EMERGENZA GAS
INCREMENTO DI CAPACITÀ DI RIGASSIFICAZIONE (DL 17.05.2022, n. 50)

FSRU Alto Tirreno e Collegamento alla Rete Nazionale Gasdotti

Rapporto Preliminare di Sicurezza per la fase di Nulla Osta di Fattibilità (NOF) ai sensi del D.Lgs. 105/15

Allegato D.1.1
Elaborati di calcolo dispersione fumi

Firmato digitalmente da:
Giovanni Romano
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Rev.	Descrizione	Elaborato	Verificato	Approvato	Data
0	Emissione per Enti	TRR	G.Romano	G. Lanza	Marzo 2024

Input Report

Workspace: 72438-Dispersione inquinanti 3R-00

Dispersione inquinanti pool fire

Study
72438-Dispersione inquinanti 3R-00

Tab	Group	Field	Value
Context of calculations	Selection of context	Weathers to use for this study	Weather folder
		Parameters to use for this study	Parameter set ME4
		Obstructions to use for this study	Multi-Energy obstruction set
Bund, building and terrain	Terrain and bund definition	Type of terrain for dispersion	Default terrain
		Type of pool substrate and bunds	No bund
Toxic parameters	Indoor toxic calculations	Specify the downwind building type	Unselected
		Building type (downwind building type)	Buildings\Building type

NO2

Pressure vessel

72438-Dispersione inquinanti 3R-00\Dispersione inquinanti pool fire

Tab	Group	Field	Value	Units
Material	Material	Material	NITROGEN DIOXIDE	
		Specify volume inventory?	No	
		Mass inventory	40000	kg
		Volume inventory	56721,2	m3
		Material to track	NITROGEN DIOXIDE	
	Phase	Specified condition	Pressure/temperature	
		Temperature	600	degC
		Pressure (gauge)	0,1	bar
		Fluid state	Vapour	
		Liquid mole fraction	0	fraction
Scenario	Pipe dimensions	Pipe length		m
	Release location	Elevation	64	m
		Tank head	0	m
	Direction	Outdoor release direction	Vertical	
		Outdoor release angle	90	deg
Discharge parameters	Model settings	Atmospheric expansion method	DNV 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	Pipe roughness	0,045	mm

	characteristics			
	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	56721,2	m3
		Tank vapour volume	56721,2	m3
		Tank liquid volume	0	m3
		Tank liquid level	0	m
		Maximum vapour release height	0	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	User-defined dispersion scope (N.B Based on the material to track)	Concentrations of interest		ppm
		Distances of interest		m
		Averaging time for concentrations and distances of interest		
		Specify user-defined averaging time	No	
		User defined averaging time		s
	Standardised toxic threshold concentrations and averaging times	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	Default terrain	
		Type of pool substrate and bunds	No bund	
	Building definition	Release building		
		In-building	Outdoor	

		release?		
		Building wake effect	None	
		Wind or release angle from North	0	deg
		Handling of droplets	Trapped	
		Indoor mass modification factor	3	
Toxic parameters	Indoor toxic calculations	Specify the downwind building type	Unselected	
		Building type (downwind building type)	Buildings\Building type	
	Exposure time data	Set averaging time equal to exposure time	Use a fixed averaging time	
		Cut-off fraction of toxic load for exposure time calculation	0,05	fraction
		Cut-off concentration for exposure time calculations	0	fraction
	Toxic contours	Number of toxic levels	4	
		Dose levels [ppm^n.min]	130000; 1,3E+06; 1,3E+07; 1,3E+08	
		Probit levels	2; 3; 4; 10	
		Lethality levels	0,001; 0,01; 0,1; 0,99	fraction
Geometry	Geometry	East	0	m
		North	0	m

