

Annex to the extended Safety Data Sheet



Substance: Hydrocarbons, C10, aromatics, >1% naphthalene
EC No: 919-284-0

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Section 1 Exposure scenario title

Title:

Manufacture of substance

Sector of use:

SU3: Industrial uses: Uses of substances as such or in mixtures at industrial sites

Subsequent service life relevant for that use:

Under nitrogen atmosphere no time limit

Contributing Environmental Release Categories [ERC]:

ERC1: Manufacture of substances

ERC4: Industrial use of processing aids in processes and products, not becoming part of articles

ERC6a: Industrial use resulting in manufacture of another substance (use of intermediates)

Specific Environmental Release Category: ESVOC 1.1.v1

Contributing Process Categories [PROC]:

PROC1: Use in closed process, no likelihood of exposure

PROC2: Use in closed, continuous process with occasional controlled exposure

PROC3: Use in closed batch process (synthesis or formulation)

PROC4: Use in batch and other process (synthesis) where opportunity for exposure arises

PROC8a: Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non-dedicated facilities

PROC8b: Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities

PROC15: Use as laboratory reagent

Scope of processes and activities covered by the Exposure Scenario:

Manufacture of the substance or use as an intermediate or process chemical or extraction agent. Includes recycling/recovery, material transfers, storage, maintenance and loading (including marine vessel/barge, road/rail car and bulk container), sampling and associated laboratory activities.

Section 2 Operational conditions and risk management measures

Section 2.1 Control of worker exposure

Operational conditions of use

Physical form of product and vapour pressure:

Liquid, vapour pressure < 0.5 kPa at STP [OC3]

Concentration of substance in product:

Covers percentage substance in the product up to 100 % (unless stated differently) [G13]

Frequency and duration of use/exposure:

Covers daily exposures up to 8 hours (unless stated differently) [G2]

Other operational conditions affecting exposure:

Assumes use at not more than 20 °C above ambient temperature, unless stated differently [G15]. Assumes a good basic standard of occupational hygiene has been implemented [G1]

Contributing scenarios and risk management measures of worker exposure

General exposures (closed systems) [CS15] PROC1:

No specific measures identified [E118]

General exposures (closed systems) [CS15] PROC2, PROC3:

Handle substance within a closed System [E47]

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Material storage [CS67] PROC1, PROC2:

Store substance within a closed system [E84]

General exposures (open systems) [CS16] PROC4:

No specific measures identified [E118]

Equipment cleaning and maintenance [CS39] PROC8a:

Drain down and flush system prior to equipment break-in or maintenance [E55]

Process sampling [CS2] PROC8b:

No specific measures identified [E118]

Bulk transfers [CS14] (open systems) [CS108] PROC8b:

No specific measures identified [E118]

Bulk transfers [CS14] (closed systems) [CS107] PROC8b:

Handle substance within a closed System [E47]

Laboratory activities [CS36] PROC15:

No specific measures identified [E118].

Section 2.2 Control of environmental exposure

Product characteristics:

Substance is complex UVCB [PrC3]. Predominantly hydrophobic [PrC4a].

Amounts used

Maximum daily site tonnage (kg/day): 95000

Frequency and duration of use

Emission days (days/year): 100

Environmental factors not influenced by risk management

Local freshwater dilution factor: 10

Local marine water dilution factor: 100

Other given operational conditions affecting environmental exposure

Release fraction to air from process (initial release prior to RMM): 0.01

Release fraction to wastewater from process (initial release prior to RMM): 0.0003

Release fraction to soil from process (initial release prior to RMM): 0.0001

Technical onsite conditions and measures to reduce or limit discharges, air emissions and releases to soil

Risk from environmental exposure is driven by freshwater sediment [TCR1b]. Prevent discharge of undissolved substance to, or recover from, onsite wastewater [TCR14]. If discharging to domestic sewage treatment plant, no onsite wastewater treatment required [TCR9].

Treat air emission to provide a typical removal efficiency of (%): 90

Treat onsite wastewater (prior to receiving water discharge) to provide the required removal efficiency of >=(%): 74.9

If discharging to domestic sewage treatment plant, provide the required onsite wastewater removal efficiency of >=(%): 0

Organisation measures to prevent/limit release from site

Do not apply industrial sludge to natural soils [OMS2]. Sludge should be incinerated, contained or reclaimed [OMS3].

Conditions and measures related to municipal sewage treatment plant

Estimated substance removal from wastewater via domestic sewage treatment (%): 94.6

Total efficiency of removal from wastewater after onsite and offsite (domestic treatment plant) RMMs (%): 94.6

Maximum allowable site tonnage (M_{Safe}) based on release following total wastewater treatment removal (kg/day): 440000

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Assumed domestic sewage treatment plant flow (m³/day): 10000

Conditions and measures related to external treatment of waste for disposal

During manufacturing no waste of the substance is generated [ETW4].

Conditions and measures related to external recovery of waste

During manufacturing no waste of the substance is generated [ERW2].

Section 3 Exposure estimation

Health

The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated.

Environment

The Hydrocarbon Block Method has been used to calculate environmental exposure with the Petrorisk model [EE2].

Section 4 Guidance to check compliance with the Exposure Scenario

Health

Predicted exposures are not expected to exceed the DN(M)EL when the Risk Management Measures/Operational Conditions outlined in Section 2 are implemented [G22].

Where other Risk Management Measures/Operational Conditions are adopted, then users should ensure that risks are managed to at least equivalent levels [G23].

Environment

Guidance is based on assumed operating conditions which may not be applicable to all sites; thus, scaling may be necessary to define appropriate site-specific risk management measures [DSU1]. Required removal efficiency for wastewater can be achieved using onsite/offsite technologies, either alone or in combination [DSU2]. Required removal efficiency for air can be achieved using onsite technologies, either alone or in combination [DSU3]. Further details on scaling and control technologies are provided in SpERC factsheet (<http://cefic.org/en/reach-for-industries-libraries.html>).

Section 1 Exposure scenario title

Title:

Distribution of substance

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Sector of use:

SU3: Industrial uses: Uses of substances as such or in mixtures at industrial sites

Subsequent service life relevant for that use:

Under nitrogen atmosphere no time limit

Contributing Environmental Release Categories [ERC]:

ERC1: Manufacture of substances
ERC2: Formulation of preparations
ERC3: Formulation in materials
ERC4: Industrial use of processing aids in processes and products, not becoming part of articles
ERC5: Industrial use resulting in inclusion into or onto a matrix
ERC6a: Industrial use resulting in manufacture of another substance (use of intermediates)
ERC6b: Industrial use of reactive processing aids
ERC6c: Industrial use of monomers for polymerization
ERC6d: Industrial use of auxiliaries for polymerization processes in production of resins, rubbers, polymers
ERC7: Industrial use of substances in closed systems
Specific Environmental Release Category: ESVOC 1.1b.v1

Contributing Process Categories [PROC]:

PROC1: Use in closed process, no likelihood of exposure
PROC2: Use in closed, continuous process with occasional controlled exposure
PROC3: Use in closed batch process (synthesis or formulation)
PROC4: Use in batch and other process (synthesis) where opportunity for exposure arises
PROC8a: Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non-dedicated facilities
PROC8b: Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities
PROC9: Transfer of substance or preparation into small containers (dedicated filling line, including weighing)
PROC15: Use as laboratory reagent

Scope of processes and activities covered by the Exposure Scenario:

Loading (including marine vessel/barge, road/rail car and IBC loading) and repacking (including drums and small packs) of substance, including its sampling, storage, unloading, maintenance and associated laboratory activities.

Section 2 Operational conditions and risk management measures

Section 2.1 Control of worker exposure

Operational conditions of use

Physical form of product and vapour pressure:

Liquid, vapour pressure < 0.5 kPa at STP [OC3]

Concentration of substance in product:

Covers percentage substance in the product up to 100 % (unless stated differently) [G13]

Frequency and duration of use/exposure:

Covers daily exposures up to 8 hours (unless stated differently) [G2]

Other operational conditions affecting exposure:

Assumes use at not more than 20 °C above ambient temperature, unless stated differently [G15]. Assumes a good basic standard of occupational hygiene has been implemented [G1]

Contributing scenarios and risk management measures of worker exposure

General exposures (closed systems) [CS15] PROC1, PROC2, PROC3:

Handle substance within a closed system [E47]

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Material storage [CS67] PROC1, PROC2:

Store substance within a closed system [E84] Transfer via enclosed lines [E52]

Process sampling [CS2] PROC3:

No specific measures identified [E118]

General exposures (open systems) [CS16] PROC4:

No specific measures identified [E118]

Equipment cleaning and maintenance [CS39] PROC8a:

Drain down and flush system prior to equipment break-in or maintenance [E55]

Bulk transfers [CS14] (open systems) [CS108] PROC8b:

No specific measures identified [E118]

Bulk transfers [CS14] (closed systems) [CS107] PROC8b:

No specific measures identified [E118]

Drum and small package filling [CS6] PROC9:

No specific measures identified [E118]

Laboratory activities [CS36] PROC15:

No specific measures identified [E118].

Section 2.2 Control of environmental exposure

Product characteristics:

Substance is complex UVCB [PrC3]. Predominantly hydrophobic [PrC4a].

Amounts used

Maximum daily site tonnage (kg/day): 50

Frequency and duration of use

Emission days (days/year): 20

Environmental factors not influenced by risk management

Local freshwater dilution factor: 10

Local marine water dilution factor: 100

Other given operational conditions affecting environmental exposure

Release fraction to air from process (initial release prior to RMM): 0.00001

Release fraction to wastewater from process (initial release prior to RMM): 0.000001

Release fraction to soil from process (initial release prior to RMM): 0.000001

Technical onsite conditions and measures to reduce or limit discharges, air emissions and releases to soil

Risk from environmental exposure is driven by freshwater [TCR1a]. No wastewater treatment required [TCR6].

Treat air emission to provide a typical removal efficiency of (%): 90

Treat onsite wastewater (prior to receiving water discharge) to provide the required removal efficiency of >=(%): 0

If discharging to domestic sewage treatment plant, provide the required onsite wastewater removal efficiency of >=(%): 0

Organisation measures to prevent/limit release from site

Do not apply industrial sludge to natural soils [OMS2]. Sludge should be incinerated, contained or reclaimed [OMS3].

Conditions and measures related to municipal sewage treatment plant

Estimated substance removal from wastewater via domestic sewage treatment (%): 94.6

Total efficiency of removal from wastewater after onsite and offsite (domestic treatment plant) RMMs (%): 94.6

Maximum allowable site tonnage (M_{Safe}) based on release following total wastewater treatment removal (kg/day): 14000

Assumed domestic sewage treatment plant flow (m^3/day): 2000

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Conditions and measures related to external treatment of waste for disposal

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Conditions and measures related to external recovery of waste

External recovery and recycling of waste should comply with applicable local and/or national regulations [ERW1]

Section 3 Exposure estimation

Health

The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated.

Environment

The Hydrocarbon Block Method has been used to calculate environmental exposure with the Petrorisk model [EE2].

Section 4 Guidance to check compliance with the Exposure Scenario

Health

Predicted exposures are not expected to exceed the DN(M)EL when the Risk Management Measures/Operational Conditions outlined in Section 2 are implemented [G22].

Where other Risk Management Measures/Operational Conditions are adopted, then users should ensure that risks are managed to at least equivalent levels [G23].

Environment

Guidance is based on assumed operating conditions which may not be applicable to all sites; thus, scaling may be necessary to define appropriate site-specific risk management measures [DSU1]. Required removal efficiency for wastewater can be achieved using onsite/offsite technologies, either alone or in combination [DSU2]. Required removal efficiency for air can be achieved using onsite technologies, either alone or in combination [DSU3]. Further details on scaling and control technologies are provided in SpERC factsheet (<http://cefic.org/en/reach-for-industries-libraries.html>).

Section 1 Exposure scenario title

Title:

Formulation & (re)packing of substances and mixtures

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Sector of use:

SU3: Industrial uses: Uses of substances as such or in mixtures at industrial sites

Subsequent service life relevant for that use:

Under nitrogen atmosphere no time limit

Contributing Environmental Release Categories [ERC]:

ERC2: Formulation of preparations

Specific Environmental Release Category: ESVOC 2.2.v1

Contributing Process Categories [PROC]:

PROC1: Use in closed process, no likelihood of exposure

PROC2: Use in closed, continuous process with occasional controlled exposure

PROC3: Use in closed batch process (synthesis or formulation)

PROC4: Use in batch and other process (synthesis) where opportunity for exposure arises

PROC5: Mixing or blending in batch processes for formulation of preparations and articles (multistage and/or significant contact)

PROC8a: Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non-dedicated facilities

PROC8b: Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities

PROC9: Transfer of substance or preparation into small containers (dedicated filling line, including weighing)

PROC14: Production of preparations or articles by tableting, compression, extrusion, pelettisation

PROC15: Use as laboratory reagent

Scope of processes and activities covered by the Exposure Scenario:

Formulation, packing, and re-packing of the substance and its mixtures in batch or continuous operations, including storage, material transfers, mixing, tableting, compression, pelletization, extrusion, large and small scale packing, sampling, maintenance and associated laboratory activities.

Section 2 Operational conditions and risk management measures

Section 2.1 Control of worker exposure

Operational conditions of use

Physical form of product and vapour pressure:

Liquid, vapour pressure < 0.5 kPa at STP [OC3]

Concentration of substance in product:

Covers percentage substance in the product up to 100 % (unless stated differently) [G13]

Frequency and duration of use/exposure:

Covers daily exposures up to 8 hours (unless stated differently) [G2]

Other operational conditions affecting exposure:

Assumes use at not more than 20 °C above ambient temperature, unless stated differently [G15]. Assumes a good basic standard of occupational hygiene has been implemented [G1]

Contributing scenarios and risk management measures of worker exposure

General exposures (closed systems) [CS15] PROC1, PROC2, PROC3:

Handle substance within a closed system [E47]

Material storage [CS67] PROC1, PROC2:

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Store substance within a closed system [E84] Transfer via enclosed lines [E52]

Process sampling [CS2] PROC3:

Avoid dip sampling [E42]

Batch processes at elevated temperatures [CS136] Operation is carried out at elevated temperature (> than 20 °C above ambient temperature) [OC7] PROC3:

Provide enhanced mechanical ventilation by mechanical means [E48] Formulate in enclosed or ventilated mixing vessels [E46]

General exposures (open systems) [CS16] PROC4:

No specific measures identified [E118]

Mixing operations (open systems) [CS30] PROC5:

No specific measures identified [E118].

Manual [CS34] transfer from/pouring from containers [CS22] PROC8a:

Provide extract ventilation to points where emissions occur [E54] Use drum pumps or carefully pour from container [E64]

Equipment cleaning and maintenance [CS39] PROC8a:

No specific measures identified [E118].

Bulk transfers [CS14] PROC8b:

No specific measures identified [E118].

Drum/batch transfers [CS8] PROC8b:

Use drum pumps or carefully pour from container [E64]

Drum and small package filling [CS6] PROC9:

No specific measures identified [E118].

Production or preparation of articles by tableting, compression, extrusion or pelletisation [CS100] PROC14:

No specific measures identified [E118].

Laboratory activities [CS36] PROC15:

No specific measures identified [E118].

Section 2.2 Control of environmental exposure

Product characteristics:

Substance is complex UVCB [PrC3]. Predominantly hydrophobic [PrC4a].

Amounts used

Maximum daily site tonnage (kg/day): 7000

Frequency and duration of use

Emission days (days/year): 10

Environmental factors not influenced by risk management

Local freshwater dilution factor: 10

Local marine water dilution factor: 100

Other given operational conditions affecting environmental exposure

Release fraction to air from process (after typical onsite RMMs, consistent with EU Solvent Emissions Directive requirements): 0.01

Release fraction to wastewater from process (initial release prior to RMM): 0.0002

Release fraction to soil from process (initial release prior to RMM): 0.0001

Technical onsite conditions and measures to reduce or limit discharges, air emissions and releases to soil

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Risk from environmental exposure is driven by freshwater sediment [TCR1b]. Prevent discharge of undissolved substance to, or recover from, onsite wastewater [TCR14]. No wastewater treatment required [TCR6].
Treat air emission to provide a typical removal efficiency of (%): 0
Treat onsite wastewater (prior to receiving water discharge) to provide the required removal efficiency of >=(%): 0
If discharging to domestic sewage treatment plant, provide the required onsite wastewater removal efficiency of >=(%): 0

Organisation measures to prevent/limit release from site

Do not apply industrial sludge to natural soils [OMS2]. Sludge should be incinerated, contained or reclaimed [OMS3].

Conditions and measures related to municipal sewage treatment plant

Estimated substance removal from wastewater via domestic sewage treatment (%): 94.6
Total efficiency of removal from wastewater after onsite and offsite (domestic treatment plant) RMMs (%): 94.6
Maximum allowable site tonnage (M_{Safe}) based on release following total wastewater treatment removal (kg/day): 130000
Assumed domestic sewage treatment plant flow (m^3/day): 2000

Conditions and measures related to external treatment of waste for disposal

External treatment and disposal of waste should comply with applicable local and/or national regulations [ETW3]

Conditions and measures related to external recovery of waste

External recovery and recycling of waste should comply with applicable local and/or national regulations [ERW1]

Section 3 Exposure estimation

Health

The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated.

Environment

The Hydrocarbon Block Method has been used to calculate environmental exposure with the Petrorisk model [EE2].

Section 4 Guidance to check compliance with the Exposure Scenario

Health

Predicted exposures are not expected to exceed the DN(M)EL when the Risk Management Measures/Operational Conditions outlined in Section 2 are implemented [G22].

Where other Risk Management Measures/Operational Conditions are adopted, then users should ensure that risks are managed to at least equivalent levels [G23].

Environment

Guidance is based on assumed operating conditions which may not be applicable to all sites; thus, scaling may be necessary to define appropriate site-specific risk management measures [DSU1]. Required removal efficiency for wastewater can be achieved using onsite/offsite technologies, either alone or in combination [DSU2]. Required removal efficiency for air can be achieved using onsite technologies, either alone or in combination [DSU3]. Further details on scaling and control technologies are provided in SpERC factsheet (<http://cefic.org/en/reach-for-industries-libraries.html>).

Section 1 Exposure scenario title

Title:

Use in Coatings

Sector of use:

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SU3: Industrial uses: Uses of substances as such or in mixtures at industrial sites

Subsequent service life relevant for that use:

Under nitrogen atmosphere no time limit

Contributing Environmental Release Categories [ERC]:

ERC4: Industrial use of processing aids in processes and products, not becoming part of articles
Specific Environmental Release Category: ESVOC 4.3a.v1

Contributing Process Categories [PROC]:

- PROC1: Use in closed process, no likelihood of exposure
- PROC2: Use in closed, continuous process with occasional controlled exposure
- PROC3: Use in closed batch process (synthesis or formulation)
- PROC4: Use in batch and other process (synthesis) where opportunity for exposure arises
- PROC5: Mixing or blending in batch processes for formulation of preparations and articles (multistage and/or significant contact)
- PROC7: Industrial spraying
- PROC8a: Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non-dedicated facilities
- PROC8b: Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities
- PROC10: Roller application or brushing of adhesive and other coating
- PROC13: Treatment of articles by dipping and pouring
- PROC14: Production of preparations or articles by tableting, compression, extrusion, pelettisation.
- PROC15: Use as laboratory reagent

Scope of processes and activities covered by the Exposure Scenario:

Covers the use in coatings (paints, inks, adhesives, etc.) including exposures during use (including materials receipt, storage, preparation and transfer from bulk and semi-bulk, application by spray, roller, spreader, dip, flow, fluidized bed on production lines and film formation) and equipment cleaning, maintenance and associated laboratory activities.

Section 2 Operational conditions and risk management measures

Section 2.1 Control of worker exposure

Operational conditions of use

Physical form of product and vapour pressure:

Liquid, vapour pressure < 0.5 kPa at STP [OC3]

Concentration of substance in product:

Covers percentage substance in the product up to 100 % (unless stated differently) [G13]

Frequency and duration of use/exposure:

Covers daily exposures up to 8 hours (unless stated differently) [G2]

Other operational conditions affecting exposure:

Assumes use at not more than 20 °C above ambient temperature, unless stated differently [G15]. Assumes a good basic standard of occupational hygiene has been implemented [G1]

Contributing scenarios and risk management measures of worker exposure

General exposures (closed systems) [CS15] PROC1:

Handle substance within a closed system [E47]

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General exposures (closed systems) [CS15] with sample collection [CS56] Use in contained systems [CS38] PROC2:

Handle substance within a closed system [E47]

Film formation – force drying (50 – 100 °C). Stoving (> 100 °C). UV/EB radiation curing [CS94] Operation is carried out at elevated temperature (> 20 °C above ambient temperature [OC7] PROC2:

Handle substance within a closed system [E47]

Mixing operations (closed systems) [CS29] General exposures (closed systems) [CS15] PROC3:

Handle substance within a closed system [E47]

Film formation – air drying [CS95] PROC4:

No specific measures identified [E118]

Preparation of material for application [CS96] Mixing operations (open systems) [CS30] PROC5:

No specific measures identified [E118]

Spraying (automatic/robotic) [CS97] PROC7:

Carry out in a vented booth provided with laminar airflow [E59]

Manual [CS34] spraying [CS10] PROC7:

Wear a respirator conforming to EN 140 with Type A filter or better [PPE22]

Material transfers [CS3] PROC8a, PROC8b:

Provide extract ventilation to points where emissions occur [E54] Clear transfer lines prior to de-coupling [E39]

Material transfers [CS3] Drum/batch transfers [CS8] Transfer from/pouring from containers [CS22] PROC9:

No specific measures identified [E118]

Roller, spreader, flow application [CS98] PROC10:

Minimize exposure by partial enclosure of the operation or equipment and provide extract ventilation at openings [E60]

Dipping, immersion and pouring [CS4] PROC13:

Provide extract ventilation to points where emissions occur [E54] Avoid manual contact with wet work pieces [E17]

Production or preparation of articles by tableting, compression extrusion or pelletisation [CS100] PROC14:

No specific measures identified [E118]

Laboratory activities [CS36] PROC15:

No specific measures identified [E118].

Section 2.2 Control of environmental exposure

Product characteristics:

Substance is complex UVCB [PrC3]. Predominantly hydrophobic [PrC4a].

Amounts used

Maximum daily site tonnage (kg/day): 19000

Frequency and duration of use

Emission days (days/year): 20

Environmental factors not influenced by risk management

Local freshwater dilution factor: 10

Local marine water dilution factor: 100

Other given operational conditions affecting environmental exposure

Release fraction to air from process (initial release prior to RMM): 0.098

Release fraction to wastewater from process (initial release prior to RMM): 0.0007

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Release fraction to soil from process (initial release prior to RMM): 0

Technical onsite conditions and measures to reduce or limit discharges, air emissions and releases to soil

Risk from environmental exposure is driven by freshwater sediment [TCR1b]. Prevent discharge of undissolved substance to, or recover from, onsite wastewater [TCR14]. If discharging to domestic sewage treatment plant, no onsite wastewater treatment required [TCR9].

Treat air emission to provide a typical removal efficiency of (%): 90

Treat onsite wastewater (prior to receiving water discharge) to provide the required removal efficiency of >=(%): 89.1
If discharging to domestic sewage treatment plant, provide the required onsite wastewater removal efficiency of >=(%): 0

Organisation measures to prevent/limit release from site

Do not apply industrial sludge to natural soils [OMS2]. Sludge should be incinerated, contained or reclaimed [OMS3].

Conditions and measures related to municipal sewage treatment plant

Estimated substance removal from wastewater via domestic sewage treatment (%): 94.6

Total efficiency of removal from wastewater after onsite and offsite (domestic treatment plant) RMMs (%): 94.6

Maximum allowable site tonnage (M_{Safe}) based on release following total wastewater treatment removal (kg/day): 38000

Assumed domestic sewage treatment plant flow (m^3/day): 2000

Conditions and measures related to external treatment of waste for disposal

External treatment and disposal of waste should comply with applicable local and/or national regulations [ETW3]

Conditions and measures related to external recovery of waste

External recovery and recycling of waste should comply with applicable local and/or national regulations [ERW1]

Section 3 Exposure estimation

Health

The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated.

Environment

The Hydrocarbon Block Method has been used to calculate environmental exposure with the Petrorisk model [EE2].

Section 4 Guidance to check compliance with the Exposure Scenario

Health

Predicted exposures are not expected to exceed the DN(M)EL when the Risk Management Measures/Operational Conditions outlined in Section 2 are implemented [G22].

Where other Risk Management Measures/Operational Conditions are adopted, then users should ensure that risks are managed to at least equivalent levels [G23].

Environment

Guidance is based on assumed operating conditions which may not be applicable to all sites; thus, scaling may be necessary to define appropriate site-specific risk management measures [DSU1]. Required removal efficiency for wastewater can be achieved using onsite/offsite technologies, either alone or in combination [DSU2]. Required removal efficiency for air can be achieved using onsite technologies, either alone or in combination [DSU3]. Further details on scaling and control technologies are provided in SpERC factsheet (<http://cefic.org/en/reach-for-industries-libraries.html>).

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Section 1 Exposure scenario title

Title:

Use in Coatings

Sector of use:

SU22: Professional uses: Public domain (administration, education, entertainment, services, craftsmen)

Subsequent service life relevant for that use:

Under nitrogen atmosphere no time limit

Contributing Environmental Release Categories [ERC]:

ERC8a: Wide dispersive indoor use of processing aids in open systems

ERC8d: Wide dispersive outdoor use of processing aids in open systems

Specific Environmental Release Category: ESVOC 8.3b.v1

Contributing Process Categories [PROC]:

PROC1: Use in closed process, no likelihood of exposure

PROC2: Use in closed, continuous process with occasional controlled exposure

PROC3: Use in closed batch process (synthesis or formulation)

PROC4: Use in batch and other process (synthesis) where opportunity for exposure arises

PROC5: Mixing or blending in batch processes for formulation of preparations and articles (multistage and/or significant contact)

PROC8a: Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non-dedicated facilities

PROC8b: Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities

PROC10: Roller application or brushing of adhesive and other coating

PROC11: Non industrial spraying

PROC13: Treatment of articles by dipping and pouring

PROC15: Use as laboratory reagent

PROC19: Hand-mixing with intimate contact and only PPE available

Scope of processes and activities covered by the Exposure Scenario:

Covers the use in coatings (paints, inks, adhesives, etc.) including exposures during use (including materials receipt, storage, preparation and transfer from bulk and semi-bulk, application by spray, roller, brush, spreader by hand or similar methods and film formation) and equipment cleaning, maintenance and associated laboratory activities.

Section 2 Operational conditions and risk management measures

Section 2.1 Control of worker exposure

Operational conditions of use

Physical form of product and vapour pressure:

Liquid, vapour pressure < 0.5 kPa at STP [OC3]

Concentration of substance in product:

Covers percentage substance in the product up to 100 % (unless stated differently) [G13]

Frequency and duration of use/exposure:

Covers daily exposures up to 8 hours (unless stated differently) [G2]

Other operational conditions affecting exposure:

Assumes use at not more than 20 °C above ambient temperature, unless stated differently [G15]. Assumes a good basic standard of occupational hygiene has been implemented [G1]

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Contributing scenarios and risk management measures of worker exposure

General exposures (closed systems) [CS15] PROC1:

Handle Substance within a closed system. [E47]

General exposures (closed systems) [CS15] Use in contained systems [CS38] PROC2:

Handle Substance within a closed system. [E47]

Filling/preparation of equipment from drums or containers [CS45] PROC2:

Handle Substance within a closed system. [E47]

Preparation of material for application [CS96] PROC3:

No other specific measures identified. [E120]

Film formation – air drying [CS95] Outdoor [OC9] PROC4:

Ensure operation is undertaken outdoors. [E69]

Film formation – air drying [CS95] Indoor [OC8] PROC4:

Provide enhanced mechanical ventilation by mechanical means [E48]

Preparation of material for application [CS96] Indoor [OC8] PROC5:

Provide enhanced mechanical ventilation by mechanical means [E48]

Preparation of material for application [CS96] Outdoor [OC9] PROC5:

Ensure operation is undertaken outdoors. [E69]

Material transfers [CS3] Drum/batch transfers [CS8] PROC8a:

Provide enhanced mechanical ventilation by mechanical means [E48]

Material transfers [CS3] Drum/batch transfers [CS8] PROC8b:

Ensure transfer points are supplied with extract ventilation. [E73]

Roller, spreader, flow application [CS98] Indoor [OC8] PROC10:

Provide enhanced mechanical ventilation by mechanical means [E48]

Roller, spreader, flow application [CS98] Outdoor [OC9] PROC10:

Ensure operation is undertaken outdoors. [E69] Wear a respirator conforming to EN140 with Type A filter or better [PPE22]

Manual [CS34] spraying [CS10] Indoor [OC8] PROC11:

Carry out in a vented booth [E57]

Manual [CS34] spraying [CS10] Outdoor [OC9] PROC11:

Ensure operation is undertaken outdoors [E69] Limit the substance content in the product to 5% [OC17] Avoid carrying out operation for more than 1 hour [OC11]

OR

Ensure operation is undertaken outdoors [E69] Avoid carrying out operation for more than 4 hour [OC12] Wear a respirator conforming to EN140 with Type A filter or better [PPE22]

Dipping, immersion and pouring [CS4] Indoor [OC8] PROC13:

Provide extract ventilation to points where emissions occur [E54] Avoid manual contact with wet work pieces [E117]

Dipping, immersion and pouring [CS4] Outdoor [OC9] PROC13:

Ensure operation is undertaken outdoors. [E69] Avoid manual contact with wet work pieces [E117]

Laboratory activities [CS36] PROC15:

No other specific measures identified. [E120]

Hand application – fingerpaints, pastels, adhesives [CS72] Indoor [OC8] PROC19:

Ensure doors and windows are opened [E72]

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Hand application – fingerpaints, pastels, adhesives [CS72] Outdoor [OC9] PROC19:

Avoid carrying out operation for more than 4 hour [OC12]

Section 2.2 Control of environmental exposure

Product characteristics:

Substance is complex UVCB [PrC3]. Predominantly hydrophobic [PrC4a].

Amounts used

Maximum daily site tonnage (kg/day): 0.15

Frequency and duration of use

Emission days (days/year): 365

Environmental factors not influenced by risk management

Local freshwater dilution factor: 10

Local marine water dilution factor: 100

Other given operational conditions affecting environmental exposure

Release fraction to air from process (initial release prior to RMM): 0.98

Release fraction to wastewater from process (initial release prior to RMM): 0.01

Release fraction to soil from process (initial release prior to RMM): 0.01

Technical onsite conditions and measures to reduce or limit discharges, air emissions and releases to soil

Risk from environmental exposure is driven by freshwater [TCR1a]. No wastewater treatment required [TCR6].

