

# Annex to the extended Safety Data Sheet



Substance: Hydrocarbons, C9-C11, isoalkanes, cyclics, < 2% aromatics  
**low volatility (< 0.5 kPa)**

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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

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 other specific measures identified [E120]

##### 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 other specific measures identified [E120]

## **Equipment cleaning and maintenance [CS39] PROC8a:**

No other specific measures identified [E120]

## **Process sampling [CS2] PROC8b:**

No other specific measures identified [E120]

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

No other specific measures identified [E120]

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

Handle substance within a closed system [E47]

## **Laboratory activities [CS36] PROC15:**

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): 7900

### **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): 0.001

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

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

### **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] 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**

Prevent discharge of undissolved substance to or recover from wastewater [OMS1] 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 (%): 96.5

Total efficiency of removal from wastewater after onsite and offsite (domestic treatment plant) RMMs (%): 96.5

Maximum allowable site tonnage ( $M_{Safe}$ ) based on release following total wastewater treatment removal (kg/day): 1728729

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Assumed domestic sewage treatment plant flow (m<sup>3</sup>/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>).

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## Section 1 Exposure scenario title

### Title:

Distribution 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

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]

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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]

### Material storage [CS67] PROC1, PROC2:

Store substance within a closed system [E84]

### Process sampling [CS2] PROC3:

No other specific measures identified [E120]

### General exposures (open systems) [CS16] PROC4:

No other specific measures identified [E120]

### Equipment cleaning and maintenance [CS39] PROC8a:

No other specific measures identified [E120]

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

No other specific measures identified [E120]

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

No other specific measures identified [E120]

### Drum and small package filling [CS6] PROC9:

No other specific measures identified [E120]

### Laboratory activities [CS36] PROC15:

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): 0.12

### 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): 0.0001

Release fraction to wastewater from process (initial release prior to RMM): 0.0000001

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 (%): 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

Prevent discharge of undissolved substance to or recover from wastewater [OMS1] 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 (%): 96.5  
Total efficiency of removal from wastewater after onsite and offsite (domestic treatment plant) RMMs (%): 96.5  
Maximum allowable site tonnage ( $M_{\text{Safe}}$ ) based on release following total wastewater treatment removal (kg/day): 1656  
Assumed domestic sewage treatment plant flow ( $\text{m}^3/\text{day}$ ): 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:

Formulation & (re)packing of substances and mixtures

### 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, pelletisation, 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]

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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]

### Material storage [CS67] PROC1, PROC2:

Store substance within a closed system [E84]

### Process sampling [CS2] PROC3:

No other specific measures identified [E120]

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

No other specific measures identified [E120]

### General exposures (open systems) [CS16] PROC4:

No other specific measures identified [E120]

### Mixing operations (open systems) [CS30] PROC5:

No other specific measures identified [E120]

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

No other specific measures identified [E120]

### Equipment cleaning and maintenance [CS39] PROC8a:

No other specific measures identified [E120]

### Bulk transfers [CS14] PROC8b:

No other specific measures identified [E120]

### Drum/batch transfers [CS8] PROC8b:

No other specific measures identified [E120]

### Drum and small package filling [CS6] PROC9:

No other specific measures identified [E120]

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

No other specific measures identified [E120]

### Laboratory activities [CS36] PROC15:

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): 1433

### 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



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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): 0.000005

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] 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 (%): 96.5

Total efficiency of removal from wastewater after onsite and offsite (domestic treatment plant) RMMs (%): 96.5

Maximum allowable site tonnage ( $M_{\text{Safe}}$ ) based on release following total wastewater treatment removal (kg/day): 691490

Assumed domestic sewage treatment plant flow ( $\text{m}^3/\text{day}$ ): 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 (industrial application)

### 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 4.3a.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]

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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] 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 other specific measures identified [E120]

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

No other specific measures identified [E120]

### Spraying (automatic/robotic) [CS97] PROC7:

No other specific measures identified [E120]

### Manual [CS34] spraying [CS10] PROC7:

No other specific measures identified [E120]

### Material transfers [CS3] PROC8a, PROC8b:

Clear transfer lines prior to de-coupling [E39]

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

No other specific measures identified [E120]

### Roller, spreader, flow application [CS98] PROC10:

No other specific measures identified [E120]

### Dipping, immersion and pouring [CS4] PROC13:

Avoid manual contact with wet work pieces [E117]

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

No other specific measures identified [E120]

