

# Annex to the extended Safety Data Sheet



Substance: Hydrocarbons, C6-C7, isoalkanes, cyclics, <5% n-hexane  
EC No.: 926-605-8

Page 1 of 65

Revision date: 26.11.2014

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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 > 10 kPa at STP [OC5]

##### 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]

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

# Annex to the extended Safety Data Sheet



Substance: Hydrocarbons, C6-C7, isoalkanes, cyclics, <5% n-hexane  
EC No.: 926-605-8

Page 2 of 65

Revision date: 26.11.2014

No other specific measures identified [EI20]

**Material storage [CS67] PROC2:**

No other specific measures identified [EI20]

**General exposures (closed systems) [CS15] PROC2:**

No other specific measures identified [EI20]

**General exposures (closed systems) [CS15] PROC3:**

No other specific measures identified [EI20]

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

No other specific measures identified [EI20]

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

No other specific measures identified [EI20]

**Process sampling [CS2] PROC8b:**

No other specific measures identified [EI20]

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

No other specific measures identified [EI20]

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

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].

**Amounts used**

Maximum daily site tonnage (kg/day): 16000

**Frequency and duration of use**

Emission days (days/year): 100

**Environmental factors not influenced by risk management**

Local freshwater dilution factor: 10

Local marine water dilution factor: 100

**Other given operational conditions affecting environmental exposure**

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

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

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

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

Risk from environmental exposure is driven by freshwater sediment [TCR1b]. If discharging to domestic sewage treatment plant, no onsite wastewater treatment required [TCR10].

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].

# Annex to the extended Safety Data Sheet



Substance: Hydrocarbons, C6-C7, isoalkanes, cyclics, <5% n-hexane  
EC No.: 926-605-8

Page 3 of 65

Revision date: 26.11.2014

---

## Conditions and measures related to municipal sewage treatment plant

Estimated substance removal from wastewater via domestic sewage treatment (%): 96.0  
Total efficiency of removal from wastewater after onsite and offsite (domestic treatment plant) RMMs (%): 96.0  
Maximum allowable site tonnage ( $M_{\text{Safe}}$ ) based on release following total wastewater treatment removal (kg/day): 1600000  
Assumed domestic sewage treatment plant flow ( $\text{m}^3/\text{day}$ ): 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].

Available hazard data do not enable the derivation of a DNEL for dermal irritant effects [G32] Risk management measures are based on qualitative risk characterization [G37]

### 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



Substance: Hydrocarbons, C6-C7, isoalkanes, cyclics, <5% n-hexane  
EC No.: 926-605-8

Page 4 of 65

Revision date: 26.11.2014

## 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:

Bulk 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. Excludes emissions during transport.

## 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 > 10 kPa at STP [OC5]

##### 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]

# Annex to the extended Safety Data Sheet



Substance: Hydrocarbons, C6-C7, isoalkanes, cyclics, <5% n-hexane  
EC No.: 926-605-8

Page 5 of 65

Revision date: 26.11.2014

---

## 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:

No other specific measures identified [E120]

### General exposures (closed systems) [CS15] PROC3:

No other specific measures identified [E120]

### Material storage [CS67] PROC1:

No other specific measures identified [E120]

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

No other specific measures identified [E120]

### 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): 2.3

### 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): 0.00001

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

# Annex to the extended Safety Data Sheet



Substance: Hydrocarbons, C6-C7, isoalkanes, cyclics, <5% n-hexane  
EC No.: 926-605-8

Page 6 of 65

Revision date: 26.11.2014

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].

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

Estimated substance removal from wastewater via domestic sewage treatment (%): 96.0  
Total efficiency of removal from wastewater after onsite and offsite (domestic treatment plant) RMMs (%): 96.0  
Maximum allowable site tonnage ( $M_{\text{Safe}}$ ) based on release following total wastewater treatment  
removal (kg/day): 78000  
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].  
Available hazard data do not enable the derivation of a DNEL for dermal irritant effects [G32] Risk management measures are based on qualitative risk characterization [G37]

### 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



Substance: Hydrocarbons, C6-C7, isoalkanes, cyclics, <5% n-hexane  
EC No.: 926-605-8

Page 7 of 65

Revision date: 26.11.2014

## 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 > 10kPa at STP [OC5]

##### 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



Substance: Hydrocarbons, C6-C7, isoalkanes, cyclics, <5% n-hexane  
EC No.: 926-605-8

Page 8 of 65

Revision date: 26.11.2014

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**General exposures (closed systems) [CS15] PROC1:**

Handle substance within a closed system [E47]

**General exposures (closed systems) [CS15] PROC2:**

Handle substance within a closed system [E47]

**General exposures (closed systems) [CS15] PROC3:**

Handle substance within a closed system [E47]

**Material storage [CS67] PROC1:**

Store substance within a closed system [E84]

**Material storage [CS67] 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:**

Formulate in enclosed or ventilated mixing vessels [E46]

**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): 4100

**Frequency and duration of use**

Emission days (days/year): 10



# Annex to the extended Safety Data Sheet



Substance: Hydrocarbons, C6-C7, isoalkanes, cyclics, <5% n-hexane  
EC No.: 926-605-8

Page 9 of 65

Revision date: 26.11.2014

## Environmental factors not influenced by risk management

Local freshwater dilution factor: 10  
Local marine water dilution factor: 100

## Other given operational conditions affecting environmental exposure

Release fraction to air from process (after typical onsite RMMs, consistent with EU Solvent Emissions Directive requirements): 0.025  
Release fraction to wastewater from process (initial release prior to RMM): 0.0002  
Release fraction to soil from process (initial release prior to RMM): 0.0001

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

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

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 (%): 96.0  
Total efficiency of removal from wastewater after onsite and offsite (domestic treatment plant) RMMs (%): 96.0  
Maximum allowable site tonnage ( $M_{\text{Safe}}$ ) based on release following total wastewater treatment removal (kg/day): 490000  
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].