NO2 - 0,42 kg/s

User defined source

72438-Dispersione inquinanti 3R-00\Dispersione inquinanti pool fire\NO2

Tab	Group	Field	Value	Units
Scenario	Release scenario	Release scenario	Leak	
		The number of release observers	2	
	Release observers	Release time	0; 3600	s
		Release phase	Vapour; Vapour	
		Mass flow	0,42; 0,42	kg/s
		Final velocity	0,43; 0,43	m/s
		Final temperature	600; 600	degC
		Liquid fraction	0; 0	fraction
		Droplet diameter	319,833; 319,833	um
		Pool radius	47; 47	m
		Pre-dilution air rate	0; 0	kg/s
		Downstream calculation status	No errors detected	
	Release location	Elevation	64	m
		Tank head	0	m
	Direction	Outdoor release direction	Vertical	
		Outdoor release angle	90	deg
	Fireball emissive power	Use vessel burst pressure	No	
		Vessel burst pressure - gauge		bar
	Jet fire Miller model hole size	Orifice diameter	0	mm
Material	Material	Material characteristics	Toxic only	
		Material to track	NITROGEN DIOXIDE	
		Type of risk effects to model	Toxic only	

Dispersion	User-defined dispersion scope (N.B Based on the material to track)	Concentrations of interest	162; 13; 1,3	ppm
		Distances of interest		m
		Averaging time for concentrations and distances of interest	Toxic	
		Specify user-defined averaging time	No	
		User defined averaging time		s
	Standardised toxic threshold concentrations and averaging times	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	Default terrain	
		Type of pool substrate and bunds	No bund	
Toxic parameters	Indoor toxic calculations	Specify the downwind building type	Unselected	
		Building type (downwind building type)	Buildings\Building type	
	Exposure time data	Set averaging time equal to exposure time	Use a fixed averaging time	
		Cut-off fraction of toxic load for exposure time calculation	0,05	fraction

		Cut-off concentration for exposure time calculations	0	fraction
	Toxic contours	Number of toxic levels	4	
		Dose levels [ppm^n.min]	130000; 1,3E+06; 1,3E+07; 1,3E+08	
		Probit levels	2; 3; 4; 10	
		Lethality levels	0,001; 0,01; 0,1; 0,99	fraction

CO2

Pressure vessel

72438-Dispersione inquinanti 3R-00\Dispersione inquinanti pool fire

Tab	Group	Field	Value	Units
Material	Material	Material	CARBON DIOXIDE	
		Specify volume inventory?	No	
		Mass inventory	40000	kg
		Volume inventory	59292	m3
		Material to track	CARBON DIOXIDE	
	Phase	Specified condition	Pressure/temperature	
		Temperature	600	degC
		Pressure (gauge)	0,1	bar
		Fluid state	Vapour	
		Liquid mole fraction	0	fraction
Scenario	Pipe dimensions	Pipe length		m
	Release location	Elevation	64	m
		Tank head	0	m
	Direction	Outdoor release direction	Vertical	
		Outdoor release angle	90	deg
Discharge parameters	Model settings	Atmospheric expansion method	DNV 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	Pipe roughness	0,045	mm

	characteristics			
	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	59292	m3
		Tank vapour volume	59292	m3
		Tank liquid volume	0	m3
		Tank liquid level	0	m
		Maximum vapour release height	0	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	User-defined dispersion scope (N.B Based on the material to track)	Concentrations of interest		ppm
		Distances of interest		m
		Averaging time for concentrations and distances of interest		
		Specify user-defined averaging time	No	
		User defined averaging time		s
Bund, building and terrain	Terrain and bund definition	Type of terrain for dispersion	Default terrain	
		Type of pool substrate and bunds	No bund	
	Building definition	Release building		
		In-building release?	Outdoor	
		Building wake effect	None	
		Wind or release angle from North	0	deg
		Handling of	Trapped	

		droplets		
		Indoor mass modification factor	3	
Geometry	Geometry	East	0	m
		North	0	m