### Laboratory activities [CS36] PROC15:

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): 90

### Frequency and duration of use

Emission days (days/year): 20

### Environmental factors not influenced by risk management

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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): 0.00002  
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] 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 >=(%): 59.8  
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 (%): 96.5  
Total efficiency of removal from wastewater after onsite and offsite (domestic treatment plant) RMMs (%): 96.5  
Maximum allowable site tonnage ( $M_{\text{Safe}}$ ) based on release following total wastewater treatment removal (kg/day): 172872  
Assumed domestic sewage treatment plant flow ( $\text{m}^3/\text{day}$ ): 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 (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

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

No other specific measures identified [E120]

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

No other specific measures identified [E120]

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

No other specific measures identified [E120]

**Use in contained batch processes [CS37] PROC4:**

No other specific measures identified [E120]

**Cleaning with high pressure washers [CS44] PROC7:**

No other specific measures identified [E120]

**Bulk transfers [CS14] PROC8a:**

No other specific measures identified [E120]

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

No other specific measures identified [E120]

**Cleaning with low-pressure washers [CS42] PROC10:**

No other specific measures identified [E120]

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

No other specific measures identified [E120]

**Degreasing small objects in cleaning station [CS41] PROC13:**

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): 100

**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): 0.3

Release fraction to wastewater from process (initial release prior to RMM): 0.0000001

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].

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## Conditions and measures related to municipal sewage treatment plant

Estimated substance removal from wastewater via domestic sewage treatment (%): 96.5  
Total efficiency of removal from wastewater after onsite and offsite (domestic treatment plant) RMMs (%): 96.5  
Maximum allowable site tonnage ( $M_{\text{Safe}}$ ) based on release following total wastewater treatment removal (kg/day): 1500000  
Assumed domestic sewage treatment plant flow ( $\text{m}^3/\text{day}$ ): 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 Oil and Gas Field Drilling and Production Operations (industrial use)

### 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 other specific measures identified [EI20]

#### Batch process [CS55] PROC1, PROC2:

No other specific measures identified [EI20]



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## **Treatment and disposal of filtered solids [CS121] PROC3:**

No other specific measures identified [EI20]

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

No other specific measures identified [EI20]

## **Process sampling [CS2] PROC3:**

No other specific measures identified [EI20]

## **General exposures (open systems) [CS16] PROC4:**

No other specific measures identified [EI20]

## **Drill floor operations [CS116] PROC4:**

No other specific measures identified [EI20]

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

No other specific measures identified [EI20]

## **Pouring from small containers [CS9] PROC8a:**

No other specific measures identified [EI20]

## **Equipment cleaning and maintenance [CS39] PROC8a:**

No other specific measures identified [EI20]

## **Cleaning of solids filtering equipment [CS120] PROC8a:**

No other specific measures identified [EI20]

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

No other specific measures identified [EI20]

## **Bulk transfers [CS14] PROC8b:**

No other specific measures identified [EI20]

## **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

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**

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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 ( $M_{\text{Safe}}$ ) based on release following total wastewater treatment removal (kg/day): N/A  
Assumed domestic sewage treatment plant flow ( $\text{m}^3/\text{day}$ ): 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 as binders and release agents (industrial use)

### 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 4.10a.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: Calendering 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:

No other specific measures identified [E120]

##### Material storage [CS67] PROC1, PROC2:

Store substance within a closed system [E84]

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## **Mixing operations (closed systems) [CS29] PROC3:**

No other specific measures identified [EI20]

## **Mixing operations (open systems) [CS30] PROC4:**

No other specific measures identified [EI20]

## **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:**

No other specific measures identified [EI20]

## **Spraying [CS10] Machine [CS33] PROC7:**

No other specific measures identified [EI20]

## **Spraying [CS10] Manual [CS34] PROC7:**

No other specific measures identified [EI20]

## **Drum/batch transfers [CS8] PROC8b:**

No other specific measures identified [EI20]

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

No other specific measures identified [EI20]

## **Mould forming [CS31] PROC14:**

No other specific measures identified [EI20]

## **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): 100

### **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): 0.2

Release fraction to wastewater from process (initial release prior to RMM): 0.0000001

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].