Available hazard data do not enable the derivation of a DNEL for dermal irritant effects [G32] Risk management measures are based on qualitative risk characterization [G37]

### 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

## Annex to the extended Safety Data Sheet

Substance: Hydrocarbons, C6-C7, isoalkanes, cyclics, <5% n-hexane  
EC No.: 926-605-8



Page 10 of 65

Revision date: 26.11.2014

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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



Substance: Hydrocarbons, C6-C7, isoalkanes, cyclics, <5% n-hexane  
EC No.: 926-605-8

Page 11 of 65

Revision date: 26.11.2014

## 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
- PROC9: Transfer of substance or preparation into small containers (dedicated filling line, including weighing)
- 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 > 10 kPa at STP [OC5]

##### 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]

# Annex to the extended Safety Data Sheet



Substance: Hydrocarbons, C6-C7, isoalkanes, cyclics, <5% n-hexane  
EC No.: 926-605-8

Page 12 of 65

Revision date: 26.11.2014

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## Contributing scenarios and risk management measures of worker exposure

### General exposures (closed systems) [CS15] PROC1:

No other specific measures identified [E120]

### Material storage [CS67] PROC1:

No other specific measures identified [E120]

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

No other specific measures identified [E120]

### 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:

No other specific measures identified [E120]

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

No other specific measures identified [E120]

### 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]

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

No other specific measures identified [E120]

### Material transfers [CS3] PROC8a:

No other specific measures identified [E120]

### Material transfers [CS3] PROC8b:

No other specific measures identified [E120]

### 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:

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:

# Annex to the extended Safety Data Sheet



Substance: Hydrocarbons, C6-C7, isoalkanes, cyclics, <5% n-hexane  
EC No.: 926-605-8

Page 13 of 65

Revision date: 26.11.2014

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

## Amounts used

Maximum daily site tonnage (kg/day): 48000

## 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): 0.98

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

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]. If discharging to domestic sewage treatment plant, no onsite wastewater treatment required [TCR9].

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

Treat onsite wastewater (prior to receiving water discharge) to provide the required removal efficiency of >=(%): 88.5  
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 (%): 96.0

Total efficiency of removal from wastewater after onsite and offsite (domestic treatment plant) RMMs (%): 96.0

Maximum allowable site tonnage ( $M_{\text{Safe}}$ ) based on release following total wastewater treatment removal (kg/day): 140000

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

## Annex to the extended Safety Data Sheet

Substance: Hydrocarbons, C6-C7, isoalkanes, cyclics, <5% n-hexane  
EC No.: 926-605-8



Page 14 of 65

Revision date: 26.11.2014

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Available hazard data do not enable the derivation of a DNEL for dermal irritant effects [G32] Risk management measures are based on qualitative risk characterization [G37]

### 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



Substance: Hydrocarbons, C6-C7, isoalkanes, cyclics, <5% n-hexane  
EC No.: 926-605-8

Page 15 of 65

Revision date: 26.11.2014

## 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 > 10 kPa at STP [OC5]

##### Concentration of substance in product:

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

##### Frequency and duration of use/exposure:

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

##### Other operational conditions affecting exposure:

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

#### Contributing scenarios and risk management measures of worker exposure

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

No other specific measures identified [EI20]



# Annex to the extended Safety Data Sheet



Substance: Hydrocarbons, C6-C7, isoalkanes, cyclics, <5% n-hexane  
EC No.: 926-605-8

Page 16 of 65

Revision date: 26.11.2014

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

No other specific measures identified [EI20]

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

No other specific measures identified [EI20]

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

No other specific measures identified [EI20]

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

No other specific measures identified [EI20]

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

No other specific measures identified [EI20]

**Bulk transfers [CS14] PROC8a:**

No other specific measures identified [EI20]

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

No other specific measures identified [EI20]

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

No other specific measures identified [EI20]

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

No other specific measures identified [EI20]

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

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): 2000

**Frequency and duration of use**

Emission days (days/year): 20

**Environmental factors not influenced by risk management**

Local freshwater dilution factor: 10

Local marine water dilution factor: 100

**Other given operational conditions affecting environmental exposure**

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

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

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

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

Risk from environmental exposure is driven by freshwater sediment [TCR1b]. 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

# Annex to the extended Safety Data Sheet



Substance: Hydrocarbons, C6-C7, isoalkanes, cyclics, <5% n-hexane  
EC No.: 926-605-8

Page 17 of 65

Revision date: 26.11.2014

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 (%): 96.0

Total efficiency of removal from wastewater after onsite and offsite (domestic treatment plant) RMMs (%): 96.0

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

removal (kg/day): 3100000

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].

Available hazard data do not enable the derivation of a DNEL for dermal irritant effects [G32] Risk management measures are based on qualitative risk characterization [G37]

### 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



Substance: Hydrocarbons, C6-C7, isoalkanes, cyclics, <5% n-hexane  
EC No.: 926-605-8

Page 18 of 65

Revision date: 26.11.2014

## Section 1 Exposure scenario title

### Title:

Use as a lubricant (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

ERC7: Industrial use of substances in closed systems

Specific Environmental Release Category: ESVOC 4.6a.v1

### Contributing Process Categories [PROC]:

PROC1: Use in closed process, no likelihood of exposure

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

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

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

PROC7: Industrial spraying

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

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

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

PROC10: Roller application or brushing of adhesive and other coating

PROC13: Treatment of articles by dipping and pouring

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

PROC18: Greasing at high energy conditions

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

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

## Section 2 Operational conditions and risk management measures

### Section 2.1 Control of worker exposure

#### Operational conditions of use

##### Physical form of product and vapour pressure:

Liquid, vapour pressure > 10 kPa at STP [OC5]

##### 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]

# Annex to the extended Safety Data Sheet



Substance: Hydrocarbons, C6-C7, isoalkanes, cyclics, <5% n-hexane  
EC No.: 926-605-8