Treat air emission to provide a typical removal efficiency of (%): N/A

Treat onsite wastewater (prior to receiving water discharge) to provide the required removal efficiency of >=(%): 0

If discharging to domestic sewage treatment plant, provide the required onsite wastewater removal efficiency of >=(%): 0

Organisation measures to prevent/limit release from site

Do not apply industrial sludge to natural soils [OMS2]. Sludge should be incinerated, contained or reclaimed [OMS3].

Conditions and measures related to municipal sewage treatment plant

Estimated substance removal from wastewater via domestic sewage treatment (%): 94.6

Total efficiency of removal from wastewater after onsite and offsite (domestic treatment plant) RMMs (%): 94.6

Maximum allowable site tonnage (M_{Safe}) based on release following total wastewater treatment removal (kg/day): 40

Assumed domestic sewage treatment plant flow (m^3/day): 2000

Conditions and measures related to external treatment of waste for disposal

External treatment and disposal of waste should comply with applicable local and/or national regulations [ETW3]

Conditions and measures related to external recovery of waste

External recovery and recycling of waste should comply with applicable local and/or national regulations [ERW1]

Section 3 Exposure estimation

Health

The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated.

Environment

The Hydrocarbon Block Method has been used to calculate environmental exposure with the Petrorisk model [EE2].

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Section 4 Guidance to check compliance with the Exposure Scenario

Health

Predicted exposures are not expected to exceed the DN(M)EL when the Risk Management Measures/Operational Conditions outlined in Section 2 are implemented [G22].

Where other Risk Management Measures/Operational Conditions are adopted, then users should ensure that risks are managed to at least equivalent levels [G23].

Environment

Guidance is based on assumed operating conditions which may not be applicable to all sites; thus, scaling may be necessary to define appropriate site-specific risk management measures [DSU1]. Required removal efficiency for wastewater can be achieved using onsite/offsite technologies, either alone or in combination [DSU2]. Required removal efficiency for air can be achieved using onsite technologies, either alone or in combination [DSU3]. Further details on scaling and control technologies are provided in SpERC factsheet (<http://cefic.org/en/reach-for-industries-libraries.html>).

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Section 1 Exposure scenario title

Title:

Use in Coatings

Sector of use:

SU21: Consumer uses: Private households (= general public = consumers)

Subsequent service life relevant for that use:

Under nitrogen atmosphere no time limit

Contributing Environmental Release Categories [ERC]:

ERC8a: Wide dispersive indoor use of processing aids in open systems.

ERC8d: Wide dispersive outdoor use of processing aids in open systems

Specific Environmental Release Category: ESVOOC 8.3c.v1

Contributing Product Category [PC]:

PC1: Adhesives, sealants

PC4: Anti-Freeze and de-icing products

PC8: Biocidal products (e.g. disinfectants, pest control)

PC9a: Coatings and paints, thinners, paint removers

PC9b: Fillers, putties, plasters, modelling clay

PC9c: Finger paints

PC15: Non-metal-surface treatment products

PC18: Ink and toners

PC23: Leather tanning, dye, finishing, impregnation and care products

PC24: Lubricants, greases, release products

PC31: Polishes and wax blends

PC34: Textile dyes, finishing and impregnating products; including bleaches and other processing aids

Scope of processes and activities covered by the Exposure Scenario:

Covers the use in coatings (paints, inks, adhesives, etc.) including exposures during use (including product transfer and preparation, application by brush, spray by hand or similar methods) and equipment cleaning.

Section 2 Operational conditions and risk management measures

Section 2.1 Control of consumer exposure

Operational conditions of use

Physical form of product and vapour pressure:

Liquid, vapour pressure < 0.5 kPa

Concentration of substance in product:

Unless otherwise stated, covers concentrations up to 100% [ConsOC1]

Amounts used:

Unless otherwise stated, covers use amounts up to 13800g [ConsOC2]; covers skin contact area up to 857.5cm² [ConsOC5]

Frequency and duration of use/exposure:

Unless otherwise stated, covers use frequency up to 1 times per day [ConsOC4]; covers exposure up to 8 hours per event [ConsOC14]

Other operational conditions affecting exposure:

Unless otherwise stated assumes use at ambient temperatures [ConsOC15]; assumes use in a 20 m³ room [ConsOC11]; assumes use with typical ventilation [ConsOC8]

Contributing scenarios and risk management measures of consumer exposure

PC1:Adhesives, sealants--Glues, hobby use

OC

Unless otherwise stated, covers concentrations up to 30% [ConsOC1]; covers use up to 365 days/year [ConsOC3]; covers use up to 1 time/on day of use [ConsOC4]; covers skin contact area up to 35.73 cm² [ConsOC5]; for each use event, covers use amounts up to 9g [ConsOC2]; covers use under typical household ventilation [ConsOC8]; covers use in room size of 20m³ [ConsOC11]; for each use event, covers exposure up to 4.00hr/event [ConsOC14];

RMM

No specific RMMs identified beyond those OCs stated

PC1:Adhesives, sealants--Glues DIY-use (carpet glue, tile glue, wood parquet glue)

OC

Unless otherwise stated, covers concentrations up to 30% [ConsOC1]; covers use up to 1 days/year [ConsOC3]; covers use up to 1 time/on day of use [ConsOC4]; covers skin contact area up to 110.00 cm² [ConsOC5]; for each use event, covers use amounts up to 6390g [ConsOC2]; covers use under typical household ventilation [ConsOC8]; covers use in room size of 20m³[ConsOC11]; for each use event, covers exposure up to 6.00hr/event[ConsOC14];

RMM

No specific RMMs identified beyond those OCs stated

PC1:Adhesives, sealants--Glue from spray

OC

Unless otherwise stated, covers concentrations up to 30% [ConsOC1]; covers use up to 365 days/year [ConsOC3]; covers use up to 1 time/on day of use[ConsOC4]; covers skin contact area up to 35.73 cm² [ConsOC5]; for each use event, covers use amounts up to 85.05g [ConsOC2]; covers use under typical household ventilation [ConsOC8]; covers use in room size of 20m³[ConsOC11]; for each use event, covers exposure up to 4.00hr/event[ConsOC14];

RMM

No specific RMMs identified beyond those OCs stated

PC1:Adhesives, sealants—Sealants

OC

Unless otherwise stated, covers concentrations up to 30% [ConsOC1]; covers use up to 365 days/year [ConsOC3]; covers use up to 1 time/on day of use[ConsOC4]; covers skin contact area up to 35.73 cm² [ConsOC5]; for each use event, covers use amounts up to 75g [ConsOC2]; covers use under typical household ventilation [ConsOC8]; covers use in room size of 20m³[ConsOC11]; for each use event, covers exposure up to 1.00hr/event[ConsOC14];

RMM

No specific RMMs identified beyond those OCs stated

PC4_n:Anti-freeze and de-icing products--Washing car window

OC

Unless otherwise stated, covers concentrations up to 1% [ConsOC1]; covers use up to 365 days/year[ConsOC3]; covers use up to 1 time/on day of use[ConsOC4]; for each use event, covers use amounts up to 0.5g [ConsOC2]; Covers use in a one car garage (34m³) under typical ventilation [ConsOC10]; covers use in room size of 34m³[ConsOC11]; for each use event, covers exposure up to 0.02hr/event[ConsOC14];

RMM

No specific RMMs identified beyond those OCs stated

PC4_n:Anti-freeze and de-icing products--Pouring into radiator

OC

Unless otherwise stated, covers concentrations up to 10% [ConsOC1]; covers use up to 365 days/year[ConsOC3]; covers use up to 1 time/on day of use[ConsOC4]; covers skin contact area up to 428.00 cm² [ConsOC5]; for each use event, covers use amounts up to 2000g [ConsOC2]; Covers use in a one car garage (34m³) under typical ventilation [ConsOC10]; covers use in room size of 34m³[ConsOC11]; for each use event, covers exposure up to 0.17hr/event[ConsOC14];

RMM

No specific RMMs identified beyond those OCs stated

PC4_n:Anti-freeze and de-icing products--Lock de-icer

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OC

Unless otherwise stated, covers concentrations up to 50% [ConsOC1]; covers use up to 365 days/year [ConsOC3]; covers use up to 1 time/on day of use [ConsOC4]; covers skin contact area up to 214.40 cm² [ConsOC5]; for each use event, covers use amounts up to 4g [ConsOC2]; Covers use in a one car garage (34m³) under typical ventilation [ConsOC10]; covers use in room size of 34m³ [ConsOC11]; for each use event, covers exposure up to 0.25hr/event [ConsOC14];

RMM

No specific RMMs identified beyond those OCs stated

PC8_n: Biocidal products (excipient use only for solvent products)--Laundry and dish washing products

OC

Unless otherwise stated, covers concentrations up to 5% [ConsOC1]; covers use up to 365 days/year [ConsOC3]; covers use up to 1 time/on day of use [ConsOC4]; covers skin contact area up to 857.50 cm² [ConsOC5]; for each use event, covers use amounts up to 15g [ConsOC2]; covers use under typical household ventilation [ConsOC8]; covers use in room size of 20m³ [ConsOC11]; for each use event, covers exposure up to 0.50hr/event [ConsOC14];

RMM

No specific RMMs identified beyond those OCs stated

PC8_n: Biocidal products (excipient use only for solvent products)--Cleaners, liquids (all purpose cleaners, sanitary products, floor cleaners, glass cleaners, carpet cleaners, metal cleaners)

OC

Unless otherwise stated, covers concentrations up to 5% [ConsOC1]; covers use up to 128 days/year [ConsOC3]; covers use up to 1 time/on day of use [ConsOC4]; covers skin contact area up to 857.50 cm² [ConsOC5]; for each use event, covers use amounts up to 27g [ConsOC2]; covers use under typical household ventilation [ConsOC8]; covers use in room size of 20m³ [ConsOC11]; for each use event, covers exposure up to 0.33hr/event [ConsOC14];

RMM

No specific RMMs identified beyond those OCs stated

PC8_n: Biocidal products (excipient use only for solvent products)--Cleaners, trigger sprays (all purpose cleaners, sanitary products, glass cleaners)

OC

Unless otherwise stated, covers concentrations up to 15% [ConsOC1]; covers use up to 128 days/year [ConsOC3]; covers use up to 1 time/on day of use [ConsOC4]; covers skin contact area up to 428.00 cm² [ConsOC5]; for each use event, covers use amounts up to 35g [ConsOC2]; covers use under typical household ventilation [ConsOC8]; covers use in room size of 20m³ [ConsOC11]; for each use event, covers exposure up to 0.17hr/event [ConsOC14];

RMM

No specific RMMs identified beyond those OCs stated

PC9a:Coatings and paints, fillers putties, thinners--Waterborne latex wall paint

OC

Unless otherwise stated, covers concentrations up to 1.5% [ConsOC1]; covers use up to 4 days/year [ConsOC3]; covers use up to 1 time/on day of use [ConsOC4]; covers skin contact area up to 428.75 cm² [ConsOC5]; for each use event, covers use amounts up to 2760g [ConsOC2]; covers use under typical household ventilation [ConsOC8]; covers use in room size of 20m³ [ConsOC11]; for each use event, covers exposure up to 2.20hr/event [ConsOC14];

RMM

No specific RMMs identified beyond those OCs stated

PC9a:Coatings and paints, fillers putties, thinners--Solvent rich, high solid, water borne paint

OC

Unless otherwise stated, covers concentrations up to 27.5% [ConsOC1]; covers use up to 6 days/year [ConsOC3]; covers use up to 1 time/on day of use [ConsOC4]; covers skin contact area up to 428.75 cm² [ConsOC5]; for each use event, covers use amounts up to 744g [ConsOC2]; covers use under typical household ventilation [ConsOC8]; covers use in room size of 20m³ [ConsOC11]; for each use event, covers exposure up to 2.20hr/event [ConsOC14];

RMM

No specific RMMs identified beyond those OCs stated

PC9a:Coatings and paints, fillers putties, thinners--Aerosol spray can

OC

Unless otherwise stated, covers concentrations up to 50% [ConsOC1]; covers use up to 2 days/year [ConsOC3]; covers use up to 1 time/on day of use [ConsOC4]; for each use event, covers use amounts up to 215g [ConsOC2]; Covers use in a one car garage (34m³) under typical ventilation [ConsOC10]; covers use in room size of 34m³ [ConsOC11]; for each use event, covers exposure up to 0.33hr/event [ConsOC14];

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RMM

No specific RMMs identified beyond those OCs stated

PC9a:Coatings and paints, fillers putties, thinners--Removers (paint-, glue-, wall paper-, sealant-remover)

OC

Unless otherwise stated, covers concentrations up to 50% [ConsOC1]; covers use up to 3 days/year[ConsOC3]; covers use up to 1 time/on day of use[ConsOC4]; covers skin contact area up to 857.50 cm² [ConsOC5]; for each use event, covers use amounts up to 491g [ConsOC2]; covers use under typical household ventilation [ConsOC8]; covers use in room size of 20m³[ConsOC11]; for each use event, covers exposure up to 2.00hr/event[ConsOC14];

RMM

No specific RMMs identified beyond those OCs stated

PC9b:Fillers, putties, plasters, modelling clay--Fillers and putty

OC

Unless otherwise stated, covers concentrations up to 2% [ConsOC1]; covers use up to 12 days/year[ConsOC3]; covers use up to 1 time/on day of use[ConsOC4]; covers skin contact area up to 35.73 cm² [ConsOC5]; for each use event, covers use amounts up to 85g [ConsOC2]; covers use under typical household ventilation [ConsOC8]; covers use in room size of 20m³[ConsOC11]; for each use event, covers exposure up to 4.00hr/event[ConsOC14];

RMM

No specific RMMs identified beyond those OCs stated

PC9b: Fillers, putties, plasters, modelling clay--Plasters and floor equalizers

OC

Unless otherwise stated, covers concentrations up to 2% [ConsOC1]; covers use up to 12 days/year[ConsOC3]; covers use up to 1 time/on day of use[ConsOC4]; covers skin contact area up to 857.50 cm² [ConsOC5]; for each use event, covers use amounts up to 13800g [ConsOC2]; covers use under typical household ventilation [ConsOC8]; covers use in room size of 20m³[ConsOC11]; for each use event, covers exposure up to 2.00hr/event[ConsOC14];

RMM

No specific RMMs identified beyond those OCs stated

PC9b: Fillers, putties, plasters, modelling clay--Modelling clay

OC

Unless otherwise stated, covers concentrations up to 1% [ConsOC1]; covers use up to 365 days/year[ConsOC3]; covers use up to 1 time/on day of use[ConsOC4]; covers skin contact area up to 254.40 cm² [ConsOC5]; for each use event, assumes swallowed amount of 1g [ConsOC13];

RMM

No specific RMMs identified beyond those OCs stated

PC9c:Finger paints --Finger paints

OC

Unless otherwise stated, covers concentrations up to 50% [ConsOC1]; covers use up to 365 days/year [ConsOC3]; covers use up to 1 time/on day of use[ConsOC4]; covers skin contact area up to 254.40 cm² [ConsOC5]; for each use event, assumes swallowed amount of 1.35g [ConsOC13];

RMM

No specific RMMs identified beyond those OCs stated

PC15_n: Non-metal surface treatment products--Waterborne latex wall paint

OC

Unless otherwise stated, covers concentrations up to 1.5% [ConsOC1]; covers use up to 4 days/year[ConsOC3]; covers use up to 1 time/on day of use[ConsOC4]; covers skin contact area up to 428.75 cm² [ConsOC5]; for each use event, covers use amounts up to 2760g [ConsOC2]; covers use under typical household ventilation [ConsOC8]; covers use in room size of 20m³[ConsOC11]; for each use event, covers exposure up to 2.20hr/event[ConsOC14];

RMM

No specific RMMs identified beyond those OCs stated

PC15_n: Non-metal surface treatment products--Solvent rich, high solid, water borne paint

OC

Unless otherwise stated, covers concentrations up to 27.5% [ConsOC1]; covers use up to 6 days/year[ConsOC3]; covers use up to 1 time/on day of use[ConsOC4]; covers skin contact area up to 428.75 cm² [ConsOC5]; for each use event, covers use amounts up to 744g [ConsOC2]; covers use under typical household ventilation [ConsOC8]; covers use in room size of 20m³[ConsOC11]; for each use event, covers exposure up to 2.20hr/event[ConsOC14];

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PC15_n: Non-metal surface treatment products--Aerosol spray can

OC

Unless otherwise stated, covers concentrations up to 50% [ConsOC1]; covers use up to 2 days/year[ConsOC3]; covers use up to 1 time/on day of use[ConsOC4]; for each use event, covers use amounts up to 215g [ConsOC2]; Covers use in a one car garage (34m³) under typical ventilation [ConsOC10]; covers use in room size of 34m³[ConsOC11]; for each use event, covers exposure up to 0.33hr/event[ConsOC14];

RMM

No specific RMMs identified beyond those OCs stated

PC15_n: Non-metal surface treatment products--Removers (paint-, glue-, wall paper-, sealant-remover)

OC

Unless otherwise stated, covers concentrations up to 50% [ConsOC1]; covers use up to 3 days/year[ConsOC3]; covers use up to 1 time/on day of use[ConsOC4]; covers skin contact area up to 857.50 cm² [ConsOC5]; for each use event, covers use amounts up to 491g [ConsOC2]; covers use under typical household ventilation [ConsOC8]; covers use in room size of 20m³[ConsOC11]; for each use event, covers exposure up to 2.00hr/event[ConsOC14];

RMM

No specific RMMs identified beyond those OCs stated

PC18_n: Ink and toners--Inks and toners

OC

Unless otherwise stated, covers concentrations up to 10% [ConsOC1]; covers use up to 365 days/year[ConsOC3]; covers use up to 1 time/on day of use[ConsOC4]; covers skin contact area up to 71.40 cm² [ConsOC5]; for each use event, covers use amounts up to 40g [ConsOC2]; covers use under typical household ventilation [ConsOC8]; covers use in room size of 20m³[ConsOC11]; for each use event, covers exposure up to 2.20hr/event[ConsOC14];

RMM

No specific RMMs identified beyond those OCs stated

PC23_n: Leather tanning, dye, finishing, impregnation and care products--Polishes, wax / cream (floor, furniture, shoes)

OC

Unless otherwise stated, covers concentrations up to 50% [ConsOC1]; covers use up to 29 days/year[ConsOC3]; covers use up to 1 time/on day of use[ConsOC4]; covers skin contact area up to 430.00 cm² [ConsOC5]; for each use event, covers use amounts up to 56g [ConsOC2]; covers use under typical household ventilation [ConsOC8]; covers use in room size of 20m³[ConsOC11]; for each use event, covers exposure up to 1.23hr/event[ConsOC14];

RMM

No specific RMMs identified beyond those OCs stated

PC23_n: Leather tanning, dye, finishing, impregnation and care products--Polishes, spray (furniture, shoes)

OC

Unless otherwise stated, covers concentrations up to 50% [ConsOC1]; covers use up to 8 days/year[ConsOC3]; covers use up to 1 time/on day of use[ConsOC4]; covers skin contact area up to 430.00 cm² [ConsOC5]; for each use event, covers use amounts up to 56g [ConsOC2]; covers use under typical household ventilation [ConsOC8]; covers use in room size of 20m³[ConsOC11]; for each use event, covers exposure up to 0.33hr/event[ConsOC14];

RMM

No specific RMMs identified beyond those OCs stated

PC24: Lubricants, greases, and release products—Liquids

OC

Unless otherwise stated, covers concentrations up to 100% [ConsOC1]; covers use up to 4 days/year[ConsOC3]; covers use up to 1 time/on day of use[ConsOC4]; covers skin contact area up to 468.00 cm² [ConsOC5]; for each use event, covers use amounts up to 2200g [ConsOC2]; Covers use in a one car garage (34m³) under typical ventilation [ConsOC10]; covers use in room size of 34m³[ConsOC11]; for each use event, covers exposure up to 0.17hr/event[ConsOC14];

RMM

No specific RMMs identified beyond those OCs stated

PC24: Lubricants, greases, and release products—Pastes

OC

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Unless otherwise stated, covers concentrations up to 20% [ConsOC1]; covers use up to 10 days/year[ConsOC3]; covers use up to 1 time/on day of use[ConsOC4]; covers skin contact area up to 468.00 cm² [ConsOC5]; for each use event, covers use amounts up to 34g [ConsOC2];

RMM

No specific RMMs identified beyond those OCs stated

PC24: Lubricants, greases, and release products—Sprays

OC

Unless otherwise stated, covers concentrations up to 50% [ConsOC1]; covers use up to 6 days/year[ConsOC3]; covers use up to 1 time/on day of use[ConsOC4]; covers skin contact area up to 428.75 cm² [ConsOC5]; for each use event, covers use amounts up to 73g [ConsOC2]; covers use under typical household ventilation [ConsOC8]; covers use in room size of 20m³[ConsOC11]; for each use event, covers exposure up to 0.17hr/event[ConsOC14];

RMM

No specific RMMs identified beyond those OCs stated

PC31:Polishes and wax blends--Polishes, wax / cream (floor, furniture, shoes)

OC

Unless otherwise stated, covers concentrations up to 50% [ConsOC1]; covers use up to 29 days/year[ConsOC3]; covers use up to 1 time/on day of use[ConsOC4]; covers skin contact area up to 430.00 cm² [ConsOC5]; for each use event, covers use amounts up to 142g [ConsOC2]; covers use under typical household ventilation [ConsOC8]; covers use in room size of 20m³[ConsOC11]; for each use event, covers exposure up to 1.23hr/event[ConsOC14];

RMM

No specific RMMs identified beyond those OCs stated

PC31:Polishes and wax blends--Polishes, spray (furniture, shoes)

OC

Unless otherwise stated, covers concentrations up to 50% [ConsOC1]; covers use up to 8 days/year[ConsOC3]; covers use up to 1 time/on day of use[ConsOC4]; covers skin contact area up to 430.00 cm² [ConsOC5]; for each use event, covers use amounts up to 35g [ConsOC2]; covers use under typical household ventilation [ConsOC8]; covers use in room size of 20m³[ConsOC11]; for each use event, covers exposure up to 0.33hr/event[ConsOC14];

RMM

No specific RMMs identified beyond those OCs stated

PC34_n: Textile dyes, finishing and impregnating products—

OC

Unless otherwise stated, covers concentrations up to 10% [ConsOC1]; covers use up to 365 days/year[ConsOC3]; covers use up to 1 time/on day of use[ConsOC4]; covers skin contact area up to 857.50 cm² [ConsOC5]; for each use event, covers use amounts up to 115g [ConsOC2]; covers use under typical household ventilation [ConsOC8]; covers use in room size of 20m³[ConsOC11]; for each use event, covers exposure up to 1.00hr/event[ConsOC14];

RMM

No specific RMMs identified beyond those OCs stated

Section 2.2 Control of environmental exposure

Product characteristics:

Substance is complex UVCB [PrC3]. Predominantly hydrophobic [PrC4a].

Amounts used

Maximum daily site tonnage (kg/day): 0.0070

Frequency and duration of use

Emission days (days/year): 365

Environmental factors not influenced by risk management

Local freshwater dilution factor: 10

Local marine water dilution factor: 100

Other given operational conditions affecting environmental exposure

Release fraction to air from process (initial release prior to RMM): 0.99

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Release fraction to wastewater from process (initial release prior to RMM): 0.01
Release fraction to soil from process (initial release prior to RMM): 0.005

Conditions and measures related to municipal sewage treatment plant

Estimated substance removal from wastewater via domestic sewage treatment (%): 94.6
Maximum allowable site tonnage (M_{Safe}) based on release following total wastewater treatment removal (kg/day): 2.0
Assumed domestic sewage treatment plant flow (m^3/day): 2000

Conditions and measures related to external treatment of waste for disposal

External treatment and disposal of waste should comply with applicable local and/or national regulations [ETW3]

Conditions and measures related to external recovery of waste

External recovery and recycling of waste should comply with applicable local and/or national regulations [ERW1]

Section 3 Exposure estimation

Health

The ECETOC TRA tool has been used to estimate consumer exposures, consistent with the content of ECETOC Report #107 and the Chapter R15 of the IR&CSA TGD. Where exposure determinants differ to these sources, then they are indicated.

Environment

The Hydrocarbon Block Method has been used to calculate environmental exposure with the Petrorisk model [EE2].

Section 4 Guidance to check compliance with the Exposure Scenario

Health

Predicted exposures are not expected to exceed the DN(M)EL when the Risk Management Measures/Operational Conditions outlined in Section 2 are implemented. [G22]
Where other Risk Management Measures/Operational Conditions are adopted, then users should ensure that risks are managed to at least equivalent levels. [G23]

Environment

Guidance is based on assumed operating conditions which may not be applicable to all sites; thus, scaling may be necessary to define appropriate site-specific risk management measures [DSU1] Further details on scaling and control technologies are provided in factsheet (<http://cefic.org/en/reach-for-industries-libraries.html>) [DSU4]

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Section 1 Exposure scenario title

Title:

Use in Cleaning Agents (industrial use as a component of cleaning products)

Sector of use:

SU3: Industrial uses: Uses of substances as such or in mixtures at industrial sites

Subsequent service life relevant for that use:

Under nitrogen atmosphere no time limit

Contributing Environmental Release Categories [ERC]:

ERC4: Industrial use of processing aids in processes and products, not becoming part of articles
Specific Environmental Release Category: ESVOG 4.4a.v1

Contributing Process Categories [PROC]:

PROC2: Use in closed, continuous process with occasional controlled exposure
PROC3: Use in closed batch process (synthesis or formulation)
PROC4: Use in batch and other process (synthesis) where opportunity for exposure arises
PROC7: Industrial spraying
PROC8a: Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non-dedicated facilities
PROC8b: Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities
PROC10: Roller application or brushing of adhesive and other coating
PROC13: Treatment of articles by dipping and pouring

Scope of processes and activities covered by the Exposure Scenario:

Covers the use as a component of cleaning products including transfers from storage, pouring/unloading from drums or containers. Exposures during mixing/diluting in the preparatory phase and cleaning activities (including spraying, brushing, dipping, wiping, automated and by hand), related equipment cleaning and maintenance.

Section 2 Operational conditions and risk management measures

Section 2.1 Control of worker exposure

Operational conditions of use

Physical form of product and vapour pressure:

Liquid, vapour pressure < 0.5 kPa at STP [OC3]

Concentration of substance in product:

Covers percentage substance in the product up to 100 % (unless stated differently) [G13]

Frequency and duration of use/exposure:

Covers daily exposures up to 8 hours (unless stated differently) [G2]

Other operational conditions affecting exposure:

Assumes use at not more than 20 °C above ambient temperature, unless stated differently [G15]. Assumes a good basic standard of occupational hygiene has been implemented [G1]

Contributing scenarios and risk management measures of worker exposure

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Automated process with (semi) closed systems [CS93]. Use in contained systems [CS38] PROC2:

No specific measures identified [E118]

Application of cleaning products in closed systems [CS101] PROC2:

No specific measures identified

Automated process with (semi) closed systems [CS93]. Drum/batch transfers [CS8] PROC3:

No specific measures identified [E118]

Use in contained batch processes [CS37] PROC4:

No specific measures identified [E118]

Cleaning with high pressure washers [CS44] PROC7:

Provide enhanced mechanical ventilation by mechanical means [E48]. Avoid carrying out operation for more than 1 hour [OC11] Wear a respirator conforming to EN 140 with Type A filter or better [PPE22]

Bulk transfers [CS14] PROC8a:

Ensure material transfers are under containment or extract ventilation [E66]

Filling/preparation of equipment from drums or containers [CS45] PROC8b:

Provide No specific measures identified [E118]

Cleaning with low-pressure washers [CS42] PROC10:

Provide enhanced mechanical ventilation by mechanical means [E48].

Manual [CS34] surfaces [CS48] cleaning [CS47] PROC10:

Provide enhanced mechanical ventilation by mechanical means [E48].

Degreasing small objects in cleaning station [CS41] PROC13:

Provide extract ventilation to points where emissions occur [E54]

Section 2.2 Control of environmental exposure

Product characteristics:

Substance is complex UVCB [PrC3]. Predominantly hydrophobic [PrC4a].

Amounts used

Maximum daily site tonnage (kg/day): 5000

Frequency and duration of use

Emission days (days/year): 20

Environmental factors not influenced by risk management

Local freshwater dilution factor: 10

Local marine water dilution factor: 100

Other given operational conditions affecting environmental exposure

Release fraction to air from process (initial release prior to RMM): 1.0

Release fraction to wastewater from process (initial release prior to RMM): 0.000006

Release fraction to soil from process (initial release prior to RMM): 0

Technical onsite conditions and measures to reduce or limit discharges, air emissions and releases to soil

Risk from environmental exposure is driven by freshwater [TCR1a]. Prevent discharge of undissolved substance to, or recover from, onsite wastewater [TCR14]. No wastewater treatment required [TCR6].

Treat air emission to provide a typical removal efficiency of (%): 70

Treat onsite wastewater (prior to receiving water discharge) to provide the required removal efficiency of >=(%): 0

If discharging to domestic sewage treatment plant, provide the required onsite wastewater removal efficiency of >=(%): 0

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Organisation measures to prevent/limit release from site

Do not apply industrial sludge to natural soils [OMS2]. Sludge should be incinerated, contained or reclaimed [OMS3].

Conditions and measures related to municipal sewage treatment plant

Estimated substance removal from wastewater via domestic sewage treatment (%): 94.6

Total efficiency of removal from wastewater after onsite and offsite (domestic treatment plant) RMMs (%): 94.6

Maximum allowable site tonnage (M_{Safe}) based on release following total wastewater treatment removal (kg/day): 1200000

Assumed domestic sewage treatment plant flow (m^3/day): 2000

Conditions and measures related to external treatment of waste for disposal

External treatment and disposal of waste should comply with applicable local and/or national regulations [ETW3]

Conditions and measures related to external recovery of waste

External recovery and recycling of waste should comply with applicable local and/or national regulations [ERW1]

Section 3 Exposure estimation

Health

The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated.

Environment

The Hydrocarbon Block Method has been used to calculate environmental exposure with the Petrorisk model [EE2].

Section 4 Guidance to check compliance with the Exposure Scenario

Health

Predicted exposures are not expected to exceed the DN(M)EL when the Risk Management Measures/Operational Conditions outlined in Section 2 are implemented [G22].

Where other Risk Management Measures/Operational Conditions are adopted, then users should ensure that risks are managed to at least equivalent levels [G23].

Environment

Guidance is based on assumed operating conditions which may not be applicable to all sites; thus, scaling may be necessary to define appropriate site-specific risk management measures [DSU1]. Required removal efficiency for wastewater can be achieved using onsite/offsite technologies, either alone or in combination [DSU2]. Required removal efficiency for air can be achieved using onsite technologies, either alone or in combination [DSU3]. Further details on scaling and control technologies are provided in SpERC factsheet (<http://cefic.org/en/reach-for-industries-libraries.html>).

