# RHEOBYK-405



## SECTION 1: Identification of the substance/mixture and of the company/undertaking

### 1.1 Product identifier

| | | |
|---|---|---|
| Trade name | : | RHEOBYK-405 |
| UFI | : | E1HE-S0P4-U00D-S2KJ |
| Product code | : | 000000000000129956 |

### 1.2 Relevant identified uses of the substance or mixture and uses advised against

| | | |
|---|---|---|
| Use of the Substance/Mixture | : | Rheology Additive |

### 1.3 Details of the supplier of the safety data sheet

| | | |
|---|---|---|
| Company | : | BYK-Chemie GmbH<br>Abelstrasse 45<br>46483 Wesel |
| Telephone | : | +49 281 670-0 |
| Telefax | : | +49 281 65735 |
| Information | : | Regulatory Affairs |
| Telephone | : | +49 281 670-23532 |
| Telefax | : | +49 281 670-23533 |
| E-mail address | : | GHS.BYK@altana.com |

### 1.4 Emergency telephone number

+44 1235 239670

## SECTION 2: Hazards identification

### 2.1 Classification of the substance or mixture

**Classification (REGULATION (EC) No 1272/2008)**

| | |
|---|---|
| Flammable liquids, Category 3 | H226: Flammable liquid and vapour. |
| Skin irritation, Category 2 | H315: Causes skin irritation. |
| Serious eye damage, Category 1 | H318: Causes serious eye damage. |
| Specific target organ toxicity - single exposure, Category 3, Central nervous system | H336: May cause drowsiness or dizziness. |
| Specific target organ toxicity - single exposure, Category 3, Respiratory system | H335: May cause respiratory irritation. |
| Specific target organ toxicity - repeated exposure, Category 2 | H373: May cause damage to organs through prolonged or repeated exposure. |
| Long-term (chronic) aquatic hazard, Category 3 | H412: Harmful to aquatic life with long lasting effects. |

### 2.2 Label elements

**Labelling (REGULATION (EC) No 1272/2008)**

Hazard pictograms :



Signal word : Danger

Hazard statements :

| | |
|---|---|
| H226 | Flammable liquid and vapour. |
| H315 | Causes skin irritation. |
| H318 | Causes serious eye damage. |
| H335 | May cause respiratory irritation. |
| H336 | May cause drowsiness or dizziness. |
| H373 | May cause damage to organs through prolonged or repeated exposure. |
| H412 | Harmful to aquatic life with long lasting effects. |

Precautionary statements :

**Prevention:**

| | |
|---|---|
| P210 | Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking. |
| P260 | Do not breathe mist or vapours. |
| P264 | Wash skin thoroughly after handling. |
| P280 | Wear protective gloves/ protective clothing/ eye protection/ face protection/ hearing protection. |

**Response:**

| | |
|---|---|
| P305 + P351 + P338 + P310 | IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Immediately call a POISON CENTER/ doctor. |
| P370 + P378 | In case of fire: Use dry sand, dry chemical or alcohol-resistant foam to extinguish. |

**Hazardous components which must be listed on the label:**

- 64742-95-6 Solvent naphtha (petroleum), light arom.; Low boiling point naphtha - unspecified
- 1330-20-7 Xylene, mixture of isomers
- 78-83-1 iso-butanol

### 2.3 Other hazards

This substance/mixture contains no components considered to be either persistent, bioaccumulative and toxic (PBT), or very persistent and very bioaccumulative (vPvB) at levels of 0.1% or higher.

Ecological information: The substance/mixture does not contain components considered to have endocrine disrupting properties according to REACH Article 57(f) or Commission Delegated regulation (EU) 2017/2100 or Commission Regulation (EU) 2018/605 at levels of 0.1% or higher.

Toxicological information: The substance/mixture does not contain components considered to have endocrine disrupting properties according to REACH Article 57(f) or Commission Delegated regulation (EU) 2017/2100 or Commission Regulation (EU) 2018/605 at levels of 0.1% or higher.