CO2 - 396,6 kg/s

User defined source

72438-Dispersione inquinanti 3R-00\Dispersione inquinanti pool fire\CO2

Tab	Group	Field	Value	Units
Scenario	Release scenario	Release scenario	Leak	
		The number of release observers	2	
	Release observers	Release time	0; 3600	s
		Release phase	Vapour; Vapour	
		Mass flow	396,6; 396,6	kg/s
		Final velocity	0,43; 0,43	m/s
		Final temperature	600; 600	degC
		Liquid fraction	0; 0	fraction
		Droplet diameter	319,833; 319,833	um
		Pool radius	47; 47	m
		Pre-dilution air rate	0; 0	kg/s
		Downstream calculation status	No errors detected	
	Release location	Elevation	64	m
		Tank head	0	m
	Direction	Outdoor release direction	Vertical	
		Outdoor release angle	90	deg
	Fireball emissive power	Use vessel burst pressure	No	
		Vessel burst pressure - gauge		bar
	Jet fire Miller model hole size	Orifice diameter	0	mm
Material	Material	Material characteristics	Inert	
		Material to track	CARBON DIOXIDE	

		Type of risk effects to model	Inert	
Dispersion	User-defined dispersion scope (N.B Based on the material to track)	Concentrations of interest	49500; 40000; 4000	ppm
		Distances of interest		m
		Averaging time for concentrations and distances of interest	User-defined	
		Specify user-defined averaging time	Yes	
		User defined averaging time	600	s
Bund, building and terrain	Terrain and bund definition	Type of terrain for dispersion	Default terrain	
		Type of pool substrate and bunds	No bund	

CO

Pressure vessel

72438-Dispersione inquinanti 3R-00\Dispersione inquinanti pool fire

Tab	Group	Field	Value	Units
Material	Material	Material	CARBON MONOXIDE	
		Specify volume inventory?	No	
		Mass inventory	40000	kg
		Volume inventory	93165,8	m3
		Material to track	CARBON MONOXIDE	
	Phase	Specified condition	Pressure/temperature	
		Temperature	600	degC
		Pressure (gauge)	0,1	bar
		Fluid state	Vapour	
		Liquid mole fraction	0	fraction
Scenario	Pipe dimensions	Pipe length		m
	Release location	Elevation	64	m
		Tank head	0	m
	Direction	Outdoor release direction	Vertical	
		Outdoor release angle	90	deg
Discharge parameters	Model settings	Atmospheric expansion method	DNV 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	Pipe roughness	0,045	mm

	characteristics			
	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	93165,8	m3
		Tank vapour volume	93165,8	m3
		Tank liquid volume	0	m3
		Tank liquid level	0	m
		Maximum vapour release height	0	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	User-defined dispersion scope (N.B Based on the material to track)	Concentrations of interest		ppm
		Distances of interest		m
		Averaging time for concentrations and distances of interest		
		Specify user-defined averaging time	No	
		User defined averaging time		s
	Standardised toxic threshold concentrations and averaging times	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	Default terrain	
		Type of pool substrate and bunds	No bund	
	Building definition	Release building		
		In-building	Outdoor	

		release?		
		Building wake effect	None	
		Wind or release angle from North	0	deg
		Handling of droplets	Trapped	
		Indoor mass modification factor	3	
Toxic parameters	Indoor toxic calculations	Specify the downwind building type	Unselected	
		Building type (downwind building type)	Buildings\Building type	
	Exposure time data	Set averaging time equal to exposure time	Use a fixed averaging time	
		Cut-off fraction of toxic load for exposure time calculation	0,05	fraction
		Cut-off concentration for exposure time calculations	0	fraction
	Toxic contours	Number of toxic levels	4	
		Dose levels [ppm^n.min]	130000; 1,3E+06; 1,3E+07; 1,3E+08	
		Probit levels	2; 3; 4; 10	
		Lethality levels	0,001; 0,01; 0,1; 0,99	fraction
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	4; 12,5; 37,5	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	Selection for jet fire method	Automatic selection / DNV recommended	
	Result types to calculate	Calculate probit	No	
		Calculate dose	No	
		Calculate lethality	No	
	Radiation levels	Number of input radiation levels	5	
		Intensity levels	3; 5; 7; 12,5; 37,5	kW/m2
		Probit levels	2,73; 3,72; 7,5	