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Section 1 Exposure scenario title

Title:

Use in Cleaning Agents

Sector of use:

SU22: Professional uses: Public domain (administration, education, entertainment, services, craftsmen)

Subsequent service life relevant for that use:

Under nitrogen atmosphere no time limit

Contributing Environmental Release Categories [ERC]:

ERC8a: Wide dispersive indoor use of processing aids in open systems

ERC8d: Wide dispersive outdoor use of processing aids in open systems

Specific Environmental Release Category: 8.4b.v1

Contributing Process Categories [PROC]:

PROC1: Use in closed process, no likelihood of exposure

PROC2: Use in closed, continuous process with occasional controlled exposure

PROC3: Use in closed batch process (synthesis or formulation)

PROC4: Use in batch and other process (synthesis) where opportunity for exposure arises

PROC8a: Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non-dedicated facilities

PROC8b: Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities

PROC10: Roller application or brushing of adhesive and other coating

PROC11: Non industrial spraying

PROC13: Treatment of articles by dipping and pouring

Scope of processes and activities covered by the Exposure Scenario:

Covers the use as a component of cleaning products including pouring/unloading from drums or containers; and exposures during mixing/diluting in the preparatory phase and cleaning activities (including spraying, brushing, dipping, wiping automated and by hand)

Section 2 Operational conditions and risk management measures

Section 2.1 Control of worker exposure

Operational conditions of use

Physical form of product and vapour pressure:

Liquid, vapour pressure < 0.5 kPa at STP [OC3]

Concentration of substance in product:

Covers percentage substance in the product up to 100 % (unless stated differently) [G13]

Frequency and duration of use/exposure:

Covers daily exposures up to 8 hours (unless stated differently) [G2]

Other operational conditions affecting exposure:

Assumes use at not more than 20 °C above ambient temperature, unless stated differently [G15]. Assumes a good basic standard of occupational hygiene has been implemented [G1]

Contributing scenarios and risk management measures of worker exposure

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Material storage [CS67] PROC1:

No other specific measures identified [E120]

Automated process with (semi) closed system [CS93] Use in contained system [CS38] PROC2:

No other specific measures identified [E120]

Automated process with (semi) closed system [CS93] Drum/batch transfers [CS8] Used in contained systems [CS38] PROC3:

No other specific measures identified [E120]

Semi Automated process (e.g.: Semi automatic application of floor care and maintenance products) [CS76] PROC4:

Provide enhanced mechanical ventilation by mechanical means [E48]

Application of cleaning products in closed systems [CS101] Outdoor [OC9] PROC4:

Ensure operation is undertaken outdoors [E69]

Cleaning of medical devices [CS74] PROC4:

Provide extract ventilation to points where emissions occur [E54]

Filling / preparation of equipment from drums or containers. [CS45] PROC8a:

Ensure operation is undertaken outdoors [E69] Avoid carrying out operation for more than 1 hour [OC11]

Filling / preparation of equipment from drums or containers. [CS45] PROC8b:

Provide enhanced mechanical ventilation by mechanical means [E48]

Cleaning with low-pressure washers [CS42] Rolling, Brushing [CS51] no spraying [CS60] PROC10:

Provide enhanced mechanical ventilation by mechanical means [E48] Limit the substance content in the product to 5% [OC17]

Manual [CS34] Surfaces [CS48] Cleaning [CS47] Spraying [CS10] PROC10:

Ensure doors and windows are opened [E72] Limit the substance content in the product to 25% [OC18]

Ad hoc manual application via trigger sprays, dipping, etc. [CS27] Rolling, Brushing [CS51] PROC10:

Provide extract ventilation to points where emissions occur [E54] Limit the substance content in the product to 25% [OC18]

OR

Provide extract ventilation to points where emissions occur [E54] Wear a respirator conforming to EN140 with Type A filter or better [PPE22].

Cleaning with high-pressure washers [CS44] Spraying [CS10] Indoor [OC8] PROC11:

Provide enhanced mechanical ventilation by mechanical means [E48] Limit the substance content in the product to 1% [OC16]

Cleaning with high-pressure washers [CS44] Spraying [CS10] Outdoor [OC9] PROC11:

Ensure operation is undertaken outdoors [E69] Limit the substance content in the product to 1% [OC16] Avoid carrying out operation for more than 4 hours [OC12]

OR

Ensure operation is undertaken outdoors [E69] Limit the substance content in the product to 4% [OC17] Wear a respirator conforming to EN140 with Type A filter or better [PPE22].

Manual [CS34] Surfaces [CS48] Cleaning [CS47] Dipping, immersion and pouring [CS4] PROC13:

Provide enhanced mechanical ventilation by mechanical means [E48]

Section 2.2 Control of environmental exposure

Product characteristics:

Substance is complex UVCB [PrC3]. Predominantly hydrophobic [PrC4a].

Amounts used

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Maximum daily site tonnage (kg/day): 0.019

Frequency and duration of use

Emission days (days/year): 365

Environmental factors not influenced by risk management

Local freshwater dilution factor: 10

Local marine water dilution factor: 100

Other given operational conditions affecting environmental exposure

Release fraction to air from process (initial release prior to RMM): 0.02

Release fraction to wastewater from process (initial release prior to RMM): 0.000001

Release fraction to soil from process (initial release prior to RMM): 0

Technical onsite conditions and measures to reduce or limit discharges, air emissions and releases to soil

Risk from environmental exposure is driven by freshwater [TCR1a]. No wastewater treatment required [TCR6].

Treat air emission to provide a typical removal efficiency of (%): 0

Treat onsite wastewater (prior to receiving water discharge) to provide the required removal efficiency of >=(%): 0

If discharging to domestic sewage treatment plant, provide the required onsite wastewater removal efficiency of >=(%): 0

Organisation measures to prevent/limit release from site

Do not apply industrial sludge to natural soils [OMS2]. Sludge should be incinerated, contained or reclaimed [OMS3].

Conditions and measures related to municipal sewage treatment plant

Estimated substance removal from wastewater via domestic sewage treatment (%): 94.6

Total efficiency of removal from wastewater after onsite and offsite (domestic treatment plant) RMMs (%): 94.6

Maximum allowable site tonnage (M_{Safe}) based on release following total wastewater treatment removal (kg/day): 5.4

Assumed domestic sewage treatment plant flow (m^3/day): 2000

Conditions and measures related to external treatment of waste for disposal

External treatment and disposal of waste should comply with applicable local and/or national regulations [ETW3]

Conditions and measures related to external recovery of waste

External recovery and recycling of waste should comply with applicable local and/or national regulations [ERW1]

Section 3 Exposure estimation

Health

The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated.

Environment

The Hydrocarbon Block Method has been used to calculate environmental exposure with the Petrorisk model [EE2].

Section 4 Guidance to check compliance with the Exposure Scenario

Health

Predicted exposures are not expected to exceed the DN(M)EL when the Risk Management Measures/Operational Conditions outlined in Section 2 are implemented [G22].

Where other Risk Management Measures/Operational Conditions are adopted, then users should ensure that risks are managed to at least equivalent levels [G23].

Environment

Guidance is based on assumed operating conditions which may not be applicable to all sites; thus, scaling may be necessary to define appropriate site-specific risk management measures [DSU1]. Required removal efficiency for

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wastewater can be achieved using onsite/offsite technologies, either alone or in combination [DSU2]. Required removal efficiency for air can be achieved using onsite technologies, either alone or in combination [DSU3]. Further details on scaling and control technologies are provided in SpERC factsheet (<http://cefic.org/en/reach-for-industries-libraries.html>).

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Section 1 Exposure scenario title

Title:

Use in Cleaning Agents

Sector of use:

SU21: Consumer uses: Private households (= general public = consumers)

Subsequent service life relevant for that use:

Under nitrogen atmosphere no time limit

Contributing Environmental Release Categories [ERC]:

ERC8a: Wide dispersive indoor use of processing aids in open systems.
ERC8d: Wide dispersive outdoor use of processing aids in open systems
Specific Environmental Release Category: ESVOC 8.4c.v1

Contributing Product Category [PC]:

PC3: Air care products
PC4: Anti-Freeze and de-icing products
PC8: Biocidal products (e.g. disinfectants, pest control)
PC9a: Coatings and paints, thinners, paint removers
PC9b: Fillers, putties, plasters, modelling clay
PC9c: Finger paints
PC24: Lubricants, greases, release products
PC35: Washing and cleaning products (including solvent based products)
PC38: Welding and soldering products, flux products

Scope of processes and activities covered by the Exposure Scenario:

Covers general exposures to consumers arising from the use of household products sold as washing and cleaning products, aerosols, coatings, deicers, lubricants and air care products.

Section 2 Operational conditions and risk management measures

Section 2.1 Control of consumer exposure

Operational conditions of use

Physical form of product and vapour pressure:

Liquid, vapour pressure < 0.5 kPa

Concentration of substance in product:

Unless otherwise stated, covers concentrations up to 100% [ConsOC1]

Amounts used:

Unless otherwise stated, covers use amounts up to 13800g [ConsOC2]; covers skin contact area up to 857.5cm² [ConsOC5]

Frequency and duration of use/exposure:

Unless otherwise stated, covers use frequency up to 4 times per day [ConsOC4]; covers exposure up to 8 hours per event [ConsOC14]

Other operational conditions affecting exposure:

Unless otherwise stated assumes use at ambient temperatures [ConsOC15]; assumes use in a 20 m³ room [ConsOC11]; assumes use with typical ventilation [ConsOC8]

Contributing scenarios and risk management measures of consumer exposure

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PC3:Air care products—Air care, instant action (aerosol sprays)

OC

Unless otherwise stated, covers concentrations up to 50% [ConsOC1]; covers use up to 365 days/year [ConsOC3]; covers use up to 4 times day of use[ConsOC4]; for each use event, covers use amounts up to 0.1g [ConsOC2]; covers use under typical household ventilation [ConsOC8]; covers use in room size of 20m³[ConsOC11]; for each use event, covers exposure up to 0.25hr/event[ConsOC14];

RMM

No specific RMMs identified beyond those OCs stated

PC3:Air care products—Air care, instant action (aerosol sprays)-pesticidal- excipient only

OC

Unless otherwise stated, covers concentrations up to 50% [ConsOC1]; covers use up to 365 days/year [ConsOC3]; covers use up to 4 times day of use[ConsOC4]; for each use event, covers use amounts up to 5g [ConsOC2]; covers use under typical household ventilation [ConsOC8]; covers use in room size of 20m³[ConsOC11]; for each use event, covers exposure up to 0.25hr/event[ConsOC14];

RMM

No specific RMMs identified beyond those OCs stated

PC3:Air care products—Air care, continuous action (solid and liquid)

OC

Unless otherwise stated, covers concentrations up to 10% [ConsOC1]; covers use up to 365 days/year [ConsOC3]; covers use up to 1 time/on day of use[ConsOC4]; covers skin contact area up to 35.70 cm² [ConsOC5] for each use event, covers use amounts up to 0.48g [ConsOC2]; covers use under typical household ventilation [ConsOC8]; covers use in room size of 20m³[ConsOC11]; for each use event, covers exposure up to 8.00hr/event[ConsOC14];

RMM

No specific RMMs identified beyond those OCs stated

PC3:Air care products—Air care, continuous action (solid and liquid)-pesticidal- excipient only

OC

Unless otherwise stated, covers concentrations up to 50% [ConsOC1]; covers use up to 365 days/year [ConsOC3]; covers use up to 1 time/on day of use[ConsOC4]; covers skin contact area up to 35.70 cm² [ConsOC5] for each use event, covers use amounts up to 0.48g [ConsOC2]; covers use under typical household ventilation [ConsOC8]; covers use in room size of 20m³[ConsOC11]; for each use event, covers exposure up to 8.00hr/event[ConsOC14];

RMM

No specific RMMs identified beyond those OCs stated

PC4_n:Anti-freeze and de-icing products--Washing car window

OC

Unless otherwise stated, covers concentrations up to 1% [ConsOC1]; covers use up to 365 days/year[ConsOC3]; covers use up to 1 time/on day of use[ConsOC4]; for each use event, covers use amounts up to 0.5g [ConsOC2]; Covers use in a one car garage (34m³) under typical ventilation [ConsOC10]; covers use in room size of 34m³[ConsOC11]; for each use event, covers exposure up to 0.02hr/event[ConsOC14];

RMM

No specific RMMs identified beyond those OCs stated

PC4_n:Anti-freeze and de-icing products--Pouring into radiator

OC

Unless otherwise stated, covers concentrations up to 10% [ConsOC1]; covers use up to 365 days/year[ConsOC3]; covers use up to 1 time/on day of use[ConsOC4]; covers skin contact area up to 428.00 cm² [ConsOC5]; for each use event, covers use amounts up to 2000g [ConsOC2]; Covers use in a one car garage (34m³) under typical ventilation [ConsOC10]; covers use in room size of 34m³[ConsOC11]; for each use event, covers exposure up to 0.17hr/event[ConsOC14];

RMM

No specific RMMs identified beyond those OCs stated

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PC4_n: Anti-freeze and de-icing products--Lock de-icer

OC

Unless otherwise stated, covers concentrations up to 30% [ConsOC1]; covers use up to 365 days/year [ConsOC3]; covers use up to 1 time/on day of use [ConsOC4]; covers skin contact area up to 214.40 cm² [ConsOC5]; for each use event, covers use amounts up to 4g [ConsOC2]; Covers use in a one car garage (34m³) under typical ventilation [ConsOC10]; covers use in room size of 34m³ [ConsOC11]; for each use event, covers exposure up to 0.25hr/event [ConsOC14];

RMM

No specific RMMs identified beyond those OCs stated

PC8_n: Biocidal products (excipient use only for solvent products)--Laundry and dish washing products

OC

Unless otherwise stated, covers concentrations up to 5% [ConsOC1]; covers use up to 365 days/year [ConsOC3]; covers use up to 1 time/on day of use [ConsOC4]; covers skin contact area up to 857.50 cm² [ConsOC5]; for each use event, covers use amounts up to 15g [ConsOC2]; covers use under typical household ventilation [ConsOC8]; covers use in room size of 20m³ [ConsOC11]; for each use event, covers exposure up to 0.50hr/event [ConsOC14];

RMM

No specific RMMs identified beyond those OCs stated

PC8_n: Biocidal products (excipient use only for solvent products)--Cleaners, liquids (all purpose cleaners, sanitary products, floor cleaners, glass cleaners, carpet cleaners, metal cleaners)

OC

Unless otherwise stated, covers concentrations up to 5% [ConsOC1]; covers use up to 128 days/year [ConsOC3]; covers use up to 1 time/on day of use [ConsOC4]; covers skin contact area up to 857.50 cm² [ConsOC5]; for each use event, covers use amounts up to 27g [ConsOC2]; covers use under typical household ventilation [ConsOC8]; covers use in room size of 20m³ [ConsOC11]; for each use event, covers exposure up to 0.33hr/event [ConsOC14];

RMM

No specific RMMs identified beyond those OCs stated

PC8_n: Biocidal products (excipient use only for solvent products)--Cleaners, trigger sprays (all purpose cleaners, sanitary products, glass cleaners)

OC

Unless otherwise stated, covers concentrations up to 15% [ConsOC1]; covers use up to 128 days/year [ConsOC3]; covers use up to 1 time/on day of use [ConsOC4]; covers skin contact area up to 428.00 cm² [ConsOC5]; for each use event, covers use amounts up to 35g [ConsOC2]; covers use under typical household ventilation [ConsOC8]; covers use in room size of 20m³ [ConsOC11]; for each use event, covers exposure up to 0.17hr/event [ConsOC14];

RMM

No specific RMMs identified beyond those OCs stated

PC9a: Coatings and paints, fillers putties, thinners--Waterborne latex wall paint

OC

Unless otherwise stated, covers concentrations up to 1.5% [ConsOC1]; covers use up to 4 days/year [ConsOC3]; covers use up to 1 time/on day of use [ConsOC4]; covers skin contact area up to 428.75 cm² [ConsOC5]; for each use event, covers use amounts up to 2760g [ConsOC2]; covers use under typical household ventilation [ConsOC8]; covers use in room size of 20m³ [ConsOC11]; for each use event, covers exposure up to 2.20hr/event [ConsOC14];

RMM

No specific RMMs identified beyond those OCs stated

PC9a: Coatings and paints, fillers putties, thinners--Solvent rich, high solid, water borne paint

OC

Unless otherwise stated, covers concentrations up to 27.5% [ConsOC1]; covers use up to 6 days/year [ConsOC3]; covers use up to 1 time/on day of use [ConsOC4]; covers skin contact area up to 428.75 cm² [ConsOC5]; for each use event, covers use amounts up to 744g [ConsOC2]; covers use under typical household ventilation [ConsOC8]; covers use in room size of 20m³ [ConsOC11]; for each use event, covers exposure up to 2.20hr/event [ConsOC14];

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RMM

No specific RMMs identified beyond those OCs stated

PC9a:Coatings and paints, fillers putties, thinners--Aerosol spray can

OC

Unless otherwise stated, covers concentrations up to 50% [ConsOC1]; covers use up to 2 days/year[ConsOC3]; covers use up to 1 time/on day of use[ConsOC4]; for each use event, covers use amounts up to 215g [ConsOC2]; Covers use in a one car garage (34m³) under typical ventilation [ConsOC10]; covers use in room size of 34m³[ConsOC11]; for each use event, covers exposure up to 0.33hr/event[ConsOC14];

RMM

No specific RMMs identified beyond those OCs stated

PC9a:Coatings and paints, fillers putties, thinners--Removers (paint-, glue-, wall paper-, sealant-remover)

OC

Unless otherwise stated, covers concentrations up to 50% [ConsOC1]; covers use up to 3 days/year[ConsOC3]; covers use up to 1 time/on day of use[ConsOC4]; covers skin contact area up to 857.50 cm² [ConsOC5]; for each use event, covers use amounts up to 491g [ConsOC2]; covers use under typical household ventilation [ConsOC8]; covers use in room size of 20m³[ConsOC11]; for each use event, covers exposure up to 2.00hr/event[ConsOC14];

RMM

No specific RMMs identified beyond those OCs stated

PC9b:Fillers, putties, plasters, modelling clay--Fillers and putty

OC

Unless otherwise stated, covers concentrations up to 2% [ConsOC1]; covers use up to 12 days/year[ConsOC3]; covers use up to 1 time/on day of use[ConsOC4]; covers skin contact area up to 35.73 cm² [ConsOC5]; for each use event, covers use amounts up to 85g [ConsOC2]; covers use under typical household ventilation [ConsOC8]; covers use in room size of 20m³[ConsOC11]; for each use event, covers exposure up to 4.00hr/event[ConsOC14];

RMM

No specific RMMs identified beyond those OCs stated

PC9b:Fillers, putties, plasters, modelling clay--Plasters and floor equalizers

OC

Unless otherwise stated, covers concentrations up to 2% [ConsOC1]; covers use up to 12 days/year[ConsOC3]; covers use up to 1 time/on day of use[ConsOC4]; covers skin contact area up to 857.50 cm² [ConsOC5]; for each use event, covers use amounts up to 13800g [ConsOC2]; covers use under typical household ventilation [ConsOC8]; covers use in room size of 20m³[ConsOC11]; for each use event, covers exposure up to 2.00hr/event[ConsOC14];

RMM

No specific RMMs identified beyond those OCs stated

PC9b:Fillers, putties, plasters, modelling clay--Modelling clay

OC

Unless otherwise stated, covers concentrations up to 1% [ConsOC1]; covers use up to 365 days/year[ConsOC3]; covers use up to 1 time/on day of use[ConsOC4]; covers skin contact area up to 254.40 cm² [ConsOC5]; for each use event, assumes swallowed amount of 1.g [ConsOC13];

RMM

No specific RMMs identified beyond those OCs stated

PC9c:Finger paints --Finger paints

OC

Unless otherwise stated, covers concentrations up to 2% [ConsOC1]; covers use up to 365 days/year[ConsOC3]; covers use up to 1 time/on day of use[ConsOC4]; covers skin contact area up to 254.40 cm² [ConsOC5]; for each use event, assumes swallowed amount of 1.35g [ConsOC13];

RMM

No specific RMMs identified beyond those OCs stated

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PC24: Lubricants, greases, and release products—Liquids

OC

Unless otherwise stated, covers concentrations up to 100% [ConsOC1]; covers use up to 4 days/year[ConsOC3]; covers use up to 1 time/on day of use[ConsOC4]; covers skin contact area up to 468.00 cm² [ConsOC5]; for each use event, covers use amounts up to 2200g [ConsOC2]; Covers use in a one car garage (34m³) under typical ventilation [ConsOC10]; covers use in room size of 34m³[ConsOC11]; for each use event, covers exposure up to 0.17hr/event[ConsOC14];

RMM

No specific RMMs identified beyond those OCs stated

PC24: Lubricants, greases, and release products—Pastes

OC

Unless otherwise stated, covers concentrations up to % [ConsOC1]; covers use up to 10 days/year[ConsOC3]; covers use up to 1 time/on day of use[ConsOC4]; covers skin contact area up to 468.00 cm² [ConsOC5]; for each use event, covers use amounts up to 34g [ConsOC2];

RMM

No specific RMMs identified beyond those OCs stated

PC24: Lubricants, greases, and release products—Sprays

OC

Unless otherwise stated, covers concentrations up to 50% [ConsOC1]; covers use up to 6 days/year[ConsOC3]; covers use up to 1 time/on day of use[ConsOC4]; covers skin contact area up to 428.75 cm² [ConsOC5]; for each use event, covers use amounts up to 73g [ConsOC2]; covers use under typical household ventilation [ConsOC8]; covers use in room size of 20m³[ConsOC11]; for each use event, covers exposure up to 0.17hr/event[ConsOC14];

RMM

No specific RMMs identified beyond those OCs stated

PC35: Washing and cleaning products (including solvent based products)—Laundry and dish washing products

OC

Unless otherwise stated, covers concentrations up to 5% [ConsOC1]; covers use up to 6 days/year[ConsOC3]; covers use up to 1 time/on day of use[ConsOC4]; covers skin contact area up to 857.50 cm² [ConsOC5]; for each use event, covers use amounts up to 15g [ConsOC2]; covers use under typical household ventilation [ConsOC8]; covers use in room size of 20m³[ConsOC11]; for each use event, covers exposure up to 0.50hr/event[ConsOC14];

RMM

No specific RMMs identified beyond those OCs stated

PC35: Washing and cleaning products (including solvent based products)—Cleaners, liquids (all purpose cleaners, sanitary products, floor cleaners, glass cleaners, metal cleaners)

OC

Unless otherwise stated, covers concentrations up to 5% [ConsOC1]; covers use up to 128 days/year[ConsOC3]; covers use up to 1 time/on day of use[ConsOC4]; covers skin contact area up to 857.50 cm² [ConsOC5]; for each use event, covers use amounts up to 27g [ConsOC2]; covers use under typical household ventilation [ConsOC8]; covers use in room size of 20m³[ConsOC11]; for each use event, covers exposure up to 0.33hr/event[ConsOC14];

RMM

No specific RMMs identified beyond those OCs stated

PC35: Washing and cleaning products (including solvent based products)—Cleaners, trigger sprays (all purpose cleaners, sanitary products, glass cleaners)

OC

Unless otherwise stated, covers concentrations up to 15% [ConsOC1]; covers use up to 128 days/year [ConsOC3]; covers use up to 1 time/on day of use[ConsOC4]; covers skin contact area up to 428.00 cm² [ConsOC5]; for each use event, covers use amounts up to 35g [ConsOC2]; covers use under typical household ventilation [ConsOC8]; covers use in room size of 20m³[ConsOC11]; for each use event, covers exposure up to 0.17hr/event[ConsOC14];

RMM

No specific RMMs identified beyond those OCs stated

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PC38_n: Welding and soldering products, flux products—NOTE, assessment not in TRA OC

Unless otherwise stated, covers concentrations up to 20% [ConsOC1]; covers use up to 365 days/year [ConsOC3]; covers use up to 1 time/on day of use [ConsOC4]; for each use event, covers use amounts up to 12g [ConsOC2]; covers use under typical household ventilation [ConsOC8]; covers use in room size of 20m³ [ConsOC11]; for each use event, covers exposure up to 1.00hr/event [ConsOC14];

RMM

No specific RMMs identified beyond those OCs stated

Section 2.2 Control of environmental exposure

Product characteristics:

Substance is complex UVCB [PrC3]. Predominantly hydrophobic [PrC4a].

Amounts used

Maximum daily site tonnage (kg/day): 0.000017

Frequency and duration of use

Emission days (days/year): 365

Environmental factors not influenced by risk management

Local freshwater dilution factor: 10

Local marine water dilution factor: 100

Other given operational conditions affecting environmental exposure

Release fraction to air from process (initial release prior to RMM): 0.95

Release fraction to wastewater from process (initial release prior to RMM): 0.025

Release fraction to soil from process (initial release prior to RMM): 0.025

Conditions and measures related to municipal sewage treatment plant

Estimated substance removal from wastewater via domestic sewage treatment (%): 94.6

Maximum allowable site tonnage (M_{Safe}) based on release following total wastewater treatment removal (kg/day): 0.0047

Assumed domestic sewage treatment plant flow (m³/day): 2000

Conditions and measures related to external treatment of waste for disposal

External treatment and disposal of waste should comply with applicable local and/or national regulations [ETW3]

Conditions and measures related to external recovery of waste

External recovery and recycling of waste should comply with applicable local and/or national regulations [ERW1]

Section 3 Exposure estimation

Health

The ECETOC TRA tool has been used to estimate consumer exposures, consistent with the content of ECETOC Report #107 and the Chapter R15 of the IR&CSA TGD. Where exposure determinants differ to these sources, then they are indicated.

Environment

The Hydrocarbon Block Method has been used to calculate environmental exposure with the Petrorisk model [EE2].

Section 4 Guidance to check compliance with the Exposure Scenario

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Health

Predicted exposures are not expected to exceed the DN(M)EL when the Risk Management Measures/Operational Conditions outlined in Section 2 are implemented. [G22]

Where other Risk Management Measures/Operational Conditions are adopted, then users should ensure that risks are managed to at least equivalent levels. [G23]

Environment

Guidance is based on assumed operating conditions which may not be applicable to all sites; thus, scaling may be necessary to define appropriate site-specific risk management measures [DSU1].

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Substance: Hydrocarbons, C10, aromatics, >1% naphthalene
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Section 1 Exposure scenario title

Title:

Use in Oil and Gas field drilling and production operations

Sector of use:

SU3: Industrial uses: Uses of substances as such or in mixtures at industrial sites

Subsequent service life relevant for that use:

Under nitrogen atmosphere no time limit

Contributing Environmental Release Categories [ERC]:

ERC4: Industrial use of processing aids in processes and products, not becoming part of articles
Specific Environmental Release Category: not applicable

Contributing Process Categories [PROC]:

PROC1: Use in closed process, no likelihood of exposure
PROC2: Use in closed, continuous process with occasional controlled exposure
PROC3: Use in closed batch process (synthesis or formulation)
PROC4: Use in batch and other process (synthesis) where opportunity for exposure arises
PROC8a: Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non-dedicated facilities
PROC8b: Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities

Scope of processes and activities covered by the Exposure Scenario:

Oil field well drilling and production operations (including drilling muds and well cleaning) including material transfers, on-site formulation, well head operations, shaker room activities and related maintenance.

Section 2 Operational conditions and risk management measures

Section 2.1 Control of worker exposure

Operational conditions of use

Physical form of product and vapour pressure:

Liquid, vapour pressure < 0.5 kPa at STP [OC3]

Concentration of substance in product:

Covers percentage substance in the product up to 100 % (unless stated differently) [G13]

Frequency and duration of use/exposure:

Covers daily exposures up to 8 hours (unless stated differently) [G2]

Other operational conditions affecting exposure:

Assumes use at not more than 20 °C above ambient temperature, unless stated differently [G15]. Assumes a good basic standard of occupational hygiene has been implemented [G1]

Contributing scenarios and risk management measures of worker exposure

General exposures (closed systems) [CS15] PROC1:

No specific measures identified [E118]

Batch process [CS55] PROC1:

No specific measures identified [E118]

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Batch process [CS55] PROC2:

No specific measures identified [E118]

Treatment and disposal of filtered solids [CS121] PROC3:

Provide enhanced mechanical ventilation by mechanical means [E48].

Drilling mud (reformulation) [CS115] PROC3:

No specific measures identified [E118]

Process sampling [CS2] PROC3:

No specific measures identified [E118]

General exposures (open systems) [CS16] PROC4:

No specific measures identified [E118]

Drill floor operations [CS116] PROC4:

No specific measures identified [E118]

Operation of solids filtering equipment – vapour exposures [CS118] PROC4:

No specific measures identified [E118]

Pouring from small containers [CS9] PROC8a:

Provide enhanced mechanical ventilation by mechanical means [E48].

Equipment cleaning and maintenance [CS39] PROC8a:

Provide enhanced mechanical ventilation by mechanical means [E48].

Cleaning of solids filtering equipment [CS120] PROC8a:

Provide enhanced mechanical ventilation by mechanical means [E48].

Filling/preparation of equipment from drums or containers [CS45] PROC8b:

No specific measures identified [E118]

Bulk transfers [CS14] PROC8b:

No specific measures identified [E118]

Section 2.2 Control of environmental exposure

Product characteristics:

Substance is complex UVCB [PrC3]. Predominantly hydrophobic [PrC4a].

Amounts used

Maximum daily site tonnage (kg/day): not applicable (N/A)

Frequency and duration of use

Emission days (days/year): N/A

Environmental factors not influenced by risk management

Local marine water dilution factor: N/A

Other given operational conditions affecting environmental exposure

Release fraction to air from process (initial release prior to RMM): N/A

Release fraction to wastewater from process (initial release prior to RMM): N/A

Technical onsite conditions and measures to reduce or limit discharges, air emissions and releases to soil

-

Treat air emission to provide a typical removal efficiency of (%): N/A

Treat onsite wastewater (prior to receiving water discharge) to provide the required removal efficiency of >=(%): N/A

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If discharging to domestic sewage treatment plant, provide the required onsite wastewater removal efficiency of \geq (%): N/A

Organisation measures to prevent/limit release from site

Prevent environmental discharge consistent with regulatory requirements [OMS4].

Conditions and measures related to municipal sewage treatment plant

Total efficiency of removal from wastewater after onsite and offsite (domestic treatment plant) RMMs (%): N/A

Maximum allowable site tonnage (M_{Safe}) based on release following total wastewater treatment

removal (kg/day): N/A

Assumed domestic sewage treatment plant flow (m^3/day): N/A

Conditions and measures related to external treatment of waste for disposal

External treatment and disposal of waste should comply with applicable local and/or national regulations [ETW3]

Conditions and measures related to external recovery of waste

External recovery and recycling of waste should comply with applicable local and/or national regulations [ERW1]

Section 3 Exposure estimation

Health

The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated.

Environment

Quantitative exposure and risk assessment not possible due to lack of emissions to aquatic environment [EE7].

Qualitative approach used to conclude safe use [EE8]

Section 4 Guidance to check compliance with the Exposure Scenario

Health

Predicted exposures are not expected to exceed the DN(M)EL when the Risk Management Measures/Operational Conditions outlined in Section 2 are implemented [G22].

Where other Risk Management Measures/Operational Conditions are adopted, then users should ensure that risks are managed to at least equivalent levels [G23].