### **Conditions and measures related to municipal sewage treatment plant**

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Estimated substance removal from wastewater via domestic sewage treatment (%): 96.5  
Total efficiency of removal from wastewater after onsite and offsite (domestic treatment plant) RMMs (%): 96.5  
Maximum allowable site tonnage ( $M_{\text{Safe}}$ ) based on release following total wastewater treatment removal (kg/day): 1500000  
Assumed domestic sewage treatment plant flow ( $\text{m}^3/\text{day}$ ): 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 laboratories (industrial use)

### 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 other specific measures identified [EI20]

##### Laboratory activities [CS36] PROC15:

No other specific measures identified [EI20]

### 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): 0.5

## 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 (%): 96.5

Total efficiency of removal from wastewater after onsite and offsite (domestic treatment plant) RMMs (%): 96.5

Maximum allowable site tonnage ( $M_{Safe}$ ) based on release following total wastewater treatment removal (kg/day): 170

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].



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## Section 1 Exposure scenario title

### Title:

Use in coatings (professional application)

### 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:

No other specific measures identified [E120]

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

No other specific measures identified [E120]

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

No other specific measures identified [E120]

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

No other specific measures identified [E120]

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

No other specific measures identified [E120]

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

No other specific measures identified [E120]

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

No other specific measures identified [E120]

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

No other specific measures identified [E120]

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

No other specific measures identified [E120]

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

No other specific measures identified [E120]

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

No other specific measures identified [E120]

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

No other specific measures identified [E120]

### Laboratory activities [CS36] PROC15:

No other specific measures identified [E120]

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

No other specific measures identified [E120]

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

No other specific measures identified [E120]

# Annex to the extended Safety Data Sheet



Substance: Hydrocarbons, C9-C11, isoalkanes, cyclics, < 2% aromatics  
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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): 0.0067

### 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]. 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 (%): 96.5

Total efficiency of removal from wastewater after onsite and offsite (domestic treatment plant) RMMs (%): 96.5

Maximum allowable site tonnage ( $M_{\text{Safe}}$ ) based on release following total wastewater treatment removal (kg/day): 82

Assumed domestic sewage treatment plant flow ( $\text{m}^3/\text{day}$ ): 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

Estimated workplace exposures are not expected to exceed DNELs when the identified risk management measures are adopted [G8]

### 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

# Annex to the extended Safety Data Sheet



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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>).

# Annex to the extended Safety Data Sheet



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**low volatility (< 0.5 kPa)**

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## Section 1 Exposure scenario title

### Title:

Use in cleaning agents (professional application)

### 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

# Annex to the extended Safety Data Sheet



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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:**

No other specific measures identified [E120]

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

No other specific measures identified [E120]

## **Cleaning of medical devices [CS74] PROC4:**

No other specific measures identified [E120]

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

No other specific measures identified [E120]

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

No other specific measures identified [E120]

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

No other specific measures identified [E120]

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

No other specific measures identified [E120]

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

No other specific measures identified [E120]

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

No other specific measures identified [E120]

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

No other specific measures identified [E120]

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

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): 0.0027

### **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

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## 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]. 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 (%): 96.5  
Total efficiency of removal from wastewater after onsite and offsite (domestic treatment plant) RMMs (%): 96.5  
Maximum allowable site tonnage ( $M_{Safe}$ ) based on release following total wastewater treatment removal (kg/day): 42  
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

Estimated workplace exposures are not expected to exceed DNELs when the identified risk management measures are adopted [G8]

### 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 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 [EI20]

**Treatment and disposal of filtered solids [CS121] PROC3:**

No other specific measures identified [EI20]

**Process sampling [CS2] PROC3:**

No other specific measures identified [EI20]

**General exposures (open systems) [CS16] PROC4:**

No other specific measures identified [EI20]

**Drill floor operations [CS116] PROC4:**

No other specific measures identified [EI20]

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

No other specific measures identified [EI20]

**Pouring from small containers [CS9] PROC8a:**

No other specific measures identified [EI20]

**Cleaning of solids filtering equipment [CS120] PROC8a:**

No other specific measures identified [EI20]

**Equipment cleaning and maintenance [CS39] PROC8a:**

No other specific measures identified [EI20]

**Bulk transfers [CS14] PROC8b:**

No other specific measures identified [EI20]

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

No other specific measures identified [EI20]

## 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  
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**

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

Estimated workplace exposures are not expected to exceed DNELs when the identified risk management measures are adopted [G8]

#### 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<sup>1</sup> [DSU9]

<sup>1</sup> 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 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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## Product characteristics:

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

## Amounts used

Maximum daily site tonnage (kg/day): 0.0014

## 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 agricultural soil [TCR1f]. 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 (%): 96.5

