole fraction	1	fraction
	Modelling of mixtures	Multi or pseudo-component modelling	PC modelling	
Risk	Type of risk effects to model	Jet fire modelling for horizontal releases	Horizontal jet only	
		Reduce risks for mounded / underground tanks	No	
	Non-ignition probabilities	Specify probability of non-ignition	Calculate non-ignition probability	
		Non-ignition probability		fraction
	Immediate ignition probabilities	Probability of immediate ignition	Stationary - use material reactivity	
		Immediate ignition probability		fraction
	Delayed ignition probabilities	Specify minimum probability of delayed ignition	Calculate minimum probability of delayed ignition	
		Minimum probability of delayed ignition		fraction
		Specify conditional explosion probability	Calculate conditional probability	
		Conditional explosion probability		fraction
	Cox-Lees-Ang and UKOOA ignition modelling	Fraction of ignition probability for immediate ignition	0,3	
		Release type for CLA / UKOOA		
Scenario	Pipe dimensions	Pipe length		m
	Release location	Elevation	1	m
		Tank head	0	m

	Direction	Outdoor release direction	Horizontal	
		Outdoor release angle	0	deg
Discharge parameters	Model settings	Atmospheric expansion method	DNV GL recommended	
		Phase change upstream of orifice?	Disallow liquid phase change only (metastable liquid)	
	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	30	m3
		Tank vapour volume	0	m3
		Tank liquid volume	30	m3
		Tank liquid level	0	m
		Maximum vapour release height		m
		Minimum mass inventory	0,1	kg
		Maximum mass inventory	1E+09	kg
	Safety system modelling for time-varying releases	Safety system modelling (isolation and blowdown)	No	
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	Concrete, no bund	
	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	Explosion method	Multi-Energy: Uniform confined	

	calculations only)			
	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	
Fireball	Result types to calculate	Calculate probit	No	
		Calculate dose	No	
		Calculate lethality	No	
	Radiation levels	Number of input radiation levels	3	
		Intensity levels	9,8; 19,45; 35	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	9,8; 19,45; 35	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	Crosswind angle	0	deg
		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	9,8; 19,45; 35	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	20	s

		duration		
Geometry	Geometry	East	-10176,7	m
		North	6963,85	m
		Apply location offset	No	

H11

Catastrophic rupture

EAR_IMETAME_REV 01\PORTO IMETAME\H11_Plataforma de Carregamento Caminhão\Caminhão Tanque

Tab	Group	Field	Value	Units
Scenario	Release location	Elevation	2	m
		Tank head	2	m
	Fireball emissive power	Use vessel burst pressure	No	
		Vessel burst pressure - gauge		bar
Risk	Event frequency	Event frequency	5E-06	/AvgeYear
	Type of risk effects to model	Reduce risks for mounded / underground tanks	No	
	Non-ignition probabilities	Specify probability of non-ignition	Calculate non-ignition probability	
		Non-ignition probability		fraction
	Immediate ignition probabilities	Probability of immediate ignition	Stationary - use material reactivity	
		Immediate ignition probability		fraction
	Delayed ignition probabilities	Specify minimum probability of delayed ignition	Calculate minimum probability of delayed ignition	
		Minimum probability of delayed ignition		fraction
		Specify conditional explosion probability	Calculate conditional probability	
		Conditional explosion probability		fraction
	Cox-Lees-Ang and UKOOA ignition modelling	Release type for CLA / UKOOA		
Material	Material	Material characteristics	Flammable only	
		Material to track	N-NONANE	
		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	Concrete, no bund	
Explosion parameters	Explosion method	Explosion method	Multi-Energy: Uniform confined	
	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	

Fireball	Result types to calculate	Calculate probit	No	
		Calculate dose	No	
		Calculate lethality	No	
	Radiation levels	Number of input radiation levels	3	
		Intensity levels	9,8; 19,45; 35	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	9,8; 19,45; 35	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

Vagão Tanque

Pressure vessel
EAR_IMETAME_REV 01\PORTO IMETAME\H11_Plataforma de Carregamento Ferroviário

Tab	Group	Field	Value	Units
Material	Material	Material	N-NONANE	
		Specify volume inventory?	Yes	
		Mass inventory	42074	kg
		Volume inventory	60	m3
		Material to track	N-NONANE	
		Type of risk effects to model	Flammable only	
	Phase	Specified condition	Pressure/temperature	
		Temperature	45	degC
		Pressure (gauge)	0,5	bar
		Fluid state	Liquid	
		Liquid mole fraction	1	fraction
	Modelling of mixtures	Multi or pseudo-component modelling	PC modelling	
Risk	Type of risk effects to model	Jet fire modelling for horizontal releases	Horizontal jet only	
		Reduce risks for mounded / underground tanks	No	
	Non-ignition probabilities	Specify probability of non-ignition	Calculate non-ignition probability	
		Non-ignition probability		fraction
	Immediate ignition probabilities	Probability of immediate ignition	Stationary - use material reactivity	
		Immediate ignition probability		fraction

	Delayed ignition probabilities	Specify minimum probability of delayed ignition	Calculate minimum probability of delayed ignition	
		Minimum probability of delayed ignition		fraction
		Specify conditional explosion probability	Calculate conditional probability	
		Conditional explosion probability		fraction
	Cox-Lees-Ang and UKOOA ignition modelling	Fraction of ignition probability for immediate ignition	0,3	
		Release type for CLA / UKOOA		
Scenario	Pipe dimensions	Pipe length		m
	Release location	Elevation	1	m
		Tank head	2	m
	Direction	Outdoor release direction	Horizontal	
		Outdoor release angle	0	deg
Discharge parameters	Model settings	Atmospheric expansion method	DNV GL recommended	
		Phase change upstream of orifice?	Disallow liquid phase change only (metastable liquid)	
	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	60	m3
		Tank vapour volume	0	m3
		Tank liquid volume	60	m3
		Tank liquid level	0	m
		Maximum vapour release height		m
		Minimum mass inventory	0,1	kg
		Maximum mass inventory	1E+09	kg
	Safety system modelling for time-varying releases	Safety system modelling (isolation and blowdown)	No	
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	Concrete, no bund	
	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: Uniform confined	
	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	
Fireball	Result types to calculate	Calculate probit	No	
		Calculate dose	No	
		Calculate lethality	No	
	Radiation levels	Number of input radiation levels	3	
		Intensity levels	9,8; 19,45; 35	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	9,8; 19,45; 35	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	Crosswind angle	0	deg
		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	9,8; 19,45; 35	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	-10491,7	m
		North	6998,02	m
		Apply location offset	No	

H12

Catastrophic rupture

EAR_IMETAME_REV 01\PORTO IMETAME\H11_Plataforma de Carregamento Ferroviário\Vagão Tanque

Tab	Group	Field	Value	Units
Scenario	Release location	Elevation	2	m
		Tank head	2	m
	Fireball emissive power	Use vessel burst pressure	No	
		Vessel burst pressure - gauge		bar
Risk	Event frequency	Event frequency	5E-06	/AvgeYear
	Type of risk effects to model	Reduce risks for mounded / underground tanks	No	
	Non-ignition probabilities	Specify probability of non-ignition	Calculate non-ignition probability	
		Non-ignition probability		fraction
	Immediate ignition probabilities	Probability of immediate ignition	Stationary - use material reactivity	
		Immediate ignition probability		fraction
	Delayed ignition probabilities	Specify minimum probability of delayed ignition	Calculate minimum probability of delayed ignition	
		Minimum probability of delayed ignition		fraction
		Specify conditional explosion probability	Calculate conditional probability	
		Conditional explosion probability		fraction
	Cox-Lees-Ang and UKOOA ignition modelling	Release type for CLA / UKOOA		
Material	Material	Material characteristics	Flammable only	
		Material to track	N-NONANE	
		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	Concrete, no bund	
Explosion parameters	Explosion method	Explosion method	Multi-Energy: Uniform confined	
	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	
Fireball	Result types to calculate	Calculate probit	No	
		Calculate dose	No	
		Calculate lethality	No	
	Radiation levels	Number of input radiation levels	3	
		Intensity levels	9,8; 19,45; 35	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	9,8; 19,45; 35	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

Caldeira

Standalones
EAR_IMETAME_REV 01\PORTO IMETAME\H13_Caldeira

Tab	Group	Field	Value	Units
Material	Material	Material	WATER	
Geometry	Geometry	East	-10185,5	m
		North	7017,44	m
		Apply location offset	No	

H13

BLEVE blast
EAR_IMETAME_REV 01\PORTO IMETAME\H13_Caldeira\Caldeira

Tab	Group	Field	Value	Units

Storage conditions	Vessel	Shape	Cylindrical	
		Elevation	3	m
		Diameter	3,4	m
		Length	8,4	m
	Phase	Specified condition	Pressure/temperature	
		Temperature	420	degC
		Pressure (gauge)	23	bar
		Fluid state	Vapour	
		Liquid mole fraction	0	fraction
		Liquid fraction mass	0	fraction
	Material	Specify volume inventory?	Yes	
		Mass inventory	589,815	kg
		Volume inventory	76,2653	m3
Distances	Distances of interest	Max. distance option	From minimum overpressure	
		Minimum distance	0	m
		Maximum distance		m
		Step size		m
		Number of distance points	100	
BLEVE blast parameters	BLEVE blast parameters	Air or ground burst	Ground burst	
		Ideal gas modeling	Model as real gas	
		Model option	CCPS second edition (2010)	

Consequence Summary Report

Workspace: EAR_IMETAME_REV 01

Study: PORTO IMETAME

Summary Basis

These tables will only report global values set in the parameters. Values that are modified in the study tree will not be reported.

The report is context sensitive, and filters up to the study level. You will need to generate multiple summary reports if you have multiple studies in your workspace.