## SECTION 3: Composition/information on ingredients

### 3.2 Mixtures

Chemical nature : Solution of polyhydroxycarboxylic acid amides

**Components**

| Chemical name | CAS-No.<br>EC-No.<br>Index-No.<br>Registration number | Classification | Concentration (% w/w) |
|---|---|---|---|
| Solvent naphtha (petroleum), light arom.; Low boiling point naphtha - unspecified | 64742-95-6<br>01-2119455851-35 | STOT SE 3; H336 (Central nervous system)<br>STOT SE 3; H335 (Respiratory system)<br>Aquatic Chronic 2; H411<br>Flam. Liq. 3; H226<br>Asp. Tox. 1; H304 | >= 12,5 - < 20 |
| Xylene, mixture of isomers | 1330-20-7<br>01-2119488216-32 | Eye Irrit. 2; H319<br>STOT SE 3; H335 (Respiratory system)<br>STOT RE 2; H373<br>Asp. Tox. 1; H304<br>Flam. Liq. 3; H226<br>Acute Tox. 4; H332<br>Acute Tox. 4; H312<br>Skin Irrit. 2; H315<br>Aquatic Chronic 3; H412 | >= 12,5 - < 20 |
| iso-butanol | 78-83-1<br>201-148-0<br>01-2119484609-23 | Flam. Liq. 3; H226<br>Skin Irrit. 2; H315<br>Eye Dam. 1; H318<br>STOT SE 3; H336 (Central nervous system)<br>STOT SE 3; H335 (Respiratory system) | >= 5 - < 7 |
| ethylbenzene | 100-41-4<br>202-849-4 | Flam. Liq. 2; H225<br>Acute Tox. 4; H332<br>STOT RE 2; H373 (hearing organs)<br>Asp. Tox. 1; H304 | >= 5 - < 7 |

| | | | |
|---|---|---|---|
| | | Aquatic Chronic 3; H412 | |

For explanation of abbreviations see section 16.

## SECTION 4: First aid measures

### 4.1 Description of first aid measures

General advice : Move out of dangerous area.
Consult a physician.
Show this safety data sheet to the doctor in attendance.
Do not leave the victim unattended.

If inhaled : Consult a physician after significant exposure.
If unconscious, place in recovery position and seek medical advice.

In case of skin contact : If skin irritation persists, call a physician.
If on skin, rinse well with water.
If on clothes, remove clothes.

In case of eye contact : Small amounts splashed into eyes can cause irreversible tissue damage and blindness.
In the case of contact with eyes, rinse immediately with plenty of water and seek medical advice.
Continue rinsing eyes during transport to hospital.
Remove contact lenses.
Protect unharmed eye.
Keep eye wide open while rinsing.
If eye irritation persists, consult a specialist.

If swallowed : Keep respiratory tract clear.
Do NOT induce vomiting.
Do not give milk or alcoholic beverages.
Never give anything by mouth to an unconscious person.
If symptoms persist, call a physician.
Take victim immediately to hospital.

### 4.2 Most important symptoms and effects, both acute and delayed

Symptoms : No information available.

Risks : Causes skin irritation.
Causes serious eye damage.
May cause respiratory irritation.
May cause drowsiness or dizziness.
May cause damage to organs through prolonged or repeated exposure.

### 4.3 Indication of any immediate medical attention and special treatment needed

Treatment : No information available.

## SECTION 5: Firefighting measures

### 5.1 Extinguishing media

| | | |
|---|---|---|
| Suitable extinguishing media | : | Alcohol-resistant foam<br>Carbon dioxide (CO2)<br>Dry chemical |
| Unsuitable extinguishing media | : | High volume water jet |

### 5.2 Special hazards arising from the substance or mixture

| | | |
|---|---|---|
| Specific hazards during firefighting | : | Cool closed containers exposed to fire with water spray.<br><br>Do not allow run-off from fire fighting to enter drains or water courses. |
| Hazardous combustion products | : | Carbon oxides<br>Nitrogen oxides (NOx)<br>Sulphur oxides |

### 5.3 Advice for firefighters

| | | |
|---|---|---|
| Special protective equipment for firefighters | : | Wear self-contained breathing apparatus for firefighting if necessary. |
| Further information | : | Collect contaminated fire extinguishing water separately. This must not be discharged into drains.<br>Fire residues and contaminated fire extinguishing water must be disposed of in accordance with local regulations.<br>For safety reasons in case of fire, cans should be stored separately in closed containments.<br>Use a water spray to cool fully closed containers. |