Page 19 of 65

Revision date: 26.11.2014

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## Contributing scenarios and risk management measures of worker exposure

### General exposures (closed systems) [CS15] PROC1:

No specific measures identified [E118]

### General exposures (closed systems) [CS15] PROC2:

No specific measures identified [E118]

### General exposures (closed systems) [CS15] PROC3:

No specific measures identified [E118]

### Material storage [CS67] PROC1:

No specific measures identified [E118]

### Material storage [CS67] PROC2:

No specific measures identified [E118]

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

No specific measures identified [E118]

### Spraying [CS10] PROC7:

No specific measures identified [E118]

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

No specific measures identified [E118]

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

No specific measures identified [E118]

### Maintenance of small items [CS18] PROC8a:

No specific measures identified [E118]

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

No specific measures identified [E118]

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

No specific measures identified [E118]

### Bulk transfers [CS14] PROC8b:

No specific measures identified [E118]

### Initial factory fill of equipment [CS75] PROC9:

No specific measures identified [E118]

### Remanufacture of reject articles [CS19] PROC9:

No specific measures identified [E118]

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

No specific measures identified [E118]

### Treatment by dipping and pouring [CS35] PROC13:

No specific measures identified [E118]

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

No specific measures identified [E118]

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

No specific measures identified [E118]

# Annex to the extended Safety Data Sheet



Substance: Hydrocarbons, C6-C7, isoalkanes, cyclics, <5% n-hexane  
EC No.: 926-605-8

Page 20 of 65

Revision date: 26.11.2014

## 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): 3800

### 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): 0.01

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

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

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

Risk from environmental exposure is driven by freshwater sediment [TCR1b]. 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

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 (%): 96.0

Total efficiency of removal from wastewater after onsite and offsite (domestic treatment plant) RMMs (%): 96.0

Maximum allowable site tonnage ( $M_{Safe}$ ) based on release following total wastewater treatment removal (kg/day): 3300000

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

## Annex to the extended Safety Data Sheet



Substance: Hydrocarbons, C6-C7, isoalkanes, cyclics, <5% n-hexane  
EC No.: 926-605-8

Page 21 of 65

Revision date: 26.11.2014

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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].

Available hazard data do not enable the derivation of a DNEL for dermal irritant effects [G32] Risk management measures are based on qualitative risk characterization [G37]

### 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



Substance: Hydrocarbons, C6-C7, isoalkanes, cyclics, <5% n-hexane  
EC No.: 926-605-8

Page 22 of 65

Revision date: 26.11.2014

## Section 1 Exposure scenario title

### Title:

Functional fluids (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]:

ERC7: Industrial use of substances in closed systems  
Specific Environmental Release Category: ESVOC 7.13a.v1

### Contributing Process Categories [PROC]:

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

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

Use as functional fluids e.g. cable oils, transfer oils, coolants, insulators, refrigerants, hydraulic fluids in industrial equipment including maintenance and related material transfers.

## Section 2 Operational conditions and risk management measures

### Section 2.1 Control of worker exposure

#### Operational conditions of use

##### Physical form of product and vapour pressure:

Liquid, vapour pressure > 10 kPa at STP [OC5]

##### Concentration of substance in product:

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

##### Frequency and duration of use/exposure:

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

##### Other operational conditions affecting exposure:

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

#### Contributing scenarios and risk management measures of worker exposure

##### Bulk transfers [CS14] (closed systems) [CS107] PROC1:

No other specific measures identified [EI20]

##### Bulk transfers [CS14] (closed systems) [CS107] PROC2:

No other specific measures identified [EI20]



# Annex to the extended Safety Data Sheet



Substance: Hydrocarbons, C6-C7, isoalkanes, cyclics, <5% n-hexane  
EC No.: 926-605-8

Page 23 of 65

Revision date: 26.11.2014

## Material storage [CS67] PROC1:

No other specific measures identified [EI20]

## Material storage [CS67] PROC2:

No other specific measures identified [EI20]

## General exposures (closed systems) [CS15] PROC2:

No other specific measures identified [EI20]

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

No other specific measures identified [EI20]

## General exposures (open systems) [CS16] Operation is carried out at elevated temperature (> than 20 °C above ambient temperature) [OC7] PROC4:

No other specific measures identified [EI20]

## Equipment maintenance [CS5] PROC8a:

No other specific measures identified [EI20]

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

No other specific measures identified [EI20]

## Drum/batch transfers [CS8] PROC8b:

No other specific measures identified [EI20]

## Filling of articles/equipment [CS84] (closed systems) [CS107] PROC9:

No other specific measures identified [EI20]

## Remanufacture of reject articles [CS19] PROC9:

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): 500

### 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): 0.01

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

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

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

Risk from environmental exposure is driven by freshwater sediment [TCR1b]. 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

# Annex to the extended Safety Data Sheet



Substance: Hydrocarbons, C6-C7, isoalkanes, cyclics, <5% n-hexane  
EC No.: 926-605-8

Page 24 of 65

Revision date: 26.11.2014

## 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 (%): 96.0  
Total efficiency of removal from wastewater after onsite and offsite (domestic treatment plant) RMMs (%): 96.0  
Maximum allowable site tonnage ( $M_{\text{Safe}}$ ) based on release following total wastewater treatment removal (kg/day): 3300000  
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].

Available hazard data do not enable the derivation of a DNEL for dermal irritant effects [G32] Risk management measures are based on qualitative risk characterization [G37]

### 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



Substance: Hydrocarbons, C6-C7, isoalkanes, cyclics, <5% n-hexane  
EC No.: 926-605-8

Page 25 of 65

Revision date: 26.11.2014

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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 > 10 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:

Handle in a fume cupboard or under extract ventilation [E83]

##### 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].

# Annex to the extended Safety Data Sheet



Substance: Hydrocarbons, C6-C7, isoalkanes, cyclics, <5% n-hexane  
EC No.: 926-605-8

Page 26 of 65

Revision date: 26.11.2014

## Amounts used

Maximum daily site tonnage (kg/day): 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

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 (%): 92.0

Total efficiency of removal from wastewater after onsite and offsite (domestic treatment plant) RMMs (%): 92.0

Maximum allowable site tonnage ( $M_{\text{Safe}}$ ) based on release following total wastewater treatment removal (kg/day): 4900

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].