Discharge Results (after atmospheric expansion)

Path	Scenario	Weather	Peak Flowrate [kg/s]	Temperature [degC]	Liquid mass fraction in material [fraction]	Droplet diameter [um]	Expanded diameter [m]	Velocity [m/s]	End time of release [s]
PORTO IMETAME\H01_Ship to Ship - Mangote 12"\Ship to Ship	H01	Vento Dia	1482,47	55,3655	1	240,654	0,3048	29,3217	93,5546
		Vento Noite	1482,47	55,3655	1	239,954	0,3048	29,3217	93,5546
PORTO IMETAME\H01_Ship to Ship - Mangote 12"\Ship to Ship (1)		Vento Dia	1482,47	55,3655	1	240,654	0,3048	29,3217	93,5546
		Vento Noite	1482,47	55,3655	1	239,954	0,3048	29,3217	93,5546
PORTO IMETAME\H02_Ship to Shore - Mangote 10"\Shore to Ship	H02	Vento Dia	1029,49	55,3655	1	240,654	0,254	29,3217	112,281
		Vento Noite	1029,49	55,3655	1	239,954	0,254	29,3217	112,281
PORTO IMETAME\H02_Ship to Shore - Mangote 10"\Shore to Ship (1)		Vento Dia	1029,49	55,3655	1	240,654	0,254	29,3217	112,281
		Vento Noite	1029,49	55,3655	1	239,954	0,254	29,3217	112,281
PORTO IMETAME\H02_Ship to Shore - Mangote 10"\Shore to Ship (2)		Vento Dia	1029,49	55,3655	1	240,654	0,254	29,3217	112,281
		Vento Noite	1029,49	55,3655	1	239,954	0,254	29,3217	112,281
PORTO	H03	Vento Dia	658,874	55,3655	1	240,654	0,2032	29,3217	140,28

IMETAME\H03_Ship to Shore - Mangote 8"\Shore to Ship									
		Vento Noite	658,874	55,3655	1	239,954	0,2032	29,3217	140,28
PORTO IMETAME\H03_Ship to Shore - Mangote 8"\Shore to Ship (1)		Vento Dia	658,874	55,3655	1	240,654	0,2032	29,3217	140,28
		Vento Noite	658,874	55,3655	1	239,954	0,2032	29,3217	140,28
PORTO IMETAME\H03_Ship to Shore - Mangote 8"\Shore to Ship (2)		Vento Dia	658,874	55,3655	1	240,654	0,2032	29,3217	140,28
		Vento Noite	658,874	55,3655	1	239,954	0,2032	29,3217	140,28
PORTO IMETAME\H04_Ship to Shore - Mangote 6"\Shore to Ship	H04	Vento Dia	370,616	55,3655	1	240,654	0,1524	29,3217	124,79
		Vento Noite	370,616	55,3655	1	239,954	0,1524	29,3217	124,79
PORTO IMETAME\H04_Ship to Shore - Mangote 6"\Shore to Ship (1)		Vento Dia	370,616	55,3655	1	240,654	0,1524	29,3217	124,79
		Vento Noite	370,616	55,3655	1	239,954	0,1524	29,3217	124,79
PORTO IMETAME\H04_Ship to Shore - Mangote 6"\Shore to Ship (2)		Vento Dia	370,616	55,3655	1	240,654	0,1524	29,3217	124,79
		Vento Noite	370,616	55,3655	1	239,954	0,1524	29,3217	124,79
PORTO IMETAME\H05_Ruptura de Tanque 10.000 m³\Tanque de 10.000 m³ (1)	H05	Vento Dia		44,9893	1	10000		2,5588	
		Vento Noite		44,9893	1	10000		2,5588	
PORTO IMETAME\H05_Ruptura de Tanque 10.000 m³\Tanque de 10.000 m³ (2)		Vento Dia		44,9893	1	10000		2,5588	
		Vento Noite		44,9893	1	10000		2,5588	
PORTO		Vento Dia		44,9893	1	10000		2,5588	

IMETAME\H05_Ruptura de Tanque 10.000 m³\Tanque de 10.000 m³ (3)									
		Vento Noite		44,9893	1	10000		2,5588	
PORTO IMETAME\H06_Ruptura de Tanque 5.000 m³\Tanque de 5.000 m³	H06	Vento Dia		44,9856	1	10000		2,97844	
		Vento Noite		44,9856	1	10000		2,97844	
PORTO IMETAME\H07_Ruptura em linha - Bombas de Exportação e Importação\Bombas de Exportação	H07	Vento Dia	1036,68	45,3828	1	254,667	0,254	29,1887	112,794
		Vento Noite	1036,68	45,3828	1	253,926	0,254	29,1887	112,794
PORTO IMETAME\H08_Ruptura em linha - Bombas de Distribuição\Bombas de Distribuição	H08	Vento Dia	663,475	45,3828	1	254,667	0,2032	29,1887	140,92
		Vento Noite	663,475	45,3828	1	253,926	0,2032	29,1887	140,92
PORTO IMETAME\H09_Ruptura Duto 14" de Transferência 1000 m³/h\H09	H09.1_Furo	Vento Dia	4,90855	54,8475	1	91,8419		47,5237	600
		Vento Noite	4,90855	54,8475	1	91,5745		47,5237	600
	H09.1_Furo (1)	Vento Dia	4,90855	54,8475	1	91,8419		47,5237	600
		Vento Noite	4,90855	54,8475	1	91,5745		47,5237	600
	H09.1_Furo (2)	Vento Dia	4,90855	54,8475	1	91,8419		47,5237	600
		Vento Noite	4,90855	54,8475	1	91,5745		47,5237	600
	H09.1_Furo (3)	Vento Dia	4,62465	54,8645	1	103,451		44,7759	600
		Vento Noite	4,62465	54,8645	1	103,15		44,7759	600
	H09.2_Fenda	Vento Dia	78,5368	54,8475	1	91,8419		47,5237	600
		Vento Noite	78,5368	54,8475	1	91,5745		47,5237	600

	H09.2_Fenda (1)	Vento Dia	78,5368	54,8475	1	91,8419		47,5237	600
		Vento Noite	78,5368	54,8475	1	91,5745		47,5237	600
	H09.2_Fenda (2)	Vento Dia	78,5368	54,8475	1	91,8419		47,5237	600
		Vento Noite	78,5368	54,8475	1	91,5745		47,5237	600
	H09.2_Fenda (3)	Vento Dia	73,9945	54,8645	1	103,451		44,7759	600
		Vento Noite	73,9945	54,8645	1	103,15		44,7759	600
	H09.3_Ruptura	Vento Dia	2042,4	54,8724	1	244,268		29,139	600
		Vento Noite	2042,4	54,8724	1	243,557		29,139	600
	H09.3_Ruptura (1)	Vento Dia	2042,4	54,8724	1	244,268		29,139	600
		Vento Noite	2042,4	54,8724	1	243,557		29,139	600
	H09.3_Ruptura (2)	Vento Dia	2042,4	54,8724	1	244,268		29,139	600
		Vento Noite	2042,4	54,8724	1	243,557		29,139	600
	H09.3_Ruptura (3)	Vento Dia	1933,49	54,8852	1	267,844		27,8269	600
		Vento Noite	1933,49	54,8852	1	267,065		27,8269	600
PORTO IMETAME\H10_Ruptura Duto 12" de Transferência 800 m³/h\Long pipeline	H10.1_Furo	Vento Dia	3,56291	54,8511	1	94,0891		46,9523	600
		Vento Noite	3,56291	54,8511	1	93,8152		46,9523	600
	H10.2_Fenda	Vento Dia	57,0066	54,8511	1	94,0891		46,9523	600
		Vento Noite	57,0066	54,8511	1	93,8152		46,9523	600
	H10.3_Ruptura	Vento Dia	1478,24	54,8763	1	253,034		28,6295	600
		Vento Noite	1478,24	54,8763	1	252,297		28,6295	600
PORTO IMETAME\H11_Plataforma de Carregamento Caminhão\Caminhão Tanque	H11	Vento Dia		44,9767	1	468,93		3,80603	
		Vento		44,9767	1	468,93		3,80603	

		Noite							
PORTO IMETAME\H11_Plataforma de Carregamento Ferroviário\Vagão Tanque	H12	Vento Dia		44,9875	1	519,807		2,78002	
		Vento Noite		44,9875	1	519,807		2,78002	

Dispersion Results

Input dispersion parameters

Core averaging time	18,75	s
Flammable averaging time	18,75	s
Toxic averaging time	600	s
Height of interest	0	m

Distance downwind to defined concentrations

The reported concentration of interest is defined at the scenario

Path	Scenario	Weather	Distance to UFL [m]	Distance to LFL [m]	Distance to LFL fraction [m]
PORTO IMETAME\H01_Ship to Ship - Mangote 12"\Ship to Ship	H01	Vento Dia	55,6117	85,0358	85,0358
		Vento Noite	54,4462	99,9758	99,9758
PORTO IMETAME\H01_Ship to Ship - Mangote 12"\Ship to Ship (1)		Vento Dia	55,6117	85,0358	85,0358
		Vento Noite	54,4462	99,9758	99,9758
PORTO IMETAME\H02_Ship to Shore - Mangote 10"\Shore to Ship	H02	Vento Dia	45,8849	88,2199	88,2199
		Vento Noite	45,9197	87,3191	87,3191
PORTO IMETAME\H02_Ship to Shore - Mangote 10"\Shore to Ship (1)		Vento Dia	45,8849	88,2199	88,2199
		Vento Noite	45,9197	87,3191	87,3191
PORTO IMETAME\H02_Ship to Shore - Mangote 10"\Shore to Ship (2)		Vento Dia	45,8849	88,2199	88,2199
		Vento Noite	45,9197	87,3191	87,3191
PORTO IMETAME\H03_Ship to Shore - Mangote 8"\Shore to Ship	H03	Vento Dia	42,1482	70,9648	70,9648
		Vento Noite	42,389	72,8864	72,8864
PORTO IMETAME\H03_Ship to Shore - Mangote 8"\Shore to Ship (1)		Vento Dia	42,1482	70,9648	70,9648
		Vento Noite	42,389	72,8864	72,8864
PORTO IMETAME\H03_Ship to Shore - Mangote 8"\Shore to Ship (2)		Vento Dia	42,1482	70,9648	70,9648
		Vento Noite	42,389	72,8864	72,8864
PORTO IMETAME\H04_Ship to Shore - Mangote 6"\Shore to Ship	H04	Vento Dia	37,3413	50,9611	50,9611
		Vento Noite	37,89	55,4455	55,4455
PORTO IMETAME\H04_Ship to Shore - Mangote 6"\Shore to Ship (1)		Vento Dia	37,3413	50,9611	50,9611
		Vento Noite	37,89	55,4455	55,4455
PORTO IMETAME\H04_Ship to Shore - Mangote 6"\Shore to Ship (2)		Vento Dia	37,3413	50,9611	50,9611