Total efficiency of removal from wastewater after onsite and offsite (domestic treatment plant) RMMs (%): 96.5

Maximum allowable site tonnage ( $M_{Safe}$ ) based on release following total wastewater treatment removal (kg/day): 06.7

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

Estimated workplace exposures are not expected to exceed DNELs when the identified risk management measures are adopted [G8]

### 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]. 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 (consumer applications)

**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: ESVOG 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 857.5cm<sup>2</sup> [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 m<sup>3</sup> room [ConsOC11]; assumes use with typical ventilation [ConsOC8]

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## 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 cm<sup>2</sup> [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 20m<sup>3</sup> [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 cm<sup>2</sup> [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 20m<sup>3</sup>[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 cm<sup>2</sup> [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 20m<sup>3</sup>[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 cm<sup>2</sup> [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 20m<sup>3</sup>[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 (34m<sup>3</sup>) under typical ventilation [ConsOC10]; covers use in room size of 34m<sup>3</sup>[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 cm<sup>2</sup> [ConsOC5]; for each use event, covers use amounts up to 2000g [ConsOC2]; Covers use in a one car garage (34m<sup>3</sup>) under typical ventilation [ConsOC10]; covers use in room size of 34m<sup>3</sup>[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 cm<sup>2</sup> [ConsOC5]; for each use event, covers use amounts up to 4g [ConsOC2]; Covers use in a one car garage (34m<sup>3</sup>) under typical ventilation [ConsOC10]; covers use in room size of 34m<sup>3</sup> [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 cm<sup>2</sup> [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 20m<sup>3</sup> [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 cm<sup>2</sup> [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 20m<sup>3</sup> [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 cm<sup>2</sup> [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 20m<sup>3</sup> [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 cm<sup>2</sup> [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 20m<sup>3</sup> [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 cm<sup>2</sup> [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 20m<sup>3</sup> [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 (34m<sup>3</sup>) under typical ventilation [ConsOC10]; covers use in room size of 34m<sup>3</sup> [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 cm<sup>2</sup> [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 20m<sup>3</sup>[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, modeling 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 cm<sup>2</sup> [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 20m<sup>3</sup>[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, modeling 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 cm<sup>2</sup> [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 20m<sup>3</sup>[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, modeling 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 cm<sup>2</sup> [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 cm<sup>2</sup> [ConsOC5]; for each use event, assumes swallowed amount of 1.35g [ConsOC13];

## **RMM**

Avoid using at a product concentration greater than 5% [ConsRMM1]

## **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 cm<sup>2</sup> [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 20m<sup>3</sup>[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 cm<sup>2</sup> [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 20m<sup>3</sup>[ConsOC11]; for each use event, covers exposure up to 2.20hr/event[ConsOC14];

## **RMM**

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No specific RMMs identified beyond those OCs stated

## **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 (34m<sup>3</sup>) under typical ventilation [ConsOC10]; covers use in room size of 34m<sup>3</sup>[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 cm<sup>2</sup> [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 20m<sup>3</sup>[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 cm<sup>2</sup> [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 20m<sup>3</sup>[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 cm<sup>2</sup> [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 20m<sup>3</sup>[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 cm<sup>2</sup> [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 20m<sup>3</sup>[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 cm<sup>2</sup> [ConsOC5]; for each use event, covers use amounts up to 2200g [ConsOC2]; Covers use in a one car garage (34m<sup>3</sup>) under typical ventilation [ConsOC10]; covers use in room size of 34m<sup>3</sup>[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 cm<sup>2</sup> [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 cm<sup>2</sup> [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 20m<sup>3</sup>[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 cm<sup>2</sup> [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 20m<sup>3</sup>[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 cm<sup>2</sup> [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 20m<sup>3</sup>[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 cm<sup>2</sup> [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 20m<sup>3</sup>[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): 0.0014

**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): 0.985

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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 (%): 96.5  
Maximum allowable site tonnage ( $M_{\text{Safe}}$ ) based on release following total wastewater treatment removal (kg/day): 18  
Assumed domestic sewage treatment plant flow ( $\text{m}^3/\text{day}$ ): 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

Estimated workplace exposures are not expected to exceed DNELs when the identified risk management measures are adopted [G8]