## Annex to the extended Safety Data Sheet

Substance: Hydrocarbons, C6-C7, isoalkanes, cyclics, <5% n-hexane  
EC No.: 926-605-8



Page 27 of 65

Revision date: 26.11.2014

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Available hazard data do not enable the derivation of a DNEL for dermal irritant effects [G32] Risk management measures are based on qualitative risk characterization [G37]

### 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].

# Annex to the extended Safety Data Sheet



Substance: Hydrocarbons, C6-C7, isoalkanes, cyclics, <5% n-hexane  
EC No.: 926-605-8

Page 28 of 65

Revision date: 26.11.2014

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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 > 10 kPa at STP [OC5]

##### 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]

# Annex to the extended Safety Data Sheet



Substance: Hydrocarbons, C6-C7, isoalkanes, cyclics, <5% n-hexane  
EC No.: 926-605-8

Page 29 of 65

Revision date: 26.11.2014

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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] Use in contained systems [CS38] PROC2:

Handle Substance within a closed system. [E47]

### Preparation of material for application [CS96] Use in contained batch processes [CS37] 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] Dedicated facility [CS81] 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:

Avoid manual contact with wet work pieces [E117]

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

Avoid manual contact with wet work pieces [E117]

### Laboratory activities [CS36] PROC15:

No other specific measures identified [E120]

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

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, C6-C7, isoalkanes, cyclics, <5% n-hexane  
EC No.: 926-605-8

Page 30 of 65

Revision date: 26.11.2014

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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): 0.018

### Frequency and duration of use

Emission days (days/year): 365

### Environmental factors not influenced by risk management

Local freshwater dilution factor: 10

Local marine water dilution factor: 100

### Other given operational conditions affecting environmental exposure

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

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

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

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

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

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

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

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

### Organisation measures to prevent/limit release from site

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 (%): 96.0

Total efficiency of removal from wastewater after onsite and offsite (domestic treatment plant) RMMs (%): 96.0

Maximum allowable site tonnage ( $M_{\text{Safe}}$ ) based on release following total wastewater treatment removal (kg/day): 600

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

## Annex to the extended Safety Data Sheet



Substance: Hydrocarbons, C6-C7, isoalkanes, cyclics, <5% n-hexane  
EC No.: 926-605-8

Page 31 of 65

Revision date: 26.11.2014

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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].

Available hazard data do not enable the derivation of a DNEL for dermal irritant effects [G32] Risk management measures are based on qualitative risk characterization [G37]

### 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



Substance: Hydrocarbons, C6-C7, isoalkanes, cyclics, <5% n-hexane  
EC No.: 926-605-8

Page 32 of 65

Revision date: 26.11.2014

## 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: ESVOC 8.4b.v.1

### 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 > 10 kPa at STP [OC3]

##### Concentration of substance in product:

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

##### Frequency and duration of use/exposure:

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

##### Other operational conditions affecting exposure:

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

### Contributing scenarios and risk management measures of worker exposure

#### Material storage [CS67] PROC1:

No other specific measures identified [EI20]

# Annex to the extended Safety Data Sheet



Substance: Hydrocarbons, C6-C7, isoalkanes, cyclics, <5% n-hexane  
EC No.: 926-605-8

Page 33 of 65

Revision date: 26.11.2014

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**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:**  
Provide a good standard of controlled ventilation (10 to 15 air changes per hour) [E40] Limit the substance content in the product to 5% [OC17] Avoid carrying out activities involving exposure for more than 4 hours [OC28]

**Manual [CS34] Surfaces [CS48] Cleaning [CS47] 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:**  
Provide a good standard of controlled ventilation (10 to 15 air changes per hour) [E40] Limit the substance content in the product to 5% [OC17]

**Manual [CS34] Surfaces [CS48] Cleaning [CS47] 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

# Annex to the extended Safety Data Sheet



Substance: Hydrocarbons, C6-C7, isoalkanes, cyclics, <5% n-hexane  
EC No.: 926-605-8

Page 34 of 65

Revision date: 26.11.2014

Maximum daily site tonnage (kg/day): 0.049

## Frequency and duration of use

Emission days (days/year): 365

## Environmental factors not influenced by risk management

Local freshwater dilution factor: 10

Local marine water dilution factor: 100

## Other given operational conditions affecting environmental exposure

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

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

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

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

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

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

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

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

## Organisation measures to prevent/limit release from site

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 (%): 96.0

Total efficiency of removal from wastewater after onsite and offsite (domestic treatment plant) RMMs (%): 96.0

Maximum allowable site tonnage ( $M_{\text{Safe}}$ ) based on release following total wastewater treatment removal (kg/day): 1700

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

Available hazard data do not enable the derivation of a DNEL for dermal irritant effects [G32] Risk management measures are based on qualitative risk characterization [G37]

## Annex to the extended Safety Data Sheet

Substance: Hydrocarbons, C6-C7, isoalkanes, cyclics, <5% n-hexane  
EC No.: 926-605-8



Page 35 of 65

Revision date: 26.11.2014

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### Environment

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

# Annex to the extended Safety Data Sheet



Substance: Hydrocarbons, C6-C7, isoalkanes, cyclics, <5% n-hexane  
EC No.: 926-605-8

Page 36 of 65

Revision date: 26.11.2014

## Section 1 Exposure scenario title

### Title:

Lubricant (Low Release)