		Vento Noite	37,89	55,4455	55,4455
PORTO IMETAME\H05_Ruptura de Tanque 10.000 m³\Tanque de 10.000 m³ (1)	H05	Vento Dia	26,0195	26,023	26,023
		Vento Noite	25,1184	25,1225	25,1225
PORTO IMETAME\H05_Ruptura de Tanque 10.000 m³\Tanque de 10.000 m³ (2)		Vento Dia	26,0195	26,023	26,023
		Vento Noite	25,1184	25,1225	25,1225
PORTO IMETAME\H05_Ruptura de Tanque 10.000 m³\Tanque de 10.000 m³ (3)		Vento Dia	26,0195	26,023	26,023
		Vento Noite	25,1184	25,1225	25,1225
PORTO IMETAME\H06_Ruptura de Tanque 5.000 m³\Tanque de 5.000 m³	H06	Vento Dia	20,3142	23,302	23,302
		Vento Noite	19,5358	22,4273	22,4273
PORTO IMETAME\H07_Ruptura em linha - Bombas de Exportação e Importação\Bombas de Exportação	H07	Vento Dia	30,9955	45,4398	45,4398
		Vento Noite	30,916	44,7278	44,7278
PORTO IMETAME\H08_Ruptura em linha - Bombas de Distribuição\Bombas de Distribuição	H08	Vento Dia	29,2389	40,1756	40,1756
		Vento Noite	29,1848	39,606	39,606
PORTO IMETAME\H09_Ruptura Duto 14" de Transferência 1000 m³/h\H09	H09.1_Furo	Vento Dia	n/a	23,2118	23,2118
		Vento Noite	n/a	22,1326	22,1326
	H09.1_Furo (1)	Vento Dia	n/a	23,2118	23,2118
		Vento Noite	n/a	22,1326	22,1326
	H09.1_Furo (2)	Vento Dia	n/a	23,2118	23,2118
		Vento Noite	n/a	22,1326	22,1326
	H09.1_Furo (3)	Vento Dia	n/a	21,3367	21,3367
		Vento Noite	n/a	20,444	20,444
	H09.2_Fenda	Vento Dia	32,9224	43,8778	43,8778
		Vento Noite	32,53	43,5954	43,5954
	H09.2_Fenda (1)	Vento Dia	32,9224	43,8778	43,8778
		Vento Noite	32,53	43,5954	43,5954
	H09.2_Fenda (2)	Vento Dia	32,9224	43,8778	43,8778
		Vento Noite	32,53	43,5954	43,5954
	H09.2_Fenda (3)	Vento Dia	31,0972	40,9806	40,9806
		Vento Noite	30,7338	40,7657	40,7657
	H09.3_Ruptura	Vento Dia	32,4128	77,8626	77,8626
		Vento Noite	32,3497	73,2153	73,2153

	H09.3_Ruptura (1)	Vento Dia	32,4128	77,8626	77,8626
		Vento Noite	32,3497	73,2153	73,2153
	H09.3_Ruptura (2)	Vento Dia	32,4128	77,8626	77,8626
		Vento Noite	32,3497	73,2153	73,2153
	H09.3_Ruptura (3)	Vento Dia	30,023	73,4516	73,4516
		Vento Noite	29,9501	68,6445	68,6445
PORTO IMETAME\H10_Ruptura Duto 12" de Transferência 800 m³/h\Long pipeline	H10.1_Furo	Vento Dia	n/a	21,0064	21,0064
		Vento Noite	n/a	19,9909	19,9909
	H10.2_Fenda	Vento Dia	29,1284	40,3253	40,3253
		Vento Noite	29,034	40,0276	40,0276
	H10.3_Ruptura	Vento Dia	30,2851	70,3595	70,3595
		Vento Noite	30,1574	66,8075	66,8075
PORTO IMETAME\H11_Plataforma de Carregamento Caminhão\Caminhão Tanque	H11	Vento Dia	3,90285	16,4639	16,4639
		Vento Noite	3,8942	21,7204	21,7204
PORTO IMETAME\H11_Plataforma de Carregamento Ferroviário\Vagão Tanque	H12	Vento Dia	7,78294	29,512	29,512
		Vento Noite	7,0116	28,8855	28,8855

Jet Fire Results

Distance downwind to defined radiation levels

The reported radiations are defined in the parameters

Path	Scenario	Weather	Flame length [m]	Distance downwind to intensity level 1 (9,8 kW/m2) [m]	Distance downwind to intensity level 2 (19,45 kW/m2) [m]	Distance downwind to intensity level 3 (35 kW/m2) [m]
PORTO IMETAME\H01_Ship to Ship - Mangote 12"\Ship to Ship	H01	Vento Dia	109,117	218,487	182,991	158,787
		Vento Noite	115,533	229,826	192,619	167,218
PORTO IMETAME\H01_Ship to Ship - Mangote 12"\Ship to Ship (1)		Vento Dia	109,117	218,487	182,991	158,787
		Vento Noite	115,533	229,826	192,619	167,218
PORTO IMETAME\H02_Ship to Shore - Mangote 10"\Shore to Ship	H02	Vento Dia	93,5822	187,04	156,48	135,743
		Vento Noite	94,965	185,086	155,19	134,787
PORTO IMETAME\H02_Ship to Shore - Mangote 10"\Shore to Ship (1)		Vento Dia	93,5822	187,04	156,48	135,743
		Vento Noite	94,965	185,086	155,19	134,787
PORTO IMETAME\H02_Ship to Shore - Mangote 10"\Shore to Ship (2)		Vento Dia	93,5822	187,04	156,48	135,743
		Vento Noite	94,965	185,086	155,19	134,787
PORTO IMETAME\H03_Ship to Shore - Mangote 8"\Shore to Ship	H03	Vento Dia	83,8155	168,347	140,77	122,064
		Vento Noite	85,1104	164,776	138,223	120,058
PORTO IMETAME\H03_Ship to Shore - Mangote 8"\Shore to Ship (1)		Vento Dia	83,8155	168,347	140,77	122,064
		Vento Noite	85,1104	164,776	138,223	120,058
PORTO IMETAME\H03_Ship to Shore - Mangote 8"\Shore to Ship (2)		Vento Dia	83,8155	168,347	140,77	122,064
		Vento Noite	85,1104	164,776	138,223	120,058
PORTO IMETAME\H04_Ship to Shore - Mangote 6"\Shore to Ship	H04	Vento Dia	72,4475	144,847	121,155	105,055
		Vento Noite	73,467	140,977	118,326	102,783
PORTO IMETAME\H04_Ship to Shore - Mangote 6"\Shore to		Vento Dia	72,4475	144,847	121,155	105,055

Ship (1)						
		Vento Noite	73,467	140,977	118,326	102,783
PORTO IMETAME\H04_Ship to Shore - Mangote 6"\Shore to Ship (2)		Vento Dia	72,4475	144,847	121,155	105,055
		Vento Noite	73,467	140,977	118,326	102,783
PORTO IMETAME\H07_Ruptura em linha - Bombas de Exportação e Importação\Bombas de Exportação	H07	Vento Dia	55,7134	108,012	90,4107	78,455
		Vento Noite	58,4285	109,005	91,5462	79,5822
PORTO IMETAME\H08_Ruptura em linha - Bombas de Distribuição\Bombas de Distribuição	H08	Vento Dia	51,1901	98,5991	82,5591	71,656
		Vento Noite	53,641	99,4324	83,5341	72,6251
PORTO IMETAME\H09_Ruptura Duto 14" de Transferência 1000 m³/h\H09	H09.1_Furo	Vento Dia	19,868	36,7756	30,8793	26,8295
		Vento Noite	19,7522	35,0678	29,5907	25,7897
	H09.1_Furo (1)	Vento Dia	19,868	36,7756	30,8793	26,8295
		Vento Noite	19,7522	35,0678	29,5907	25,7897
	H09.1_Furo (2)	Vento Dia	19,868	36,7756	30,8793	26,8295
		Vento Noite	19,7522	35,0678	29,5907	25,7897
	H09.1_Furo (3)	Vento Dia	18,9151	34,8042	29,2297	25,3897
		Vento Noite	18,8279	33,2409	28,0466	24,4295
	H09.2_Fenda	Vento Dia	43,0325	83,8747	70,1761	60,9021
		Vento Noite	45,21	84,715	71,2277	62,0365
	H09.2_Fenda (1)	Vento Dia	43,0325	83,8747	70,1761	60,9021
		Vento Noite	45,21	84,715	71,2277	62,0365
	H09.2_Fenda (2)	Vento Dia	43,0325	83,8747	70,1761	60,9021
		Vento Noite	45,21	84,715	71,2277	62,0365
	H09.2_Fenda (3)	Vento Dia	41,3917	80,2669	67,1691	58,2876
		Vento Noite	43,4708	81,0642	68,1549	59,3378
	H09.3_Ruptura	Vento Dia	69,33	136,662	114,284	99,1314
		Vento Noite	72,9454	138,357	116,097	100,897
	H09.3_Ruptura (1)	Vento Dia	69,33	136,662	114,284	99,1314
		Vento Noite	72,9454	138,357	116,097	100,897
	H09.3_Ruptura (2)	Vento Dia	69,33	136,662	114,284	99,1314
		Vento Noite	72,9454	138,357	116,097	100,897

	H09.3_Ruptura (3)	Vento Dia	65,7406	128,719	107,7	93,4504
		Vento Noite	69,0052	130,011	109,136	94,8613
PORTO IMETAME\H10_Ruptura Duto 12" de Transferência 800 m³/h\Long pipeline	H10.1_Furo	Vento Dia	18,2799	33,6369	28,2546	24,5474
		Vento Noite	17,9723	31,7056	26,7617	23,319
	H10.2_Fenda	Vento Dia	38,8885	75,2354	62,9783	54,6636
		Vento Noite	40,7276	75,7494	63,716	55,4948
	H10.3_Ruptura	Vento Dia	63,9417	125,137	104,695	90,8353
		Vento Noite	67,155	126,466	106,16	92,2741