## SECTION 6: Accidental release measures

### 6.1 Personal precautions, protective equipment and emergency procedures

| | | |
|---|---|---|
| Personal precautions | : | Use personal protective equipment.<br>Remove all sources of ignition.<br>Evacuate personnel to safe areas.<br>Beware of vapours accumulating to form explosive concentrations. Vapours can accumulate in low areas. |

### 6.2 Environmental precautions

| | | |
|---|---|---|
| Environmental precautions | : | Prevent product from entering drains.<br>Prevent further leakage or spillage if safe to do so.<br>If the product contaminates rivers and lakes or drains inform respective authorities. |

### 6.3 Methods and material for containment and cleaning up

| | | |
|---|---|---|
| Methods for cleaning up | : | Contain spillage, and then collect with non-combustible absorbent material, (e.g. sand, earth, diatomaceous earth, vermiculite) and place in container for disposal according to local / national regulations (see section 13). |

### 6.4 Reference to other sections

For disposal considerations see section 13., For personal protection see section 8.

## SECTION 7: Handling and storage

### 7.1 Precautions for safe handling

| | | |
|---|---|---|
| Advice on safe handling | : | Avoid formation of aerosol.<br>Do not breathe vapours/dust.<br>Avoid contact with skin and eyes.<br>For personal protection see section 8.<br>Smoking, eating and drinking should be prohibited in the application area.<br>Take precautionary measures against static discharges.<br>Provide sufficient air exchange and/or exhaust in work rooms.<br>Open drum carefully as content may be under pressure.<br>To avoid spills during handling keep bottle on a metal tray.<br>Dispose of rinse water in accordance with local and national regulations. |
| Advice on protection against fire and explosion | : | Do not spray on a naked flame or any incandescent material.<br>Take necessary action to avoid static electricity discharge (which might cause ignition of organic vapours). Keep away from open flames, hot surfaces and sources of ignition. |
| Hygiene measures | : | When using do not eat or drink. When using do not smoke.<br>Wash hands before breaks and at the end of workday. |

### 7.2 Conditions for safe storage, including any incompatibilities

| | | |
|---|---|---|
| Requirements for storage areas and containers | : | No smoking. Keep container tightly closed in a dry and well-ventilated place. Containers which are opened must be carefully resealed and kept upright to prevent leakage.<br>Electrical installations / working materials must comply with the technological safety standards. |
| Further information on storage stability | : | No decomposition if stored and applied as directed. |