### Sector of use:

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

### Subsequent service life relevant for that use:

Under nitrogen atmosphere no time limit

### Contributing Environmental Release Categories [ERC]:

ERC9a: Wide dispersive indoor use of substances in closed systems

ERC9b: Wide dispersive outdoor use of substances in closed systems

Specific Environmental Release Category: ESVOC 9.6b.v1

### Contributing Process Categories [PROC]:

PROC1: Use in closed process, no likelihood of exposure

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

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

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

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

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

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

PROC10: Roller application or brushing of adhesive and other coating

PROC11: Non industrial spraying

PROC13: Treatment of articles by dipping and pouring

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

PROC18: Greasing at high energy conditions

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

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

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

## Section 2 Operational conditions and risk management measures

### Section 2.1 Control of worker exposure

#### Operational conditions of use

##### Physical form of product and vapour pressure:

Liquid, vapour pressure > 10 kPa at STP [OC5]

##### 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]



# Annex to the extended Safety Data Sheet



Substance: Hydrocarbons, C6-C7, isoalkanes, cyclics, <5% n-hexane  
EC No.: 926-605-8

Page 37 of 65

Revision date: 26.11.2014

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## Contributing scenarios and risk management measures of worker exposure

### General exposures (closed systems) [CS15] PROC1:

Handle substance within a closed system [E47]

### Material storage [CS67] PROC1:

Store substance within a closed system [E84]

### General exposures (closed systems) [CS15] PROC2:

Handle substance within a closed system [E47]

### General exposures (closed systems) [CS15] PROC3:

Handle substance within a closed system [E47]

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

No other specific measures identified [E120]

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

No other specific measures identified [E120]

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

No other specific measures identified [E120]

### Bulk transfers [CS14] PROC8b:

Handle substance within a closed system [E47]

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

No other specific measures identified [E120]

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

No other specific measures identified [E120]

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

No other specific measures identified [E120]

### Engine lubricant service [CS78] PROC9:

No other specific measures identified [E120]

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

No other specific measures identified [E120]

### Spraying [CS10] PROC11:

No other specific measures identified [E120]

### Treatment by dipping and pouring [CS35] PROC13:

No other specific measures identified [E120]

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

No other specific measures identified [E120]

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

No other specific measures identified [E120]

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

No other specific measures identified [E120]

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

No other specific measures identified [E120]

# Annex to the extended Safety Data Sheet



Substance: Hydrocarbons, C6-C7, isoalkanes, cyclics, <5% n-hexane  
EC No.: 926-605-8

Page 38 of 65

Revision date: 26.11.2014

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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): 365

### Frequency and duration of use

Emission days (days/year): 365

### Environmental factors not influenced by risk management

Local freshwater dilution factor: 10

Local marine water dilution factor: 100

### Other given operational conditions affecting environmental exposure

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

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

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

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

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

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

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

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

### Organisation measures to prevent/limit release from site

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 (%): 96.0

Total efficiency of removal from wastewater after onsite and offsite (domestic treatment plant) RMMs (%): 96.0

Maximum allowable site tonnage ( $M_{Safe}$ ) based on release following total wastewater treatment removal (kg/day): 230

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].

# Annex to the extended Safety Data Sheet



Substance: Hydrocarbons, C6-C7, isoalkanes, cyclics, <5% n-hexane  
EC No.: 926-605-8

Page 39 of 65

Revision date: 26.11.2014

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## Section 4 Guidance to check compliance with the Exposure Scenario

### Health

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

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

Available hazard data do not enable the derivation of a DNEL for dermal irritant effects [G32] Risk management measures are based on qualitative risk characterization [G37]

### 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



Substance: Hydrocarbons, C6-C7, isoalkanes, cyclics, <5% n-hexane  
EC No.: 926-605-8

Page 40 of 65

Revision date: 26.11.2014

## Section 1 Exposure scenario title

### Title:

Lubricant (High Release)

### Sector of use:

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

### Subsequent service life relevant for that use:

Under nitrogen atmosphere no time limit

### Contributing Environmental Release Categories [ERC]:

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

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

Specific Environmental Release Category: ESVOC 8.6c.v1

### Contributing Process Categories [PROC]:

PROC1: Use in closed process, no likelihood of exposure

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

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

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

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

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

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

PROC10: Roller application or brushing of adhesive and other coating

PROC11: Non industrial spraying

PROC13: Treatment of articles by dipping and pouring

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

PROC18: Greasing at high energy conditions

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

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

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

## Section 2 Operational conditions and risk management measures

### Section 2.1 Control of worker exposure

#### Operational conditions of use

##### Physical form of product and vapour pressure:

Liquid, vapour pressure > 10 kPa at STP [OC5]

##### 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]

# Annex to the extended Safety Data Sheet



Substance: Hydrocarbons, C6-C7, isoalkanes, cyclics, <5% n-hexane  
EC No.: 926-605-8

Page 41 of 65

Revision date: 26.11.2014

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## Contributing scenarios and risk management measures of worker exposure

### General exposures (closed systems) [CS15] PROC1:

Handle substance within a closed system [E47]

### Material storage [CS67] PROC1:

Store substance within a closed system [E84]

### General exposures (closed systems) [CS15] PROC2:

Handle substance within a closed system [E47]

### Material storage [CS67] PROC2:

Ensure operation is undertaken outdoors [E69]

### General exposures (closed systems) [CS15] PROC3:

Handle substance within a closed system [E47]

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

No other specific measures identified [E120]

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

No other specific measures identified [E120]

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

No other specific measures identified [E120]

### Bulk transfers [CS14] PROC8b:

No other specific measures identified [E120]

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

No other specific measures identified [E120]

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

No other specific measures identified [E120]

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

No other specific measures identified [E120]

### Engine lubricant service [CS78] PROC9:

No other specific measures identified [E120]

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

No other specific measures identified [E120]

### Spraying [CS10] PROC11:

No other specific measures identified [E120]