		Dose levels	1,27E+06; 5,8E+06; 2,51E+07	
		Lethality levels	0,01; 0,1; 0,99	fraction
	Parameters	Rate modification factor	3	
		Jet fire maximum exposure duration	20	s
	Cone model data	Horizontal options	Use standard method	
		Correlation	Recommended	
		Flame-shape adjustment if grounded	Yes	
	Surface emissive power	Calculation method for surface emissive power	Calculate SEP	
		Flame emissive power		kW/m2
		Emissivity fraction		fraction
Pool fire	Result types to calculate	Calculate probit	No	
		Calculate dose	No	
		Calculate lethality	No	
	Radiation levels	Number of input radiation levels	5	
		Intensity levels	3; 5; 7; 12,5; 37,5	kW/m2
		Probit levels	2,73; 3,72; 7,5	
		Dose levels	1,27E+06; 5,8E+06; 2,51E+07	
		Lethality levels	0,01; 0,1; 0,99	fraction
	Parameters	Radiative fraction for general fires	0,4	fraction
		Pool fire maximum exposure duration	20	s
Geometry	Geometry	East	0	m
		North	0	m

CO - 8,1 kg/s

User defined source

72438-Dispersione inquinanti 3R-00\Dispersione inquinanti pool fire\CO

Tab	Group	Field	Value	Units
Scenario	Release scenario	Release scenario	Leak	
		The number of release observers	2	
	Release observers	Release time	0; 3600	s
		Release phase	Vapour; Vapour	
		Mass flow	8,1; 8,1	kg/s
		Final velocity	0,43; 0,43	m/s
		Final temperature	600; 600	degC
		Liquid fraction	0; 0	fraction
		Droplet diameter	319,833; 319,833	um
		Pool radius	47; 47	m
		Pre-dilution air rate	0; 0	kg/s
		Downstream calculation status	No errors detected	
	Release location	Elevation	64	m
		Tank head	0	m
	Direction	Outdoor release direction	Vertical	
		Outdoor release angle	90	deg
	Fireball emissive power	Use vessel burst pressure	No	
		Vessel burst pressure - gauge		bar
	Jet fire Miller model hole size	Orifice diameter	0	mm
Material	Material	Material characteristics	Toxic and flammable	
		Material to track	CARBON MONOXIDE	
		Type of risk effects to model	Toxic and flammable	

Dispersion	User-defined dispersion scope (N.B Based on the material to track)	Concentrations of interest	4000; 1200; 120	ppm
		Distances of interest		m
		Averaging time for concentrations and distances of interest	Toxic	
		Specify user-defined averaging time	No	
		User defined averaging time	600	s
	Standardised toxic threshold concentrations and averaging times	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	Default terrain	
		Type of pool substrate and bunds	No bund	
Toxic parameters	Indoor toxic calculations	Specify the downwind building type	Unselected	
		Building type (downwind building type)	Buildings\Building type	
	Exposure time data	Set averaging time equal to exposure time	Use a fixed averaging time	
		Cut-off fraction of toxic load for exposure time calculation	0,05	fraction

		Cut-off concentration for exposure time calculations	0	fraction
	Toxic contours	Number of toxic levels	4	
		Dose levels [ppm^n.min]	130000; 1,3E+06; 1,3E+07; 1,3E+08	
		Probit levels	2; 3; 4; 10	
		Lethality levels	0,001; 0,01; 0,1; 0,99	fraction
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	4; 12,5; 37,5	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	Selection for jet fire method	Automatic selection / DNV recommended	
	Automatic selection of method	Jet fire method to be used in calculations	Cone model	
	Result types to calculate	Calculate probit	No	
		Calculate dose	No	
		Calculate lethality	No	
	Radiation levels	Number of input radiation levels	5	
		Intensity levels	3; 5; 7; 12,5; 37,5	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	5	
		Intensity levels	3; 5; 7; 12,5; 37,5	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