### 7.3 Specific end use(s)

| | | |
|---|---|---|
| Specific use(s) | : | No data available |

## SECTION 8: Exposure controls/personal protection

### 8.1 Control parameters

**Occupational Exposure Limits**

| Components | CAS-No. | Value type (Form of exposure) | Control parameters | Basis |
|---|---|---|---|---|
| Xylene, mixture of isomers | 1330-20-7 | TWA | 50 ppm<br>221 mg/m3 | 2000/39/EC |
| | Further information: Identifies the possibility of significant uptake through the skin, Indicative | | | |
| | | STEL | 100 ppm<br>442 mg/m3 | 2000/39/EC |
| | Further information: Identifies the possibility of significant uptake through the skin, Indicative | | | |
| | | TWA | 50 ppm<br>220 mg/m3 | CH SUVA |
| | Further information: Toxic by skin resorption possible; Substances, which are easily absored through the skin, can give by additional skin resoption a substancial higher risk compared to only inhalation by the airways., National Institute for Occupational Safety and Health, National Institute of Research and Safety for the prevention of work accidents and occupational diseases | | | |
| | | STEL | 100 ppm<br>440 mg/m3 | CH SUVA |
| | Further information: Toxic by skin resorption possible; Substances, which are easily absored through the skin, can give by additional skin resoption a substancial higher risk compared to only inhalation by the airways., National Institute for Occupational Safety and Health, National Institute of Research and Safety for the prevention of work accidents and occupational diseases | | | |
| iso-butanol | 78-83-1 | TWA | 50 ppm<br>150 mg/m3 | CH SUVA |
| | Further information: National Institute for Occupational Safety and Health, National Institute of Research and Safety for the prevention of work accidents and occupational diseases, Harm to the unborn child is not to be expected when the OEL-value is respected | | | |
| | | STEL | 50 ppm<br>150 mg/m3 | CH SUVA |
| | Further information: National Institute for Occupational Safety and Health, National Institute of Research and Safety for the prevention of work accidents and occupational diseases, Harm to the unborn child is not to be expected when the OEL-value is respected | | | |
| ethylbenzene | 100-41-4 | TWA | 100 ppm<br>442 mg/m3 | 2000/39/EC |
| | Further information: Identifies the possibility of significant uptake through the skin, Indicative | | | |
| | | STEL | 200 ppm<br>884 mg/m3 | 2000/39/EC |
| | Further information: Identifies the possibility of significant uptake through the skin, Indicative | | | |
| | | TWA | 50 ppm<br>220 mg/m3 | CH SUVA |
| | Further information: noise amplifying ototoxicity, Toxic by skin resorption possible; Substances, which are easily absored through the skin, can give by additional skin resoption a substancial higher risk compared to only inhalation by the airways., National Institute for Occupational Safety and Health | | | |
| | | STEL | 50 ppm<br>220 mg/m3 | CH SUVA |

| | |
|---|---|
| | Further information: noise amplifying ototoxicity, Toxic by skin resorption possible; Substances, which are easily absored through the skin, can give by additional skin resoption a substancial higher risk compared to only inhalation by the airways., National Institute for Occupational Safety and Health |

**Biological occupational exposure limits**

| Substance name | CAS-No. | Control parameters | Sampling time | Basis |
|---|---|---|---|---|
| Xylene, mixture of isomers | 1330-20-7 | methyl hippuric acids: 1.8 g/g creatinine (Urine) | Immediately after exposure or after working hours | CH BAT |
| | | methyl hippuric acids: 1.1 mmol/mmol creatinine (Urine) | Immediately after exposure or after working hours | CH BAT |
| ethylbenzene | 100-41-4 | mandelic acid and phenyl glyoxylic acid: 600 mg/g creatinine (Urine) | Immediately after exposure or after working hours | CH BAT |

**Derived No Effect Level (DNEL) according to Regulation (EC) No. 1907/2006**

| Substance name | End Use | Exposure routes | Potential health effects | Value |
|---|---|---|---|---|
| Solvent naphtha (petroleum), light arom.; Low boiling point naphtha - unspecified | Workers | Skin contact | Long-term exposure, Systemic effects | 25 mg/kg |
| | Workers | Inhalation | Long-term exposure, Systemic effects | 150 mg/m3 |
| | Consumers | Skin contact | Long-term exposure, Systemic effects | 11 mg/kg |
| | Consumers | Inhalation | Long-term exposure, Systemic effects | 32 mg/m3 |
| | Consumers | Ingestion | Long-term exposure, Systemic effects | 11 mg/kg |
| Xylene, mixture of isomers | Workers | Inhalation | Long-term systemic effects | 221 mg/m3 |
| | Workers | Inhalation | Acute local effects | 442 mg/m3 |
| | Workers | Dermal | Long-term systemic effects | 212 mg/kg |
| | Consumers | Inhalation | Long-term systemic effects | 65,3 mg/m3 |
| | Consumers | Dermal | Long-term systemic effects | 125 mg/kg |
| | Consumers | Oral | Long-term systemic effects | 1,5 mg/kg |
| | Consumers | Inhalation | Acute local effects | 260 mg/m3 |
| iso-butanol | Workers | Inhalation | Long-term local effects | 310 mg/m3 |
| | Consumers | Ingestion | Long-term systemic | 25 mg/kg |

| | | | | |
|---|---|---|---|---|
| | | | effects | |
| | Consumers | Inhalation | Long-term local effects | 55 mg/m3 |