### Spraying [CS10] PROC11:

Provide enhanced mechanical ventilation by mechanical means [E48] Wear a respirator conforming to EN140 with Type A filter or better. [PPE22]

### Treatment by dipping and pouring [CS35] PROC13:

No other specific measures identified [E120]

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

No other specific measures identified [E120]

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

No other specific measures identified [E120]

# Annex to the extended Safety Data Sheet



Substance: Hydrocarbons, C6-C7, isoalkanes, cyclics, <5% n-hexane  
EC No.: 926-605-8

Page 42 of 65

Revision date: 26.11.2014

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

No other specific measures identified [E120]

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

No other specific measures identified [E120]

## Section 2.2 Control of environmental exposure

### Product characteristics:

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

### Amounts used

Maximum daily site tonnage (kg/day): 0.068

### Frequency and duration of use

Emission days (days/year): 365

### Environmental factors not influenced by risk management

Local freshwater dilution factor: 10

Local marine water dilution factor: 100

### Other given operational conditions affecting environmental exposure

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

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

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

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

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

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

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

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

### Organisation measures to prevent/limit release from site

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 (%): 96.0

Total efficiency of removal from wastewater after onsite and offsite (domestic treatment plant) RMMs (%): 96.0

Maximum allowable site tonnage ( $M_{Safe}$ ) based on release following total wastewater treatment removal (kg/day): 210

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

# Annex to the extended Safety Data Sheet



Substance: Hydrocarbons, C6-C7, isoalkanes, cyclics, <5% n-hexane  
EC No.: 926-605-8

Page 43 of 65

Revision date: 26.11.2014

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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].

Available hazard data do not enable the derivation of a DNEL for dermal irritant effects [G32] Risk management measures are based on qualitative risk characterization [G37]

### 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



Substance: Hydrocarbons, C6-C7, isoalkanes, cyclics, <5% n-hexane  
EC No.: 926-605-8

Page 44 of 65

Revision date: 26.11.2014

## Section 1 Exposure scenario title

### Title:

Functional fluids

### Sector of use:

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

### Subsequent service life relevant for that use:

Under nitrogen atmosphere no time limit

### Contributing Environmental Release Categories [ERC]:

ERC9a: Wide dispersive indoor use of substances in closed systems

ERC9b: Wide dispersive outdoor use of substances in closed systems

Specific Environmental Release Category: ESVOC 9.13b.v1

### Contributing Process Categories [PROC]:

PROC1: Use in closed process, no likelihood of exposure

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

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

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

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

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

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

Use as functional fluids e.g. cable oils, transfer oils, coolants, insulators, refrigerants, hydraulic fluids in professional equipment including maintenance and related material transfers.

## Section 2 Operational conditions and risk management measures

### Section 2.1 Control of worker exposure

#### Operational conditions of use

##### Physical form of product and vapour pressure:

Liquid, vapour pressure > 10 kPa at STP [OC5]

##### Concentration of substance in product:

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

##### Frequency and duration of use/exposure:

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

##### Other operational conditions affecting exposure:

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

#### Contributing scenarios and risk management measures of worker exposure

##### General exposures (closed systems) [CS15] PROC1:

Handle substance within a closed system [E47]

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

Store substance within a closed system [E84]

##### General exposures (closed systems) [CS15] PROC2:



# Annex to the extended Safety Data Sheet



Substance: Hydrocarbons, C6-C7, isoalkanes, cyclics, <5% n-hexane  
EC No.: 926-605-8

Page 45 of 65

Revision date: 26.11.2014

No other specific measures identified [E120]

**Material storage [CS67] PROC2:**

Store substance within a closed system [E84]

**General exposures (closed systems) [CS15] PROC3:**

No other specific measures identified [E120]

**Drum/batch transfers [CS8] PROC8a:**

No other specific measures identified [E120]

**Equipment maintenance [CS5] PROC8a:**

No other specific measures identified [E120]

**Transfer from/pouring from containers [CS22] PROC9:**

No other specific measures identified [E120]

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

No other specific measures identified [E120]

**Remanufacture of reject articles [CS19] PROC9:**

No other specific measures identified [E120]

**Operation of equipment containing engine oils and similar [CS26] PROC20:**

No other specific measures identified [E120]

**Operation of equipment containing engine oils and similar [CS26] Operation is carried out at elevated temperature (> then 20°C above ambient temperature) [OC7] PROC20:**

No other specific measures identified [E120]

## Section 2.2 Control of environmental exposure

**Product characteristics:**

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

**Amounts used**

Maximum daily site tonnage (kg/day): 0.14

**Frequency and duration of use**

Emission days (days/year): 365

**Environmental factors not influenced by risk management**

Local freshwater dilution factor: 10

Local marine water dilution factor: 100

**Other given operational conditions affecting environmental exposure**

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

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

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

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

Risk from environmental exposure is driven by agricultural soil [TCR1f]. No wastewater treatment required [TCR6].

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

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

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

**Organisation measures to prevent/limit release from site**

# Annex to the extended Safety Data Sheet



Substance: Hydrocarbons, C6-C7, isoalkanes, cyclics, <5% n-hexane  
EC No.: 926-605-8

Page 46 of 65

Revision date: 26.11.2014

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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 (%): 96.0

Total efficiency of removal from wastewater after onsite and offsite (domestic treatment plant) RMMs (%): 96.0

Maximum allowable site tonnage ( $M_{\text{Safe}}$ ) based on release following total wastewater treatment removal (kg/day): 3900

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].