Environment

Discharge to aquatic environment is restricted by law and industry prohibits release*

*OSPAR Commission 2009. Discharges, Spills and Emissions from Offshore Oil and Gas Installations in 2007, including the assessment of data reported in 2006 and 2007.

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Section 1 Exposure scenario title

Title:

Use in Oil and Gas field drilling and production operations

Sector of use:

SU22: Professional uses: Public domain (administration, education, entertainment, services, craftsmen)

Subsequent service life relevant for that use:

Under nitrogen atmosphere no time limit

Contributing Environmental Release Categories [ERC]:

ERC4: Industrial use of processing aids in processes and products, not becoming part of articles
Specific Environmental Release Category: 4.5a.v1

Contributing Process Categories [PROC]:

- PROC1: Use in closed process, no likelihood of exposure
- PROC2: Use in closed, continuous process with occasional controlled exposure
- PROC3: Use in closed batch process (synthesis or formulation)
- PROC4: Use in batch and other process (synthesis) where opportunity for exposure arises
- PROC8a: Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non-dedicated facilities
- PROC8b: Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities

Scope of processes and activities covered by the Exposure Scenario:

Oil field well drilling operations (including drilling muds and well cleaning) including material transfers, on-site formulation, well head operations, shaker room activities and related maintenance.

Section 2 Operational conditions and risk management measures

Section 2.1 Control of worker exposure

Operational conditions of use

Physical form of product and vapour pressure:

Liquid, vapour pressure < 0.5 kPa at STP [OC3]

Concentration of substance in product:

Covers percentage substance in the product up to 100 % (unless stated differently) [G13]

Frequency and duration of use/exposure:

Covers daily exposures up to 8 hours (unless stated differently) [G2]

Other operational conditions affecting exposure:

Assumes use at not more than 20 °C above ambient temperature, unless stated differently [G15]. Assumes a good basic standard of occupational hygiene has been implemented [G1]

Contributing scenarios and risk management measures of worker exposure

General exposures (closed systems) [CS15] PROC1:

No other specific measures identified [E120]

Batch process [CS55] PROC2:

No other specific measures identified [E120]

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Drilling mud (re-)formulation [CS115] PROC3:

No other specific measures identified [E120]

Treatment and disposal of filtered solids [CS121] PROC3:

No other specific measures identified [E120]

Process sampling [CS2] PROC3:

No other specific measures identified [E120]

General exposures (open systems) [CS16] PROC4:

Provide enhanced mechanical ventilation by mechanical means [E48]

Drill floor operations [CS116] PROC4:

Provide enhanced mechanical ventilation by mechanical means [E48]

Operation of solids filtering equipment – vapour exposures [CS118] PROC4:

Provide enhanced mechanical ventilation by mechanical means [E48]

Pouring from small containers [CS9] PROC8a:

Provide enhanced mechanical ventilation by mechanical means [E48]

Cleaning of solids filtering equipment [CS120] PROC8a:

No other specific measures identified [E120]

Equipment cleaning and maintenance [CS39] PROC8a:

No other specific measures identified [E120]

Bulk transfers [CS14] PROC8b:

Provide enhanced mechanical ventilation by mechanical means [E48]

Filling / preparation of equipment from drums or containers. [CS45] PROC8b:

Provide enhanced mechanical ventilation by mechanical means [E48]

Section 2.2 Control of environmental exposure

Product characteristics:

Substance is complex UVCB [PrC3]. Predominantly hydrophobic [PrC4a].

Amounts used

Maximum daily site tonnage (kg/day): N/A

Frequency and duration of use

Emission days (days/year): N/A

Environmental factors not influenced by risk management

Local freshwater dilution factor: N/A

Local marine water dilution factor: N/A

Other given operational conditions affecting environmental exposure

Release fraction to air from process (initial release prior to RMM): N/A

Release fraction to wastewater from process (initial release prior to RMM): N/A

Release fraction to soil from process (initial release prior to RMM): N/A

Technical onsite conditions and measures to reduce or limit discharges, air emissions and releases to soil

Risk from environmental exposure is driven by freshwater [TCR1a]. No wastewater treatment required [TCR6].

Treat air emission to provide a typical removal efficiency of (%): N/A

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Treat onsite wastewater (prior to receiving water discharge) to provide the required removal efficiency of >=(%): N/A
If discharging to domestic sewage treatment plant, provide the required onsite wastewater removal efficiency of >=(%): N/A

Organisation measures to prevent/limit release from site

Do not apply industrial sludge to natural soils [OMS2]. Sludge should be incinerated, contained or reclaimed [OMS3].

Conditions and measures related to municipal sewage treatment plant

Estimated substance removal from wastewater via domestic sewage treatment (%):N/A

Total efficiency of removal from wastewater after onsite and offsite (domestic treatment plant) RMMs (%):N/A

Maximum allowable site tonnage (M_{Safe}) based on release following total wastewater treatment removal (kg/day): N/A

Assumed domestic sewage treatment plant flow (m^3/day): N/A

Conditions and measures related to external treatment of waste for disposal

External treatment and disposal of waste should comply with applicable local and/or national regulations [ETW3]

Conditions and measures related to external recovery of waste

External recovery and recycling of waste should comply with applicable local and/or national regulations [ERW1]

Section 3 Exposure estimation

Health

The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated.

Environment

The Hydrocarbon Block Method has been used to calculate environmental exposure with the Petrisk model [EE2].

Section 4 Guidance to check compliance with the Exposure Scenario

Health

Predicted exposures are not expected to exceed the DN(M)EL when the Risk Management Measures/Operational Conditions outlined in Section 2 are implemented [G22].

Where other Risk Management Measures/Operational Conditions are adopted, then users should ensure that risks are managed to at least equivalent levels [G23].

Environment

Guidance is based on assumed operating conditions which may not be applicable to all sites; thus, scaling may be necessary to define appropriate site-specific risk management measures [DSU1]. Required removal efficiency for wastewater can be achieved using onsite/offsite technologies, either alone or in combination [DSU2]. Required removal efficiency for air can be achieved using onsite technologies, either alone or in combination [DSU3]. Further details on scaling and control technologies are provided in SpERC factsheet (<http://cefic.org/en/reach-for-industries-libraries.html>).

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Section 1 Exposure scenario title

Title:

Lubricants

Sector of use:

SU3: Industrial uses: Uses of substances as such or in mixtures at industrial sites

Subsequent service life relevant for that use:

Under nitrogen atmosphere no time limit

Contributing Environmental Release Categories [ERC]:

ERC4: Industrial use of processing aids in processes and products, not becoming part of articles

ERC7: Industrial use of substances in closed systems

Specific Environmental Release Category: ESVOC 4.6a.v1

Contributing Process Categories [PROC]:

PROC1: Use in closed process, no likelihood of exposure

PROC2: Use in closed, continuous process with occasional controlled exposure

PROC3: Use in closed batch process (synthesis or formulation)

PROC4: Use in batch and other process (synthesis) where opportunity for exposure arises

PROC7: Industrial spraying

PROC8a: Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non-dedicated facilities

PROC8b: Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities

PROC9: Transfer of substance or preparation into small containers (dedicated filling line, including weighing)

PROC10: Roller application or brushing of adhesive and other coating

PROC13: Treatment of articles by dipping and pouring

PROC17: Lubrication at high energy conditions and in partly open process

PROC18: Greasing at high energy conditions

Scope of processes and activities covered by the Exposure Scenario:

Covers the use of formulated lubricants in closed and open systems including transfer operations, operation of machinery/engines and similar articles, reworking on reject articles, equipment maintenance and disposal of wastes.

Section 2 Operational conditions and risk management measures

Section 2.1 Control of worker exposure

Operational conditions of use

Physical form of product and vapour pressure:

Liquid, vapour pressure < 0.5 kPa at STP [OC3]

Concentration of substance in product:

Covers percentage substance in the product up to 100 % (unless stated differently) [G13]

Frequency and duration of use/exposure:

Covers daily exposures up to 8 hours (unless stated differently) [G2]

Other operational conditions affecting exposure:

Assumes use at not more than 20 °C above ambient temperature, unless stated differently [G15]. Assumes a good basic standard of occupational hygiene has been implemented [G1]

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Contributing scenarios and risk management measures of worker exposure

General exposures (closed systems) [CS15] PROC1, PROC2:

Handle substance within a closed system [E47]

Material storage [CS67] PROC1, PROC2:

Store substance within a closed system [E84] Transfer via enclosed lines [E52]

General exposures (closed systems) [CS15] PROC3:

Handle substance within a closed system [E47]

General exposures (open systems) [CS16] PROC4:

No specific measures identified [E118]

Spraying [CS10] PROC7:

Minimize exposure by partial enclosure of the operation or equipment and provide extract ventilation at openings [E60]

Filling/preparation of equipment from drums or containers [CS45] PROC8a:

Use drum pumps or carefully pour from container [E64]

Filling/preparation of equipment from drums or containers [CS45] PROC8b:

No specific measures identified [E118]

Maintenance of small items [CS18] PROC8a:

Provide enhanced mechanical ventilation by mechanical means [E48]. Avoid manual contact with wet work pieces [E17].

Maintenance (of larger plant items) and machine set up [CS77] PROC8b:

No specific measures identified [E118]

Maintenance (of larger plant items) and machine set up [CS77] Operation is carried out at elevated temperature (> than 20 °C above ambient temperature) [OC7] PROC8b:

Provide enhanced mechanical ventilation by mechanical means [E48]. Drain down and flush system prior to equipment break-in or maintenance [E55]

Bulk transfers [CS14] PROC8b:

No specific measures identified [E118]

Initial factory fill of equipment [CS75] PROC9:

No specific measures identified [E118]

Remanufacture of reject articles [CS19] PROC9:

No specific measures identified [E118]

Manual applications e.g. brushing, rolling [CS13] PROC10:

Provide enhanced mechanical ventilation by mechanical means [E48]

Treatment by dipping and pouring [CS35] PROC13:

Allow time for product to drain from workpiece [E121] Restrict area of openings to equipment [E68]

Operation and lubrication of high energy open equipment [CS17] PROC17:

Provide extract ventilation to points where emissions occur [E54] Restrict area of openings to equipment [E68]

Operation and lubrication of high energy open equipment [CS17] PROC18:

Provide extract ventilation to points where emissions occur [E54]

Section 2.2 Control of environmental exposure

Product characteristics:

Substance is complex UVCB [PrC3]. Predominantly hydrophobic [PrC4a].

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Amounts used

Maximum daily site tonnage (kg/day): 5000

Frequency and duration of use

Emission days (days/year): 20

Environmental factors not influenced by risk management

Local freshwater dilution factor: 10

Local marine water dilution factor: 100

Other given operational conditions affecting environmental exposure

Release fraction to air from process (initial release prior to RMM): 0.005

Release fraction to wastewater from process (initial release prior to RMM): 0.00003

Release fraction to soil from process (initial release prior to RMM): 0.001

Technical onsite conditions and measures to reduce or limit discharges, air emissions and releases to soil

Risk from environmental exposure is driven by freshwater sediment [TCR1b]. Prevent discharge of undissolved substance to, or recover from, onsite wastewater [TCR14]. No wastewater treatment required [TCR6].

Treat air emission to provide a typical removal efficiency of (%): 70

Treat onsite wastewater (prior to receiving water discharge) to provide the required removal efficiency of >=(%): 0

If discharging to domestic sewage treatment plant, provide the required onsite wastewater removal efficiency of >=(%): 0

Organisation measures to prevent/limit release from site

Do not apply industrial sludge to natural soils [OMS2]. Sludge should be incinerated, contained or reclaimed [OMS3].

Conditions and measures related to municipal sewage treatment plant

Estimated substance removal from wastewater via domestic sewage treatment (%): 94.6

Total efficiency of removal from wastewater after onsite and offsite (domestic treatment plant) RMMs (%): 94.6

Maximum allowable site tonnage (M_{Safe}) based on release following total wastewater treatment removal (kg/day): 890000

Assumed domestic sewage treatment plant flow (m^3/day): 2000

Conditions and measures related to external treatment of waste for disposal

External treatment and disposal of waste should comply with applicable local and/or national regulations [ETW3]

Conditions and measures related to external recovery of waste

External recovery and recycling of waste should comply with applicable local and/or national regulations [ERW1]

Section 3 Exposure estimation

Health

The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated.

Environment

The Hydrocarbon Block Method has been used to calculate environmental exposure with the Petrorisk model [EE2].

Section 4 Guidance to check compliance with the Exposure Scenario

Health

Predicted exposures are not expected to exceed the DN(M)EL when the Risk Management Measures/Operational Conditions outlined in Section 2 are implemented [G22].

Where other Risk Management Measures/Operational Conditions are adopted, then users should ensure that risks are managed to at least equivalent levels [G23].

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Environment

Guidance is based on assumed operating conditions which may not be applicable to all sites; thus, scaling may be necessary to define appropriate site-specific risk management measures [DSU1]. Required removal efficiency for wastewater can be achieved using onsite/offsite technologies, either alone or in combination [DSU2]. Required removal efficiency for air can be achieved using onsite technologies, either alone or in combination [DSU3]. Further details on scaling and control technologies are provided in SpERC factsheet (<http://cefic.org/en/reach-for-industries-libraries.html>).

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Section 1 Exposure scenario title

Title:

Lubricants (Low Release)

Sector of use:

SU22: Professional uses: Public domain (administration, education, entertainment, services, craftsmen)

Subsequent service life relevant for that use:

Under nitrogen atmosphere no time limit

Contributing Environmental Release Categories [ERC]:

ERC9a: Wide dispersive indoor use of substances in closed systems

ERC9b: Wide dispersive outdoor use of substances in closed systems

Specific Environmental Release Category: ESVOC 9.6b.v1

Contributing Process Categories [PROC]:

PROC1: Use in closed process, no likelihood of exposure

PROC2: Use in closed, continuous process with occasional controlled exposure

PROC3: Use in closed batch process (synthesis or formulation)

PROC4: Use in batch and other process (synthesis) where opportunity for exposure arises

PROC8a: Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non-dedicated facilities

PROC8b: Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities

PROC9: Transfer of substance or preparation into small containers (dedicated filling line, including weighing)

PROC13: Treatment of articles by dipping and pouring

PROC17: Lubrication at high energy conditions and in partly open process

PROC20: Heat and pressure transfer fluids in dispersive, professional use but closed systems

Scope of processes and activities covered by the Exposure Scenario:

Covers the use of formulated lubricants in closed or contained systems including transfer operations, operation of engines and similar articles, reworking on reject articles, equipment maintenance and disposal of waste oil.

Section 2 Operational conditions and risk management measures

Section 2.1 Control of worker exposure

Operational conditions of use

Physical form of product and vapour pressure:

Liquid, vapour pressure < 0.5 kPa at STP [OC3]

Concentration of substance in product:

Covers percentage substance in the product up to 100 % (unless stated differently) [G13]

Frequency and duration of use/exposure:

Covers daily exposures up to 8 hours (unless stated differently) [G2]

Other operational conditions affecting exposure:

Assumes use at not more than 20 °C above ambient temperature, unless stated differently [G15]. Assumes a good basic standard of occupational hygiene has been implemented [G1]

Contributing scenarios and risk management measures of worker exposure

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General exposures (closed systems) [CS15] PROC1:

Handle substance within a closed system [E47]

Material storage [CS67] PROC1:

Store substance within a closed system [E84]

General exposures (closed systems) [CS15] PROC2:

Handle substance within a closed system [E47]

Material storage [CS67] PROC2:

Store substance within a closed system [E84]

General exposures (closed systems) [CS15] PROC3:

Handle substance within a closed system [E47]

General exposures (open systems) [CS16] PROC4:

Provide a good standard of general ventilation. Natural ventilation is from doors, windows etc. Controlled ventilation means air is supplied or removed by a powered fan [E1]

Filling / preparation of equipment from drums or containers. [CS45] Non-dedicated facility [CS82] PROC8a:

Provide enhanced mechanical ventilation by mechanical means [E48]

Maintenance of small items [CS18] Operation is carried out at elevated temperature (>then 20°C above ambient temperature) [OC7] PROC8a:

Provide enhanced mechanical ventilation by mechanical means [E48] Avoid carrying out operation for more than 4 hours [OC12] Drain or remove substance from equipment prior to break-in or maintenance [E81]

Bulk transfers [CS14] PROC8b:

Provide enhanced mechanical ventilation by mechanical means [E48] Handle substance within a closed system [E47]

Filling / preparation of equipment from drums or containers. [CS45] Dedicated facility [CS81] PROC8b:

Use drum pumps or carefully pour from container [E64]

Maintenance (of larger plant items) and machine setup [CS77] PROC8b:

Provide enhanced mechanical ventilation by mechanical means [E48]

Maintenance (of larger plant items) and machine setup [CS77] Operation is carried out at elevated temperature (> then 20°C above ambient temperature) [OC7] PROC8b:

Avoid carrying out operation for more than 4 hours [OC12] Drain down system prior to equipment break-in or maintenance [E65]

Engine lubricant service [CS78] PROC9:

Provide enhanced mechanical ventilation by mechanical means [E48]

Manual applications e.g. brushing, rolling [CS13] PROC10:

Provide enhanced mechanical ventilation by mechanical means [E48]

OR

Wear a respirator conforming to EN140 with Type A/P2 filter or better [PPE29]

Spraying [CS10] PROC11:

Minimize exposure by partial enclosure of the operation equipment and provide extract ventilation [E60]

OR

Provide enhanced mechanical ventilation by mechanical means [E48] Avoid carrying out operation for more than 4 hours [OC12] Wear a respirator conforming to EN140 with Type A/P2 filter or better. [PPE29]

Treatment by dipping and pouring [CS35] PROC13:

Provide enhanced mechanical ventilation by mechanical means [E48] Allow time for product to drain from workpiece [E121]

Operation and lubrication of high energy open equipment [CS17] Indoor [OC8] PROC17:

Provide enhanced mechanical ventilation by mechanical means [E48] Restrict area of openings to equipment [E68]

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Operation and lubrication of high energy open equipment [CS17] Outdoor [OC9] PROC17:

Ensure operation is undertaken outdoors [E69] Limit the substance content in the product to 5% [OC17]

Operation and lubrication of high energy open equipment [CS17] PROC18:

Provide extract ventilation to points where emission occur [E54] Restrict area of openings to equipment [E68]

Operation of equipment containing engine oils and similar [CS26] PROC 20

No other specific measures identified [E120]

Section 2.2 Control of environmental exposure

Product characteristics:

Substance is complex UVCB [PrC3]. Predominantly hydrophobic [PrC4a].

Amounts used

Maximum daily site tonnage (kg/day): 0.068

Frequency and duration of use

Emission days (days/year): 365

Environmental factors not influenced by risk management

Local freshwater dilution factor: 10

Local marine water dilution factor: 100

Other given operational conditions affecting environmental exposure

Release fraction to air from process (initial release prior to RMM): 0.01

Release fraction to wastewater from process (initial release prior to RMM): 0.01

Release fraction to soil from process (initial release prior to RMM): 0.01

Technical onsite conditions and measures to reduce or limit discharges, air emissions and releases to soil

Risk from environmental exposure is driven by freshwater [TCR1a]. No wastewater treatment required [TCR6].

Treat air emission to provide a typical removal efficiency of (%): N/A

Treat onsite wastewater (prior to receiving water discharge) to provide the required removal efficiency of >=(%): 0

If discharging to domestic sewage treatment plant, provide the required onsite wastewater removal efficiency of >=(%): 0

Organisation measures to prevent/limit release from site

Do not apply industrial sludge to natural soils [OMS2]. Sludge should be incinerated, contained or reclaimed [OMS3].

Conditions and measures related to municipal sewage treatment plant

Estimated substance removal from wastewater via domestic sewage treatment (%): 94.6

Total efficiency of removal from wastewater after onsite and offsite (domestic treatment plant) RMMs (%): 94.6

Maximum allowable site tonnage (M_{Safe}) based on release following total wastewater treatment removal (kg/day): 19

Assumed domestic sewage treatment plant flow (m^3/day): 2000

Conditions and measures related to external treatment of waste for disposal

External treatment and disposal of waste should comply with applicable local and/or national regulations [ETW3]

Conditions and measures related to external recovery of waste

External recovery and recycling of waste should comply with applicable local and/or national regulations [ERW1]

Section 3 Exposure estimation

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Health

The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated.

Environment

The Hydrocarbon Block Method has been used to calculate environmental exposure with the Petrorisk model [EE2].

Section 4 Guidance to check compliance with the Exposure Scenario

Health

Predicted exposures are not expected to exceed the DN(M)EL when the Risk Management Measures/Operational Conditions outlined in Section 2 are implemented [G22].

Where other Risk Management Measures/Operational Conditions are adopted, then users should ensure that risks are managed to at least equivalent levels [G23].

Environment

Guidance is based on assumed operating conditions which may not be applicable to all sites; thus, scaling may be necessary to define appropriate site-specific risk management measures [DSU1]. Required removal efficiency for wastewater can be achieved using onsite/offsite technologies, either alone or in combination [DSU2]. Required removal efficiency for air can be achieved using onsite technologies, either alone or in combination [DSU3]. Further details on scaling and control technologies are provided in SpERC factsheet (<http://cefic.org/en/reach-for-industries-libraries.html>).

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Section 1 Exposure scenario title

Title:

Lubricant s (High Release)

Sector of use:

SU22: Professional uses: Public domain (administration, education, entertainment, services, craftsmen)

Subsequent service life relevant for that use:

Under nitrogen atmosphere no time limit

Contributing Environmental Release Categories [ERC]:

ERC8a: Wide dispersive indoor use of processing aids in open systems

ERC8d: Wide dispersive outdoor use of processing aids in open systems

Specific Environmental Release Category: ESVOC 8.6c.v1

Contributing Process Categories [PROC]:

PROC1: Use in closed process, no likelihood of exposure

PROC2: Use in closed, continuous process with occasional controlled exposure

PROC3: Use in closed batch process (synthesis or formulation)

PROC4: Use in batch and other process (synthesis) where opportunity for exposure arises

PROC8a: Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non-dedicated facilities

PROC8b: Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities

PROC9: Transfer of substance or preparation into small containers (dedicated filling line, including weighing)

PROC10: Roller application or brushing of adhesive and other coating

PROC11: Non industrial spraying

PROC13: Treatment of articles by dipping and pouring

PROC17: Lubrication at high energy conditions and in partly open process

PROC18: Greasing at high energy conditions

PROC20: Heat and pressure transfer fluids in dispersive, professional use but closed systems

Scope of processes and activities covered by the Exposure Scenario:

Covers the use of formulated lubricants in open systems including transfer operations, operation of engines and similar articles, reworking on reject articles, equipment maintenance and disposal of waste oil.

Section 2 Operational conditions and risk management measures

Section 2.1 Control of worker exposure

Operational conditions of use

Physical form of product and vapour pressure:

Liquid, vapour pressure < 0.5 kPa at STP [OC3]

Concentration of substance in product:

Covers percentage substance in the product up to 100 % (unless stated differently) [G13]

Frequency and duration of use/exposure:

Covers daily exposures up to 8 hours (unless stated differently) [G2]

Other operational conditions affecting exposure:

Assumes use at not more than 20 °C above ambient temperature, unless stated differently [G15]. Assumes a good basic standard of occupational hygiene has been implemented [G1]

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Contributing scenarios and risk management measures of worker exposure

General exposures (closed systems) [CS15] PROC1:

Handle substance within a closed system [E47]

Material storage [CS67] PROC1:

Store substance within a closed system [E84]

General exposures (closed systems) [CS15] PROC2:

Handle substance within a closed system [E47]

Material storage [CS67] PROC2:

Store substance within a closed system [E84]

General exposures (closed systems) [CS15] PROC3:

Handle substance within a closed system [E47]

General exposures (open systems) [CS16] PROC4:

Provide a good standard of general ventilation. Natural ventilation is from doors, windows etc. controlled ventilation means air is supplied or removed by a power fan. [E1]

Filling / preparation of equipment from drums or containers. [CS45] Non-dedicated facility [CS82] PROC8a:

Provide enhanced mechanical ventilation by mechanical means [E48]

Maintenance of small items [CS18] Operation is carried out at elevated temperature (>then 20°C above ambient temperature) [OC7] PROC8a:

Provide enhanced mechanical ventilation by mechanical means [E48] Avoid carrying out operation for more than 4 hours [OC12] Drain or remove substance from equipment prior to break-in or maintenance [E81]

Bulk transfers [CS14] PROC8b:

Provide enhanced mechanical ventilation by mechanical means [E48] Handle substance within a closed system [E47]

Filling / preparation of equipment from drums or containers. [CS45] Dedicated facility [CS81] PROC8b:

Use drum pumps or carefully pour from container [E64]

Maintenance (of larger plant items) and machine setup [CS77] PROC8b:

Provide enhanced mechanical ventilation by mechanical means [E48]

Maintenance (of larger plant items) and machine setup [CS77] Operation is carried out at elevated temperature (> then 20°C above ambient temperature) [OC7] PROC8b:

Avoid carrying out operation for more than 4 hours [OC12] Drain down system prior to equipment break-in or maintenance [E65]

Engine lubricant service [CS78] PROC9:

Provide enhanced mechanical ventilation by mechanical means [E48]

Manual applications e.g. brushing, rolling [CS13] PROC10:

Provide enhanced mechanical ventilation by mechanical means [E48]

OR

Wear a respirator conforming to EN140 with Type A/P2 filter or better [PPE29]

Spraying [CS10] PROC11:

Minimize exposure by partial enclosure of the operation or equipment and provide extract ventilation at openings [E60]

OR

Provide enhanced mechanical ventilation by mechanical means [E48] Avoid carrying out operation for more than 4 hours [OC12] Wear a respirator conforming to EN140 with Type A/P2 filter or better. [PPE29]

Treatment by dipping and pouring [CS35] PROC13:

Provide enhanced mechanical ventilation by mechanical means [E48] Allow time for product to drain from workpiece [E121]

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Operation and lubrication of high energy open equipment [CS17] Indoor [OC8] PROC17:

Provide enhanced mechanical ventilation by mechanical means [E48] Restrict area of openings to equipment [E68]

Operation and lubrication of high energy open equipment [CS17] Outdoor [OC9] PROC17:

Ensure operation is undertaken outdoors [E69] Limit the substance content in the product to 5% [OC17]

Operation and lubrication of high energy open equipment [CS17] PROC18:

Provide extract ventilation to points where emissions occur [E54] Restrict area of openings to equipment [E68]

Operation of equipment containing engine oils and similar [CS26] PROC 20

No other specific measures identified [E120]

Section 2.2 Control of environmental exposure

Product characteristics:

Substance is complex UVCB [PrC3]. Predominantly hydrophobic [PrC4a].

Amounts used

Maximum daily site tonnage (kg/day): 0.068

Frequency and duration of use

Emission days (days/year): 365

Environmental factors not influenced by risk management

Local freshwater dilution factor: 10

Local marine water dilution factor: 100

Other given operational conditions affecting environmental exposure

Release fraction to air from process (initial release prior to RMM): 0.15

Release fraction to wastewater from process (initial release prior to RMM): 0.05

Release fraction to soil from process (initial release prior to RMM): 0.05

Technical onsite conditions and measures to reduce or limit discharges, air emissions and releases to soil

Risk from environmental exposure is driven by freshwater [TCR1a]. No wastewater treatment required [TCR6].

Treat air emission to provide a typical removal efficiency of (%): N/A

Treat onsite wastewater (prior to receiving water discharge) to provide the required removal efficiency of >=(%): 0

If discharging to domestic sewage treatment plant, provide the required onsite wastewater removal efficiency of >=(%): 0

Organisation measures to prevent/limit release from site

Do not apply industrial sludge to natural soils [OMS2]. Sludge should be incinerated, contained or reclaimed [OMS3].

Conditions and measures related to municipal sewage treatment plant

Estimated substance removal from wastewater via domestic sewage treatment (%): 94.6

Total efficiency of removal from wastewater after onsite and offsite (domestic treatment plant) RMMs (%): 94.6

Maximum allowable site tonnage (M_{Safe}) based on release following total wastewater treatment removal (kg/day): 19

Assumed domestic sewage treatment plant flow (m^3/day): 2000

Conditions and measures related to external treatment of waste for disposal

External treatment and disposal of waste should comply with applicable local and/or national regulations [ETW3]

Conditions and measures related to external recovery of waste

External recovery and recycling of waste should comply with applicable local and/or national regulations [ERW1]

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Section 3 Exposure estimation

Health

The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated.

Environment

The Hydrocarbon Block Method has been used to calculate environmental exposure with the Petrorisk model [EE2].

Section 4 Guidance to check compliance with the Exposure Scenario

Health

Predicted exposures are not expected to exceed the DN(M)EL when the Risk Management Measures/Operational Conditions outlined in Section 2 are implemented [G22].

Where other Risk Management Measures/Operational Conditions are adopted, then users should ensure that risks are managed to at least equivalent levels [G23].

Environment

Guidance is based on assumed operating conditions which may not be applicable to all sites; thus, scaling may be necessary to define appropriate site-specific risk management measures [DSU1]. Required removal efficiency for wastewater can be achieved using onsite/offsite technologies, either alone or in combination [DSU2]. Required removal efficiency for air can be achieved using onsite technologies, either alone or in combination [DSU3]. Further details on scaling and control technologies are provided in SpERC factsheet (<http://cefic.org/en/reach-for-industries-libraries.html>).

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Section 1 Exposure scenario title

Title:

Lubricants Low Release

Sector of use:

SU21: Consumer uses: Private households (= general public = consumers)

Subsequent service life relevant for that use:

Under nitrogen atmosphere no time limit

Contributing Environmental Release Categories [ERC]:

ERC9a: Wide dispersive indoor use of substances in closed systems.

ERC9b: Wide dispersive outdoor use of substances in closed systems.

Specific Environmental Release Category: ESVOC 9.6d.v1

Contributing Product Category [PC]:

PC1: Adhesives, sealants

PC24: Lubricants, greases, release products

PC31: Polishes and wax blends

Scope of processes and activities covered by the Exposure Scenario:

Covers the consumer use of formulated lubricants in open systems including transfer operations, application, operation of engines and similar articles, equipment maintenance and disposal of waste oil.