Dispersion Report

Workspace: 72438-Dispersione inquinanti 3R-00

Study: Dispersione inquinanti pool fire

Equipment Item: NO2

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Material	**NITROGEN DIOXIDE**	
East	0	m
North	0	m

Scenario (User defined source) : NO2 - 0,42 kg/s

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Material to track	**NITROGEN DIOXIDE**

Weather: Category 2/F

Wind speed [m/s]	**2**
Pasquill stability	**F stable - night with moderate clouds and light/moderate wind**
Atmospheric temperature [degC]	**25**
Relative humidity [fraction]	**0,75**
Solar radiation flux [kW/m2]	0,5
Mixing layer height [m]	100

Observer Release Data and Observer Mass Data

					Masses or mass rates		
Observer number	Release type	Start time [s]	Start downwind distance [m]	Unit	Release	Rainout	Final
1	Continuous	0	0	kg/s	0,42	0	0,42
2	Continuous	3600	0	kg/s	0,42	0	0,42

Weather: Category 5/D

Wind speed [m/s]	**5**
Pasquill stability	**D neutral - little sun and high wind or overcast/windy night**
Atmospheric temperature [degC]	25
Relative humidity [fraction]	0,75
Solar radiation flux [kW/m2]	0,5
Mixing layer height [m]	800

Observer Release Data and Observer Mass Data

					Masses or mass rates		
Observer number	Release type	Start time [s]	Start downwind distance [m]	Unit	Release	Rainout	Final
1	Continuous	0	0	kg/s	0,42	0	0,42
2	Continuous	3600	0	kg/s	0,42	0	0,42

Equipment Item: CO2

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Material	**CARBON DIOXIDE**	
East	0	m
North	0	m

Scenario (User defined source) : CO2 - 396,6 kg/s

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Material to track	**CARBON DIOXIDE**

Weather: Category 2/F

Wind speed [m/s]	**2**
Pasquill stability	**F stable - night with moderate clouds and light/moderate wind**
Atmospheric temperature [degC]	**25**
Relative humidity [fraction]	**0,75**
Solar radiation flux [kW/m2]	0,5
Mixing layer height [m]	100

Observer Release Data and Observer Mass Data

					Masses or mass rates		
Observer number	**Release type**	**Start time [s]**	**Start downwind distance [m]**	**Unit**	**Release**	**Rainout**	**Final**
1	Continuous	0	0	kg/s	396,6	0	396,6
2	Continuous	3600	0	kg/s	396,6	0	396,6

Weather: Category 5/D

Wind speed [m/s]	**5**
Pasquill stability	**D neutral - little sun and high wind or overcast/windy night**
Atmospheric temperature [degC]	25
Relative humidity [fraction]	0,75
Solar radiation flux [kW/m2]	0,5
Mixing layer height [m]	800

Observer Release Data and Observer Mass Data

					Masses or mass rates		
Observer number	**Release type**	**Start time [s]**	**Start downwind distance [m]**	**Unit**	**Release**	**Rainout**	**Final**
1	Continuous	0	0	kg/s	396,6	0	396,6
2	Continuous	3600	0	kg/s	396,6	0	396,6

Equipment Item: CO

72438-Dispersione inquinanti 3R-00\Dispersione inquinanti pool fire\CO

Material	**CARBON MONOXIDE**	
East	0	m
North	0	m

Scenario (User defined source) : CO - 8,1 kg/s

72438-Dispersione inquinanti 3R-00\Dispersione inquinanti pool fire\CO\CO - 8,1 kg/s