Early Pool Fire Results

Distance downwind to defined radiation levels

The reported radiations are defined in the parameters

Path	Scenario	Weather	Pool diameter [m]	Distance downwind to intensity level 1 (9,8 kW/m2) [m]	Distance downwind to intensity level 2 (19,45 kW/m2) [m]	Distance downwind to intensity level 3 (35 kW/m2) [m]
PORTO IMETAME\H01_Ship to Ship - Mangote 12"\Ship to Ship	H01	Vento Dia	165,356	150,776	136,686	n/a
		Vento Noite	165,793	147,166	135,908	n/a
PORTO IMETAME\H01_Ship to Ship - Mangote 12"\Ship to Ship (1)		Vento Dia	165,356	150,776	136,686	n/a
		Vento Noite	165,793	147,166	135,908	n/a
PORTO IMETAME\H02_Ship to Shore - Mangote 10"\Shore to Ship	H02	Vento Dia	137,818	83,3883	70,2109	n/a
		Vento Noite	138,501	81,1735	70,4943	n/a
PORTO IMETAME\H02_Ship to Shore - Mangote 10"\Shore to Ship (1)		Vento Dia	137,818	83,3883	70,2109	n/a
		Vento Noite	138,501	81,1735	70,4943	n/a
PORTO IMETAME\H02_Ship to Shore - Mangote 10"\Shore to Ship (2)		Vento Dia	137,818	83,3883	70,2109	n/a
		Vento Noite	138,501	81,1735	70,4943	n/a
PORTO IMETAME\H03_Ship to Shore - Mangote 8"\Shore to Ship	H03	Vento Dia	109,725	68,3016	55,993	n/a
		Vento Noite	110,328	66,3923	56,2379	n/a
PORTO IMETAME\H03_Ship to Shore - Mangote 8"\Shore to Ship (1)		Vento Dia	109,725	68,3016	55,993	n/a
		Vento Noite	110,328	66,3923	56,2379	n/a
PORTO IMETAME\H03_Ship to Shore - Mangote 8"\Shore to Ship (2)		Vento Dia	109,725	68,3016	55,993	n/a
		Vento Noite	110,328	66,3923	56,2379	n/a
PORTO IMETAME\H04_Ship to Shore - Mangote 6"\Shore to Ship	H04	Vento Dia	81,6865	54,4904	43,7446	n/a
		Vento Noite	82,2168	53,3851	43,7446	n/a
PORTO IMETAME\H04_Ship to Shore - Mangote 6"\Shore		Vento Dia	81,6865	54,4904	43,7446	n/a

to Ship (1)						
		Vento Noite	82,2168	53,3851	43,7446	n/a
PORTO IMETAME\H04_Ship to Shore - Mangote 6"\Shore to Ship (2)		Vento Dia	81,6865	54,4904	43,7446	n/a
		Vento Noite	82,2168	53,3851	43,7446	n/a
PORTO IMETAME\H07_Ruptura em linha - Bombas de Exportação e Importação\Bombas de Exportação	H07	Vento Dia	140,676	84,9435	71,6575	n/a
		Vento Noite	141,02	82,5101	71,7671	n/a
PORTO IMETAME\H08_Ruptura em linha - Bombas de Distribuição\Bombas de Distribuição	H08	Vento Dia	112,335	69,7407	57,3098	n/a
		Vento Noite	112,62	67,6286	57,4019	n/a
PORTO IMETAME\H09_Ruptura Duto 14" de Transferência 1000 m³/h\H09	H09.1_Furo	Vento Dia	8,36529	43,6353	35,8457	29,0262
		Vento Noite	8,61225	41,2947	33,1689	26,9283
	H09.1_Furo (1)	Vento Dia	8,36529	43,6353	35,8457	29,0262
		Vento Noite	8,61225	41,2947	33,1689	26,9283
	H09.1_Furo (2)	Vento Dia	8,36529	43,6353	35,8457	29,0262
		Vento Noite	8,61225	41,2947	33,1689	26,9283
	H09.1_Furo (3)	Vento Dia	8,22015	41,5168	33,8599	27,0212
		Vento Noite	8,43924	39,4038	31,5033	25,239
	H09.2_Fenda	Vento Dia	36,9081	52,7425	43,7446	n/a
		Vento Noite	37,0673	51,4018	43,7446	n/a
	H09.2_Fenda (1)	Vento Dia	36,9081	52,7425	43,7446	n/a
		Vento Noite	37,0673	51,4018	43,7446	n/a
	H09.2_Fenda (2)	Vento Dia	36,9081	52,7425	43,7446	n/a
		Vento Noite	37,0673	51,4018	43,7446	n/a
	H09.2_Fenda (3)	Vento Dia	35,919	52,7276	43,7446	n/a
		Vento Noite	36,0716	51,5375	43,7446	n/a
	H09.3_Ruptura	Vento Dia	151,131	90,6264	76,9449	n/a
		Vento Noite	151,509	88,0561	77,0702	n/a
	H09.3_Ruptura (1)	Vento Dia	151,131	90,6264	76,9449	n/a
		Vento Noite	151,509	88,0561	77,0702	n/a
	H09.3_Ruptura (2)	Vento Dia	151,131	90,6264	76,9449	n/a
		Vento Noite	151,509	88,0561	77,0702	n/a

	H09.3_Ruptura (3)	Vento Dia	147,812	88,84	75,2647	n/a
		Vento Noite	148,185	86,3024	75,3882	n/a
PORTO IMETAME\H10_Ruptura Duto 12" de Transferência 800 m³/h\Long pipeline	H10.1_Furo	Vento Dia	6,96332	40,4716	34,361	27,782
		Vento Noite	7,23393	38,1262	31,4538	25,4781
	H10.2_Fenda	Vento Dia	31,3011	53,3108	43,7446	n/a
		Vento Noite	31,4562	52,2131	43,7446	n/a
	H10.3_Ruptura	Vento Dia	128,232	78,7477	65,3546	n/a
		Vento Noite	128,565	76,1196	65,4683	n/a

Late Pool Fire Results

Distance downwind to defined radiation levels

The reported radiations are defined in the parameters

Path	Scenario	Weather	Pool diameter [m]	Distance downwind to intensity level 1 (9,8 kW/m2) [m]	Distance downwind to intensity level 2 (19,45 kW/m2) [m]	Distance downwind to intensity level 3 (35 kW/m2) [m]
PORTO IMETAME\H01_Ship to Ship - Mangote 12"\Ship to Ship	H01	Vento Dia	231,822	185,492	170,269	n/a
		Vento Noite	230,864	180,645	168,774	n/a
PORTO IMETAME\H01_Ship to Ship - Mangote 12"\Ship to Ship (1)		Vento Dia	231,822	185,492	170,269	n/a
		Vento Noite	230,864	180,645	168,774	n/a
PORTO IMETAME\H02_Ship to Shore - Mangote 10"\Shore to Ship	H02	Vento Dia	197,469	114,92	100,369	n/a
		Vento Noite	197,967	112,15	100,546	n/a
PORTO IMETAME\H02_Ship to Shore - Mangote 10"\Shore to Ship (1)		Vento Dia	197,469	114,92	100,369	n/a
		Vento Noite	197,967	112,15	100,546	n/a
PORTO IMETAME\H02_Ship to Shore - Mangote 10"\Shore to Ship (2)		Vento Dia	197,469	114,92	100,369	n/a
		Vento Noite	197,967	112,15	100,546	n/a
PORTO IMETAME\H03_Ship to Shore - Mangote 8"\Shore to Ship	H03	Vento Dia	175,753	103,701	89,3922	n/a
		Vento Noite	176,409	101,083	89,6534	n/a
PORTO IMETAME\H03_Ship to Shore - Mangote 8"\Shore to Ship (1)		Vento Dia	175,753	103,701	89,3922	n/a
		Vento Noite	176,409	101,083	89,6534	n/a
PORTO IMETAME\H03_Ship to Shore - Mangote 8"\Shore to Ship (2)		Vento Dia	175,753	103,701	89,3922	n/a
		Vento Noite	176,409	101,083	89,6534	n/a
PORTO IMETAME\H04_Ship to Shore - Mangote 6"\Shore to Ship	H04	Vento Dia	123,511	76,006	62,9691	n/a
		Vento Noite	124,085	73,7503	63,2035	n/a
PORTO IMETAME\H04_Ship to Shore - Mangote 6"\Shore to Ship (1)		Vento Dia	123,511	76,006	62,9691	n/a

		Vento Noite	124,085	73,7503	63,2035	n/a
PORTO IMETAME\H04_Ship to Shore - Mangote 6"\Shore to Ship (2)		Vento Dia	123,511	76,006	62,9691	n/a
		Vento Noite	124,085	73,7503	63,2035	n/a
PORTO IMETAME\H05_Ruptura de Tanque 10.000 m³\Tanque de 10.000 m³ (1)	H05	Vento Dia	1031,62	532,775	520,572	n/a
		Vento Noite	1031,61	527,645	520,456	n/a
PORTO IMETAME\H05_Ruptura de Tanque 10.000 m³\Tanque de 10.000 m³ (2)		Vento Dia	1031,62	532,775	520,572	n/a
		Vento Noite	1031,61	527,645	520,456	n/a
PORTO IMETAME\H05_Ruptura de Tanque 10.000 m³\Tanque de 10.000 m³ (3)		Vento Dia	1031,62	532,775	520,572	n/a
		Vento Noite	1031,61	527,645	520,456	n/a
PORTO IMETAME\H06_Ruptura de Tanque 5.000 m³\Tanque de 5.000 m³	H06	Vento Dia	845,2	440,274	426,779	n/a
		Vento Noite	845,394	435,255	426,767	n/a
PORTO IMETAME\H07_Ruptura em linha - Bombas de Exportação e Importação\Bombas de Exportação	H07	Vento Dia	202,068	117,352	102,686	n/a
		Vento Noite	202,102	114,289	102,632	n/a
PORTO IMETAME\H08_Ruptura em linha - Bombas de Distribuição\Bombas de Distribuição	H08	Vento Dia	180,418	105,87	91,7492	n/a
		Vento Noite	180,478	103,192	91,7105	n/a
PORTO IMETAME\H09_Ruptura Duto 14" de Transferência 1000 m³/h\H09	H09.1_Furo	Vento Dia	27,5785	48,4794	37,7075	n/a
		Vento Noite	28,3784	45,6197	36,1812	n/a
	H09.1_Furo (1)	Vento Dia	27,5785	48,4794	37,7075	n/a
		Vento Noite	28,3784	45,6197	36,1812	n/a
	H09.1_Furo (2)	Vento Dia	27,5785	48,4794	37,7075	n/a
		Vento Noite	28,3784	45,6197	36,1812	n/a
	H09.1_Furo (3)	Vento Dia	27,1049	46,4297	35,536	n/a
		Vento Noite	27,7984	43,7813	34,1934	n/a
	H09.2_Fenda	Vento Dia	121,89	75,0662	62,1513	n/a
		Vento Noite	122,216	72,7573	62,2541	n/a
	H09.2_Fenda (1)	Vento Dia	121,89	75,0662	62,1513	n/a