### 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 (consumer applications)

**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, de-icers, 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 857.5cm<sup>2</sup> [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 m<sup>3</sup> 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 20m<sup>3</sup>[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 20m<sup>3</sup>[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 cm<sup>2</sup> [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 20m<sup>3</sup>[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 cm<sup>2</sup> [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 20m<sup>3</sup>[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 (34m<sup>3</sup>) under typical ventilation [ConsOC10]; covers use in room size of 34m<sup>3</sup>[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 cm<sup>2</sup> [ConsOC5]; for each use event, covers use amounts up to 2000g [ConsOC2]; Covers use in a one car garage (34m<sup>3</sup>) under typical ventilation [ConsOC10]; covers use in room size of 34m<sup>3</sup>[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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Substance: Hydrocarbons, C9-C11, isoalkanes, cyclics, < 2% aromatics  
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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 cm<sup>2</sup> [ConsOC5]; for each use event, covers use amounts up to 4g [ConsOC2]; Covers use in a one car garage (34m<sup>3</sup>) under typical ventilation [ConsOC10]; covers use in room size of 34m<sup>3</sup>[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 cm<sup>2</sup> [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 20m<sup>3</sup>[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 cm<sup>2</sup> [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 20m<sup>3</sup>[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 cm<sup>2</sup> [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 20m<sup>3</sup>[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 cm<sup>2</sup> [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 20m<sup>3</sup>[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 cm<sup>2</sup> [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 20m<sup>3</sup>[ConsOC11]; for each use event, covers exposure up to 2.20hr/event[ConsOC14];

### **RMM**

No specific RMMs identified beyond those OCs stated

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## **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 (34m<sup>3</sup>) under typical ventilation [ConsOC10]; covers use in room size of 34m<sup>3</sup>[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 cm<sup>2</sup> [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 20m<sup>3</sup>[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, modeling 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 cm<sup>2</sup> [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 20m<sup>3</sup>[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, modeling 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 cm<sup>2</sup> [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 20m<sup>3</sup>[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, modeling 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 cm<sup>2</sup> [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 cm<sup>2</sup> [ConsOC5]; for each use event, assumes swallowed amount of 1.35g [ConsOC13];

### **RMM**

Avoid using at a product concentration greater than 5% [ConsRMM1]

## **PC24: Lubricants, greases, and release products—Liquids**

### **OC**



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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 cm<sup>2</sup> [ConsOC5]; for each use event, covers use amounts up to 2200g [ConsOC2]; Covers use in a one car garage (34m<sup>3</sup>) under typical ventilation [ConsOC10]; covers use in room size of 34m<sup>3</sup>[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/year[ConsOC3]; covers use up to 1 time/on day of use[ConsOC4]; covers skin contact area up to 468.00 cm<sup>2</sup> [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 cm<sup>2</sup> [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 20m<sup>3</sup>[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)—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 cm<sup>2</sup> [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 20m<sup>3</sup>[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 cm<sup>2</sup> [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 20m<sup>3</sup>[ConsOC11]; for each use event, covers exposure up to 0.17hr/event[ConsOC14];

**RMM**

No specific RMMs identified beyond those OCs stated

**PC38\_n: Welding and soldering products, flux products—NOTE, n\_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 20m<sup>3</sup>[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

# Annex to the extended Safety Data Sheet



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## Product characteristics:

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

## Amounts used

Maximum daily site tonnage (kg/day): 0.0014

## 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 (%): 96.5

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

Assumed domestic sewage treatment plant flow ( $\text{m}^3/\text{day}$ ): 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

Estimated workplace exposures are not expected to exceed DNELs when the identified risk management measures are adopted [G8]

### 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:**

Other consumer uses

**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 8.16.v1

**Contributing Product Category [PC]:**

PC28:  
PC39:

**Scope of processes and activities covered by the Exposure Scenario:**

Consumer uses not covered in consumer examples listed above e.g. use as a carrier in cosmetics/personal care products, perfumes and fragrances. Note: For cosmetic and personal care products, risk assessment only required for the environment under REACH as human health is covered by alternative legislation.

## 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

**Contributing scenarios and risk management measures of consumer exposure**

Not applicable

### 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): 0.0014

**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**

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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 (%): 96.5  
Maximum allowable site tonnage ( $M_{\text{Safe}}$ ) based on release following total wastewater treatment removal (kg/day): 19  
Assumed domestic sewage treatment plant flow ( $\text{m}^3/\text{day}$ ): 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

Not applicable

### 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

Not applicable

### 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 SpERC factsheet (<http://cefic.org/en/reach-for-industries-libraries.html>).