**Predicted No Effect Concentration (PNEC) according to Regulation (EC) No. 1907/2006**

| Substance name | Environmental Compartment | Value |
|---|---|---|
| Xylene, mixture of isomers | Fresh water | 0,327 mg/l |
| | Marine water | 0,327 mg/l |
| | Fresh water sediment | 12,46 mg/kg |
| | Marine sediment | 12,46 mg/kg |
| | Soil | 2,31 mg/kg |
| | Sewage treatment plant | 6,58 mg/l |
| | Intermittent releases | 0,327 mg/l |
| iso-butanol | Fresh water | 0,4 mg/l |
| | Marine water | 0,04 mg/l |
| | Fresh water sediment | 1,56 mg/kg |
| | Marine sediment | 0,156 mg/kg |
| | Soil | 0,0765 mg/kg |
| | Sewage treatment plant | 10 mg/l |
| | Intermittent releases | 11 mg/l |

### 8.2 Exposure controls

**Personal protective equipment**

Eye/face protection : Eye wash bottle with pure water
Tightly fitting safety goggles
Wear face-shield and protective suit for abnormal processing problems.

Hand protection
- Material : Nitrile rubber
- Break through time : > 480 min
- Glove thickness : > 0,4 mm

- Remarks : The suitability for a specific workplace should be discussed with the producers of the protective gloves.

Skin and body protection : Impervious clothing
Choose body protection according to the amount and concentration of the dangerous substance at the work place.

Respiratory protection : In the case of vapour formation use a respirator with an approved filter.

**Environmental exposure controls**

General advice : Prevent product from entering drains.
Prevent further leakage or spillage if safe to do so.
If the product contaminates rivers and lakes or drains inform respective authorities.

## SECTION 9: Physical and chemical properties

### 9.1 Information on basic physical and chemical properties

| | | |
|---|---|---|
| Physical state | : | liquid |
| Colour | : | light brown |
| Odour | : | not significant |
| Odour Threshold | : | No data available |
| Melting point/ range | : | < 0 °C<br>Method: estimated |
| Initial boiling point | : | 106,00 °C<br>Method: estimated |
| Upper explosion limit / Upper flammability limit | : | 10,70 %(V) |
| Lower explosion limit / Lower flammability limit | : | 1,00 %(V) |
| Flash point | : | 29,00 °C<br>Method: 48 (Abel-Pensky) DIN 51755 |
| Auto-ignition temperature | : | > 200,00 °C<br>Method: DIN 51794 |
| Decomposition temperature | : | No data available |
| pH | : | 6 (20 °C)<br>Concentration: 1 %<br>Method: Universal pH-value indicator |
| Viscosity | | |
| Viscosity, kinematic | : | 228 mm2/s (40,00 °C) |
| Solubility(ies) | | |
| Water solubility | : | immiscible |
| Solubility in other solvents | : | No data available |
| Partition coefficient: n-octanol/water | : | No data available |
| Vapour pressure | : | < 7 hPa (20,00 °C)<br>Method: calculated |
| Relative density | : | No data available |
| Density | : | 0,9250 g/cm3 (20,00 °C)<br>Method: 4 (20°C oscillating U-tube) |

| | | |
|---|---|---|
| Bulk density | : | Not applicable |
| Relative vapour density | : | No data available |

**9.2 Other information**

| | | |
|---|---|---|
| Flammability (liquids) | : | Sustains combustion |
| Evaporation rate | : | No data available |
| Surface tension | : | No data available |

## SECTION 10: Stability and reactivity

**10.1 Reactivity**

No decomposition if stored and applied as directed.

**10.2 Chemical stability**

No decomposition if stored and applied as directed.

**10.3 Possibility of hazardous reactions**

| | | |
|---|---|---|
| Hazardous reactions | : | No decomposition if stored and applied as directed.<br>Vapours may form explosive mixture with air. |

**10.4 Conditions to avoid**

| | | |
|---|---|---|
| Conditions to avoid | : | Heat, flames and sparks. |

**10.5 Incompatible materials**

| | | |
|---|---|---|
| Materials to avoid | : | Acids<br>Strong oxidizing agents |

**10.6 Hazardous decomposition products**

No decomposition if stored normally.

## SECTION 11: Toxicological information

**11.1 Information on hazard classes as defined in Regulation (EC) No 1272/2008**

**Acute toxicity**

Not classified due to lack of data.