		Vento Noite	122,216	72,7573	62,2541	n/a
	H09.2_Fenda (2)	Vento Dia	121,89	75,0662	62,1513	n/a
		Vento Noite	122,216	72,7573	62,2541	n/a
	H09.2_Fenda (3)	Vento Dia	118,612	73,1723	60,4845	n/a
		Vento Noite	118,926	71,0041	60,5916	n/a
	H09.3_Ruptura	Vento Dia	290,466	163,119	147,317	n/a
		Vento Noite	290,51	159,202	147,261	n/a
	H09.3_Ruptura (1)	Vento Dia	290,466	163,119	147,317	n/a
		Vento Noite	290,51	159,202	147,261	n/a
	H09.3_Ruptura (2)	Vento Dia	290,466	163,119	147,317	n/a
		Vento Noite	290,51	159,202	147,261	n/a
	H09.3_Ruptura (3)	Vento Dia	290,12	162,942	147,144	n/a
		Vento Noite	290,449	159,171	147,23	n/a
PORTO IMETAME\H10_Ruptura Duto 12" de Transferência 800 m^3/h\Long pipeline	H10.1_Furo	Vento Dia	22,9607	46,8936	34,1645	n/a
		Vento Noite	23,8244	43,4002	32,4173	n/a
	H10.2_Fenda	Vento Dia	103,339	64,7656	52,7582	n/a
		Vento Noite	103,739	62,8361	52,9038	n/a
	H10.3_Ruptura	Vento Dia	245,815	140,044	124,785	n/a
		Vento Noite	246,054	136,808	124,825	n/a
PORTO IMETAME\H11_Plataforma de Carregamento Caminhão\Caminhão Tanque	H11	Vento Dia	86,4353	55,2817	44,2176	n/a
		Vento Noite	86,4615	54,1269	44,2307	n/a
PORTO IMETAME\H11_Plataforma de Carregamento Ferroviário\Vagão Tanque	H12	Vento Dia	122,275	75,2913	62,3444	n/a
		Vento Noite	122,161	72,7276	62,2262	n/a

Fireball Results

Distance downwind to defined radiation levels

The reported radiations are defined in the parameters

Flash Fire Results

Distance downwind to defined concentrations

The reported LFL and LFL fraction are defined in the respective material property

Path	Scenario	Weather	Distance downwind to LFL [m]	Distance downwind to LFL Fraction [m]
PORTO IMETAME\H01_Ship to Ship - Mangote 12"\Ship to Ship	H01	Vento Dia	85,0358	85,0358
		Vento Noite	99,9758	99,9758
PORTO IMETAME\H01_Ship to Ship - Mangote 12"\Ship to Ship (1)		Vento Dia	85,0358	85,0358
		Vento Noite	99,9758	99,9758
PORTO IMETAME\H02_Ship to Shore - Mangote 10"\Shore to Ship	H02	Vento Dia	88,2199	88,2199
		Vento Noite	87,3191	87,3191
PORTO IMETAME\H02_Ship to Shore - Mangote 10"\Shore to Ship (1)		Vento Dia	88,2199	88,2199
		Vento Noite	87,3191	87,3191
PORTO IMETAME\H02_Ship to Shore - Mangote 10"\Shore to Ship (2)		Vento Dia	88,2199	88,2199
		Vento Noite	87,3191	87,3191
PORTO IMETAME\H03_Ship to Shore - Mangote 8"\Shore to Ship	H03	Vento Dia	70,9648	70,9648
		Vento Noite	72,8864	72,8864
PORTO IMETAME\H03_Ship to Shore - Mangote 8"\Shore to Ship (1)		Vento Dia	70,9648	70,9648
		Vento Noite	72,8864	72,8864
PORTO IMETAME\H03_Ship to Shore - Mangote 8"\Shore to Ship (2)		Vento Dia	70,9648	70,9648
		Vento Noite	72,8864	72,8864
PORTO IMETAME\H04_Ship to Shore - Mangote 6"\Shore to Ship	H04	Vento Dia	50,9611	50,9611
		Vento Noite	55,4455	55,4455
PORTO IMETAME\H04_Ship to Shore - Mangote 6"\Shore to Ship (1)		Vento Dia	50,9611	50,9611
		Vento Noite	55,4455	55,4455
PORTO IMETAME\H04_Ship to Shore - Mangote 6"\Shore to Ship (2)		Vento Dia	50,9611	50,9611
		Vento Noite	55,4455	55,4455
PORTO IMETAME\H05_Ruptura de Tanque 10.000 m^3\Tanque de 10.000 m^3 (1)	H05	Vento Dia	26,023	26,023
		Vento Noite	25,1225	25,1225
PORTO IMETAME\H05_Ruptura de Tanque 10.000 m^3\Tanque de 10.000 m^3 (2)		Vento Dia	26,023	26,023
		Vento Noite	25,1225	25,1225

PORTO IMETAME\H05_Ruptura de Tanque 10.000 m³\Tanque de 10.000 m³ (3)		Vento Dia	26,023	26,023
		Vento Noite	25,1225	25,1225
PORTO IMETAME\H06_Ruptura de Tanque 5.000 m³\Tanque de 5.000 m³	H06	Vento Dia	23,302	23,302
		Vento Noite	22,4273	22,4273
PORTO IMETAME\H07_Ruptura em linha - Bombas de Exportação e Importação\Bombas de Exportação	H07	Vento Dia	45,4398	45,4398
		Vento Noite	44,7278	44,7278
PORTO IMETAME\H08_Ruptura em linha - Bombas de Distribuição\Bombas de Distribuição	H08	Vento Dia	40,1756	40,1756
		Vento Noite	39,606	39,606
PORTO IMETAME\H09_Ruptura Duto 14" de Transferência 1000 m³/h\H09	H09.1_Furo	Vento Dia	23,2118	23,2118
		Vento Noite	22,1326	22,1326
	H09.1_Furo (1)	Vento Dia	23,2118	23,2118
		Vento Noite	22,1326	22,1326
	H09.1_Furo (2)	Vento Dia	23,2118	23,2118
		Vento Noite	22,1326	22,1326
	H09.1_Furo (3)	Vento Dia	21,3367	21,3367
		Vento Noite	20,444	20,444
	H09.2_Fenda	Vento Dia	43,8778	43,8778
		Vento Noite	43,5954	43,5954
	H09.2_Fenda (1)	Vento Dia	43,8778	43,8778
		Vento Noite	43,5954	43,5954
	H09.2_Fenda (2)	Vento Dia	43,8778	43,8778
		Vento Noite	43,5954	43,5954
	H09.2_Fenda (3)	Vento Dia	40,9806	40,9806
		Vento Noite	40,7657	40,7657
	H09.3_Ruptura	Vento Dia	77,8626	77,8626
		Vento Noite	73,2153	73,2153
	H09.3_Ruptura (1)	Vento Dia	77,8626	77,8626
		Vento Noite	73,2153	73,2153
	H09.3_Ruptura (2)	Vento Dia	77,8626	77,8626
		Vento Noite	73,2153	73,2153
	H09.3_Ruptura (3)	Vento Dia	73,4516	73,4516
		Vento Noite	68,6445	68,6445
PORTO IMETAME\H10_Ruptura Duto 12" de Transferência 800 m³/h\Long pipeline	H10.1_Furo	Vento Dia	21,0064	21,0064

		Vento Noite	19,9909	19,9909
	H10.2_Fenda	Vento Dia	40,3253	40,3253
		Vento Noite	40,0276	40,0276
	H10.3_Ruptura	Vento Dia	70,3595	70,3595
		Vento Noite	66,8075	66,8075
PORTO IMETAME\H11_Plataforma de Carregamento Caminhão\Caminhão Tanque	H11	Vento Dia	16,4639	16,4639
		Vento Noite	21,7204	21,7204
PORTO IMETAME\H11_Plataforma de Carregamento Ferroviário\Vagão Tanque	H12	Vento Dia	29,512	29,512
		Vento Noite	28,8855	28,8855

Maximum distance to LFL fraction at any height

Path	Scenario	Weather	Max flash fire distance [m]	Height of the max flash fire distance [m]	Time [s]
PORTO IMETAME\H01_Ship to Ship - Mangote 12"\Ship to Ship	H01	Vento Dia	86,5457	0,653278	95,4182
		Vento Noite	100,124	0,32173	95,756
PORTO IMETAME\H01_Ship to Ship - Mangote 12"\Ship to Ship (1)		Vento Dia	86,5457	0,653278	95,4182
		Vento Noite	100,124	0,32173	95,756
PORTO IMETAME\H02_Ship to Shore - Mangote 10"\Shore to Ship	H02	Vento Dia	90,7044	0,733721	113,624
		Vento Noite	88,1185	0,718341	113,92
PORTO IMETAME\H02_Ship to Shore - Mangote 10"\Shore to Ship (1)		Vento Dia	90,7044	0,733721	113,624
		Vento Noite	88,1185	0,718341	113,92
PORTO IMETAME\H02_Ship to Shore - Mangote 10"\Shore to Ship (2)		Vento Dia	90,7044	0,733721	113,624
		Vento Noite	88,1185	0,718341	113,92
PORTO IMETAME\H03_Ship to Shore - Mangote 8"\Shore to Ship	H03	Vento Dia	73,4755	0,727559	136,261
		Vento Noite	73,8441	0,535017	141,827
PORTO IMETAME\H03_Ship to Shore - Mangote 8"\Shore to Ship (1)		Vento Dia	73,4755	0,727559	136,261
		Vento Noite	73,8441	0,535017	141,827
PORTO IMETAME\H03_Ship to Shore - Mangote 8"\Shore to Ship (2)		Vento Dia	73,4755	0,727559	136,261
		Vento Noite	73,8441	0,535017	141,827
PORTO IMETAME\H04_Ship to Shore - Mangote 6"\Shore to Ship	H04	Vento Dia	53,5323	0,540698	120,469

		Vento Noite	56,9222	0,530975	119,49
PORTO IMETAME\H04_Ship to Shore - Mangote 6"\Shore to Ship (1)		Vento Dia	53,5323	0,540698	120,469
		Vento Noite	56,9222	0,530975	119,49
PORTO IMETAME\H04_Ship to Shore - Mangote 6"\Shore to Ship (2)		Vento Dia	53,5323	0,540698	120,469
		Vento Noite	56,9222	0,530975	119,49
PORTO IMETAME\H05_Ruptura de Tanque 10.000 m³\Tanque de 10.000 m³ (1)	H05	Vento Dia	26,8064	0	0,801896
		Vento Noite	26,1006	0	0,949887
PORTO IMETAME\H05_Ruptura de Tanque 10.000 m³\Tanque de 10.000 m³ (2)		Vento Dia	26,8064	0	0,801896
		Vento Noite	26,1006	0	0,949887
PORTO IMETAME\H05_Ruptura de Tanque 10.000 m³\Tanque de 10.000 m³ (3)		Vento Dia	26,8064	0	0,801896
		Vento Noite	26,1006	0	0,949887
PORTO IMETAME\H06_Ruptura de Tanque 5.000 m³\Tanque de 5.000 m³	H06	Vento Dia	22,8181	0	4,74261
		Vento Noite	21,9565	0	6,05033
PORTO IMETAME\H07_Ruptura em linha - Bombas de Exportação e Importação\Bombas de Exportação	H07	Vento Dia	47,0521	0,294052	112,794
		Vento Noite	45,982	0,282643	112,794
PORTO IMETAME\H08_Ruptura em linha - Bombas de Distribuição\Bombas de Distribuição	H08	Vento Dia	41,7473	0,285546	140,92
		Vento Noite	40,4636	0,273892	140,92
PORTO IMETAME\H09_Ruptura Duto 14" de Transferência 1000 m³/h\H09	H09.1_Furo	Vento Dia	23,4851	0,357572	593,486
		Vento Noite	22,725	0,344154	25,1287
	H09.1_Furo (1)	Vento Dia	23,4851	0,357572	593,486
		Vento Noite	22,725	0,344154	25,1287
	H09.1_Furo (2)	Vento Dia	23,4851	0,357572	593,486
		Vento Noite	22,725	0,344154	25,1287
	H09.1_Furo (3)	Vento Dia	21,1986	0,412642	593,211
		Vento Noite	20,5917	0,340402	593,104
	H09.2_Fenda	Vento Dia	43,4613	0,255413	303,268
		Vento Noite	44,1472	0,251781	305,14
	H09.2_Fenda (1)	Vento Dia	43,4613	0,255413	303,268
		Vento Noite	44,1472	0,251781	305,14