Available hazard data do not enable the derivation of a DNEL for dermal irritant effects [G32] Risk management measures are based on qualitative risk characterization [G37]

### 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



Substance: Hydrocarbons, C6-C7, isoalkanes, cyclics, <5% n-hexane  
EC No.: 926-605-8

Page 47 of 65

Revision date: 26.11.2014

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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 > 10 kPa at STP [OC5]

##### 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].

# Annex to the extended Safety Data Sheet



Substance: Hydrocarbons, C6-C7, isoalkanes, cyclics, <5% n-hexane  
EC No.: 926-605-8

Page 48 of 65

Revision date: 26.11.2014

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## Amounts used

Maximum daily site tonnage (kg/day): 0.00014

## Frequency and duration of use

Emission days (days/year): 365

## Environmental factors not influenced by risk management

Local freshwater dilution factor: 10

Local marine water dilution factor: 100

## Other given operational conditions affecting environmental exposure

Release fraction to air from process (initial release prior to RMM): 0.5

Release fraction to wastewater from process (initial release prior to RMM): 0.5

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

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

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

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

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

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

## Organisation measures to prevent/limit release from site

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 (%): 96.0

Total efficiency of removal from wastewater after onsite and offsite (domestic treatment plant) RMMs (%): 96.0

Maximum allowable site tonnage ( $M_{Safe}$ ) based on release following total wastewater treatment removal (kg/day): 4.6

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

## Conditions and measures related to external treatment of waste for disposal

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

## Conditions and measures related to external recovery of waste

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

## Section 3 Exposure estimation

### Health

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

### Environment

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

## Section 4 Guidance to check compliance with the Exposure Scenario

### Health

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

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

## Annex to the extended Safety Data Sheet



Substance: Hydrocarbons, C6-C7, isoalkanes, cyclics, <5% n-hexane  
EC No.: 926-605-8

Page 49 of 65

Revision date: 26.11.2014

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Available hazard data do not enable the derivation of a DNEL for dermal irritant effects [G32] Risk management measures are based on qualitative risk characterization [G37]

### 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



Substance: Hydrocarbons, C6-C7, isoalkanes, cyclics, <5% n-hexane  
EC No.: 926-605-8

Page 50 of 65

Revision date: 26.11.2014

## 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 > 10 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 365 days per year [ConsOC3]; unless otherwise stated, covers use frequency up to 1 times per day [ConsOC4]; covers exposure up to 6 hours per event [ConsOC14]

##### Other operational conditions affecting exposure:

Unless otherwise stated assumes use at ambient temperatures [ConsOC15]; assumes use in a 20 m<sup>3</sup> room [ConsOC11]; assumes use with typical ventilation [ConsOC8]

## Contributing scenarios and risk management measures of consumer exposure

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

#### OC

Unless otherwise stated, covers concentrations up to 30% [ConsOC1]; covers use up to 365 days/year [ConsOC3]; covers use up to 1 time/on day of use [ConsOC4]; covers skin contact area up to 35.73 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

### PC1Adhesives, 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 6 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



# Annex to the extended Safety Data Sheet



Substance: Hydrocarbons, C6-C7, isoalkanes, cyclics, <5% n-hexane  
EC No.: 926-605-8

Page 52 of 65

Revision date: 26.11.2014

## **PC4\_n: Anti-freeze and de-icing products--Lock de-icer** **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



# Annex to the extended Safety Data Sheet



Substance: Hydrocarbons, C6-C7, isoalkanes, cyclics, <5% n-hexane  
EC No.: 926-605-8

Page 53 of 65

Revision date: 26.11.2014

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, modelling clay--Fillers and putty**

### **OC**

Unless otherwise stated, covers concentrations up to 2% [ConsOC1]; covers use up to 12 days/year[ConsOC3]; covers use up to 1 time/on day of use[ConsOC4]; covers skin contact area up to 35.73 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, modelling clay--Plasters and floor equalizers**

### **OC**

Unless otherwise stated, covers concentrations up to 2% [ConsOC1]; covers use up to 12 days/year[ConsOC3]; covers use up to 1 time/on day of use[ConsOC4]; covers skin contact area up to 857.50 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, modelling clay--Modelling clay**

### **OC**

Unless otherwise stated, covers concentrations up to 1% [ConsOC1]; covers use up to 365 days/year[ConsOC3]; covers use up to 1 time/on day of use[ConsOC4]; covers skin contact area up to 254.40 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**

No specific RMMs identified beyond those OCs stated

## **PC15\_n: Non-metal surface treatment products--Waterborne latex wall paint**

### **OC**

Unless otherwise stated, covers concentrations up to 1.5% [ConsOC1]; covers use up to 4 days/year[ConsOC3]; covers use up to 1 time/on day of use[ConsOC4]; covers skin contact area up to 428.75 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

# Annex to the extended Safety Data Sheet



Substance: Hydrocarbons, C6-C7, isoalkanes, cyclics, <5% n-hexane  
EC No.: 926-605-8

Page 54 of 65

Revision date: 26.11.2014

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

### **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

# Annex to the extended Safety Data Sheet



Substance: Hydrocarbons, C6-C7, isoalkanes, cyclics, <5% n-hexane  
EC No.: 926-605-8

Page 55 of 65

Revision date: 26.11.2014

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

### **OC**

Unless otherwise stated, covers concentrations up to 20% [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 34g [ConsOC2]; for each use event, covers exposure up to 4.00/event [ConsOC14]

### **RMM**

No specific RMMs identified beyond those OCs stated

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

### **OC**

Unless otherwise stated, covers concentrations up to 50% [ConsOC1]; covers use up to 6 days/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): 0.27

### **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

# Annex to the extended Safety Data Sheet



Substance: Hydrocarbons, C6-C7, isoalkanes, cyclics, <5% n-hexane  
EC No.: 926-605-8

Page 56 of 65

Revision date: 26.11.2014

---

## **Other given operational conditions affecting environmental exposure**

Release fraction to air from process (initial release prior to RMM): 0.985  
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 (%): 96.0  
Maximum allowable site tonnage ( $M_{\text{Safe}}$ ) based on release following total wastewater treatment removal (kg/day): 5100  
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 consumer exposures, consistent with the content of ECETOC Report #107 and the Chapter R15 of the IR&CSA TGD. Where exposure determinants differ to these sources, then they are indicated.