Section 2 Operational conditions and risk management measures

Section 2.1 Control of consumer exposure

Operational conditions of use

Physical form of product and vapour pressure:

Liquid, vapour pressure <0.5 kPa

Concentration of substance in product:

Unless otherwise stated, covers concentrations up to 100% [ConsOC1]

Amounts used:

Unless otherwise stated, covers use amounts up to 6390g [ConsOC2]; covers skin contact area up to 468cm² [ConsOC5]

Frequency and duration of use/exposure:

Unless otherwise stated, covers use frequency up to 1 times per day [ConsOC4]; covers exposure up to 6 hours per event [ConsOC14]

Other operational conditions affecting exposure:

Unless otherwise stated assumes use at ambient temperatures [ConsOC15]; assumes use in a 20 m³ room [ConsOC11]; assumes use with typical ventilation [ConsOC8]

Contributing scenarios and risk management measures of consumer exposure

PC1:Adhesives, sealants--Glues, hobby use

OC

Unless otherwise stated, covers concentrations up to 30% [ConsOC1]; Unless otherwise stated , covers use frequency up to 365 days per year [ConsOC3] covers use up to 1 time/on day of use [ConsOC4]; covers skin contact area up to

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35.73 cm² [ConsOC5]; for each use event, covers use amounts up to 9g [ConsOC2]; covers use under typical household ventilation [ConsOC8]; covers use in room size of 20m³ [ConsOC11]; for each use event, covers exposure up to 4.00hr/event [ConsOC14];

RMM

No specific RMMs identified beyond those OCs stated

PC1:Adhesives, sealants--Glues DIY-use (carpet glue, tile glue, wood parquet glue)

OC

Unless otherwise stated, covers concentrations up to 30% [ConsOC1]; covers use up to 1 time/on day [ConsOC3]; covers skin contact area up to 110.00 cm² [ConsOC5]; for each use event, covers use amounts up to 6390g [ConsOC2]; covers use in room size of 20m³[ConsOC11]; for each use event, covers exposure up to 6.00hr/event[ConsOC14];

RMM

No specific RMMs identified beyond those OCs stated

PC1:Adhesives, sealants--Glue from spray

OC

Unless otherwise stated, covers concentrations up to 30% [ConsOC1]; covers use up to 6 days per year [ConsOC3]; covers use up to 1 time/on day of use[ConsOC4]; covers skin contact area up to 35.73 cm² [ConsOC5]; for each use event, covers use amounts up to 85.05g [ConsOC2]; covers use under typical household ventilation [ConsOC8]; covers use in room size of 20m³[ConsOC11]; for each use event, covers exposure up to 4.00hr/event[ConsOC14];

RMM

No specific RMMs identified beyond those OCs stated

PC1:Adhesives, sealants—Sealants

OC

Unless otherwise stated, covers concentrations up to 30% [ConsOC1]; covers use up to 365 days per year [ConsOC3]; covers use up to 1 time/on day of use[ConsOC4]; covers skin contact area up to 35.73 cm² [ConsOC5]; for each use event, covers use amounts up to 75g [ConsOC2]; covers use under typical household ventilation [ConsOC8]; covers use in room size of 20m³[ConsOC11]; for each use event, covers exposure up to 1.00hr/event[ConsOC14];

RMM

Avoid using at a product concentration greater than 25% [ConsRMM1]

Avoid using when windows closed [ConsRmm8]

PC24: Lubricants, greases, and release products—Liquids

OC

Unless otherwise stated, covers concentrations up to 100% [ConsOC1]; covers use up to 4 days/year [ConsOC3]; covers skin contact area up to 468.00 cm² [ConsOC5]; for each use event, covers use amounts up to 2200g [ConsOC2]; Covers use in a one car garage (34m³) under typical ventilation [ConsOC10]; covers use in room size of 34m³[ConsOC11]; for each use event, covers exposure up to 0.17hr/event[ConsOC14];

RMM

No specific RMMs identified beyond those OCs stated

PC24: Lubricants, greases, and release products—Pastes

OC

Unless otherwise stated, covers concentrations up to 20% [ConsOC1]; covers use up to 10 days per year [ConsOC3]; covers skin contact area up to 468.00 cm² [ConsOC5]; for each use event, covers use amounts up to 34g [ConsOC2]; Covers use in a one car garage (34m³) under typical ventilation [ConsOC10]; covers use in room size of 34m³[ConsOC11]; for each use event, covers exposure up to 4.00hr/event[ConsOC14];

RMM

No specific RMMs identified beyond those OCs stated

PC24: Lubricants, greases, and release products—Sprays

OC

Unless otherwise stated, covers concentrations up to 50% [ConsOC1]; covers use up to 6 days per year [ConsOC3]; covers use up to 1 time/on day of use[ConsOC4]; covers skin contact area up to 428.75 cm² [ConsOC5]; for each use event, covers use amounts up to 73g [ConsOC2]; covers use under typical household ventilation [ConsOC8]; covers use in room size of 20m³[ConsOC11]; for each use event, covers exposure up to 0.17hr/event[ConsOC14];

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RMM

No specific RMMs identified beyond those OCs stated

PC31: Polishes and wax blends—Polishes, wax/cream (floor, furniture, shoes)

OC

Unless otherwise stated, covers concentrations up to 50% [ConsOC1]; covers use up to 29 days per year [ConsOC3]; covers use up to 1 time/on day of use [ConsOC4]; covers skin contact area up to 430.00 cm² [ConsOC5]; for each use event, covers use amounts up to 142g [ConsOC2]; covers use under typical household ventilation [ConsOC8]; covers use in room size of 20m³ [ConsOC11]; for each use event, covers exposure up to 1.23hr/event [ConsOC14];

RMM

No specific RMMs identified beyond those OCs stated

PC31: Polishes and wax blends—Polishes, spray (furniture, shoes)

OC

Unless otherwise stated, covers concentrations up to 50% [ConsOC1]; covers use up to 8 days per year [ConsOC3]; covers use up to 1 time/on day of use [ConsOC4]; covers skin contact area up to 430.00 cm² [ConsOC5]; for each use event, covers use amounts up to 35g [ConsOC2]; covers use in room size of 20m³ [ConsOC11]; for each use event, covers exposure up to 0.33hr/event [ConsOC14];

RMM

No specific RMMs identified beyond those OCs stated

Section 2.2 Control of environmental exposure

Product characteristics:

Substance is complex UVCB [PrC3]. Predominantly hydrophobic [PrC4a].

Amounts used

Maximum daily site tonnage (kg/day): 0.068

Frequency and duration of use

Emission days (days/year): 365

Environmental factors not influenced by risk management

Local freshwater dilution factor: 10

Local marine water dilution factor: 100

Other given operational conditions affecting environmental exposure

Release fraction to air from process (initial release prior to RMM): 0.01

Release fraction to wastewater from process (initial release prior to RMM): 0.01

Release fraction to soil from process (initial release prior to RMM): 0.01

Conditions and measures related to municipal sewage treatment plant

Estimated substance removal from wastewater via domestic sewage treatment (%): 94.6

Maximum allowable site tonnage (M_{Safe}) based on release following total wastewater treatment removal (kg/day): 19

Assumed domestic sewage treatment plant flow (m³/day): 2000

Conditions and measures related to external treatment of waste for disposal

External treatment and disposal of waste should comply with applicable local and/or national regulations [ETW3]

Conditions and measures related to external recovery of waste

External recovery and recycling of waste should comply with applicable local and/or national regulations [ERW1]

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Section 3 Exposure estimation

Health

The ECETOC TRA tool has been used to estimate consumer exposures, consistent with the content of ECETOC Report #107 and the Chapter R15 of the IR&CSA TGD. Where exposure determinants differ to these sources, then they are indicated.

Environment

The Hydrocarbon Block Method has been used to calculate environmental exposure with the Petrorisk model [EE2].

Section 4 Guidance to check compliance with the Exposure Scenario

Health

Predicted exposures are not expected to exceed the DN(M)EL when the Risk Management Measures/Operational Conditions outlined in Section 2 are implemented. [G22]

Where other Risk Management Measures/Operational Conditions are adopted, then users should ensure that risks are managed to at least equivalent levels. [G23]

Environment

Guidance is based on assumed operating conditions which may not be applicable to all sites; thus, scaling may be necessary to define appropriate site-specific risk management measures [DSU1].

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Section 1 Exposure scenario title

Title:

Lubricants High Release

Sector of use:

SU21: Consumer uses: Private households (= general public = consumers)

Subsequent service life relevant for that use:

Under nitrogen atmosphere no time limit

Contributing Environmental Release Categories [ERC]:

ERC8a: Wide dispersive indoor use of processing aids in open systems.

ERC8d: Wide dispersive outdoor use of processing aids in open systems.

Specific Environmental Release Category: ESVOC 8.6e.v1

Contributing Product Category [PC]:

PC1: Adhesives, sealants

PC24: Lubricants, greases, release products

PC31: Polishes and wax blends

Scope of processes and activities covered by the Exposure Scenario:

Covers the consumer use of formulated lubricants in open systems including transfer operations, application, operation of engines and similar articles, equipment maintenance and disposal of waste oil.

Section 2 Operational conditions and risk management measures

Section 2.1 Control of consumer exposure

Operational conditions of use

Physical form of product and vapour pressure:

Liquid, vapour pressure < 0.5 kPa

Concentration of substance in product:

Unless otherwise stated, covers concentrations up to 100% [ConsOC1]

Amounts used:

Unless otherwise stated, covers use amounts up to 6390g [ConsOC2]; covers skin contact area up to 468cm² [ConsOC5]

Frequency and duration of use/exposure:

Unless otherwise stated, covers use frequency up to 1 times per day [ConsOC4]; covers exposure up to 6 hours per event [ConsOC14]

Other operational conditions affecting exposure:

Unless otherwise stated assumes use at ambient temperatures [ConsOC15]; assumes use in a 20 m³ room [ConsOC11]; assumes use with typical ventilation [ConsOC8]

Contributing scenarios and risk management measures of consumer exposure

PC1: Adhesives, sealants--Glues, hobby use
OC

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Unless otherwise stated, covers concentrations up to 30% [ConsOC1]; Unless otherwise stated, covers use frequency up to 365 days per year [ConsOC3] covers use up to 1 time/on day of use [ConsOC4]; covers skin contact area up to 35.73 cm² [ConsOC5]; for each use event, covers use amounts up to 9g [ConsOC2]; covers use under typical household ventilation [ConsOC8]; covers use in room size of 20m³ [ConsOC11]; for each use event, covers exposure up to 4.00hr/event [ConsOC14];

RMM

No specific RMMs identified beyond those OCs stated

PC1:Adhesives, sealants--Glues DIY-use (carpet glue, tile glue, wood parquet glue)

OC

Unless otherwise stated, covers concentrations up to 30% [ConsOC1]; covers use up to 1 days/year [ConsOC3]; covers up to 1 time/on day of use [ConsOC4] covers skin contact area up to 110.00 cm² [ConsOC5]; for each use event, covers use amounts up to 6390g [ConsOC2]; covers use in room size of 20m³[ConsOC11]; for each use event, covers exposure up to 6.00hr/event[ConsOC14];

RMM

No specific RMMs identified beyond those OCs stated

PC1:Adhesives, sealants--Glue from spray

OC

Unless otherwise stated, covers concentrations up to 30% [ConsOC1]; covers use up to 6 days per year [ConsOC3]; covers use up to 1 time/on day of use[ConsOC4]; covers skin contact area up to 35.73 cm² [ConsOC5]; for each use event, covers use amounts up to 85.05g [ConsOC2]; covers use under typical household ventilation [ConsOC8]; covers use in room size of 20m³[ConsOC11]; for each use event, covers exposure up to 4.00hr/event[ConsOC14];

RMM

No specific RMMs identified beyond those OCs stated

PC1:Adhesives, sealants—Sealants

OC

Unless otherwise stated, covers concentrations up to 30% [ConsOC1]; covers use up to 365 days per year [ConsOC3] covers use up to 1 time/on day of use[ConsOC4]; covers skin contact area up to 35.73 cm² [ConsOC5]; for each use event, covers use amounts up to 75g [ConsOC2]; covers use under typical household ventilation [ConsOC8]; covers use in room size of 20m³[ConsOC11]; for each use event, covers exposure up to 1.00hr/event[ConsOC14];

RMM

Avoid using at a product concentration greater than 30% [ConsRMM1]

Avoid using when windows closed [ConsRmm8]

PC24: Lubricants, greases, and release products—Liquids

OC

Unless otherwise stated, covers concentrations up to 100% [ConsOC1]; covers use up to 365 days per year [ConsOC3]; covers skin contact area up to 468.00 cm² [ConsOC5]; for each use event, covers use amounts up to 2200g [ConsOC2]; Covers use in a one car garage (34m³) under typical ventilation [ConsOC10]; covers use in room size of 34m³[ConsOC11]; for each use event, covers exposure up to 0.17hr/event[ConsOC14];

RMM

No specific RMMs identified beyond those OCs stated

PC24: Lubricants, greases, and release products—Pastes

OC

Unless otherwise stated, covers concentrations up to 20% [ConsOC1]; covers use up to 10 days per year [ConsOC3]; covers skin contact area up to 468.00 cm² [ConsOC5]; for each use event, covers use amounts up to 34g [ConsOC2]; Covers use in a one car garage (34m³) [ConsOC2]

RMM

No specific RMMs identified beyond those OCs stated

PC24: Lubricants, greases, and release products—Sprays

OC

Unless otherwise stated, covers concentrations up to 50% [ConsOC1]; covers use up to 6 days per year [ConsOC3]; covers use up to 1 time/on day of use[ConsOC4]; covers skin contact area up to 428.75 cm² [ConsOC5]; for each use

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event, covers use amounts up to 73g [ConsOC2]; covers use under typical household ventilation [ConsOC8]; covers use in room size of 20m³[ConsOC11]; for each use event, covers exposure up to 0.17hr/event[ConsOC14];

RMM

No specific RMMs identified beyond those OCs stated

PC31: Polishes and wax blends—Polishes, wax/cream (floor, furniture, shoes)

OC

Unless otherwise stated, covers concentrations up to 50% [ConsOC1]; covers use up to 29 days per year [ConsOC3]; covers use up to 1 time/on day of use[ConsOC4]; covers skin contact area up to 430.00 cm² [ConsOC5]; for each use event, covers use amounts up to 142g [ConsOC2]; covers use under typical household ventilation [ConsOC8]; covers use in room size of 20m³[ConsOC11]; for each use event, covers exposure up to 1.23hr/event[ConsOC14];

RMM

No specific RMMs identified beyond those OCs stated

PC31: Polishes and wax blends—Polishes, spray (furniture, shoes)

OC

Unless otherwise stated, covers concentrations up to 50% [ConsOC1]; covers use up to 8 days per year [ConsOC3]; covers use up to 1 time/on day of use[ConsOC4]; covers skin contact area up to 430.00 cm² [ConsOC5]; for each use event, covers use amounts up to 35g [ConsOC2]; covers use under typical household ventilation [ConsOC8]; covers use in room size of 20m³[ConsOC11]; for each use event, covers exposure up to 0.33hr/event[ConsOC14];

RMM

No specific RMMs identified beyond those OCs stated

Section 2.2 Control of environmental exposure

Product characteristics:

Substance is complex UVCB [PrC3]. Predominantly hydrophobic [PrC4a].

Amounts used

Maximum daily site tonnage (kg/day): 0.068

Frequency and duration of use

Emission days (days/year): 365

Environmental factors not influenced by risk management

Local freshwater dilution factor: 10

Local marine water dilution factor: 100

Other given operational conditions affecting environmental exposure

Release fraction to air from process (initial release prior to RMM): 0.15

Release fraction to wastewater from process (initial release prior to RMM): 0.05

Release fraction to soil from process (initial release prior to RMM): 0.05

Conditions and measures related to municipal sewage treatment plant

Estimated substance removal from wastewater via domestic sewage treatment (%): 94.6

Maximum allowable site tonnage (M_{Safe}) based on release following total wastewater treatment removal (kg/day): 19

Assumed domestic sewage treatment plant flow (m³/day): 2000

Conditions and measures related to external treatment of waste for disposal

External treatment and disposal of waste should comply with applicable local and/or national regulations [ETW3]

Conditions and measures related to external recovery of waste

External recovery and recycling of waste should comply with applicable local and/or national regulations [ERW1]

Section 3 Exposure estimation

Health

The ECETOC TRA tool has been used to estimate consumer exposures, consistent with the content of ECETOC Report #107 and the Chapter R15 of the IR&CSA TGD. Where exposure determinants differ to these sources, then they are indicated.

Environment

The Hydrocarbon Block Method has been used to calculate environmental exposure with the Petrorisk model [EE2].

Section 4 Guidance to check compliance with the Exposure Scenario

Health

Predicted exposures are not expected to exceed the DN(M)EL when the Risk Management Measures/Operational Conditions outlined in Section 2 are implemented. [G22]

Where other Risk Management Measures/Operational Conditions are adopted, then users should ensure that risks are managed to at least equivalent levels. [G23]

Environment

Guidance is based on assumed operating conditions which may not be applicable to all sites; thus, scaling may be necessary to define appropriate site-specific risk management measures [DSU1].

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Section 1 Exposure scenario title

Title:

Metal working fluid / rolling oils

Sector of use:

SU3: Industrial uses: Uses of substances as such or in mixtures at industrial sites

Subsequent service life relevant for that use:

Under nitrogen atmosphere no time limit

Contributing Environmental Release Categories [ERC]:

ERC4: Industrial use of processing aids in processes and products, not becoming part of articles
Specific Environmental Release Category: ESVOC 4.7a.v1

Contributing Process Categories [PROC]:

- PROC1: Use in closed process, no likelihood of exposure
- PROC2: Use in closed, continuous process with occasional controlled exposure
- PROC3: Use in closed batch process (synthesis or formulation)
- PROC4: Use in batch and other process (synthesis) where opportunity for exposure arises
- PROC5: Mixing or blending in batch processes for formulation of preparations and articles (multistage and/or significant contact)
- PROC7: Industrial spraying
- PROC8a: Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non-dedicated facilities
- PROC8b: Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities
- PROC9: Transfer of substance or preparation into small containers (dedicated filling line, including weighing)
- PROC10: Roller application or brushing of adhesive and other coating
- PROC13: Treatment of articles by dipping and pouring
- PROC17: Lubrication at high energy conditions and in partly open process

Scope of processes and activities covered by the Exposure Scenario:

Covers the use in formulated metal working fluids/rolling oils including transfer operations, rolling and annealing activities, cutting/machining activities, automated and manual application of corrosion protections (including brushing, dipping and spraying), equipment maintenance, draining and disposal of waste oils.

Section 2 Operational conditions and risk management measures

Section 2.1 Control of worker exposure

Operational conditions of use

Physical form of product and vapour pressure:

Liquid, vapour pressure < 0.5 kPa at STP [OC3]

Concentration of substance in product:

Covers percentage substance in the product up to 100 % (unless stated differently) [G13]

Frequency and duration of use/exposure:

Covers daily exposures up to 8 hours (unless stated differently) [G2]

Other operational conditions affecting exposure:

Assumes use at not more than 20 °C above ambient temperature, unless stated differently [G15]. Assumes a good basic standard of occupational hygiene has been implemented [G1]

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Contributing scenarios and risk management measures of worker exposure

General exposures (closed systems) [CS15] PROC1, PROC2, PROC3:

Handle substance within a closed system [E47]

Automated metal rolling/forming [CS80] Operation is carried out at elevated temperature (> than 20 °C above ambient temperature) [OC7] PROC2:

No specific measures identified [E118]

Material storage [CS67] PROC1, PROC2:

Store substance within a closed system [E84] Transfer via enclosed lines [E52]

General exposures (open systems) [CS16] PROC4:

No specific measures identified [E118]

Filling/preparation of equipment from drums or containers [CS45] PROC5:

No specific measures identified [E118]

Spraying [CS10] PROC7:

Minimize exposure by partial enclosure of the operation or equipment and provide extract ventilation at openings [E60]

Equipment cleaning and maintenance [CS39] Non-dedicated facility [CS82] PROC8a:

Provide enhanced mechanical ventilation by mechanical means [E48]

Equipment cleaning and maintenance [CS39] Dedicated facility [CS81] PROC8b:

No specific measures identified [E118]

Filling/preparation of equipment from drums or containers [CS45] PROC8b:

No specific measures identified [E118]

Bulk transfers [CS14] PROC8b:

Clear transfer lines prior to de-coupling [E39]

Process sampling [CS2] PROC8b:

Use dedicated equipment [E85]

Filling/preparation of equipment from drums or containers [CS45] PROC9:

No specific measures identified [E118]

Manual applications e.g. brushing, rolling [CS13] PROC10:

Provide enhanced mechanical ventilation by mechanical means [E48]

Treatment by dipping and pouring [CS35] PROC13:

Provide enhanced mechanical ventilation by mechanical means [E48] Allow time for product to drain from workpiece [E121]

Metal machining operations [CS79] PROC17:

No specific measures identified [E118]

Semi-automated metal rolling/forming [CS83] Operation is carried out at elevated temperature (> than 20 °C above ambient temperature) [OC7] PROC17:

Minimize exposure by partial enclosure of the operation or equipment and provide extract ventilation at openings [E60]

Section 2.2 Control of environmental exposure

Product characteristics:

Substance is complex UVCB [PrC3]. Predominantly hydrophobic [PrC4a].

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Amounts used

Maximum daily site tonnage (kg/day): 5000

Frequency and duration of use

Emission days (days/year): 20

Environmental factors not influenced by risk management

Local freshwater dilution factor: 10

Local marine water dilution factor: 100

Other given operational conditions affecting environmental exposure

Release fraction to air from process (initial release prior to RMM): 0.02

Release fraction to wastewater from process (initial release prior to RMM): 0.00003

Release fraction to soil from process (initial release prior to RMM): 0

Technical onsite conditions and measures to reduce or limit discharges, air emissions and releases to soil

Risk from environmental exposure is driven by freshwater [TCR1a]. Prevent discharge of undissolved substance to, or recover from, onsite wastewater [TCR14]. No wastewater treatment required [TCR6].

Treat air emission to provide a typical removal efficiency of (%): 70

Treat onsite wastewater (prior to receiving water discharge) to provide the required removal efficiency of >=(%): 0

If discharging to domestic sewage treatment plant, provide the required onsite wastewater removal efficiency of >=(%): 0

Organisation measures to prevent/limit release from site

Do not apply industrial sludge to natural soils [OMS2]. Sludge should be incinerated, contained or reclaimed [OMS3].

Conditions and measures related to municipal sewage treatment plant

Estimated substance removal from wastewater via domestic sewage treatment (%): 94.6

Total efficiency of removal from wastewater after onsite and offsite (domestic treatment plant) RMMs (%): 94.6

Maximum allowable site tonnage (M_{Safe}) based on release following total wastewater treatment removal (kg/day): 890000

Assumed domestic sewage treatment plant flow (m^3/day): 2000

Conditions and measures related to external treatment of waste for disposal

External treatment and disposal of waste should comply with applicable local and/or national regulations [ETW3]

Conditions and measures related to external recovery of waste

External recovery and recycling of waste should comply with applicable local and/or national regulations [ERW1]

Section 3 Exposure estimation

Health

The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated.

Environment

The Hydrocarbon Block Method has been used to calculate environmental exposure with the Petrorisk model [EE2].

Section 4 Guidance to check compliance with the Exposure Scenario

Health

Predicted exposures are not expected to exceed the DN(M)EL when the Risk Management Measures/Operational Conditions outlined in Section 2 are implemented [G22].

Where other Risk Management Measures/Operational Conditions are adopted, then users should ensure that risks are managed to at least equivalent levels [G23].

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Environment

Guidance is based on assumed operating conditions which may not be applicable to all sites; thus, scaling may be necessary to define appropriate site-specific risk management measures [DSU1]. Required removal efficiency for wastewater can be achieved using onsite/offsite technologies, either alone or in combination [DSU2]. Required removal efficiency for air can be achieved using onsite technologies, either alone or in combination [DSU3]. Further details on scaling and control technologies are provided in SpERC factsheet (<http://cefic.org/en/reach-for-industries-libraries.html>).

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Section 1 Exposure scenario title

Title:

Metal working fluid

Sector of use:

SU22: Professional uses: Public domain (administration, education, entertainment, services, craftsmen)

Subsequent service life relevant for that use:

Under nitrogen atmosphere no time limit

Contributing Environmental Release Categories [ERC]:

ERC8a: Wide dispersive indoor use of processing aids in open systems

ERC8d: Wide dispersive outdoor use of processing aids in open systems

Specific Environmental Release Category: ESVOC 8.7c.v1

Contributing Process Categories [PROC]:

PROC1: Use in closed process, no likelihood of exposure

PROC2: Use in closed, continuous process with occasional controlled exposure

PROC3: Use in closed batch process (synthesis or formulation)

PROC5: Mixing or blending in batch processes for formulation of preparations* and articles (multistage and/or significant contact)

PROC8a: Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non-dedicated facilities

PROC8b: Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities

PROC9: Transfer of substance or preparation into small containers (dedicated filling line, including weighing)

PROC10: Roller application or brushing of adhesive and other coating

PROC11: Non industrial spraying

PROC13: Treatment of articles by dipping and pouring

PROC17: Lubrication at high energy conditions and in partly open process

Scope of processes and activities covered by the Exposure Scenario:

Covers the use in formulated MWFs including transfer operations, open and contained cutting/machining activities, automated and manual application of corrosion protections, draining and working on contaminated/ reject articles, and disposal of waste oils.

Section 2 Operational conditions and risk management measures

Section 2.1 Control of worker exposure

Operational conditions of use

Physical form of product and vapour pressure:

Liquid, vapour pressure < 0.5 kPa at STP [OC3]

Concentration of substance in product:

Covers percentage substance in the product up to 100 % (unless stated differently) [G13]

Frequency and duration of use/exposure:

Covers daily exposures up to 8 hours (unless stated differently) [G2]

Other operational conditions affecting exposure:

Assumes use at not more than 20 °C above ambient temperature, unless stated differently [G15]. Assumes a good basic standard of occupational hygiene has been implemented [G1]

Contributing scenarios and risk management measures of worker exposure

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General exposures (closed systems) [CS15] PROC1:

Handle substance within a closed system [E47]

Material storage [CS67] PROC1:

Store substance within a closed system [E84]

General exposures (closed systems) [CS15] PROC2:

Handle substance within a closed system [E47]

Material storage [CS67] PROC2:

Store substance within a closed system [E84]

General exposures (closed systems) [CS15] PROC3:

Handle substance within a closed system [E47]

Filling / preparation of equipment from drums or containers. [CS45] Non-dedicated facility [CS82] PROC8a:

Avoid carrying out operation for more than 1 hour [OC11]

Equipment cleaning and maintenance [CS39] Non-dedicated facility [CS82] PROC8a:

Provide enhanced mechanical ventilation by mechanical means [E48]

Bulk transfers [CS14] PROC8b:

No other specific measures identified [EI20]

Filling / preparation of equipment from drums or containers. [CS45] Dedicated facility [CS81] PROC8b:

Use drum pumps or carefully pour from container [E64]

Equipment cleaning and maintenance [CS39] Dedicated facility [CS81] PROC8a:

Provide enhanced mechanical ventilation by mechanical means [E48]

Process sampling [CS2] PROC8b:

Provide enhanced mechanical ventilation by mechanical means [E48] Use dedicated equipment [E85]

Filling / preparation of equipment from drums or containers. [CS45] Dedicated facility [CS81] PROC9:

Use drum pumps or carefully pour from container [E64]

Manual applications e.g. brushing, rolling [CS13] PROC10:

Provide extract ventilation to points where emissions occur [E54]

OR

Provide enhanced mechanical ventilation by mechanical means [E48]

OR

Wear a respirator conforming to EN140 with Type A/P2 filter or better. [PPE29]

Spraying [CS10] PROC11:

Minimize exposure by partial enclosure of the operation or equipment and provide extract ventilation at openings [E60]

Provide enhanced mechanical ventilation by mechanical means [E48]

OR

Provide enhanced mechanical ventilation by mechanical means [E48] Wear a respirator conforming to EN140 with Type A/P2 filter or better. [PPE29]

Treatment by dipping and pouring [CS35] PROC13:

Minimize exposure by partial enclosure of the operation or equipment and provide extract ventilation at openings [E60]

Allow time for product to drain from workpiece [EI21]

OR

Wear a respirator conforming to EN140 with Type A/P2 filter or better. [PPE29]

Metal machining operations [CS79] PROC17:

Minimize exposure by partial enclosure of the operation or equipment and provide extract ventilation at openings [E60]

[E60] Allow time for product to drain from workpiece [EI21]

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Section 2.2 Control of environmental exposure

Product characteristics:

Substance is complex UVCB [PrC3]. Predominantly hydrophobic [PrC4a].

Amounts used

Maximum daily site tonnage (kg/day): 0.14

Frequency and duration of use

Emission days (days/year): 365

Environmental factors not influenced by risk management

Local freshwater dilution factor: 10

Local marine water dilution factor: 100

Other given operational conditions affecting environmental exposure

Release fraction to air from process (initial release prior to RMM): 0.15

Release fraction to wastewater from process (initial release prior to RMM): 0.05

Release fraction to soil from process (initial release prior to RMM): 0.05

Technical onsite conditions and measures to reduce or limit discharges, air emissions and releases to soil

Risk from environmental exposure is driven by freshwater [TCR1a]. No wastewater treatment required [TCR6].

Treat air emission to provide a typical removal efficiency of (%): N/A

Treat onsite wastewater (prior to receiving water discharge) to provide the required removal efficiency of >=(%): 0

If discharging to domestic sewage treatment plant, provide the required onsite wastewater removal efficiency of >=(%): 0

Organisation measures to prevent/limit release from site

Do not apply industrial sludge to natural soils [OMS2]. Sludge should be incinerated, contained or reclaimed [OMS3].

Conditions and measures related to municipal sewage treatment plant

Estimated substance removal from wastewater via domestic sewage treatment (%): 94.6

Total efficiency of removal from wastewater after onsite and offsite (domestic treatment plant) RMMs (%): 94.6

Maximum allowable site tonnage (M_{Safe}) based on release following total wastewater treatment removal (kg/day): 36

Assumed domestic sewage treatment plant flow (m^3/day): 2000

Conditions and measures related to external treatment of waste for disposal

External treatment and disposal of waste should comply with applicable local and/or national regulations [ETW3]

Conditions and measures related to external recovery of waste

External recovery and recycling of waste should comply with applicable local and/or national regulations [ERW1]

Section 3 Exposure estimation

Health

The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated.

Environment

The Hydrocarbon Block Method has been used to calculate environmental exposure with the Petrorisk model [EE2].

Section 4 Guidance to check compliance with the Exposure Scenario

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Health

Predicted exposures are not expected to exceed the DN(M)EL when the Risk Management Measures/Operational Conditions outlined in Section 2 are implemented [G22].

Where other Risk Management Measures/Operational Conditions are adopted, then users should ensure that risks are managed to at least equivalent levels [G23].

Environment

Guidance is based on assumed operating conditions which may not be applicable to all sites; thus, scaling may be necessary to define appropriate site-specific risk management measures [DSU1]. Required removal efficiency for wastewater can be achieved using onsite/offsite technologies, either alone or in combination [DSU2]. Required removal efficiency for air can be achieved using onsite technologies, either alone or in combination [DSU3]. Further details on scaling and control technologies are provided in SpERC factsheet (<http://cefic.org/en/reach-for-industries-libraries.html>).

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Section 1 Exposure scenario title

Title:

Use as binders and release agents

Sector of use:

SU3: Industrial uses: Uses of substances as such or in mixtures at industrial sites

Subsequent service life relevant for that use:

Under nitrogen atmosphere no time limit

Contributing Environmental Release Categories [ERC]:

ERC4: Industrial use of processing aids in processes and products, not becoming part of articles

ERC5: Industrial use resulting in inclusion into or onto a matrix.