	H09.2_Fenda (2)	Vento Dia	43,4613	0,255413	303,268
		Vento Noite	44,1472	0,251781	305,14
	H09.2_Fenda (3)	Vento Dia	42,4724	0,24601	303,354
		Vento Noite	41,9617	0,242022	305,455
	H09.3_Ruptura	Vento Dia	81,0823	0,558967	182,428
		Vento Noite	75,1272	0,528805	202,698
	H09.3_Ruptura (1)	Vento Dia	81,0823	0,558967	182,428
		Vento Noite	75,1272	0,528805	202,698
	H09.3_Ruptura (2)	Vento Dia	81,0823	0,558967	182,428
		Vento Noite	75,1272	0,528805	202,698
	H09.3_Ruptura (3)	Vento Dia	78,4666	0,543649	190,338
		Vento Noite	70,5675	0,518816	190,338
PORTO IMETAME\H10_Ruptura Duto 12" de Transferência 800 m^3/h\Long pipeline	H10.1_Furo	Vento Dia	21,3049	0,405808	10,5573
		Vento Noite	21,0404	0,336724	25,1301
	H10.2_Fenda	Vento Dia	41,245	0,239276	377,817
		Vento Noite	41,9521	0,23662	379,404
	H10.3_Ruptura	Vento Dia	72,9608	0,534217	201,387
		Vento Noite	68,4536	0,483674	181,248
PORTO IMETAME\H11_Plataforma de Carregamento Caminhão\Caminhão Tanque	H11	Vento Dia	16,2263	0	10,0732
		Vento Noite	21,1503	0	11,4388
PORTO IMETAME\H11_Plataforma de Carregamento Ferroviário\Vagão Tanque	H12	Vento Dia	26,0363	0	5,13064
		Vento Noite	28,2454	0	7,1249

Bleve Blast Results

Distance downwind to defined overpressures

The reported overpressures are defined in the explosion parameters

Path	Scenario	Weather	Distance downwind to overpressure 1 (0,1 bar) [m]	Distance downwind to overpressure 2 (0,1 bar) [m]	Distance downwind to overpressure 3 (0,3 bar) [m]
PORTO IMETAME\H13_Caldeira\Caldeira	H13	Vento Dia	65,0836	65,0836	31,4677
	H13	Vento Noite	65,0836	65,0836	31,4677

Standalone Explosion Results

Distance downwind to defined overpressures

The reported overpressures are defined in the explosion parameters

Explosion Results

Explosion scenarios for worst-case maximum downwind distance to defined overpressures.
These results are produced during the consequence run and depend on the precise setting of the scenario.
These results may be quite different to the explosion results calculated during the risk or effects modelling as these will depend on the obstructed regions defined on the map.

The reported overpressures are defined in the explosion parameters

Path	Scenario	Weather	Overpressure level [bar]	Maximum distance [m]	Diameter [m]
PORTO IMETAME\H01_Ship to Ship - Mangote 12"\Ship to Ship	H01	Vento Dia	0,1 0,1 0,3	107,991 107,991 71,6618	134,674 134,674 62,0158
		Vento Noite	0,1 0,1 0,3	110,704 110,704 74,5778	133,923 133,923 61,6697
PORTO IMETAME\H01_Ship to Ship - Mangote 12"\Ship to Ship (1)		Vento Dia	0,1 0,1 0,3	107,991 107,991 71,6618	134,674 134,674 62,0158
		Vento Noite	0,1 0,1 0,3	110,704 110,704 74,5778	133,923 133,923 61,6697
PORTO IMETAME\H02_Ship to Shore - Mangote 10"\Shore to Ship	H02	Vento Dia	0,1 0,1 0,3	94,0963 94,0963 62,4877	117,174 117,174 53,9573
		Vento Noite	0,1 0,1 0,3	92,864 92,864 62,7292	111,711 111,711 51,4416
PORTO IMETAME\H02_Ship to Shore - Mangote 10"\Shore to Ship (1)		Vento Dia	0,1 0,1 0,3	94,0963 94,0963 62,4877	117,174 117,174 53,9573
		Vento Noite	0,1 0,1 0,3	92,864 92,864 62,7292	111,711 111,711 51,4416
PORTO IMETAME\H02_Ship to Shore - Mangote 10"\Shore to Ship (2)		Vento Dia	0,1 0,1 0,3	94,0963 94,0963 62,4877	117,174 117,174 53,9573
		Vento Noite	0,1 0,1 0,3	92,864 92,864 62,7292	111,711 111,711 51,4416
PORTO IMETAME\H03_Ship to Shore - Mangote 8"\Shore to Ship	H03	Vento Dia	0,1 0,1 0,3	86,321 86,321 56,6226	110,093 110,093 50,6965
		Vento Noite	0,1 0,1 0,3	83,5616 83,5616 56,0091	102,138 102,138 47,0335
PORTO IMETAME\H03_Ship to Shore - Mangote 8"\Shore to Ship (1)		Vento Dia	0,1 0,1 0,3	86,321 86,321 56,6226	110,093 110,093 50,6965
		Vento Noite	0,1 0,1	83,5616 83,5616	102,138 102,138

			0,3	56,0091	47,0335
PORTO IMETAME\H03_Ship to Shore - Mangote 8"\Shore to Ship (2)		Vento Dia	0,1 0,1 0,3	86,321 86,321 56,6226	110,093 110,093 50,6965
		Vento Noite	0,1 0,1 0,3	83,5616 83,5616 56,0091	102,138 102,138 47,0335
PORTO IMETAME\H04_Ship to Shore - Mangote 6"\Shore to Ship	H04	Vento Dia	0,1 0,1 0,3	75,5175 75,5175 50,0941	94,2456 94,2456 43,3989
		Vento Noite	0,1 0,1 0,3	72,7189 72,7189 48,7084	89,0082 89,0082 40,9872
PORTO IMETAME\H04_Ship to Shore - Mangote 6"\Shore to Ship (1)		Vento Dia	0,1 0,1 0,3	75,5175 75,5175 50,0941	94,2456 94,2456 43,3989
		Vento Noite	0,1 0,1 0,3	72,7189 72,7189 48,7084	89,0082 89,0082 40,9872
PORTO IMETAME\H04_Ship to Shore - Mangote 6"\Shore to Ship (2)		Vento Dia	0,1 0,1 0,3	75,5175 75,5175 50,0941	94,2456 94,2456 43,3989
		Vento Noite	0,1 0,1 0,3	72,7189 72,7189 48,7084	89,0082 89,0082 40,9872
PORTO IMETAME\H05_Ruptura de Tanque 10.000 m³\Tanque de 10.000 m³ (1)	H05	Vento Dia	0,1 0,1 0,3	87,7106 87,7106 42,0607	169,227 169,227 77,9267
		Vento Noite	0,1 0,1 0,3	92,5421 92,5421 44,1014	179,572 179,572 82,6907
PORTO IMETAME\H05_Ruptura de Tanque 10.000 m³\Tanque de 10.000 m³ (2)		Vento Dia	0,1 0,1 0,3	87,7106 87,7106 42,0607	169,227 169,227 77,9267
		Vento Noite	0,1 0,1 0,3	92,5421 92,5421 44,1014	179,572 179,572 82,6907
PORTO IMETAME\H05_Ruptura de Tanque 10.000 m³\Tanque de 10.000 m³ (3)		Vento Dia	0,1 0,1 0,3	87,7106 87,7106 42,0607	169,227 169,227 77,9267
		Vento Noite	0,1 0,1 0,3	92,5421 92,5421 44,1014	179,572 179,572 82,6907
PORTO IMETAME\H06_Ruptura de Tanque 5.000 m³\Tanque de 5.000 m³	H06	Vento Dia	0,1 0,1 0,3	74,5037 74,5037 35,7159	143,788 143,788 66,2126
		Vento Noite	0,1 0,1 0,3	70,0839 70,0839 33,1284	136,996 136,996 63,0849

PORTO IMETAME\H07_Ruptura em linha - Bombas de Exportação e Importação\Bombas de Exportação	H07	Vento Dia	0,1 0,1 0,3	52,1281 52,1281 35,6824	61,6086 61,6086 28,028
		Vento Noite	0,1 0,1 0,3	50,1242 50,1242 34,3366	58,5253 58,5253 26,9501
PORTO IMETAME\H08_Ruptura em linha - Bombas de Distribuição\Bombas de Distribuição	H08	Vento Dia	0,1 0,1 0,3	48,56 48,56 33,1002	57,31 57,31 26,3905
		Vento Noite	0,1 0,1 0,3	48,0583 48,0583 32,8131	56,5147 56,5147 26,0243
PORTO IMETAME\H09_Ruptura Duto 14" de Transferência 1000 m^3/h\H09	H09.1_Furo	Vento Dia	0,1 0,1 0,3	32,1666 32,1666 22,8831	34,4142 34,4142 15,8473
		Vento Noite	0,1 0,1 0,3	30,9478 30,9478 21,9787	33,2488 33,2488 15,3107
	H09.1_Furo (1)	Vento Dia	0,1 0,1 0,3	32,1666 32,1666 22,8831	34,4142 34,4142 15,8473
		Vento Noite	0,1 0,1 0,3	30,9478 30,9478 21,9787	33,2488 33,2488 15,3107
	H09.1_Furo (2)	Vento Dia	0,1 0,1 0,3	32,1666 32,1666 22,8831	34,4142 34,4142 15,8473
		Vento Noite	0,1 0,1 0,3	30,9478 30,9478 21,9787	33,2488 33,2488 15,3107
	H09.1_Furo (3)	Vento Dia	0,1 0,1 0,3	29,7977 29,7977 21,1528	32,0469 32,0469 14,7572
		Vento Noite	0,1 0,1 0,3	28,5042 28,5042 20,2004	30,7826 30,7826 14,175
	H09.2_Fenda	Vento Dia	0,1 0,1 0,3	58,5385 58,5385 40,5843	66,557 66,557 30,6487
		Vento Noite	0,1 0,1 0,3	59,0891 59,0891 41,0784	66,7666 66,7666 30,7452
	H09.2_Fenda (1)	Vento Dia	0,1 0,1 0,3	58,5385 58,5385 40,5843	66,557 66,557 30,6487
		Vento Noite	0,1 0,1 0,3	59,0891 59,0891 41,0784	66,7666 66,7666 30,7452
	H09.2_Fenda (2)	Vento Dia	0,1 0,1	58,5385 58,5385	66,557 66,557