**Product:**

| | | |
|---|---|---|
| Acute oral toxicity | : | Remarks: No data available |
| Acute inhalation toxicity | : | Acute toxicity estimate: > 20 mg/l<br>Exposure time: 4 h<br>Test atmosphere: vapour |

Method: Calculation method

Acute dermal toxicity : Acute toxicity estimate: > 2.000 mg/kg
Method: Calculation method

**Components:**

**Solvent naphtha (petroleum), light arom.; Low boiling point naphtha -unspecified:**

Acute oral toxicity : Remarks: No data available

Acute inhalation toxicity : Remarks: No data available

Acute dermal toxicity : LD50 (Rabbit, male and female): > 3.160 mg/kg
Method: OECD Test Guideline 402

**Xylene, mixture of isomers:**

Acute oral toxicity : LD50 (Rat): 4.300 mg/kg
Method: EC Directive 92/69/EEC B.1 Acute Toxicity (Oral)
GLP: no

Acute dermal toxicity : LD50 (Rabbit): > 4.200 mg/kg
GLP: No information available.

**iso-butanol:**

Acute oral toxicity : LD50 (Rat, male): > 2.830 mg/kg
Method: OECD Test Guideline 401
GLP: yes

Acute dermal toxicity : LD50 (Rabbit, male): > 2.000 mg/kg
Method: OECD Test Guideline 402
GLP: yes

**Skin corrosion/irritation**

Causes skin irritation.

**Product:**

Remarks : May irritate skin.
May cause skin irritation in susceptible persons.

**Components:**

**Solvent naphtha (petroleum), light arom.; Low boiling point naphtha -unspecified:**

Species : Rabbit
Method : OECD Test Guideline 404
Result : No skin irritation
GLP : yes

**iso-butanol:**

Species : Rabbit

Result : Skin irritation

**Serious eye damage/eye irritation**

Causes serious eye damage.

**Product:**

Remarks : May cause irreversible eye damage.

**Components:**

**Solvent naphtha (petroleum), light arom.; Low boiling point naphtha -unspecified:**

Species : Rabbit
Method : OECD Test Guideline 405
Result : No eye irritation
GLP : yes

**iso-butanol:**

Species : Rabbit
Method : OECD Test Guideline 405
Result : Eye irritation
GLP : yes

**Respiratory or skin sensitisation**

**Skin sensitisation**

Not classified due to lack of data.

**Respiratory sensitisation**

Not classified due to lack of data.

**Product:**

Remarks : No data available

**Components:**

**Solvent naphtha (petroleum), light arom.; Low boiling point naphtha -unspecified:**

Test Type : Maximisation Test
Exposure routes : Dermal
Species : Guinea pig
Method : OECD Test Guideline 406
Result : Does not cause skin sensitisation.

**iso-butanol:**

Test Type : Maximisation Test
Exposure routes : Dermal
Species : Guinea pig
Method : OECD Test Guideline 406
Result : Does not cause skin sensitisation.

**Germ cell mutagenicity**

Not classified due to lack of data.

**Product:**

| | | |
|---|---|---|
| Genotoxicity in vitro | : | Remarks: No data available |
| Genotoxicity in vivo | : | Remarks: No data available |

**Components:**

**Solvent naphtha (petroleum), light arom.; Low boiling point naphtha -unspecified:**

| | | |
|---|---|---|
| Germ cell mutagenicity-Assessment | : | Classified based on benzene content < 0.1% (Regulation (EC) 1272/2008, Annex VI, Part 3, Note P) |

**Carcinogenicity**

Not classified due to lack of data.

**Product:**

| | | |
|---|---|---|
| Remarks | : | No data available |

**Components:**

**Solvent naphtha (petroleum), light arom.; Low boiling point naphtha -unspecified:**

| | | |
|---|---|---|
| Carcinogenicity - Assessment | : | Classified based on benzene content < 0.1% (Regulation (EC) 1272/2008, Annex VI, Part 3, Note P) |

**Reproductive toxicity**

Not classified due to lack of data.