Specific Environmental Release Category: ESVOC 4.10a.v1

Contributing Process Categories [PROC]:

PROC1: Use in closed process, no likelihood of exposure

PROC2: Use in closed, continuous process with occasional controlled exposure

PROC3: Use in closed batch process (synthesis or formulation)

PROC4: Use in batch and other process (synthesis) where opportunity for exposure arises

PROC6: Calendaring operations

PROC7: Industrial spraying

PROC8b: Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities

PROC10: Roller application or brushing of adhesive and other coating

PROC14: Production of preparations or articles by tableting, compression, extrusion, pelletisation

Scope of processes and activities covered by the Exposure Scenario:

Covers the use as binders and release agents including material transfers, mixing, application (including spraying and brushing), mould forming and casting, and handling of waste.

Section 2 Operational conditions and risk management measures

Section 2.1 Control of worker exposure

Operational conditions of use

Physical form of product and vapour pressure:

Liquid, vapour pressure < 0.5 kPa at STP [OC3]

Concentration of substance in product:

Covers percentage substance in the product up to 100 % (unless stated differently) [G13]

Frequency and duration of use/exposure:

Covers daily exposures up to 8 hours (unless stated differently) [G2]

Other operational conditions affecting exposure:

Assumes use at not more than 20 °C above ambient temperature, unless stated differently [G15]. Assumes a good basic standard of occupational hygiene has been implemented [G1]

Contributing scenarios and risk management measures of worker exposure

Material transfers [CS3] PROC1, PROC2, PROC3:

Transfer via enclosed lines [E52]

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Material storage [CS67] PROC1, PROC2:

Store substance within a closed system [E84]

Mixing operations (closed systems) [CS29] PROC3:

Formulate in enclosed or ventilated mixing vessels [E46]

Mixing operations (open systems) [CS30] PROC4:

No specific measures identified [E118]

Casting operations [CS32] (open systems) [CS108] Operation is carried out at elevated temperature (> than 20 °C above ambient temperature) [OC7] Aerosol generation due to elevated process temperature [OC25] PROC6:

Provide extract ventilation to points where emissions occur [E54]

Spraying [CS10] Machine [CS33] PROC7:

Minimize exposure by partial enclosure of the operation or equipment and provide extract ventilation at openings [E60]

Spraying [CS10] Manual [CS34] PROC7:

Carry out in a vented booth [E57]

Drum/batch transfers [CS8] PROC8b:

No specific measures identified [E118]

Manual applications e.g. brushing, rolling [CS13] PROC10:

Avoid carrying out operation for more than 4 hours [OC12]

Mould forming [CS31] PROC14:

No specific measures identified [E118]

Section 2.2 Control of environmental exposure

Product characteristics:

Substance is complex UVCB [PrC3]. Predominantly hydrophobic [PrC4a].

Amounts used

Maximum daily site tonnage (kg/day): 5000

Frequency and duration of use

Emission days (days/year): 20

Environmental factors not influenced by risk management

Local freshwater dilution factor: 10

Local marine water dilution factor: 100

Other given operational conditions affecting environmental exposure

Release fraction to air from process (initial release prior to RMM): 1.0

Release fraction to wastewater from process (initial release prior to RMM): 0.000003

Release fraction to soil from process (initial release prior to RMM): 0

Technical onsite conditions and measures to reduce or limit discharges, air emissions and releases to soil

Risk from environmental exposure is driven by freshwater [TCR1a]. Prevent discharge of undissolved substance to, or recover from, onsite wastewater [TCR14]. No wastewater treatment required [TCR6].

Treat air emission to provide a typical removal efficiency of (%): 80

Treat onsite wastewater (prior to receiving water discharge) to provide the required removal efficiency of >=(%): 0

If discharging to domestic sewage treatment plant, provide the required onsite wastewater removal efficiency of >=(%): 0

Organisation measures to prevent/limit release from site

Do not apply industrial sludge to natural soils [OMS2]. Sludge should be incinerated, contained or reclaimed [OMS3].

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Conditions and measures related to municipal sewage treatment plant

Estimated substance removal from wastewater via domestic sewage treatment (%): 94.6
Total efficiency of removal from wastewater after onsite and offsite (domestic treatment plant) RMMs (%): 94.6
Maximum allowable site tonnage (M_{Safe}) based on release following total wastewater treatment removal (kg/day): 1600000
Assumed domestic sewage treatment plant flow (m^3/day): 2000

Conditions and measures related to external treatment of waste for disposal

External treatment and disposal of waste should comply with applicable local and/or national regulations [ETW3]

Conditions and measures related to external recovery of waste

External recovery and recycling of waste should comply with applicable local and/or national regulations [ERW1]

Section 3 Exposure estimation

Health

The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated.

Environment

The Hydrocarbon Block Method has been used to calculate environmental exposure with the Petrorisk model [EE2].

Section 4 Guidance to check compliance with the Exposure Scenario

Health

Where other Risk Management Measures/Operational Conditions are adopted, then users should ensure that risks are managed to at least equivalent levels [G23].

Environment

Guidance is based on assumed operating conditions which may not be applicable to all sites; thus, scaling may be necessary to define appropriate site-specific risk management measures [DSU1]. Required removal efficiency for wastewater can be achieved using onsite/offsite technologies, either alone or in combination [DSU2]. Required removal efficiency for air can be achieved using onsite technologies, either alone or in combination [DSU3]. Further details on scaling and control technologies are provided in SpERC factsheet (<http://cefic.org/en/reach-for-industries-libraries.html>).

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Substance: Hydrocarbons, C10, aromatics, >1% naphthalene
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Section 1 Exposure scenario title

Title:

Use as binders and release agents

Sector of use:

SU22: Professional uses: Public domain (administration, education, entertainment, services, craftsmen)

Subsequent service life relevant for that use:

Under nitrogen atmosphere no time limit

Contributing Environmental Release Categories [ERC]:

ERC8a: Wide dispersive indoor use of processing aids in open systems

ERC8d: Wide dispersive outdoor use of processing aids in open systems

Specific Environmental Release Category: ESVOC 8.10b.v1

Contributing Process Categories [PROC]:

PROC1: Use in closed process, no likelihood of exposure

PROC2: Use in closed, continuous process with occasional controlled exposure

PROC3: Use in closed batch process (synthesis or formulation)

PROC4: Use in batch and other process (synthesis) where opportunity for exposure arises

PROC6: Calendaring operations

PROC8b: Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities

PROC10: Roller application or brushing of adhesive and other coating

PROC11: Non industrial spraying

PROC14: Production of preparations* or articles by tableting, compression, extrusion, pelletisation

Scope of processes and activities covered by the Exposure Scenario:

Covers the use as binders and release agents including material transfers, mixing, application by spraying, brushing, and handling of waste.

Section 2 Operational conditions and risk management measures

Section 2.1 Control of worker exposure

Operational conditions of use

Physical form of product and vapour pressure:

Liquid, vapour pressure < 0.5 kPa at STP [OC3]

Concentration of substance in product:

Covers percentage substance in the product up to 100 % (unless stated differently) [G13]

Frequency and duration of use/exposure:

Covers daily exposures up to 8 hours (unless stated differently) [G2]

Other operational conditions affecting exposure:

Assumes use at not more than 20 °C above ambient temperature, unless stated differently [G15]. Assumes a good basic standard of occupational hygiene has been implemented [G1]

Contributing scenarios and risk management measures of worker exposure

Material transfers [CS3] (closed systems) [CS107] PROC1:

Transfer via enclosed lines [E52]

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Material storage [CS67] PROC1:

No other specific measures identified [E120]

Material transfers [CS3] (closed systems) [CS107] PROC2:

Transfer via enclosed lines [E52]

Batch process [CS55] PROC2:

No other specific measures identified [E120]

Material transfers [CS3] (closed systems) [CS107] PROC3:

Transfer via enclosed lines [E52]

Mixing operations (closed systems) [CS29] PROC3:

Formulate in enclosed or ventilated mixing vessels [E46]

Mixing operations (open systems) [CS30] PROC4:

Provide enhanced mechanical ventilation by mechanical means [E48]

Casting operations [CS32] (open systems) [CS108] Operation is carried out at elevated temperature (> then 20°C above ambient temperature) [OC7] PROC6:

Provide extract ventilation to points where emissions occur [E54]

Drum batch transfers. [CS8] PROC8b:

Provide a good standard of controlled ventilation (3 to 5 air changes per hour). [E40]

Manual applications e.g. brushing, rolling [CS13] PROC10:

Avoid carrying out operation for more than 15 minutes [OC10]

Spraying [CS10] Machine [CS33] PROC11:

Minimize exposure by extracted full enclosure for the operation or equipment [E61] Provide enhanced mechanical ventilation by mechanical means [E48]

Spraying [CS10] Manual [CS34] PROC11:

Carry out in a vented booth [E57]

Mold forming [CS31] PROC14:

Provide enhanced mechanical ventilation by mechanical means [E48]

Section 2.2 Control of environmental exposure

Product characteristics:

Substance is complex UVCB [PrC3]. Predominantly hydrophobic [PrC4a].

Amounts used

Maximum daily site tonnage (kg/day): 0.14

Frequency and duration of use

Emission days (days/year): 365

Environmental factors not influenced by risk management

Local freshwater dilution factor: 10

Local marine water dilution factor: 100

Other given operational conditions affecting environmental exposure

Release fraction to air from process (initial release prior to RMM): 0.95

Release fraction to wastewater from process (initial release prior to RMM): 0.025

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Release fraction to soil from process (initial release prior to RMM): 0.025

Technical onsite conditions and measures to reduce or limit discharges, air emissions and releases to soil

Risk from environmental exposure is driven by freshwater [TCR1a]. No wastewater treatment required [TCR6].

Treat air emission to provide a typical removal efficiency of (%): N/A

Treat onsite wastewater (prior to receiving water discharge) to provide the required removal efficiency of >=(%): 0

If discharging to domestic sewage treatment plant, provide the required onsite wastewater removal efficiency of >=(%): 0

Organisation measures to prevent/limit release from site

Do not apply industrial sludge to natural soils [OMS2]. Sludge should be incinerated, contained or reclaimed [OMS3].

Conditions and measures related to municipal sewage treatment plant

Estimated substance removal from wastewater via domestic sewage treatment (%): 94.6

Total efficiency of removal from wastewater after onsite and offsite (domestic treatment plant) RMMs (%): 94.6

Maximum allowable site tonnage (M_{Safe}) based on release following total wastewater treatment

removal (kg/day): 37

Assumed domestic sewage treatment plant flow (m^3/day): 2000

Conditions and measures related to external treatment of waste for disposal

External treatment and disposal of waste should comply with applicable local and/or national regulations [ETW3]

Conditions and measures related to external recovery of waste

External recovery and recycling of waste should comply with applicable local and/or national regulations [ERW1]

Section 3 Exposure estimation

Health

The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated.

Environment

The Hydrocarbon Block Method has been used to calculate environmental exposure with the Petrorisk model [EE2].

Section 4 Guidance to check compliance with the Exposure Scenario

Health

Predicted exposures are not expected to exceed the DN(M)EL when the Risk Management Measures/Operational Conditions outlined in Section 2 are implemented [G22].

Where other Risk Management Measures/Operational Conditions are adopted, then users should ensure that risks are managed to at least equivalent levels [G23].

Environment

Guidance is based on assumed operating conditions which may not be applicable to all sites; thus, scaling may be necessary to define appropriate site-specific risk management measures [DSU1]. Required removal efficiency for wastewater can be achieved using onsite/offsite technologies, either alone or in combination [DSU2]. Required removal efficiency for air can be achieved using onsite technologies, either alone or in combination [DSU3]. Further details on scaling and control technologies are provided in SpERC factsheet (<http://cefic.org/en/reach-for-industries-libraries.html>).

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Section 1 Exposure scenario title

Title:

Use in Agrochemicals

Sector of use:

SU22: Professional uses: Public domain (administration, education, entertainment, services, craftsmen)

Subsequent service life relevant for that use:

Under nitrogen atmosphere no time limit

Contributing Environmental Release Categories [ERC]:

ERC8a: Wide dispersive indoor use of processing aids in open systems

ERC8d: Wide dispersive outdoor use of processing aids in open systems

Specific Environmental Release Category: ESVOC 8.11a.v1

Contributing Process Categories [PROC]:

PROC1: Use in closed process, no likelihood of exposure

PROC2: Use in closed, continuous process with occasional controlled exposure

PROC4: Use in batch and other process (synthesis) where opportunity for exposure arises

PROC8a: Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non-dedicated facilities

PROC8b: Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities

PROC11: Non industrial spraying

PROC13: Treatment of articles by dipping and pouring

Scope of processes and activities covered by the Exposure Scenario:

Use as an agrochemical excipient for application by manual or machine spraying, smokes and fogging; including equipment clean-downs and disposal.

Section 2 Operational conditions and risk management measures

Section 2.1 Control of worker exposure

Operational conditions of use

Physical form of product and vapour pressure:

Liquid, vapour pressure < 0.5 kPa at STP [OC3]

Concentration of substance in product:

Covers percentage substance in the product up to 100 % (unless stated differently) [G13]

Frequency and duration of use/exposure:

Covers daily exposures up to 8 hours (unless stated differently) [G2]

Other operational conditions affecting exposure:

Assumes use at not more than 20 °C above ambient temperature, unless stated differently [G15]. Assumes a good basic standard of occupational hygiene has been implemented [G1]

Contributing scenarios and risk management measures of worker exposure

Material storage [CS67] PROC1:

Store substance within a closed system [E84]

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Material storage [CS67] PROC2:

Store substance within a closed system [E84]

Mixing and blending [CS23] PROC4:

No other specific measures identified [E120]

Disposal of wastes [CS28] PROC8a:

Ensure operation is undertaken outdoors [E69] Limit the substance content in the product to 5% [OC17]

Clean-down and maintenance of equipment [CS26] PROC8a:

No other specific measures identified [E120]

Transfer from/pouring from containers [CS22] PROC8b:

No other specific measures identified [E120]

Spraying/fogging by manual application [CS24] PROC11:

Ensure operation is undertaken outdoors [E69] Avoid carrying out operation for more than 4 hours [OC12] Wear a respirator conforming to EN374 with type a filter or better [PPE22] Wear suitable coveralls capable of preventing significant penetration of the substance [PPE27]

Spraying/fogging by machine application [CS25] PROC11:

Apply within a vented cab supplied with filtered air under positive pressure and with a protection factor of >20 [E70]

Ad hoc manual application via trigger sprays, dipping, etc. [CS27] PROC13:

Ensure operation is undertaken outdoors [E69]

Section 2.2 Control of environmental exposure

Product characteristics:

Substance is complex UVCB [PrC3]. Predominantly hydrophobic [PrC4a].

Amounts used

Maximum daily site tonnage (kg/day): 4.8

Frequency and duration of use

Emission days (days/year): 365

Environmental factors not influenced by risk management

Local freshwater dilution factor: 10

Local marine water dilution factor: 100

Other given operational conditions affecting environmental exposure

Release fraction to air from process (initial release prior to RMM): 0.9

Release fraction to wastewater from process (initial release prior to RMM): 0.01

Release fraction to soil from process (initial release prior to RMM): 0.09

Technical onsite conditions and measures to reduce or limit discharges, air emissions and releases to soil

Risk from environmental exposure is driven by freshwater [TCR1a]. No wastewater treatment required [TCR6].

Treat air emission to provide a typical removal efficiency of (%): N/A

Treat onsite wastewater (prior to receiving water discharge) to provide the required removal efficiency of >=(%): 0

If discharging to domestic sewage treatment plant, provide the required onsite wastewater removal efficiency of >=(%): 0

Organisation measures to prevent/limit release from site

Do not apply industrial sludge to natural soils [OMS2]. Sludge should be incinerated, contained or reclaimed [OMS3].

Conditions and measures related to municipal sewage treatment plant

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Substance: Hydrocarbons, C10, aromatics, >1% naphthalene
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Estimated substance removal from wastewater via domestic sewage treatment (%): 94.6
Total efficiency of removal from wastewater after onsite and offsite (domestic treatment plant) RMMs (%): 94.6
Maximum allowable site tonnage (M_{Safe}) based on release following total wastewater treatment removal (kg/day): 920
Assumed domestic sewage treatment plant flow (m^3/day): 2000

Conditions and measures related to external treatment of waste for disposal

External treatment and disposal of waste should comply with applicable local and/or national regulations [ETW3]

Conditions and measures related to external recovery of waste

External recovery and recycling of waste should comply with applicable local and/or national regulations [ERW1]

Section 3 Exposure estimation

Health

The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated.

Environment

The Hydrocarbon Block Method has been used to calculate environmental exposure with the Petrorisk model [EE2].

Section 4 Guidance to check compliance with the Exposure Scenario

Health

Predicted exposures are not expected to exceed the DN(M)EL when the Risk Management Measures/Operational Conditions outlined in Section 2 are implemented [G22].

Where other Risk Management Measures/Operational Conditions are adopted, then users should ensure that risks are managed to at least equivalent levels [G23].

Environment

Guidance is based on assumed operating conditions which may not be applicable to all sites; thus, scaling may be necessary to define appropriate site-specific risk management measures [DSU1]. Required removal efficiency for wastewater can be achieved using onsite/offsite technologies, either alone or in combination [DSU2]. Required removal efficiency for air can be achieved using onsite technologies, either alone or in combination [DSU3]. Further details on scaling and control technologies are provided in SpERC factsheet (<http://cefic.org/en/reach-for-industries-libraries.html>).

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Substance: Hydrocarbons, C10, aromatics, >1% naphthalene
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Section 1 Exposure scenario title

Title:

Use in Agrochemicals

Sector of use:

SU21: Consumer uses: Private households (= general public = consumers)

Subsequent service life relevant for that use:

Under nitrogen atmosphere no time limit

Contributing Environmental Release Categories [ERC]:

ERC8a: Wide dispersive indoor use of processing aids in open systems.

ERC8d: Wide dispersive outdoor use of processing aids in open systems.

Specific Environmental Release Category: ESVOC 8.11b.v1

Contributing Product Category [PC]:

PC12: Fertilizers

PC27: Plant protection products

Scope of processes and activities covered by the Exposure Scenario:

Covers the consumer use in agrochemicals in liquid and solid forms

Section 2 Operational conditions and risk management measures

Section 2.1 Control of consumer exposure

Operational conditions of use

Physical form of product and vapour pressure:

Liquid, vapour pressure < 0.5 kPa

Concentration of substance in product:

Unless otherwise stated, covers concentrations up to 50% [ConsOC1]

Amounts used:

covers skin contact area up to 857.5cm² [ConsOC5]

Frequency and duration of use/exposure:

Unless otherwise stated, covers use frequency up to 1 times per day [ConsOC4]; covers exposure up to 4 hours per event [ConsOC14]

Other operational conditions affecting exposure:

Unless otherwise stated assumes use at ambient temperatures [ConsOC15]; assumes use in a 20 m³ room [ConsOC11]; assumes use with typical ventilation [ConsOC8]

Contributing scenarios and risk management measures of consumer exposure

PC12:Fertilizers—Lawn and garden preparations

OC

Unless otherwise stated, covers concentrations up to 50% [ConsOC1]; covers use up to 365 days/year [ConsOC3]; covers use up to 1 time/on day of use [ConsOC4]; covers skin contact area up to 857.50 cm² [ConsOC5]; for each use event, assumes swallowed amount 0.3g [ConsOC13];

RMM

Avoid using at a product concentration greater than 2.5% [ConsRMM1]

PC27_n:Plant protection products--

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OC

Unless otherwise stated, covers concentrations up to 50% [ConsOC1]; covers use up to 365 days/year [ConsOC3]; covers use up to 1 time/on day of use [ConsOC4]; covers skin contact area up to 857.50 cm² [ConsOC5]; for each use event, assumes swallowed amount 0.3g [ConsOC13];

RMM

Avoid using at a product concentration greater than 2.5% [ConsRMM1]

Section 2.2 Control of environmental exposure

Product characteristics:

Substance is complex UVCB [PrC3]. Predominantly hydrophobic [PrC4a].

Amounts used

Maximum daily site tonnage (kg/day): 0.055

Frequency and duration of use

Emission days (days/year): 365

Environmental factors not influenced by risk management

Local freshwater dilution factor: 10

Local marine water dilution factor: 100

Other given operational conditions affecting environmental exposure

Release fraction to air from process (initial release prior to RMM): 0.9

Release fraction to wastewater from process (initial release prior to RMM): 0.01

Release fraction to soil from process (initial release prior to RMM): 0.09

Conditions and measures related to municipal sewage treatment plant

Estimated substance removal from wastewater via domestic sewage treatment (%): 94.6

Maximum allowable site tonnage (M_{Safe}) based on release following total wastewater treatment removal (kg/day): 15

Assumed domestic sewage treatment plant flow (m³/day): 2000

Conditions and measures related to external treatment of waste for disposal

External treatment and disposal of waste should comply with applicable local and/or national regulations [ETW3]

Conditions and measures related to external recovery of waste

External recovery and recycling of waste should comply with applicable local and/or national regulations [ERW1]

Section 3 Exposure estimation

Health

The ECETOC TRA tool has been used to estimate consumer exposures, consistent with the content of ECETOC Report #107 and the Chapter R15 of the IR&CSA TGD. Where exposure determinants differ to these sources, then they are indicated.

Environment

The Hydrocarbon Block Method has been used to calculate environmental exposure with the Petrorisk model [EE2].

Section 4 Guidance to check compliance with the Exposure Scenario

Health

Predicted exposures are not expected to exceed the DN(M)EL when the Risk Management Measures/Operational Conditions outlined in Section 2 are implemented. [G22]

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Where other Risk Management Measures/Operational Conditions are adopted, then users should ensure that risks are managed to at least equivalent levels. [G23]

Environment

Guidance is based on assumed operating conditions which may not be applicable to all sites; thus, scaling may be necessary to define appropriate site-specific risk management measures [DSU1].

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Substance: Hydrocarbons, C10, aromatics, >1% naphthalene
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Section 1 Exposure scenario title

Title:

Use as a fuel

Sector of use:

SU3: Industrial uses: Uses of substances as such or in mixtures at industrial sites

Subsequent service life relevant for that use:

Under nitrogen atmosphere no time limit

Contributing Environmental Release Categories [ERC]:

ERC7: Industrial use of substances in closed systems
Specific Environmental Release Category: ESVOC 7.12a.v1

Contributing Process Categories [PROC]:

PROC1: Use in closed process, no likelihood of exposure
PROC2: Use in closed, continuous process with occasional controlled exposure
PROC3: Use in closed batch process (synthesis or formulation)
PROC8a: Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non-dedicated facilities
PROC8b: Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities
PROC16: Using material as fuel sources, limited exposure to unburned product to be expected

Scope of processes and activities covered by the Exposure Scenario:

Covers the use as a fuel (or fuel additive) and includes activities associated with its transfer, use, equipment maintenance and handling of waste.

Section 2 Operational conditions and risk management measures

Section 2.1 Control of worker exposure

Operational conditions of use

Physical form of product and vapour pressure:

Liquid, vapour pressure < 0.5 kPa at STP [OC3]

Concentration of substance in product:

Covers percentage substance in the product up to 100 % (unless stated differently) [G13]

Frequency and duration of use/exposure:

Covers daily exposures up to 8 hours (unless stated differently) [G2]

Other operational conditions affecting exposure:

Assumes use at not more than 20 °C above ambient temperature, unless stated differently [G15]. Assumes a good basic standard of occupational hygiene has been implemented [G1]

Contributing scenarios and risk management measures of worker exposure

General exposures (closed systems) [CS15] PROC1, PROC2:

Handle substance within a closed system [E47]

Material storage [CS67] PROC1:

Store substance within a closed system [E84]

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Material storage [CS67] PROC2:

Store substance within a closed system [E84] Transfer via enclosed system [E52]

Use as a fuel [GEST12] (closed systems) [CS107] PROC3:

Handle substance within a closed system [E47]

Equipment cleaning and maintenance [CS39] PROC8a:

Drain down and flush system prior to equipment break-in or maintenance [E55] Apply vessel entry procedures including use of forced supplied air [AP15]

Vessel and container cleaning [CS103] PROC8a:

Drain down and flush system prior to equipment break-in or maintenance [E55]

Bulk transfers [CS14] PROC8b:

Handle substance within a closed system [E47]

Drum/batch transfers [CS8] PROC8b:

No specific measures identified [E118]

Use as fuel [GEST12_I] (closed systems) [CS107] PROC16:

Handle substance within a closed system [E47]

Section 2.2 Control of environmental exposure

Product characteristics:

Substance is complex UVCB [PrC3]. Predominantly hydrophobic [PrC4a].

Amounts used

Maximum daily site tonnage (kg/day): 25000

Frequency and duration of use

Emission days (days/year): 100

Environmental factors not influenced by risk management

Local freshwater dilution factor: 10

Local marine water dilution factor: 100

Other given operational conditions affecting environmental exposure

Release fraction to air from process (initial release prior to RMM): 0.005

Release fraction to wastewater from process (initial release prior to RMM): 0.00001

Release fraction to soil from process (initial release prior to RMM): 0

Technical onsite conditions and measures to reduce or limit discharges, air emissions and releases to soil

Risk from environmental exposure is driven by freshwater [TCR1a]. No wastewater treatment required [TCR6].

Treat air emission to provide a typical removal efficiency of (%): 95

Treat onsite wastewater (prior to receiving water discharge) to provide the required removal efficiency of >=(%): 0

If discharging to domestic sewage treatment plant, provide the required onsite wastewater removal efficiency of >=(%): 0

Organisation measures to prevent/limit release from site

Do not apply industrial sludge to natural soils [OMS2]. Sludge should be incinerated, contained or reclaimed [OMS3].

Conditions and measures related to municipal sewage treatment plant

Estimated substance removal from wastewater via domestic sewage treatment (%): 94.6

Total efficiency of removal from wastewater after onsite and offsite (domestic treatment plant) RMMs (%): 94.6

Maximum allowable site tonnage (M_{Safe}) based on release following total wastewater treatment removal (kg/day): 2700000

Assumed domestic sewage treatment plant flow (m^3/day): 2000

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Conditions and measures related to external treatment of waste for disposal

Combustion emissions limited by required exhaust emission controls [ETW1]. Combustion emissions considered in regional exposure assessment [ETW2]. External treatment and disposal of waste should comply with applicable local and/or national regulations [ETW3]

Conditions and measures related to external recovery of waste

This substance is consumed during use and no waste of the substance is generated [ERW3]

Section 3 Exposure estimation

Health

The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated.

Environment

The Hydrocarbon Block Method has been used to calculate environmental exposure with the Petrorisk model [EE2].

Section 4 Guidance to check compliance with the Exposure Scenario

Health

Predicted exposures are not expected to exceed the DN(M)EL when the Risk Management Measures/Operational Conditions outlined in Section 2 are implemented [G22].

Where other Risk Management Measures/Operational Conditions are adopted, then users should ensure that risks are managed to at least equivalent levels [G23].

Environment

Guidance is based on assumed operating conditions which may not be applicable to all sites; thus, scaling may be necessary to define appropriate site-specific risk management measures [DSU1]. Required removal efficiency for wastewater can be achieved using onsite/offsite technologies, either alone or in combination [DSU2]. Required removal efficiency for air can be achieved using onsite technologies, either alone or in combination [DSU3]. Further details on scaling and control technologies are provided in SpERC factsheet (<http://cefic.org/en/reach-for-industries-libraries.html>).

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Section 1 Exposure scenario title

Title:

Use as a Fuel

Sector of use:

SU22: Professional uses: Public domain (administration, education, entertainment, services, craftsmen)

Subsequent service life relevant for that use:

Under nitrogen atmosphere no time limit

Contributing Environmental Release Categories [ERC]:

ERC9a: Wide dispersive indoor use of substances in closed systems

ERC9b: Wide dispersive outdoor use of substances in closed systems

Specific Environmental Release Category: ESVOC 9.12b.v1

Contributing Process Categories [PROC]:

PROC1: Use in closed process, no likelihood of exposure

PROC2: Use in closed, continuous process with occasional controlled exposure

PROC3: Use in closed batch process (synthesis or formulation)

PROC8a: Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non-dedicated facilities

PROC8b: Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities

PROC16: Using material as fuel sources, limited exposure to unburned product to be expected

Scope of processes and activities covered by the Exposure Scenario:

Covers the use as a fuel (or fuel additive) and includes activities associated with its transfer, use, equipment maintenance and handling of waste.

Section 2 Operational conditions and risk management measures

Section 2.1 Control of worker exposure

Operational conditions of use

Physical form of product and vapour pressure:

Liquid, vapour pressure < 0.5 kPa at STP [OC3]

Concentration of substance in product:

Covers percentage substance in the product up to 100 % (unless stated differently) [G13]

Frequency and duration of use/exposure:

Covers daily exposures up to 8 hours (unless stated differently) [G2]

Other operational conditions affecting exposure:

Assumes use at not more than 20 °C above ambient temperature, unless stated differently [G15]. Assumes a good basic standard of occupational hygiene has been implemented [G1]

Contributing scenarios and risk management measures of worker exposure

General exposures (closed systems) [CS15] PROC1:

Handle substance within a closed system [E47]

Material storage [CS67] PROC1:

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Store substance within a closed system [E84]

General exposures (closed systems) [CS15] PROC2:

Handle substance within a closed system [E47]

General exposures (closed systems) [CS15] PROC3:

No other specific measures identified [E120]

Equipment cleaning and maintenance [CS39] PROC8a:

Drain down system prior to equipment break-in or maintenance [E65]

Vessel and container cleaning [CS103] PROC8a:

Drain down system prior to equipment break-in or maintenance [E65]

Bulk transfers [CS14] PROC8b:

Ensure operation is undertaken outdoors [E69] Handle substance within a closed system [E47] Clear transfer lines prior to de-coupling [E39]

Drum/batch transfers [CS8] PROC8b:

Use drum pumps or carefully pour from container [E64]

General exposures [CS1] PROC8b:

Use drum pumps or carefully pour from container [E64]

Use as a fuel [GEST12] (closed systems) [CS107] PROC16:

No other specific measures identified [E120]

Section 2.2 Control of environmental exposure

Product characteristics:

Substance is complex UVCB [PrC3]. Predominantly hydrophobic [PrC4a].

Amounts used

Maximum daily site tonnage (kg/day): 0.00014

Frequency and duration of use

Emission days (days/year): 365

Environmental factors not influenced by risk management

Local freshwater dilution factor: 10

Local marine water dilution factor: 100

Other given operational conditions affecting environmental exposure

Release fraction to air from process (initial release prior to RMM): 0.0001

Release fraction to wastewater from process (initial release prior to RMM): 0.00001

Release fraction to soil from process (initial release prior to RMM): 0.00001

Technical onsite conditions and measures to reduce or limit discharges, air emissions and releases to soil

Risk from environmental exposure is driven by freshwater [TCR1a]. No wastewater treatment required [TCR6].