### Environment

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

## **Section 4 Guidance to check compliance with the Exposure Scenario**

### Health

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

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

Available hazard data do not enable the derivation of a DNEL for dermal irritant effects [G32] Risk management measures are based on qualitative risk characterization [G37]

### 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>).

# Annex to the extended Safety Data Sheet



Substance: Hydrocarbons, C6-C7, isoalkanes, cyclics, <5% n-hexane  
EC No.: 926-605-8

Page 57 of 65

Revision date: 26.11.2014

---

## 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 > 10 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 365 days per year [ConsOC3]; 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

# Annex to the extended Safety Data Sheet



Substance: Hydrocarbons, C6-C7, isoalkanes, cyclics, <5% n-hexane  
EC No.: 926-605-8

Page 58 of 65

Revision date: 26.11.2014

## **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 0.5g [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**

### **OC**



# Annex to the extended Safety Data Sheet



Substance: Hydrocarbons, C6-C7, isoalkanes, cyclics, <5% n-hexane  
EC No.: 926-605-8

Page 59 of 65

Revision date: 26.11.2014

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];

# Annex to the extended Safety Data Sheet



Substance: Hydrocarbons, C6-C7, isoalkanes, cyclics, <5% n-hexane  
EC No.: 926-605-8

Page 60 of 65

Revision date: 26.11.2014

## **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, modelling clay--Fillers and putty**

#### **OC**

Unless otherwise stated, covers concentrations up to 2% [ConsOC1]; covers use up to 12 days/year[ConsOC3]; covers use up to 1 time/on day of use[ConsOC4]; covers skin contact area up to 35.73 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, modelling clay--Plasters and floor equalizers**

#### **OC**

Unless otherwise stated, covers concentrations up to 2% [ConsOC1]; covers use up to 12 days/year[ConsOC3]; covers use up to 1 time/on day of use[ConsOC4]; covers skin contact area up to 857.50 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, modelling clay--Modelling clay**

#### **OC**

Unless otherwise stated, covers concentrations up to 1% [ConsOC1]; covers use up to 365 days/year[ConsOC3]; covers use up to 1 time/on day of use[ConsOC4]; covers skin contact area up to 254.40 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**

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**



# Annex to the extended Safety Data Sheet



Substance: Hydrocarbons, C6-C7, isoalkanes, cyclics, <5% n-hexane  
EC No.: 926-605-8

Page 61 of 65

Revision date: 26.11.2014

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)—Laundry and dish washing products**

**OC**

Unless otherwise stated, covers concentrations up to 5% [ConsOC1]; covers use up to 6 days/year[ConsOC3]; covers use up to 1 time/on day of use[ConsOC4]; covers skin contact area up to 857.50 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

**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

**Product characteristics:**

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

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EC No.: 926-605-8

Page 62 of 65

Revision date: 26.11.2014

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## Amounts used

Maximum daily site tonnage (kg/day): 0.082

## 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 (%): 96.0

Maximum allowable site tonnage ( $M_{\text{Safe}}$ ) based on release following total wastewater treatment removal (kg/day): 1700

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 consumer exposures unless otherwise indicated [G21]

### 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].

Available hazard data do not enable the derivation of a DNEL for dermal irritant effects [G32] Risk management measures are based on qualitative risk characterization [G37]

### 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>).

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EC No.: 926-605-8

Page 63 of 65

Revision date: 26.11.2014

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## Section 1 Exposure scenario title

### Title:

Use in functional fluids (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]:

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

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

Specific Environmental Release Category: ESVOC 9.13c.v1

### Contributing Product Category [PC]:

PC16: Heat transfer fluids

PC17: Hydraulic fluids

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

Use of sealed items containing functional fluids e.g. transfer oils, hydraulic fluids, refrigerants.

## Section 2 Operational conditions and risk management measures

### Section 2.1 Control of consumer exposure

#### Operational conditions of use

##### Physical form of product and vapour pressure:

Liquid, vapour pressure > 10 kPa at STP [OC5]

##### Concentration of substance in product:

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

##### Amounts used:

Unless otherwise stated, covers use amounts up to 2200g [ConsOC2]; covers skin contact area up to 468cm<sup>2</sup> [ConsOC5]

##### Frequency and duration of use/exposure:

Unless otherwise stated, covers use frequency up to 4 days per year [ConsOC3] Unless otherwise stated, covers use frequency up to 1 times per day [ConsOC4]; covers exposure up to 0.17 hours per event [ConsOC14]

##### Other operational conditions affecting exposure:

Unless otherwise stated assumes use at ambient temperatures [ConsOC15]; assumes use in a 20 m<sup>3</sup> room [ConsOC11]; assumes use with typical ventilation [ConsOC8]

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

##### PC16\_n: Heat transfer fluids--Liquids

###### OC

Unless otherwise stated, covers concentrations up to 100% [ConsOC1]; covers use up to 4 days/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];

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Page 64 of 65

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## RMM

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## PC17\_n: Hydraulic fluids--Liquids

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### 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): 0.14

### Frequency and duration of use

Emission days (days/year): 365

### Environmental factors not influenced by risk management

Local freshwater dilution factor: 10

Local marine water dilution factor: 100

### Other given operational conditions affecting environmental exposure

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

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

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

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

Estimated substance removal from wastewater via domestic sewage treatment (%): 96.0

Maximum allowable site tonnage ( $M_{Safe}$ ) based on release following total wastewater treatment removal (kg/day): 3900

Assumed domestic sewage treatment plant flow (m<sup>3</sup>/day): 2000

### Conditions and measures related to external treatment of waste for disposal

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

### Conditions and measures related to external recovery of waste

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

## Section 3 Exposure estimation

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The ECETOC TRA tool has been used to estimate consumer exposures unless otherwise indicated [G21]

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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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#### Environment

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