**Product:**

| | | |
|---|---|---|
| Effects on fertility | : | Remarks: No data available |
| Effects on foetal development | : | Remarks: No data available |

**STOT - single exposure**

May cause respiratory irritation.
May cause drowsiness or dizziness.

**Product:**

| | | |
|---|---|---|
| Remarks | : | No data available |

**STOT - repeated exposure**

May cause damage to organs through prolonged or repeated exposure.

**Product:**

| | | |
|---|---|---|
| Remarks | : | No data available |

**Repeated dose toxicity**

**Product:**

Remarks : No data available

**Aspiration toxicity**

Not classified due to lack of data.

**Product:**

No data available

**Components:**

**Solvent naphtha (petroleum), light arom.; Low boiling point naphtha -unspecified:**

The substance or mixture is known to cause human aspiration toxicity hazards or has to be regarded as if it causes a human aspiration toxicity hazard.

**iso-butanol:**

No aspiration toxicity classification

### 11.2 Information on other hazards

**Endocrine disrupting properties**

Not classified due to lack of data.

**Product:**

Assessment : The substance/mixture does not contain components considered to have endocrine disrupting properties according to REACH Article 57(f) or Commission Delegated regulation (EU) 2017/2100 or Commission Regulation (EU) 2018/605 at levels of 0.1% or higher.

**Further information**

**Product:**

Remarks : Symptoms of overexposure may be headache, dizziness, tiredness, nausea and vomiting.
Concentrations substantially above the TLV value may cause narcotic effects.
Solvents may degrease the skin.

## SECTION 12: Ecological information

### 12.1 Toxicity

**Product:**

Toxicity to fish : Remarks: No data available

**Components:**

**Solvent naphtha (petroleum), light arom.; Low boiling point naphtha -unspecified:**

| | | |
|---|---|---|
| Toxicity to fish | : | LL50 (Fish): 9,2 mg/l<br>Exposure time: 96 h<br>Method: OECD Test Guideline 203<br>GLP: yes |
| Toxicity to daphnia and other aquatic invertebrates | : | EC50 (Daphnia magna (Water flea)): 3,2 mg/l<br>Exposure time: 48 h<br>Method: OECD Test Guideline 202<br>GLP: yes |
| Toxicity to algae/aquatic plants | : | EC50 (Pseudokirchneriella subcapitata): 2,6 mg/l<br>Exposure time: 72 h<br>Method: OECD Test Guideline 201<br>GLP: yes |

**Xylene, mixture of isomers:**

| | | |
|---|---|---|
| Toxicity to daphnia and other aquatic invertebrates | : | EC50 (Daphnia magna (Water flea)): 1 mg/l<br>Exposure time: 24 h<br>Test Type: Immobilization<br>Method: OECD Test Guideline 202 |
| Toxicity to algae/aquatic plants | : | EC50 (Selenastrum capricornutum (green algae)): 2,2 mg/l<br>Exposure time: 72 h<br>Test Type: static test<br>Method: OECD Test Guideline 201<br>GLP: yes<br><br>NOEC (Pseudokirchneriella subcapitata (green algae)): 0,44 mg/l<br>Exposure time: 72 h<br>Test Type: Growth inhibition<br>Method: OECD Test Guideline 201 |
| Toxicity to fish (Chronic toxicity) | : | NOEC: > 1,3 mg/l<br>Exposure time: 56 d<br>Species: Oncorhynchus mykiss (rainbow trout) |
| Toxicity to daphnia and other aquatic invertebrates (Chronic toxicity) | : | NOEC: 1,17 mg/l<br>Exposure time: 7 d<br>Species: Daphnia sp. (water flea)<br><br>NOEC: 0,96 mg/l<br>Exposure time: 7 d<br>Species: Daphnia sp. (water flea) |