			0,3	40,5843	30,6487
		Vento Noite	0,1 0,1 0,3	59,0891 59,0891 41,0784	66,7666 66,7666 30,7452
	H09.2_Fenda (3)	Vento Dia	0,1 0,1 0,3	54,3042 54,3042 37,5224	62,2107 62,2107 28,6472
		Vento Noite	0,1 0,1 0,3	53,9629 53,9629 37,3878	61,4444 61,4444 28,2944
	H09.3_Ruptura	Vento Dia	0,1 0,1 0,3	75,2858 75,2858 51,5371	88,0377 88,0377 40,5402
		Vento Noite	0,1 0,1 0,3	73,7118 73,7118 50,6372	86,3288 86,3288 36,3803
	H09.3_Ruptura (1)	Vento Dia	0,1 0,1 0,3	75,2858 75,2858 51,5371	88,0377 88,0377 40,5402
		Vento Noite	0,1 0,1 0,3	73,7118 73,7118 50,6372	86,3288 86,3288 36,3803
	H09.3_Ruptura (2)	Vento Dia	0,1 0,1 0,3	75,2858 75,2858 51,5371	88,0377 88,0377 40,5402
		Vento Noite	0,1 0,1 0,3	73,7118 73,7118 50,6372	86,3288 86,3288 36,3803
	H09.3_Ruptura (3)	Vento Dia	0,1 0,1 0,3	72,3644 72,3644 49,0151	86,5571 86,5571 39,8585
		Vento Noite	0,1 0,1 0,3	69,7867 69,7867 47,4628	82,7557 82,7557 38,1079
PORTO IMETAME\H10_Ruptura Duto 12" de Transferência 800 m³/h\Long pipeline	H10.1_Furo	Vento Dia	0,1 0,1 0,3	28,7812 28,7812 20,5716	30,4333 30,4333 14,0141
		Vento Noite	0,1 0,1 0,3	28,8949 28,8949 20,6262	30,6525 30,6525 14,1151
	H10.2_Fenda	Vento Dia	0,1 0,1 0,3	55,1045 55,1045 38,2965	62,3398 62,3398 28,6912
		Vento Noite	0,1 0,1 0,3	53,0812 53,0812 36,9252	59,8912 59,8912 27,5791
	H10.3_Ruptura	Vento Dia	0,1 0,1 0,3	67,0613 67,0613 45,6994	79,1896 79,1896 36,4658
		Vento Noite	0,1	63,2216	74,1997

			0,1 0,3	63,2216 43,3393	74,1997 33,5826
PORTO IMETAME\H11_Plataforma de Carregamento Caminhão\Caminhão Tanque	H11	Vento Dia	0,1 0,1 0,3	22,4229 22,4229 17,1464	44,7978 44,7978 2,45194
		Vento Noite	0,1 0,1 0,3	28,698 28,698 22,3436	57,396 57,396 2,78006
PORTO IMETAME\H11_Plataforma de Carregamento Ferroviário\Vagão Tanque	H12	Vento Dia	0,1 0,1 0,3	31,5284 31,5284 27,842	60,0542 60,0542 5,0473
		Vento Noite	0,1 0,1 0,3	31,9735 31,9735 29,5894	61,5926 61,5926 3,48305

Supplementary data for worst-case explosion scenarios

Path	Scenario	Weather	Overpressure level [bar]	Explosion flammable mass [kg]	Ignition time [s]	Ignition source [m]	Cloud centre [m]	Explosion centre [m]
PORTO IMETAME\H01_Ship to Ship - Mangote 12"\Ship to Ship	H01	Vento Dia	0,1 0,1 0,3	245,23 245,23 245,23	42,3318 42,3318 42,3318	86 86 86	40,6539 40,6539 40,6539	40,6539 40,6539 40,6539
		Vento Noite	0,1 0,1 0,3	241,146 241,146 241,146	88,4072 88,4072 88,4072	100 100 100	43,7429 43,7429 43,7429	43,7429 43,7429 43,7429
PORTO IMETAME\H01_Ship to Ship - Mangote 12"\Ship to Ship (1)		Vento Dia	0,1 0,1 0,3	245,23 245,23 245,23	42,3318 42,3318 42,3318	86 86 86	40,6539 40,6539 40,6539	40,6539 40,6539 40,6539
		Vento Noite	0,1 0,1 0,3	241,146 241,146 241,146	88,4072 88,4072 88,4072	100 100 100	43,7429 43,7429 43,7429	43,7429 43,7429 43,7429
PORTO IMETAME\H02_Ship to Shore - Mangote 10"\Shore to Ship	H02	Vento Dia	0,1 0,1 0,3	161,516 161,516 161,516	92,8285 92,8285 92,8285	90 90 90	35,5091 35,5091 35,5091	35,5091 35,5091 35,5091
		Vento Noite	0,1 0,1 0,3	139,961 139,961 139,961	110,729 110,729 110,729	88 88 88	37,0084 37,0084 37,0084	37,0084 37,0084 37,0084
PORTO IMETAME\H02_Ship to Shore - Mangote 10"\Shore to Ship (1)		Vento Dia	0,1 0,1 0,3	161,516 161,516 161,516	92,8285 92,8285 92,8285	90 90 90	35,5091 35,5091 35,5091	35,5091 35,5091 35,5091
		Vento Noite	0,1 0,1 0,3	139,961 139,961 139,961	110,729 110,729 110,729	88 88 88	37,0084 37,0084 37,0084	37,0084 37,0084 37,0084
PORTO IMETAME\H02_Ship to		Vento Dia	0,1 0,1	161,516 161,516	92,8285 92,8285	90 90	35,5091 35,5091	35,5091 35,5091

Shore - Mangote 10"\Shore to Ship (2)			0,3	161,516	92,8285	90	35,5091	35,5091
		Vento	0,1	139,961	110,729	88	37,0084	37,0084
		Noite	0,1	139,961	110,729	88	37,0084	37,0084
			0,3	139,961	110,729	88	37,0084	37,0084
PORTO IMETAME\H03_Ship to Shore - Mangote 8"\Shore to Ship	H03	Vento Dia	0,1	133,968	113,103	73	31,2744	31,2744
			0,1	133,968	113,103	73	31,2744	31,2744
			0,3	133,968	113,103	73	31,2744	31,2744
		Vento	0,1	106,976	55,7697	72	32,4924	32,4924
		Noite	0,1	106,976	55,7697	72	32,4924	32,4924
			0,3	106,976	55,7697	72	32,4924	32,4924
PORTO IMETAME\H03_Ship to Shore - Mangote 8"\Shore to Ship (1)		Vento Dia	0,1	133,968	113,103	73	31,2744	31,2744
			0,1	133,968	113,103	73	31,2744	31,2744
			0,3	133,968	113,103	73	31,2744	31,2744
		Vento	0,1	106,976	55,7697	72	32,4924	32,4924
		Noite	0,1	106,976	55,7697	72	32,4924	32,4924
			0,3	106,976	55,7697	72	32,4924	32,4924
PORTO IMETAME\H03_Ship to Shore - Mangote 8"\Shore to Ship (2)		Vento Dia	0,1	133,968	113,103	73	31,2744	31,2744
			0,1	133,968	113,103	73	31,2744	31,2744
			0,3	133,968	113,103	73	31,2744	31,2744
		Vento	0,1	106,976	55,7697	72	32,4924	32,4924
		Noite	0,1	106,976	55,7697	72	32,4924	32,4924
			0,3	106,976	55,7697	72	32,4924	32,4924
PORTO IMETAME\H04_Ship to Shore - Mangote 6"\Shore to Ship	H04	Vento Dia	0,1	84,0431	6,72642	53	28,3947	28,3947
			0,1	84,0431	6,72642	53	28,3947	28,3947
			0,3	84,0431	6,72642	53	28,3947	28,3947
		Vento	0,1	70,796	34,5046	56	28,2148	28,2148
		Noite	0,1	70,796	34,5046	56	28,2148	28,2148
			0,3	70,796	34,5046	56	28,2148	28,2148
PORTO IMETAME\H04_Ship to Shore - Mangote 6"\Shore to Ship (1)		Vento Dia	0,1	84,0431	6,72642	53	28,3947	28,3947
			0,1	84,0431	6,72642	53	28,3947	28,3947
			0,3	84,0431	6,72642	53	28,3947	28,3947
		Vento	0,1	70,796	34,5046	56	28,2148	28,2148
		Noite	0,1	70,796	34,5046	56	28,2148	28,2148
			0,3	70,796	34,5046	56	28,2148	28,2148
PORTO IMETAME\H04_Ship to Shore - Mangote 6"\Shore to Ship (2)		Vento Dia	0,1	84,0431	6,72642	53	28,3947	28,3947
			0,1	84,0431	6,72642	53	28,3947	28,3947
			0,3	84,0431	6,72642	53	28,3947	28,3947
		Vento	0,1	70,796	34,5046	56	28,2148	28,2148
		Noite	0,1	70,796	34,5046	56	28,2148	28,2148
			0,3	70,796	34,5046	56	28,2148	28,2148
PORTO IMETAME\H05_Ruptura de Tanque 10.000 m³\Tanque	H05	Vento Dia	0,1	486,545	0,746311	26	3,09734	3,09734
			0,1	486,545	0,746311	26	3,09734	3,09734
			0,3	486,545	0,746311	26	3,09734	3,09734