Treat air emission to provide a typical removal efficiency of (%): 0

Treat onsite wastewater (prior to receiving water discharge) to provide the required removal efficiency of >=(%): 0

If discharging to domestic sewage treatment plant, provide the required onsite wastewater removal efficiency of >=(%): 0

Organisation measures to prevent/limit release from site

Do not apply industrial sludge to natural soils [OMS2]. Sludge should be incinerated, contained or reclaimed [OMS3].

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Substance: Hydrocarbons, C10, aromatics, >1% naphthalene
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Conditions and measures related to municipal sewage treatment plant

Estimated substance removal from wastewater via domestic sewage treatment (%): 94.6
Total efficiency of removal from wastewater after onsite and offsite (domestic treatment plant) RMMs (%): 94.6
Maximum allowable site tonnage (M_{Safe}) based on release following total wastewater treatment removal (kg/day): 0.047
Assumed domestic sewage treatment plant flow (m^3/day): 2000

Conditions and measures related to external treatment of waste for disposal

External treatment and disposal of waste should comply with applicable local and/or national regulations [ETW3]

Conditions and measures related to external recovery of waste

External recovery and recycling of waste should comply with applicable local and/or national regulations [ERW1]

Section 3 Exposure estimation

Health

The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated.

Environment

The Hydrocarbon Block Method has been used to calculate environmental exposure with the Petrisk model [EE2].

Section 4 Guidance to check compliance with the Exposure Scenario

Health

Predicted exposures are not expected to exceed the DN(M)EL when the Risk Management Measures/Operational Conditions outlined in Section 2 are implemented [G22].

Where other Risk Management Measures/Operational Conditions are adopted, then users should ensure that risks are managed to at least equivalent levels [G23].

Environment

Guidance is based on assumed operating conditions which may not be applicable to all sites; thus, scaling may be necessary to define appropriate site-specific risk management measures [DSU1]. Required removal efficiency for wastewater can be achieved using onsite/offsite technologies, either alone or in combination [DSU2]. Required removal efficiency for air can be achieved using onsite technologies, either alone or in combination [DSU3]. Further details on scaling and control technologies are provided in SpERC factsheet (<http://cefic.org/en/reach-for-industries-libraries.html>).

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Substance: Hydrocarbons, C10, aromatics, >1% naphthalene
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Section 1 Exposure scenario title

Title:

Use as a fuel

Sector of use:

SU21: Consumer uses: Private households (= general public = consumers)

Subsequent service life relevant for that use:

Under nitrogen atmosphere no time limit

Contributing Environmental Release Categories [ERC]:

ERC9a: Wide dispersive indoor use of substances in closed systems.

ERC9b: Wide dispersive outdoor use of substances in closed systems.

Specific Environmental Release Category: ESVOC 9.12c.v1

Contributing Product Category [PC]:

PC13: Fuels

Scope of processes and activities covered by the Exposure Scenario:

Covers consumer uses in liquid fuels.

Section 2 Operational conditions and risk management measures

Section 2.1 Control of consumer exposure

Operational conditions of use

Physical form of product and vapour pressure:

Liquid, vapour pressure < 0.5 kPa

Concentration of substance in product:

Unless otherwise stated, covers concentrations up to 100% [ConsOC1]

Amounts used:

Unless otherwise stated, covers use amounts up to 37500g [ConsOC2]; covers skin contact area up to 420cm² [ConsOC5]

Frequency and duration of use/exposure:

Unless otherwise stated, covers use frequently up to 365 days per year [ConsOC3]; Unless otherwise stated, covers use frequency up to 1 times per day [ConsOC4]; covers exposure up to 2 hours per event [ConsOC14]

Other operational conditions affecting exposure:

Unless otherwise stated assumes use at ambient temperatures [ConsOC15]; assumes use in a 20 m³ room [ConsOC11]; assumes use with typical ventilation [ConsOC8]

Contributing scenarios and risk management measures of consumer exposure

**PC13:Fuels—Liquid—subcategories added: Automotive Refuelling
OC**

Unless otherwise stated, covers concentrations up to 100% [ConsOC1]; covers use up to 52 days/year [ConsOC3]; covers use up to 1 time/on day of use [ConsOC4]; covers skin contact area up to 210.00 cm² [ConsOC5]; for each use event, covers use amounts up to 37500g [ConsOC2]; covers outdoor use [ConsOC12]; covers use in room size of 100m³ [ConsOC11]; for each use event, covers exposure up to 0.05hr/event [ConsOC14];

RMM

No specific RMMs identified beyond those OCs stated

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PC13:Fuels—Liquid—subcategories added: Scooter Refuelling

OC

Unless otherwise stated, covers concentrations up to 100% [ConsOC1]; covers use up to 52 days/year [ConsOC3]; covers use up to 1 time/on day of use [ConsOC4]; covers skin contact area up to 210.00 cm² [ConsOC5]; for each use event, covers use amounts up to 3750g [ConsOC2]; covers outdoor use [ConsOC12]; covers use in room size of 100m³ [ConsOC11]; for each use event, covers exposure up to 0.03hr/event [ConsOC14];

RMM

No specific RMMs identified beyond those OCs stated

PC13:Fuels—Liquid—subcategories added: Garden Equipment - Use

OC

Unless otherwise stated, covers concentrations up to 100% [ConsOC1]; covers use up to 26 days/year [ConsOC3]; covers use up to 1 time/on day of use [ConsOC4]; for each use event, covers use amounts up to 750g [ConsOC2]; covers outdoor use [ConsOC12]; covers use in room size of 100m³ [ConsOC11]; for each use event, covers exposure up to 2.00hr/event [ConsOC14];

RMM

No specific RMMs identified beyond those OCs stated

PC13:Fuels—Liquid—subcategories added: Garden Equipment - Refuelling

OC

Unless otherwise stated, covers concentrations up to 100% [ConsOC1]; covers use up to 26 days/year [ConsOC3]; covers use up to 1 time/on day of use [ConsOC4]; covers skin contact area up to 420.00 cm² [ConsOC5]; for each use event, covers use amounts up to 750g [ConsOC2]; covers use in a one car garage (34m³) under typical ventilation [ConsOC10]; covers use in room size of 34m³ [ConsOC11]; for each use event, covers exposure up to 0.03hr/event [ConsOC14];

RMM

No specific RMMs identified beyond those OCs stated

PC13:Fuels—Liquid—subcategories added: Home space heater fuel

OC

Unless otherwise stated, covers concentrations up to 100% [ConsOC1]; covers use up to 365 days/year [ConsOC3]; covers use up to 1 time/on day of use [ConsOC4]; covers skin contact area up to 210.00 cm² [ConsOC5]; for each use event, covers use amounts up to 3000g [ConsOC2]; covers use under typical household ventilation [ConsOC8]; covers use in room size of 20m³ [ConsOC11]; for each use event, covers exposure up to 0.03hr/event [ConsOC14];

RMM

No specific RMMs identified beyond those OCs stated

PC13:Fuels—Liquid—subcategories added: Lamp oil

OC

Unless otherwise stated, covers concentrations up to 100% [ConsOC1]; covers use up to 52 days/year [ConsOC3]; covers use up to 1 time/on day of use [ConsOC4]; covers skin contact area up to 210.00 cm² [ConsOC5]; for each use event, covers use amounts up to 100g [ConsOC2]; covers use under typical household ventilation [ConsOC8]; covers use in room size of 20m³ [ConsOC11]; for each use event, covers exposure up to 0.01hr/event [ConsOC14];

RMM

No specific RMMs identified beyond those OCs stated

Section 2.2 Control of environmental exposure

Product characteristics:

Substance is complex UVCB [PrC3]. Predominantly hydrophobic [PrC4a].

Amounts used

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Maximum daily site tonnage (kg/day): 3.2

Frequency and duration of use

Emission days (days/year): 365

Environmental factors not influenced by risk management

Local freshwater dilution factor: 10

Local marine water dilution factor: 100

Other given operational conditions affecting environmental exposure

Release fraction to air from process (initial release prior to RMM): 0.0001

Release fraction to wastewater from process (initial release prior to RMM): 0.00001

Release fraction to soil from process (initial release prior to RMM): 0.00001

Conditions and measures related to municipal sewage treatment plant

Estimated substance removal from wastewater via domestic sewage treatment (%): 94.6

Maximum allowable site tonnage (M_{Safe}) based on release following total wastewater treatment removal (kg/day): 900

Assumed domestic sewage treatment plant flow (m^3/day): 2000

Conditions and measures related to external treatment of waste for disposal

External treatment and disposal of waste should comply with applicable local and/or national regulations [ETW3]

Conditions and measures related to external recovery of waste

External recovery and recycling of waste should comply with applicable local and/or national regulations [ERW1]

Section 3 Exposure estimation

Health

The ECETOC TRA tool has been used to estimate consumer exposures, consistent with the content of ECETOC Report #107 and the Chapter R15 of the IR&CSA TGD. Where exposure determinants differ to these sources, then they are indicated.

Environment

The Hydrocarbon Block Method has been used to calculate environmental exposure with the Petrorisk model [EE2].

Section 4 Guidance to check compliance with the Exposure Scenario

Health

Predicted exposures are not expected to exceed the DN(M)EL when the Risk Management Measures/Operational Conditions outlined in Section 2 are implemented. [G22]

Where other Risk Management Measures/Operational Conditions are adopted, then users should ensure that risks are managed to at least equivalent levels. [G23]

Environment

Guidance is based on assumed operating conditions which may not be applicable to all sites; thus, scaling may be necessary to define appropriate site-specific risk management measures [DSU1].

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Section 1 Exposure scenario title

Title:

Functional fluids

Sector of use:

SU3: Industrial uses: Uses of substances as such or in mixtures at industrial sites

Subsequent service life relevant for that use:

Under nitrogen atmosphere no time limit

Contributing Environmental Release Categories [ERC]:

ERC7: Industrial use of substances in closed systems
Specific Environmental Release Category: ESVOC 7.13a.v1

Contributing Process Categories [PROC]:

PROC1: Use in closed process, no likelihood of exposure
PROC2: Use in closed, continuous process with occasional controlled exposure
PROC4: Use in batch and other process (synthesis) where opportunity for exposure arises
PROC8a: Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non-dedicated facilities
PROC8b: Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities
PROC9: Transfer of substance or preparation into small containers (dedicated filling line, including weighing)

Scope of processes and activities covered by the Exposure Scenario:

Use as functional fluids e.g. cable oils, transfer oils, coolants, insulators, refrigerants, hydraulic fluids in industrial equipment including maintenance and related material transfers.

Section 2 Operational conditions and risk management measures

Section 2.1 Control of worker exposure

Operational conditions of use

Physical form of product and vapour pressure:

Liquid, vapour pressure < 0.5 kPa at STP [OC3]

Concentration of substance in product:

Covers percentage substance in the product up to 100 % (unless stated differently) [G13]

Frequency and duration of use/exposure:

Covers daily exposures up to 8 hours (unless stated differently) [G2]

Other operational conditions affecting exposure:

Assumes use at not more than 20 °C above ambient temperature, unless stated differently [G15]. Assumes a good basic standard of occupational hygiene has been implemented [G1]

Contributing scenarios and risk management measures of worker exposure

Bulk transfers [CS14] (closed systems) [CS107] PROC1, PROC2:

Transfer via enclosed lines [E52]

Material storage [CS67] PROC1, PROC2:

Store substance within a closed system [E84]

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General exposures (closed systems) [CS15] PROC2:

No specific measures identified [E118]

General exposures (open systems) [CS16] PROC4:

No specific measures identified [E118]

Equipment maintenance [CS5] PROC8a:

Transfer via enclosed lines [E52] Drain down and flush system prior to equipment break-in or maintenance [E55]

Filling/preparation of equipment from drums or containers [CS45] PROC8a:

Provide extract ventilation to material transfer points and other openings [E82]

Drum/batch transfers [CS8] PROC8b:

No specific measures identified [E118]

Filling of articles/equipment [CS84] (closed systems) [CS107] PROC9:

No specific measures identified [E118]

Remanufacture of reject articles [CS19] PROC9:

No specific measures identified [E118]

Section 2.2 Control of environmental exposure

Product characteristics:

Substance is complex UVCB [PrC3]. Predominantly hydrophobic [PrC4a].

Amounts used

Maximum daily site tonnage (kg/day): 150

Frequency and duration of use

Emission days (days/year): 20

Environmental factors not influenced by risk management

Local freshwater dilution factor: 10

Local marine water dilution factor: 100

Other given operational conditions affecting environmental exposure

Release fraction to air from process (initial release prior to RMM): 0.005

Release fraction to wastewater from process (initial release prior to RMM): 0.00003

Release fraction to soil from process (initial release prior to RMM): 0.001

Technical onsite conditions and measures to reduce or limit discharges, air emissions and releases to soil

Risk from environmental exposure is driven by freshwater [TCR1a]. Prevent discharge of undissolved substance to, or recover from, onsite wastewater [TCR14]. No wastewater treatment required [TCR6].

Treat air emission to provide a typical removal efficiency of (%): 0

Treat onsite wastewater (prior to receiving water discharge) to provide the required removal efficiency of >=(%): 0

If discharging to domestic sewage treatment plant, provide the required onsite wastewater removal efficiency of >=(%): 0

Organisation measures to prevent/limit release from site

Do not apply industrial sludge to natural soils [OMS2]. Sludge should be incinerated, contained or reclaimed [OMS3].

Conditions and measures related to municipal sewage treatment plant

Estimated substance removal from wastewater via domestic sewage treatment (%): 94.6

Total efficiency of removal from wastewater after onsite and offsite (domestic treatment plant) RMMs (%): 94.6

Maximum allowable site tonnage (M_{Safe}) based on release following total wastewater treatment removal (kg/day): 40000

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Assumed domestic sewage treatment plant flow (m³/day): 2000

Conditions and measures related to external treatment of waste for disposal

External treatment and disposal of waste should comply with applicable local and/or national regulations [ETW3]

Conditions and measures related to external recovery of waste

External recovery and recycling of waste should comply with applicable local and/or national regulations [ERW1]

Section 3 Exposure estimation

Health

The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated.

Environment

The Hydrocarbon Block Method has been used to calculate environmental exposure with the Petrorisk model [EE2].

Section 4 Guidance to check compliance with the Exposure Scenario

Health

Predicted exposures are not expected to exceed the DN(M)EL when the Risk Management Measures/Operational Conditions outlined in Section 2 are implemented [G22].

Where other Risk Management Measures/Operational Conditions are adopted, then users should ensure that risks are managed to at least equivalent levels [G23].

Environment

Guidance is based on assumed operating conditions which may not be applicable to all sites; thus, scaling may be necessary to define appropriate site-specific risk management measures [DSU1]. Required removal efficiency for wastewater can be achieved using onsite/offsite technologies, either alone or in combination [DSU2]. Required removal efficiency for air can be achieved using onsite technologies, either alone or in combination [DSU3]. Further details on scaling and control technologies are provided in SpERC factsheet (<http://cefic.org/en/reach-for-industries-libraries.html>).

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Section 1 Exposure scenario title

Title:

Functional fluids

Sector of use:

SU22: Professional uses: Public domain (administration, education, entertainment, services, craftsmen)

Subsequent service life relevant for that use:

Under nitrogen atmosphere no time limit

Contributing Environmental Release Categories [ERC]:

ERC9a: Wide dispersive indoor use of substances in closed systems

ERC9b: Wide dispersive outdoor use of substances in closed systems

Specific Environmental Release Category: ESVOC 9.13b.v1

Contributing Process Categories [PROC]:

PROC1: Use in closed process, no likelihood of exposure

PROC2: Use in closed, continuous process with occasional controlled exposure

PROC3: Use in closed batch process (synthesis or formulation)

PROC8a: Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non-dedicated facilities

PROC9: Transfer of substance or preparation into small containers (dedicated filling line, including weighing)

PROC20: Heat and pressure transfer fluids in dispersive, professional use but closed systems

Scope of processes and activities covered by the Exposure Scenario:

Use as functional fluids e.g. cable oils, transfer oils, coolants, insulators, refrigerants, hydraulic fluids in professional equipment including maintenance and related material transfers.

Section 2 Operational conditions and risk management measures

Section 2.1 Control of worker exposure

Operational conditions of use

Physical form of product and vapour pressure:

Liquid, vapour pressure < 0.5 kPa at STP [OC3]

Concentration of substance in product:

Covers percentage substance in the product up to 100 % (unless stated differently) [G13]

Frequency and duration of use/exposure:

Covers daily exposures up to 8 hours (unless stated differently) [G2]

Other operational conditions affecting exposure:

Assumes use at not more than 20 °C above ambient temperature, unless stated differently [G15]. Assumes a good basic standard of occupational hygiene has been implemented [G1]

Contributing scenarios and risk management measures of worker exposure

General exposures (closed systems) [CS15] PROC1:

Handle substance within a closed system [E47]

Material storage [CS67] PROC1:

Store substance within a closed system [E84]

General exposures (closed systems) [CS15] PROC2:

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No other specific measures identified [E120]

Material storage [CS67] PROC2:

Store substance within a closed system [E84]

General exposures (closed systems) [CS15] PROC3:

No other specific measures identified [E120]

Equipment maintenance [CS5] PROC8a:

Drain down system prior to equipment break-in or maintenance [E65]

Remanufacture of reject articles [CS19] PROC9:

Provide enhanced mechanical ventilation by mechanical means [E48]

General exposures (open systems) [CS16] Operation is carried out at elevated temperature (> then 20°C above ambient temperature) [OC7] PROC20:

Minimize exposure by partial enclosure of the operation or equipment and provide extract ventilation at openings [E60]

General exposures (open systems) [CS16] PROC20:

No other specific measures identified [E120]

Section 2.2 Control of environmental exposure

Product characteristics:

Substance is complex UVCB [PrC3]. Predominantly hydrophobic [PrC4a].

Amounts used

Maximum daily site tonnage (kg/day): 0.0041

Frequency and duration of use

Emission days (days/year): 365

Environmental factors not influenced by risk management

Local freshwater dilution factor: 10

Local marine water dilution factor: 100

Other given operational conditions affecting environmental exposure

Release fraction to air from process (initial release prior to RMM): 0.05

Release fraction to wastewater from process (initial release prior to RMM): 0.025

Release fraction to soil from process (initial release prior to RMM): 0.025

Technical onsite conditions and measures to reduce or limit discharges, air emissions and releases to soil

Risk from environmental exposure is driven by freshwater [TCR1a]. No wastewater treatment required [TCR6].

Treat air emission to provide a typical removal efficiency of (%): N/A

Treat onsite wastewater (prior to receiving water discharge) to provide the required removal efficiency of >=(%): 0

If discharging to domestic sewage treatment plant, provide the required onsite wastewater removal efficiency of >=(%): 0

Organisation measures to prevent/limit release from site

Do not apply industrial sludge to natural soils [OMS2]. Sludge should be incinerated, contained or reclaimed [OMS3].

Conditions and measures related to municipal sewage treatment plant

Estimated substance removal from wastewater via domestic sewage treatment (%): 94.6

Total efficiency of removal from wastewater after onsite and offsite (domestic treatment plant) RMMs (%): 94.6

Maximum allowable site tonnage (M_{Safe}) based on release following total wastewater treatment removal (kg/day): 1.1

Assumed domestic sewage treatment plant flow (m^3/day): 2000

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Conditions and measures related to external treatment of waste for disposal

External treatment and disposal of waste should comply with applicable local and/or national regulations [ETW3]

Conditions and measures related to external recovery of waste

External recovery and recycling of waste should comply with applicable local and/or national regulations [ERW1]

Section 3 Exposure estimation

Health

The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated.

Environment

The Hydrocarbon Block Method has been used to calculate environmental exposure with the Petrorisk model [EE2].

Section 4 Guidance to check compliance with the Exposure Scenario

Health

Predicted exposures are not expected to exceed the DN(M)EL when the Risk Management Measures/Operational Conditions outlined in Section 2 are implemented [G22].

Where other Risk Management Measures/Operational Conditions are adopted, then users should ensure that risks are managed to at least equivalent levels [G23].

Environment

Guidance is based on assumed operating conditions which may not be applicable to all sites; thus, scaling may be necessary to define appropriate site-specific risk management measures [DSU1]. Required removal efficiency for wastewater can be achieved using onsite/offsite technologies, either alone or in combination [DSU2]. Required removal efficiency for air can be achieved using onsite technologies, either alone or in combination [DSU3]. Further details on scaling and control technologies are provided in SpERC factsheet (<http://cefic.org/en/reach-for-industries-libraries.html>).

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Section 1 Exposure scenario title

Title:

Functional fluids

Sector of use:

SU21: Consumer uses: Private households (= general public = consumers)

Subsequent service life relevant for that use:

Under nitrogen atmosphere no time limit

Contributing Environmental Release Categories [ERC]:

ERC9a: Wide dispersive indoor use of substances in closed systems.

ERC9b: Wide dispersive outdoor use of substances in closed systems.

Specific Environmental Release Category: ESVOC 9.13c.v1

Contributing Product Category [PC]:

PC16: Heat transfer fluids

PC17: Hydraulic fluids

Scope of processes and activities covered by the Exposure Scenario:

Use of sealed items containing functional fluids e.g. transfer oils, hydraulic fluids, refrigerants.

Section 2 Operational conditions and risk management measures

Section 2.1 Control of consumer exposure

Operational conditions of use

Physical form of product and vapour pressure:

Liquid, vapour pressure < 0.5 kPa

Concentration of substance in product:

Unless otherwise stated, covers concentrations up to 100% [ConsOC1]

Amounts used:

Unless otherwise stated, covers use amounts up to 2200g [ConsOC2]; covers skin contact area up to 468cm² [ConsOC5]

Frequency and duration of use/exposure:

Unless otherwise stated, covers use frequency up to 0.01 times per day [ConsOC4]; covers exposure up to 0.17 hours per event [ConsOC14]

Other operational conditions affecting exposure:

Unless otherwise stated assumes use at ambient temperatures [ConsOC15]; assumes use in a 20 m³ room [ConsOC11]; assumes use with typical ventilation [ConsOC8]

Contributing scenarios and risk management measures of consumer exposure

**PC16_n:Heat transfer fluids--Liquids
OC**

Unless otherwise stated, covers concentrations up to 100% [ConsOC1]; covers use up to 4 days per year [ConsOC3]; covers use up to 1 time/on day of use [ConsOC4]; covers skin contact area up to 468.00 cm² [ConsOC5]; for each use event, covers use amounts up to 2200g [ConsOC2]; covers use in a one car garage (34m³) under typical ventilation [ConsOC10]; covers use in room size of 34m³ [ConsOC11]; for each use event, covers exposure up to 0.17hr/event [ConsOC14];

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RMM

No specific RMMs identified beyond those OCs stated

PC17_n:Hydraulic fluids--Liquids

OC

Unless otherwise stated, covers concentrations up to 100% [ConsOC1]; covers use up to 4 days per year [ConsOC3]; covers use up to 1 time/on day of use [ConsOC4]; covers skin contact area up to 468.00 cm² [ConsOC5]; for each use event, covers use amounts up to 2200g [ConsOC2]; covers use in a one car garage (34m³) under typical ventilation [ConsOC10]; covers use in room size of 34m³ [ConsOC11]; for each use event, covers exposure up to 0.17hr/event [ConsOC14];

RMM

No specific RMMs identified beyond those OCs stated

Section 2.2 Control of environmental exposure

Product characteristics:

Substance is complex UVCB [PrC3]. Predominantly hydrophobic [PrC4a].

Amounts used

Maximum daily site tonnage (kg/day): 0.0041

Frequency and duration of use

Emission days (days/year): 365

Environmental factors not influenced by risk management

Local freshwater dilution factor: 10

Local marine water dilution factor: 100

Other given operational conditions affecting environmental exposure

Release fraction to air from process (initial release prior to RMM): 0.05

Release fraction to wastewater from process (initial release prior to RMM): 0.025

Release fraction to soil from process (initial release prior to RMM): 0.025

Conditions and measures related to municipal sewage treatment plant

Estimated substance removal from wastewater via domestic sewage treatment (%): 94.6

Maximum allowable site tonnage (M_{Safe}) based on release following total wastewater treatment removal (kg/day): 1.1

Assumed domestic sewage treatment plant flow (m³/day): 2000

Conditions and measures related to external treatment of waste for disposal

External treatment and disposal of waste should comply with applicable local and/or national regulations [ETW3]

Conditions and measures related to external recovery of waste

External recovery and recycling of waste should comply with applicable local and/or national regulations [ERW1]

Section 3 Exposure estimation

Health

The ECETOC TRA tool has been used to estimate consumer exposures, consistent with the content of ECETOC Report #107 and the Chapter R15 of the IR&CSA TGD. Where exposure determinants differ to these sources, then they are indicated.

Environment

The Hydrocarbon Block Method has been used to calculate environmental exposure with the Petrorisk model [EE2].

Section 4 Guidance to check compliance with the Exposure Scenario

Health

Predicted exposures are not expected to exceed the DN(M)EL when the Risk Management Measures/Operational Conditions outlined in Section 2 are implemented. [G22]

Where other Risk Management Measures/Operational Conditions are adopted, then users should ensure that risks are managed to at least equivalent levels. [G23]

Environment

Guidance is based on assumed operating conditions which may not be applicable to all sites; thus, scaling may be necessary to define appropriate site-specific risk management measures [DSU1] Further details on scaling and control technologies are provided in factsheet (<http://cefic.org/en/reach-for-industries-libraries.html>) [DSU4]

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Section 1 Exposure scenario title

Title:

Use in road and construction applications

Sector of use:

SU22: Professional uses: Public domain (administration, education, entertainment, services, craftsmen)

Subsequent service life relevant for that use:

Under nitrogen atmosphere no time limit

Contributing Environmental Release Categories [ERC]:

ERC8d: Wide dispersive outdoor use of processing aids in open systems
(ERC8f: Wide dispersive outdoor use resulting in inclusion into or onto a matrix)
Specific Environmental Release Category: ESVOC 8.15.v1

Contributing Process Categories [PROC]:

PROC8a: Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non-dedicated facilities
PROC8b: Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities
PROC10: Roller application or brushing
PROC11: Non industrial spraying
PROC13: Treatment of articles by dipping and pouring

Scope of processes and activities covered by the Exposure Scenario:

Application of surface coatings and binders in road and construction activities, including paving uses, manual mastic and in the application of roofing and water-proofing membranes.

Section 2 Operational conditions and risk management measures

Section 2.1 Control of worker exposure

Operational conditions of use

Physical form of product and vapour pressure:

Liquid, vapour pressure < 0.5 kPa at STP [OC3]

Concentration of substance in product:

Covers percentage substance in the product up to 100 % (unless stated differently) [G13]

Frequency and duration of use/exposure:

Covers daily exposures up to 8 hours (unless stated differently) [G2]

Other operational conditions affecting exposure:

Assumes use at not more than 20 °C above ambient temperature, unless stated differently [G15]. Assumes a good basic standard of occupational hygiene has been implemented [G1]

Contributing scenarios and risk management measures of worker exposure

Drum/batch transfers [CS8] Non-dedicated facility [CS82] PROC8a:

Ensure operation is undertaken outdoors [E69] Wear a respirator conforming to EN140 with Type A filter or better [PPE22]

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Equipment cleaning and maintenance [CS39] PROC8a:

Retain drain downs in sealed storage pending disposal or for subsequent recycle [ENVT4]

Drum/batch transfers [CS8] Dedicated facility [CS81] PROC8b:

Ensure operation is undertaken outdoors [E69] Use dedicated equipment [E85] Clear transfer lines prior to de-coupling [E39]

Drum/batch transfers [CS8] Dedicated facility [CS81] Operation is carried out at elevated temperature (> then 20°C above ambient temperature) [OC7] PROC8b:

Ensure operation is undertaken outdoors [E69] Wear a respirator conforming to EN140 with Type A filter or better [PPE22] Use dedicated equipment [E85] Clear transfer lines prior to de-coupling [E39]

Manual applications e.g. brushing, rolling [CS13] PROC10:

Ensure operation is undertaken outdoors [E69] Wear a respirator conforming to EN140 with Type A filter or better [PPE22]

Spraying/Fogging by machine application [CS25] Operation is carried out at elevated temperature (> then 20°C above ambient temperature) [OC7] PROC11:

Ensure operation is undertaken outdoors [E69] Avoid carrying out operation for more than 1 hour [OC11] Wear a respirator conforming to EN140 with Type A filter or better [PPE22] Automate activity where possible [AP16] Ensure operatives where trained to minimize exposures [EI19] Stay upwind/keep distance from source [EI22]

Spraying/Fogging by machine application [CS25] PROC11:

Ensure operation is undertaken outdoors [E69] Avoid carrying out operation for more than 1 hour [OC11] Wear a respirator conforming to EN140 with Type A filter or better [PPE22]

Dipping, immersion and pouring [CS4] PROC13:

Ensure operation is undertaken outdoors [E69]

Section 2.2 Control of environmental exposure

Product characteristics:

Substance is complex UVCB [PrC3]. Predominantly hydrophobic [PrC4a].

Amounts used

Maximum daily site tonnage (kg/day): 0.017

Frequency and duration of use

Emission days (days/year): 365

Environmental factors not influenced by risk management

Local freshwater dilution factor: 10

Local marine water dilution factor: 100

Other given operational conditions affecting environmental exposure

Release fraction to air from process (initial release prior to RMM): 0.95

Release fraction to wastewater from process (initial release prior to RMM): 0.01

Release fraction to soil from process (initial release prior to RMM): 0.04

Technical onsite conditions and measures to reduce or limit discharges, air emissions and releases to soil

Risk from environmental exposure is driven by freshwater [TCR1a]. No wastewater treatment required [TCR6].

Treat air emission to provide a typical removal efficiency of (%): 0

Treat onsite wastewater (prior to receiving water discharge) to provide the required removal efficiency of >=(%): 0

If discharging to domestic sewage treatment plant, provide the required onsite wastewater removal efficiency of >=(%): 0

Organisation measures to prevent/limit release from site

Do not apply industrial sludge to natural soils [OMS2]. Sludge should be incinerated, contained or reclaimed [OMS3].

Conditions and measures related to municipal sewage treatment plant

Estimated substance removal from wastewater via domestic sewage treatment (%): 94.6
Total efficiency of removal from wastewater after onsite and offsite (domestic treatment plant) RMMs (%): 94.6
Maximum allowable site tonnage (M_{Safe}) based on release following total wastewater treatment removal (kg/day): 4.6
Assumed domestic sewage treatment plant flow (m^3/day): 2000

Conditions and measures related to external treatment of waste for disposal

External treatment and disposal of waste should comply with applicable local and/or national regulations [ETW3]

Conditions and measures related to external recovery of waste

External recovery and recycling of waste should comply with applicable local and/or national regulations [ERW1]

Section 3 Exposure estimation

Health

The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated.

Environment

The Hydrocarbon Block Method has been used to calculate environmental exposure with the Petrorisk model [EE2].

Section 4 Guidance to check compliance with the Exposure Scenario

Health

Predicted exposures are not expected to exceed the DN(M)EL when the Risk Management Measures/Operational Conditions outlined in Section 2 are implemented [G22].