Material to track	**CARBON MONOXIDE**

Weather: Category 2/F

Wind speed [m/s]	**2**
Pasquill stability	**F stable - night with moderate clouds and light/moderate wind**
Atmospheric temperature [degC]	**25**
Relative humidity [fraction]	**0,75**
Solar radiation flux [kW/m2]	0,5
Mixing layer height [m]	100

Observer Release Data and Observer Mass Data

					Masses or mass rates		
Observer number	**Release type**	**Start time [s]**	**Start downwind distance [m]**	**Unit**	**Release**	**Rainout**	**Final**
1	Continuous	0	0	kg/s	8,1	0	8,1
2	Continuous	3600	0	kg/s	8,1	0	8,1

Weather: Category 5/D

Wind speed [m/s]	**5**
Pasquill stability	**D neutral - little sun and high wind or overcast/windy night**
Atmospheric temperature [degC]	25
Relative humidity [fraction]	0,75
Solar radiation flux [kW/m2]	0,5
Mixing layer height [m]	800

Observer Release Data and Observer Mass Data

					Masses or mass rates		
Observer number	**Release type**	**Start time [s]**	**Start downwind distance [m]**	**Unit**	**Release**	**Rainout**	**Final**
1	Continuous	0	0	kg/s	8,1	0	8,1
2	Continuous	3600	0	kg/s	8,1	0	8,1

Consequence Summary Report

Workspace: 72438-Dispersione inquinanti 3R-00

Study: Dispersione inquinanti pool fire

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.
The results in this report are from the non-CFD calculations only.

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	**1,7**	m

Distance downwind to minimum defined concentration

The reported concentration of interest is defined at the scenario

Path	Scenario	Weather	Material	Material to track	Minimum concentration of interest [ppm]	Averaging time used for concentration of interest [s]	Distance downwind to minimum concentration of interest [m]
Dispersione inquinanti pool fire\NO2	NO2 - 0,42 kg/s	Category 2/F	**NITROGEN DIOXIDE**	NITROGEN DIOXIDE	1,3	Toxic (600)	Not reached at height of interest
		Category 5/D	**NITROGEN DIOXIDE**	NITROGEN DIOXIDE	1,3	Toxic (600)	Not reached at height of interest
Dispersione inquinanti pool fire\CO2	CO2 - 396,6 kg/s	Category 2/F	**CARBON DIOXIDE**	CARBON DIOXIDE	4000	User-defined (600)	Not reached at height of interest
		Category 5/D	**CARBON DIOXIDE**	CARBON DIOXIDE	4000	User-defined (600)	Not reached at height of interest
Dispersione inquinanti pool fire\CO	CO - 8,1 kg/s	Category 2/F	**CARBON MONOXIDE**	CARBON MONOXIDE	120	Toxic (600)	Not reached at height of interest
		Category 5/D	**CARBON MONOXIDE**	CARBON MONOXIDE	120	Toxic (600)	Not reached at height of interest

Outdoor Toxic Results

Distance downwind to defined concentrations

The reported concentrations are defined in the respective material properties

Path	Scenario	Weather	Distance downwind to ERPG1 (3600 s) [m]	Distance downwind to ERPG2 (3600 s) [m]	Distance downwind to ERPG3 (3600 s) [m]	Distance downwind to STEL (900 s) [m]	Distance downwind to IDLH (1800 s) [m]
Dispersione inquinanti pool fire\NO2	NO2 - 0,42 kg/s	Category 2/F	n/a	n/a	n/a	n/a	n/a
		Category 5/D	n/a	n/a	n/a	n/a	n/a
Dispersione inquinanti pool fire\CO	CO - 8,1 kg/s	Category 2/F	n/a	n/a	n/a	n/a	n/a
		Category 5/D	n/a	n/a	n/a	n/a	n/a

Distance downwind to defined dangerous doses

The reported dangerous doses are defined in the respective material properties

Exposure duration at defined dangerous doses

The reported dangerous doses are defined in the respective material properties