de 10.000 m³ (1)								
		Vento	0,1	581,347	0,941287	26	2,75604	2,75604
		Noite	0,1	581,347	0,941287	26	2,75604	2,75604
			0,3	581,347	0,941287	26	2,75604	2,75604
PORTO IMETAME\H05_Ruptura de Tanque 10.000 m³\Tanque de 10.000 m³ (2)		Vento Dia	0,1	486,545	0,746311	26	3,09734	3,09734
			0,1	486,545	0,746311	26	3,09734	3,09734
			0,3	486,545	0,746311	26	3,09734	3,09734
		Vento	0,1	581,347	0,941287	26	2,75604	2,75604
		Noite	0,1	581,347	0,941287	26	2,75604	2,75604
			0,3	581,347	0,941287	26	2,75604	2,75604
PORTO IMETAME\H05_Ruptura de Tanque 10.000 m³\Tanque de 10.000 m³ (3)		Vento Dia	0,1	486,545	0,746311	26	3,09734	3,09734
			0,1	486,545	0,746311	26	3,09734	3,09734
			0,3	486,545	0,746311	26	3,09734	3,09734
		Vento	0,1	581,347	0,941287	26	2,75604	2,75604
		Noite	0,1	581,347	0,941287	26	2,75604	2,75604
			0,3	581,347	0,941287	26	2,75604	2,75604
PORTO IMETAME\H06_Ruptura de Tanque 5.000 m³\Tanque de 5.000 m³	H06	Vento Dia	0,1	298,46	0,74917	19	2,60967	2,60967
			0,1	298,46	0,74917	19	2,60967	2,60967
			0,3	298,46	0,74917	19	2,60967	2,60967
		Vento	0,1	258,132	0,529499	18	1,5859	1,5859
		Noite	0,1	258,132	0,529499	18	1,5859	1,5859
			0,3	258,132	0,529499	18	1,5859	1,5859
PORTO IMETAME\H07_Ruptura em linha - Bombas de Exportação e Importação\Bombas de Exportação	H07	Vento Dia	0,1	23,477	31,2424	46	21,3238	21,3238
			0,1	23,477	31,2424	46	21,3238	21,3238
			0,3	22,6382	108,528	47	21,6684	21,6684
		Vento	0,1	20,1256	5,43193	43	20,8615	20,8615
		Noite	0,1	20,1256	5,43193	43	20,8615	20,8615
			0,3	20,1256	5,43193	43	20,8615	20,8615
PORTO IMETAME\H08_Ruptura em linha - Bombas de Distribuição\Bombas de Distribuição	H08	Vento Dia	0,1	18,8977	29,7298	41	19,905	19,905
			0,1	18,8977	29,7298	41	19,905	19,905
			0,3	18,8977	29,7298	41	19,905	19,905
		Vento	0,1	18,1218	82,5458	40	19,801	19,801
		Noite	0,1	18,1218	82,5458	40	19,801	19,801
			0,3	18,1218	82,5458	40	19,801	19,801
PORTO IMETAME\H09_Ruptura Duto 14" de Transferência 1000 m³/h\H09	H09.1_Furo	Vento Dia	0,1	4,09196	3,97662	23	14,9595	14,9595
			0,1	4,09196	3,97662	23	14,9595	14,9595
			0,3	4,09196	3,97662	23	14,9595	14,9595
		Vento	0,1	3,69018	3,86055	22	14,3234	14,3234
		Noite	0,1	3,69018	3,86055	22	14,3234	14,3234
			0,3	3,69018	3,86055	22	14,3234	14,3234
	H09.1_Furo	Vento Dia	0,1	4,09196	3,97662	23	14,9595	14,9595

	(1)		0,1	4,09196	3,97662	23	14,9595	14,9595
			0,3	4,09196	3,97662	23	14,9595	14,9595
		Vento Noite	0,1	3,69018	3,86055	22	14,3234	14,3234
			0,1	3,69018	3,86055	22	14,3234	14,3234
			0,3	3,69018	3,86055	22	14,3234	14,3234
	H09.1_Furo (2)	Vento Dia	0,1	4,09196	3,97662	23	14,9595	14,9595
			0,1	4,09196	3,97662	23	14,9595	14,9595
			0,3	4,09196	3,97662	23	14,9595	14,9595
		Vento Noite	0,1	3,69018	3,86055	22	14,3234	14,3234
			0,1	3,69018	3,86055	22	14,3234	14,3234
			0,3	3,69018	3,86055	22	14,3234	14,3234
	H09.1_Furo (3)	Vento Dia	0,1	3,30429	4,03177	21	13,7742	13,7742
			0,1	3,30429	4,03177	21	13,7742	13,7742
			0,3	3,30429	4,03177	21	13,7742	13,7742
		Vento Noite	0,1	2,92843	3,82129	20	13,1129	13,1129
			0,1	2,92843	3,82129	20	13,1129	13,1129
			0,3	2,92843	3,82129	20	13,1129	13,1129
	H09.2_Fenda	Vento Dia	0,1	29,6006	3,70809	42	25,26	25,26
			0,1	29,6006	3,70809	42	25,26	25,26
			0,3	29,6006	3,70809	42	25,26	25,26
		Vento Noite	0,1	29,8811	9,46982	44	25,7058	25,7058
			0,1	29,8811	9,46982	44	25,7058	25,7058
			0,3	29,8811	9,46982	44	25,7058	25,7058
	H09.2_Fenda (1)	Vento Dia	0,1	29,6006	3,70809	42	25,26	25,26
			0,1	29,6006	3,70809	42	25,26	25,26
			0,3	29,6006	3,70809	42	25,26	25,26
		Vento Noite	0,1	29,8811	9,46982	44	25,7058	25,7058
			0,1	29,8811	9,46982	44	25,7058	25,7058
			0,3	29,8811	9,46982	44	25,7058	25,7058
	H09.2_Fenda (2)	Vento Dia	0,1	29,6006	3,70809	42	25,26	25,26
			0,1	29,6006	3,70809	42	25,26	25,26
			0,3	29,6006	3,70809	42	25,26	25,26
		Vento Noite	0,1	29,8811	9,46982	44	25,7058	25,7058
			0,1	29,8811	9,46982	44	25,7058	25,7058
			0,3	29,8811	9,46982	44	25,7058	25,7058
	H09.2_Fenda (3)	Vento Dia	0,1	24,172	2,53862	40	23,1988	23,1988
			0,1	24,172	2,53862	40	23,1988	23,1988
			0,3	24,172	2,53862	40	23,1988	23,1988
		Vento Noite	0,1	23,2898	2,97398	40	23,2407	23,2407
			0,1	23,2898	2,97398	40	23,2407	23,2407
			0,3	23,2898	2,97398	40	23,2407	23,2407
	H09.3_Ruptura	Vento Dia	0,1	68,5053	180,157	81	31,267	31,267
			0,1	68,5053	180,157	81	31,267	31,267
			0,3	68,5053	180,157	81	31,267	31,267
		Vento Noite	0,1	64,5931	170,235	74	30,5474	30,5474
			0,1	64,5931	170,235	74	30,5474	30,5474
			0,3	49,5065	199,507	75	32,447	32,447
	H09.3_Ruptura (1)	Vento Dia	0,1	68,5053	180,157	81	31,267	31,267
			0,1	68,5053	180,157	81	31,267	31,267
			0,3	68,5053	180,157	81	31,267	31,267

		Vento Noite	0,1 0,1 0,3	64,5931 64,5931 49,5065	170,235 170,235 199,507	74 74 75	30,5474 30,5474 32,447	30,5474 30,5474 32,447
	H09.3_Ruptura (2)	Vento Dia	0,1 0,1 0,3	68,5053 68,5053 68,5053	180,157 180,157 180,157	81 81 81	31,267 31,267 31,267	31,267 31,267 31,267
		Vento Noite	0,1 0,1 0,3	64,5931 64,5931 49,5065	170,235 170,235 199,507	74 74 75	30,5474 30,5474 32,447	30,5474 30,5474 32,447
	H09.3_Ruptura (3)	Vento Dia	0,1 0,1 0,3	65,1069 65,1069 65,1069	185,334 185,334 185,334	78 78 78	29,0858 29,0858 29,0858	29,0858 29,0858 29,0858
		Vento Noite	0,1 0,1 0,3	56,8999 56,8999 56,8999	167,075 167,075 167,075	70 70 70	28,4088 28,4088 28,4088	28,4088 28,4088 28,4088
PORTO IMETAME\H10_Ruptura Duto 12" de Transferência 800 m³/h\Long pipeline	H10.1_Furo	Vento Dia	0,1 0,1 0,3	2,82986 2,82986 2,82986	4,02326 4,02326 4,02326	21 21 21	13,5646 13,5646 13,5646	13,5646 13,5646 13,5646
		Vento Noite	0,1 0,1 0,3	2,89144 2,89144 2,89144	8,90061 8,90061 8,90061	21 21 21	13,5686 13,5686 13,5686	13,5686 13,5686 13,5686
	H10.2_Fenda	Vento Dia	0,1 0,1 0,3	24,3228 24,3228 24,2835	2,52783 2,52783 3,86496	39 39 40	23,9346 23,9346 23,9509	23,9346 23,9346 23,9509
		Vento Noite	0,1 0,1 0,3	21,5679 21,5679 21,5679	3,08429 3,08429 3,08429	40 40 40	23,1356 23,1356 23,1356	23,1356 23,1356 23,1356
	H10.3_Ruptura	Vento Dia	0,1 0,1 0,3	49,8567 49,8567 49,8567	134,152 134,152 134,152	72 72 72	27,4664 27,4664 27,4664	27,4664 27,4664 27,4664
		Vento Noite	0,1 0,1 0,3	41,0133 41,0133 38,941	49,1301 49,1301 16,0245	65 65 64	26,1218 26,1218 26,5481	26,1218 26,1218 26,5481
PORTO IMETAME\H11_Plataforma de Carregamento Caminhão\Caminhão Tanque	H11	Vento Dia	0,1 0,1 0,3	9,02587 9,02587 0,0151563	0,443853 0,443853 9,98608	3 3 16	0,0239868 0,0239868 15,9204	0,0239868 0,0239868 15,9204
		Vento Noite	0,1 0,1 0,3	18,9829 18,9829 0,0220916	0,285177 0,285177 11,3503	3 3 21	0 0 20,9535	0 0 20,9535
PORTO IMETAME\H11_Plataforma de Carregamento Ferroviário\Vagão Tanque	H12	Vento Dia	0,1 0,1 0,3	21,7445 21,7445 0,132203	0,419157 0,419157 5,11671	5 5 26	1,50131 1,50131 25,3184	1,50131 1,50131 25,3184
		Vento Noite	0,1 0,1 0,3	23,4586 23,4586 0,0434455	0,445469 0,445469 7,05567	5 5 28	1,17726 1,17726 27,8479	1,17726 1,17726 27,8479