Where other Risk Management Measures/Operational Conditions are adopted, then users should ensure that risks are managed to at least equivalent levels [G23].

Environment

Guidance is based on assumed operating conditions which may not be applicable to all sites; thus, scaling may be necessary to define appropriate site-specific risk management measures [DSU1]. Required removal efficiency for wastewater can be achieved using onsite/offsite technologies, either alone or in combination [DSU2]. Required removal efficiency for air can be achieved using onsite technologies, either alone or in combination [DSU3]. Further details on scaling and control technologies are provided in SpERC factsheet (<http://cefic.org/en/reach-for-industries-libraries.html>).

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Substance: Hydrocarbons, C10, aromatics, >1% naphthalene
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Section 1 Exposure scenario title

Title:

Use in laboratories

Sector of use:

SU3: Industrial uses: Uses of substances as such or in mixtures at industrial sites

Subsequent service life relevant for that use:

Under nitrogen atmosphere no time limit

Contributing Environmental Release Categories [ERC]:

ERC2: Formulation of preparation

ERC4: Industrial use of processing aids in processes and products, not becoming part of articles

Specific Environmental Release Category: not applicable

Contributing Process Categories [PROC]:

PROC10: Roller application or brushing of adhesive and other coating

PROC15: Use as laboratory reagent

Scope of processes and activities covered by the Exposure Scenario:

Use of the substance within laboratory settings, including material transfers and equipment cleaning

Section 2 Operational conditions and risk management measures

Section 2.1 Control of worker exposure

Operational conditions of use

Physical form of product and vapour pressure:

Liquid, vapour pressure < 0.5 kPa at STP [OC3]

Concentration of substance in product:

Covers percentage substance in the product up to 100 % (unless stated differently) [G13]

Frequency and duration of use/exposure:

Covers daily exposures up to 8 hours (unless stated differently) [G2]

Other operational conditions affecting exposure:

Assumes use at not more than 20 °C above ambient temperature, unless stated differently [G15]. Assumes a good basic standard of occupational hygiene has been implemented [G1]

Contributing scenarios and risk management measures of worker exposure

Cleaning [CS47] PROC10:

No specific measures identified [E118]

Laboratory activities [CS36] PROC15:

No specific measures identified [E118]

Section 2.2 Control of environmental exposure

Product characteristics:

Substance is complex UVCB [PrC3]. Predominantly hydrophobic [PrC4a].

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Substance: Hydrocarbons, C10, aromatics, >1% naphthalene
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Amounts used

Maximum daily site tonnage (kg/day): 30

Frequency and duration of use

Emission days (days/year): 20

Environmental factors not influenced by risk management

Local freshwater dilution factor: 10

Local marine water dilution factor: 100

Other given operational conditions affecting environmental exposure

Release fraction to air from process (initial release prior to RMM): 0.025

Release fraction to wastewater from process (initial release prior to RMM): 0.02

Release fraction to soil from process (initial release prior to RMM): 0.0001

Technical onsite conditions and measures to reduce or limit discharges, air emissions and releases to soil

Risk from environmental exposure is driven by freshwater sediment [TCR1b]. No wastewater treatment required [TCR6].

Treat air emission to provide a typical removal efficiency of (%): 0

Treat onsite wastewater (prior to receiving water discharge) to provide the required removal efficiency of >=(%): 0

If discharging to domestic sewage treatment plant, provide the required onsite wastewater removal efficiency of >=(%): 0

Organisation measures to prevent/limit release from site

Do not apply industrial sludge to natural soils [OMS2]. Sludge should be incinerated, contained or reclaimed [OMS3].

Conditions and measures related to municipal sewage treatment plant

Estimated substance removal from wastewater via domestic sewage treatment (%): 94.6

Total efficiency of removal from wastewater after onsite and offsite (domestic treatment plant) RMMs (%): 94.6

Maximum allowable site tonnage (M_{Safe}) based on release following total wastewater treatment removal (kg/day): 1300

Assumed domestic sewage treatment plant flow (m^3/day): 2000

Conditions and measures related to external treatment of waste for disposal

External treatment and disposal of waste should comply with applicable local and/or national regulations [ETW3]

Conditions and measures related to external recovery of waste

External recovery and recycling of waste should comply with applicable local and/or national regulations [ERW1]

Section 3 Exposure estimation

Health

The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated.

Environment

The Hydrocarbon Block Method has been used to calculate environmental exposure with the Petrorisk model [EE2].

Section 4 Guidance to check compliance with the Exposure Scenario

Health

Predicted exposures are not expected to exceed the DN(M)EL when the Risk Management Measures/Operational Conditions outlined in Section 2 are implemented [G22].

Where other Risk Management Measures/Operational Conditions are adopted, then users should ensure that risks are managed to at least equivalent levels [G23].

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Substance: Hydrocarbons, C10, aromatics, >1% naphthalene
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Environment

Guidance is based on assumed operating conditions which may not be applicable to all sites; thus, scaling may be necessary to define appropriate site-specific risk management measures [DSU1]. Required removal efficiency for wastewater can be achieved using onsite/offsite technologies, either alone or in combination [DSU2]. Required removal efficiency for air can be achieved using onsite technologies, either alone or in combination [DSU3].

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Substance: Hydrocarbons, C10, aromatics, >1% naphthalene
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Section 1 Exposure scenario title

Title:

Use in laboratories

Sector of use:

SU22: Professional uses: Public domain (administration, education, entertainment, services, craftsmen)

Subsequent service life relevant for that use:

Under nitrogen atmosphere no time limit

Contributing Environmental Release Categories [ERC]:

ERC8a: Wide dispersive indoor use of processing aids in open systems
Specific Environmental Release Category: ESVOC 8.17.v1

Contributing Process Categories [PROC]:

PROC10: Roller application or brushing
PROC15: Use as laboratory reagent

Scope of processes and activities covered by the Exposure Scenario:

Use of small quantities within laboratory settings, including material transfers and equipment cleaning.

Section 2 Operational conditions and risk management measures

Section 2.1 Control of worker exposure

Operational conditions of use

Physical form of product and vapour pressure:

Liquid, vapour pressure < 0.5 kPa at STP [OC3]

Concentration of substance in product:

Covers percentage substance in the product up to 100 % (unless stated differently) [G13]

Frequency and duration of use/exposure:

Covers daily exposures up to 8 hours (unless stated differently) [G2]

Other operational conditions affecting exposure:

Assumes use at not more than 20 °C above ambient temperature, unless stated differently [G15]. Assumes a good basic standard of occupational hygiene has been implemented [G1]

Contributing scenarios and risk management measures of worker exposure

Cleaning [CS47] PROC10:

No other specific measures identified [EI20]

Laboratory activities [CS36] PROC15:

No other specific measures identified [EI20]

Section 2.2 Control of environmental exposure

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Substance: Hydrocarbons, C10, aromatics, >1% naphthalene
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Product characteristics:

Substance is complex UVCB [PrC3]. Predominantly hydrophobic [PrC4a].

Amounts used

Maximum daily site tonnage (kg/day): 0.00082

Frequency and duration of use

Emission days (days/year): 365

Environmental factors not influenced by risk management

Local freshwater dilution factor: 10

Local marine water dilution factor: 100

Other given operational conditions affecting environmental exposure

Release fraction to air from process (initial release prior to RMM): 0.5

Release fraction to wastewater from process (initial release prior to RMM): 0.5

Release fraction to soil from process (initial release prior to RMM): 0

Technical onsite conditions and measures to reduce or limit discharges, air emissions and releases to soil

Risk from environmental exposure is driven by freshwater [TCR1a]. No wastewater treatment required [TCR6].

Treat air emission to provide a typical removal efficiency of (%): 0

Treat onsite wastewater (prior to receiving water discharge) to provide the required removal efficiency of >=(%): 0

If discharging to domestic sewage treatment plant, provide the required onsite wastewater removal efficiency of >=(%): 0

Organisation measures to prevent/limit release from site

Do not apply industrial sludge to natural soils [OMS2]. Sludge should be incinerated, contained or reclaimed [OMS3].

Conditions and measures related to municipal sewage treatment plant

Estimated substance removal from wastewater via domestic sewage treatment (%): 94.6

Total efficiency of removal from wastewater after onsite and offsite (domestic treatment plant) RMMs (%): 94.6

Maximum allowable site tonnage (M_{Safe}) based on release following total wastewater treatment removal (kg/day): 0.23

Assumed domestic sewage treatment plant flow (m^3/day): 2000

Conditions and measures related to external treatment of waste for disposal

External treatment and disposal of waste should comply with applicable local and/or national regulations [ETW3]

Conditions and measures related to external recovery of waste

External recovery and recycling of waste should comply with applicable local and/or national regulations [ERW1]

Section 3 Exposure estimation

Health

The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated.

Environment

The Hydrocarbon Block Method has been used to calculate environmental exposure with the Petrorisk model [EE2].

Section 4 Guidance to check compliance with the Exposure Scenario

Health

Predicted exposures are not expected to exceed the DN(M)EL when the Risk Management Measures/Operational Conditions outlined in Section 2 are implemented [G22].

Where other Risk Management Measures/Operational Conditions are adopted, then users should ensure that risks are managed to at least equivalent levels [G23].

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Environment

Guidance is based on assumed operating conditions which may not be applicable to all sites; thus, scaling may be necessary to define appropriate site-specific risk management measures [DSU1]. Required removal efficiency for wastewater can be achieved using onsite/offsite technologies, either alone or in combination [DSU2]. Required removal efficiency for air can be achieved using onsite technologies, either alone or in combination [DSU3]. Further details on scaling and control technologies are provided in SpERC factsheet (<http://cefic.org/en/reach-for-industries-libraries.html>).

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Section 1 Exposure scenario title

Title:

Polymer processing

Sector of use:

SU22: Professional uses: Public domain (administration, education, entertainment, services, craftsmen)

Subsequent service life relevant for that use:

Under nitrogen atmosphere no time limit

Contributing Environmental Release Categories [ERC]:

ERC8a: Wide dispersive indoor use of processing aids in open systems

ERC8d: Wide dispersive outdoor use of processing aids in open systems

Specific Environmental Release Category: ESVOC 8.21b.v1

Contributing Process Categories [PROC]:

PROC1: Use in closed process, no likelihood of exposure

PROC2: Use in closed, continuous process with occasional controlled exposure

PROC6: Calendaring operations

PROC8a: Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non-dedicated facilities

PROC8b: Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities

PROC14: Production of preparations or articles by tableting, compression, extrusion, pelletisation

PROC21: Low energy manipulation of substances bound in materials and/or articles

Scope of processes and activities covered by the Exposure Scenario:

Covers the use of formulated lubricants in closed and open systems including transfer operations, operation of machinery/engines and similar articles, reworking on reject articles, equipment maintenance and disposal of wastes.

Section 2 Operational conditions and risk management measures

Section 2.1 Control of worker exposure

Operational conditions of use

Physical form of product and vapour pressure:

Liquid, vapour pressure < 0.5 kPa at STP [OC3]

Concentration of substance in product:

Covers percentage substance in the product up to 100 % (unless stated differently) [G13]

Frequency and duration of use/exposure:

Covers daily exposures up to 8 hours (unless stated differently) [G2]

Other operational conditions affecting exposure:

Assumes use at not more than 20 °C above ambient temperature, unless stated differently [G15]. Assumes a good basic standard of occupational hygiene has been implemented [G1]

Contributing scenarios and risk management measures of worker exposure

Bulk transfers [CS14] (closed systems) [CS107] PROC1:

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Handle substance within a closed system [E47]

Material storage [CS67] PROC1:

Store substance within a closed system [E84]

Bulk transfers [CS14] (closed systems) [CS107] PROC2:

Handle substance within a closed system [E47]

Material storage [CS67] PROC2:

Store substance within a closed system [E84]

Injection moulding of articles [CS89] PROC6:

Provide enhanced mechanical ventilation by mechanical means [E48]

Equipment maintenance [CS5] PROC8a:

Drain or remove substance from equipment prior to break-in or maintenance [E81]

Material transfers [CS3] PROC8b:

Transfer via enclosed lines [E52]

Injection moulding of articles [CS89] PROC14:

Provide enhanced mechanical ventilation by mechanical means [E48]

Rework of articles [CS86] PROC21:

No other specific measures identified [E120]

Section 2.2 Control of environmental exposure

Product characteristics:

Substance is complex UVCB [PrC3]. Predominantly hydrophobic [PrC4a].

Amounts used

Maximum daily site tonnage (kg/day): 500

Frequency and duration of use

Emission days (days/year): 365

Environmental factors not influenced by risk management

Local freshwater dilution factor: 10

Local marine water dilution factor: 100

Other given operational conditions affecting environmental exposure

Release fraction to air from process (initial release prior to RMM): 0.25

Release fraction to wastewater from process (initial release prior to RMM): 0

Release fraction to soil from process (initial release prior to RMM): 0.00001

Technical onsite conditions and measures to reduce or limit discharges, air emissions and releases to soil

Risk from environmental exposure is driven by freshwater [TCR1a]. No wastewater treatment required [TCR6].

Treat air emission to provide a typical removal efficiency of (%): N/A

Treat onsite wastewater (prior to receiving water discharge) to provide the required removal efficiency of >=(%): 0

If discharging to domestic sewage treatment plant, provide the required onsite wastewater removal efficiency of >=(%): 0

Organisation measures to prevent/limit release from site

Do not apply industrial sludge to natural soils [OMS2]. Sludge should be incinerated, contained or reclaimed [OMS3].

Conditions and measures related to municipal sewage treatment plant

Estimated substance removal from wastewater via domestic sewage treatment (%): 94.6

Total efficiency of removal from wastewater after onsite and offsite (domestic treatment plant) RMMs (%): 94.6

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Maximum allowable site tonnage (M_{Safe}) based on release following total wastewater treatment removal (kg/day): 140000
Assumed domestic sewage treatment plant flow (m^3/day): 2000

Conditions and measures related to external treatment of waste for disposal

External treatment and disposal of waste should comply with applicable local and/or national regulations [ETW3]

Conditions and measures related to external recovery of waste

External recovery and recycling of waste should comply with applicable local and/or national regulations [ERW1]

Section 3 Exposure estimation

Health

The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated.

Environment

The Hydrocarbon Block Method has been used to calculate environmental exposure with the Petrorisk model [EE2].

Section 4 Guidance to check compliance with the Exposure Scenario

Health

Predicted exposures are not expected to exceed the DN(M)EL when the Risk Management Measures/Operational Conditions outlined in Section 2 are implemented [G22].

Where other Risk Management Measures/Operational Conditions are adopted, then users should ensure that risks are managed to at least equivalent levels [G23].

Environment

Guidance is based on assumed operating conditions which may not be applicable to all sites; thus, scaling may be necessary to define appropriate site-specific risk management measures [DSU1]. Required removal efficiency for wastewater can be achieved using onsite/offsite technologies, either alone or in combination [DSU2]. Required removal efficiency for air can be achieved using onsite technologies, either alone or in combination [DSU3]. Further details on scaling and control technologies are provided in SpERC factsheet (<http://cefic.org/en/reach-for-industries-libraries.html>).

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Section 1 Exposure scenario title

Title:

Water treatment chemicals

Sector of use:

SU3: Industrial uses: Uses of substances as such or in mixtures at industrial sites

Subsequent service life relevant for that use:

Under nitrogen atmosphere no time limit

Contributing Environmental Release Categories [ERC]:

ERC3: Formulation in materials

ERC4: Industrial use of processing aids in processes and products, not becoming part of articles

Specific Environmental Release Category: ESVOC 3.22a.v1

Contributing Process Categories [PROC]:

PROC1: Use in closed process, no likelihood of exposure

PROC2: Use in closed, continuous process with occasional controlled exposure

PROC3: Use in closed batch process (synthesis or formulation)

PROC4: Use in batch and other process (synthesis) where opportunity for exposure arises

PROC8a: Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non-dedicated facilities

PROC8b: Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities

PROC13: Treatment of articles by dipping and pouring

Scope of processes and activities covered by the Exposure Scenario:

Covers the use of formulated lubricants in closed and open systems including transfer operations, operation of machinery/engines and similar articles, reworking on reject articles, equipment maintenance and disposal of wastes.

Section 2 Operational conditions and risk management measures

Section 2.1 Control of worker exposure

Operational conditions of use

Physical form of product and vapour pressure:

Liquid, vapour pressure < 0.5 kPa at STP [OC3]

Concentration of substance in product:

Covers percentage substance in the product up to 100 % (unless stated differently) [G13]

Frequency and duration of use/exposure:

Covers daily exposures up to 8 hours (unless stated differently) [G2]

Other operational conditions affecting exposure:

Assumes use at not more than 20 °C above ambient temperature, unless stated differently [G15]. Assumes a good basic standard of occupational hygiene has been implemented [G1]

Contributing scenarios and risk management measures of worker exposure

Material storage [CS67] PROC1:

Store substance within a closed system [E84]

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Bulk transfers [CS14] Dedicated facility [CS81] PROC2:

Transfer via enclosed lines [E52]

General exposures (closed systems) [CS15] PROC3:

No specific measures identified [E118]

General exposures (open systems) [CS16] PROC4:

No specific measures identified [E118]

Equipment maintenance [CS5] PROC8a:

Provide enhanced mechanical ventilation by mechanical means [E48]

Drum/batch transfers [CS8] PROC8b:

No specific measures identified [E118]

Pouring from small containers [CS9] PROC13:

Provide enhanced mechanical ventilation by mechanical means [E48]

Section 2.2 Control of environmental exposure

Product characteristics:

Substance is complex UVCB [PrC3]. Predominantly hydrophobic [PrC4a].

Amounts used

Maximum daily site tonnage (kg/day): 4

Frequency and duration of use

Emission days (days/year): 365

Environmental factors not influenced by risk management

Local freshwater dilution factor: 10

Local marine water dilution factor: 100

Other given operational conditions affecting environmental exposure

Release fraction to air from process (initial release prior to RMM): 0.01

Release fraction to wastewater from process (initial release prior to RMM): 0.99

Release fraction to soil from process (initial release prior to RMM): 0

Technical onsite conditions and measures to reduce or limit discharges, air emissions and releases to soil

Risk from environmental exposure is driven by freshwater sediment [TCR1b]. Onsite wastewater treatment required [TCR13].

Treat air emission to provide a typical removal efficiency of (%): 0

Treat onsite wastewater (prior to receiving water discharge) to provide the required removal efficiency of >=(%): 65.8

If discharging to domestic sewage treatment plant, provide the required onsite wastewater removal efficiency of >=(%): 0

Organisation measures to prevent/limit release from site

Do not apply industrial sludge to natural soils [OMS2]. Sludge should be incinerated, contained or reclaimed [OMS3].

Conditions and measures related to municipal sewage treatment plant

Estimated substance removal from wastewater via domestic sewage treatment (%): 94.6

Total efficiency of removal from wastewater after onsite and offsite (domestic treatment plant) RMMs (%): 94.6

Maximum allowable site tonnage (M_{Safe}) based on release following total wastewater treatment removal (kg/day): 26

Assumed domestic sewage treatment plant flow (m^3/day): 2000

Conditions and measures related to external treatment of waste for disposal

External treatment and disposal of waste should comply with applicable local and/or national regulations [ETW3]

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Conditions and measures related to external recovery of waste

External recovery and recycling of waste should comply with applicable local and/or national regulations [ERW1]

Section 3 Exposure estimation

Health

The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated.

Environment

The Hydrocarbon Block Method has been used to calculate environmental exposure with the Petrorisk model [EE2].

Section 4 Guidance to check compliance with the Exposure Scenario

Health

Predicted exposures are not expected to exceed the DN(M)EL when the Risk Management Measures/Operational Conditions outlined in Section 2 are implemented [G22].

Where other Risk Management Measures/Operational Conditions are adopted, then users should ensure that risks are managed to at least equivalent levels [G23].

Environment

Guidance is based on assumed operating conditions which may not be applicable to all sites; thus, scaling may be necessary to define appropriate site-specific risk management measures [DSU1]. Required removal efficiency for wastewater can be achieved using onsite/offsite technologies, either alone or in combination [DSU2]. Required removal efficiency for air can be achieved using onsite technologies, either alone or in combination [DSU3]. Further details on scaling and control technologies are provided in SpERC factsheet (<http://cefic.org/en/reach-for-industries-libraries.html>).

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Section 1 Exposure scenario title

Title:

Water treatment chemicals

Sector of use:

SU22: Professional uses: Public domain (administration, education, entertainment, services, craftsmen)

Subsequent service life relevant for that use:

Under nitrogen atmosphere no time limit

Contributing Environmental Release Categories [ERC]:

ERC8f: Wide dispersive outdoor use resulting in inclusion into or onto a matrix
Specific Environmental Release Category: ESVOC 8.22b.v1

Contributing Process Categories [PROC]:

- PROC1: Use in closed process, no likelihood of exposure
- PROC3: Use in closed batch process (synthesis or formulation)
- PROC4: Use in batch and other process (synthesis) where opportunity for exposure arises
- PROC8a: Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non-dedicated facilities
- PROC8b: Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities
- PROC13: Treatment of articles by dipping and pouring

Scope of processes and activities covered by the Exposure Scenario:

Covers the use of the substance for the treatment of water in open and closed systems.

Section 2 Operational conditions and risk management measures

Section 2.1 Control of worker exposure

Operational conditions of use

Physical form of product and vapour pressure:

Liquid, vapour pressure < 0.5 kPa at STP [OC3]

Concentration of substance in product:

Covers percentage substance in the product up to 100 % (unless stated differently) [G13]

Frequency and duration of use/exposure:

Covers daily exposures up to 8 hours (unless stated differently) [G2]

Other operational conditions affecting exposure:

Assumes use at not more than 20 °C above ambient temperature, unless stated differently [G15]. Assumes a good basic standard of occupational hygiene has been implemented [G1]

Contributing scenarios and risk management measures of worker exposure

General exposures (closed system) [CS15] PROC3:

No other specific measures identified [E120]

General exposures (open system) [CS16] PROC4:

Provide enhanced mechanical ventilation by mechanical means [E48]

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Material storage [CS67] PROC1:

Store substance within a closed system [E84]

Equipment maintenance [CS5] PROC8a:

Drain down system prior to equipment break-in or maintenance [E65]

Drum/batch transfers [CS8] PROC8b:

Provide enhanced mechanical ventilation by mechanical means [E48]

Pouring from small containers [CS9] PROC13:

Avoid carrying out operation for more than 1 hour [OC11]

Section 2.2 Control of environmental exposure

Product characteristics:

Substance is complex UVCB [PrC3]. Predominantly hydrophobic [PrC4a].

Amounts used

Maximum daily site tonnage (kg/day): 4.0

Frequency and duration of use

Emission days (days/year): 365

Environmental factors not influenced by risk management

Local freshwater dilution factor: 10

Local marine water dilution factor: 100

Other given operational conditions affecting environmental exposure

Release fraction to air from process (initial release prior to RMM): 0.01

Release fraction to wastewater from process (initial release prior to RMM): 0.99

Release fraction to soil from process (initial release prior to RMM): 0.0

Technical onsite conditions and measures to reduce or limit discharges, air emissions and releases to soil

Risk from environmental exposure is driven by freshwater [TCR1a]. No wastewater treatment required [TCR6].

Treat air emission to provide a typical removal efficiency of (%): N/A

Treat onsite wastewater (prior to receiving water discharge) to provide the required removal efficiency of >=(%): 65.8

If discharging to domestic sewage treatment plant, provide the required onsite wastewater removal efficiency of >=(%): 0

Organisation measures to prevent/limit release from site

Do not apply industrial sludge to natural soils [OMS2]. Sludge should be incinerated, contained or reclaimed [OMS3].

Conditions and measures related to municipal sewage treatment plant

Estimated substance removal from wastewater via domestic sewage treatment (%): 94.6

Total efficiency of removal from wastewater after onsite and offsite (domestic treatment plant) RMMs (%): 94.6

Maximum allowable site tonnage (M_{Safe}) based on release following total wastewater treatment removal (kg/day): 26

Assumed domestic sewage treatment plant flow (m^3/day): 2000

Conditions and measures related to external treatment of waste for disposal

External treatment and disposal of waste should comply with applicable local and/or national regulations [ETW3]

Conditions and measures related to external recovery of waste

External recovery and recycling of waste should comply with applicable local and/or national regulations [ERW1]

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Section 3 Exposure estimation

Health

The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated.

Environment

The Hydrocarbon Block Method has been used to calculate environmental exposure with the Petrorisk model [EE2].

Section 4 Guidance to check compliance with the Exposure Scenario

Health

Predicted exposures are not expected to exceed the DN(M)EL when the Risk Management Measures/Operational Conditions outlined in Section 2 are implemented [G22].

Where other Risk Management Measures/Operational Conditions are adopted, then users should ensure that risks are managed to at least equivalent levels [G23].

Environment

Guidance is based on assumed operating conditions which may not be applicable to all sites; thus, scaling may be necessary to define appropriate site-specific risk management measures [DSU1]. Required removal efficiency for wastewater can be achieved using onsite/offsite technologies, either alone or in combination [DSU2]. Required removal efficiency for air can be achieved using onsite technologies, either alone or in combination [DSU3]. Further details on scaling and control technologies are provided in SpERC factsheet (<http://cefic.org/en/reach-for-industries-libraries.html>).

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Section 1 Exposure scenario title

Title:

Use in Mining Operations

Sector of use:

SU3: Industrial uses: Uses of substances as such or in mixtures at industrial sites

Subsequent service life relevant for that use:

Under nitrogen atmosphere no time limit

Contributing Environmental Release Categories [ERC]:

ERC4: Industrial use of processing aids in processes and products, not becoming part of articles
Specific Environmental Release Category: ESVOC 4.23.v1

Contributing Process Categories [PROC]:

- PROC1: Use in closed process, no likelihood of exposure
- PROC2: Use in closed, continuous process with occasional controlled exposure
- PROC3: Use in closed batch process (synthesis or formulation)
- PROC4: Use in batch and other process (synthesis) where opportunity for exposure arises
- PROC8a: Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non-dedicated facilities
- PROC8b: Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities
- PROC9: Transfer of substance or preparation into small containers (dedicated filling line, including weighing)

Scope of processes and activities covered by the Exposure Scenario:

Covers the use of substance in extraction processes at mining operations, including material transfers, winning and separation activities, and substance recovery and disposal.

Section 2 Operational conditions and risk management measures

Section 2.1 Control of worker exposure

Operational conditions of use

Physical form of product and vapour pressure:

Liquid, vapour pressure < 0.5 kPa at STP [OC3]

Concentration of substance in product:

Covers percentage substance in the product up to 100 % (unless stated differently) [G13]

Frequency and duration of use/exposure:

Covers daily exposures up to 8 hours (unless stated differently) [G2]

Other operational conditions affecting exposure:

Assumes use at not more than 20 °C above ambient temperature, unless stated differently [G15]. Assumes a good basic standard of occupational hygiene has been implemented [G1]

Contributing scenarios and risk management measures of worker exposure

Mixing and blending [CS23] (closed systems) [CS107] PROC1:

No specific measures identified [E118]

Material storage [CS67] PROC1:

Store substance within a closed system [E84]

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Substance: Hydrocarbons, C10, aromatics, >1% naphthalene
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Bulk transfers [CS14] (closed systems) [CS107] PROC2:

Transfer via enclosed lines [E52]

General exposures (closed systems) [CS15] PROC2:

No specific measures identified [E118]

Ion exchange processes [CS105] (closed systems) [CS107] PROC2:

No specific measures identified [E118]

Process sampling [CS2] PROC3:

No specific measures identified [E118]

General exposures (open systems) [CS16] PROC4:

No specific measures identified [E118]

Phase separation [CS106] (closed systems) [CS107] PROC4:

No specific measures identified [E118]

Equipment cleaning and maintenance [CS39] PROC8a:

No specific measures identified [E118]

Drum/batch transfers [CS8] PROC8b:

No specific measures identified [E118]

Pouring from small containers [CS9] PROC9:

No specific measures identified [E118]

Section 2.2 Control of environmental exposure

Product characteristics:

Substance is complex UVCB [PrC3]. Predominantly hydrophobic [PrC4a].

Amounts used

Maximum daily site tonnage (kg/day): 5.0

Frequency and duration of use

Emission days (days/year): 20

Environmental factors not influenced by risk management

Local freshwater dilution factor: 10

Local marine water dilution factor: 100

Other given operational conditions affecting environmental exposure

Release fraction to air from process (initial release prior to RMM): 0.25

Release fraction to wastewater from process (initial release prior to RMM): 0.5

Release fraction to soil from process (initial release prior to RMM): 0.05

Technical onsite conditions and measures to reduce or limit discharges, air emissions and releases to soil

Risk from environmental exposure is driven by freshwater [TCR1a]. Prevent discharge of undissolved substance to, or recover from, onsite wastewater [TCR14]. No wastewater treatment required [TCR6].

Treat air emission to provide a typical removal efficiency of (%): 80

Treat onsite wastewater (prior to receiving water discharge) to provide the required removal efficiency of >=(%): 42.8

If discharging to domestic sewage treatment plant, provide the required onsite wastewater removal efficiency of >=(%): 0

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Substance: Hydrocarbons, C10, aromatics, >1% naphthalene
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Organisation measures to prevent/limit release from site

Do not apply industrial sludge to natural soils [OMS2]. Sludge should be incinerated, contained or reclaimed [OMS3].

Conditions and measures related to municipal sewage treatment plant

Estimated substance removal from wastewater via domestic sewage treatment (%): 94.6

Total efficiency of removal from wastewater after onsite and offsite (domestic treatment plant) RMMs (%): 94.6

Maximum allowable site tonnage (M_{Safe}) based on release following total wastewater treatment removal (kg/day): 53

Assumed domestic sewage treatment plant flow (m^3/day): 2000

Conditions and measures related to external treatment of waste for disposal

External treatment and disposal of waste should comply with applicable local and/or national regulations [ETW3]

Conditions and measures related to external recovery of waste

External recovery and recycling of waste should comply with applicable local and/or national regulations [ERW1]

Section 3 Exposure estimation

Health

The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated.

Environment

The Hydrocarbon Block Method has been used to calculate environmental exposure with the Petrorisk model [EE2].

Section 4 Guidance to check compliance with the Exposure Scenario

Health

Predicted exposures are not expected to exceed the DN(M)EL when the Risk Management Measures/Operational Conditions outlined in Section 2 are implemented [G22].

Where other Risk Management Measures/Operational Conditions are adopted, then users should ensure that risks are managed to at least equivalent levels [G23].

Environment

Guidance is based on assumed operating conditions which may not be applicable to all sites; thus, scaling may be necessary to define appropriate site-specific risk management measures [DSU1]. Required removal efficiency for wastewater can be achieved using onsite/offsite technologies, either alone or in combination [DSU2]. Required removal efficiency for air can be achieved using onsite technologies, either alone or in combination [DSU3]. Further details on scaling and control technologies are provided in SpERC factsheet (<http://cefic.org/en/reach-for-industries-libraries.html>).