**iso-butanol:**

| | | |
|---|---|---|
| Toxicity to fish | : | LC50 (Pimephales promelas (fathead minnow)): 1.430 mg/l<br>Exposure time: 96 h |

| | | |
|---|---|---|
| Toxicity to daphnia and other aquatic invertebrates | : | EC50 (Daphnia pulex (Water flea)): 1.100 mg/l<br>Exposure time: 48 h<br>Test Type: static test |
| Toxicity to algae/aquatic plants | : | ErC50 (Pseudokirchneriella subcapitata (green algae)): 1.799 mg/l<br>Exposure time: 72 h<br>Method: OECD Test Guideline 201<br>GLP: yes |
| Toxicity to daphnia and other aquatic invertebrates (Chronic toxicity) | : | NOEC: 20 mg/l<br>End point: Reproduction<br>Exposure time: 21 d<br>Species: Daphnia magna (Water flea)<br>Test Type: semi-static test |

### 12.2 Persistence and degradability

**Product:**

| | | |
|---|---|---|
| Biodegradability | : | Remarks: No data available |

**Components:**

**Solvent naphtha (petroleum), light arom.; Low boiling point naphtha -unspecified:**

| | | |
|---|---|---|
| Biodegradability | : | Result: Readily biodegradable.<br>Method: OECD Test Guideline 301F |

**Xylene, mixture of isomers:**

| | | |
|---|---|---|
| Biodegradability | : | Test Type: aerobic<br>Result: Readily biodegradable.<br>Method: OECD Test Guideline 301F<br>GLP: yes |

**iso-butanol:**

| | | |
|---|---|---|
| Biodegradability | : | Result: Readily biodegradable.<br>Method: OECD Test Guideline 301D |

### 12.3 Bioaccumulative potential

**Product:**

| | | |
|---|---|---|
| Bioaccumulation | : | Remarks: No data available |

**Components:**

**Xylene, mixture of isomers:**

| | | |
|---|---|---|
| Bioaccumulation | : | Species: Oncorhynchus mykiss (rainbow trout)<br>Exposure time: 56 d<br>Bioconcentration factor (BCF): 25,9<br>GLP: no |

| | | |
|---|---|---|
| Partition coefficient: n-octanol/water | : | Pow: 3,2 (20 °C)<br>pH: 7 |

**iso-butanol:**

| | | |
|---|---|---|
| Partition coefficient: n-octanol/water | : | log Pow: 1<br>Method: OECD Test Guideline 117<br>GLP: yes |

### 12.4 Mobility in soil

No data available

### 12.5 Results of PBT and vPvB assessment

**Product:**

| | | |
|---|---|---|
| Assessment | : | This substance/mixture contains no components considered to be either persistent, bioaccumulative and toxic (PBT), or very persistent and very bioaccumulative (vPvB) at levels of 0.1% or higher. |

### 12.6 Endocrine disrupting properties

**Product:**

| | | |
|---|---|---|
| Assessment | : | The substance/mixture does not contain components considered to have endocrine disrupting properties according to REACH Article 57(f) or Commission Delegated regulation (EU) 2017/2100 or Commission Regulation (EU) 2018/605 at levels of 0.1% or higher. |

### 12.7 Other adverse effects

**Product:**

| | | |
|---|---|---|
| Additional ecological information | : | An environmental hazard cannot be excluded in the event of unprofessional handling or disposal.<br>Harmful to aquatic life with long lasting effects. |

## SECTION 13: Disposal considerations

### 13.1 Waste treatment methods

| | | |
|---|---|---|
| Product | : | The product should not be allowed to enter drains, water courses or the soil.<br>Do not contaminate ponds, waterways or ditches with chemical or used container.<br>Send to a licensed waste management company. |
| Contaminated packaging | : | Empty remaining contents.<br>Dispose of as unused product.<br>Do not re-use empty containers. |

Do not burn, or use a cutting torch on, the empty drum.

## SECTION 14: Transport information

### 14.1 UN number or ID number

| | | |
|---|---|---|
| **ADN** | : | UN 1993 |
| **ADR** | : | UN 1993 |
| **RID** | : | UN 1993 |
| **IMDG** | : | UN 1993 |
| **IATA** | : | UN 1993 |

### 14.2 UN proper shipping name

| | | |
|---|---|---|
| **ADN** | : | FLAMMABLE LIQUID, N.O.S. (Xylene, Isobutanol) |
| **ADR** | : | FLAMMABLE LIQUID, N.O.S. (Xylene, Isobutanol) |
| **RID** | : | FLAMMABLE LIQUID, N.O.S. (Xylene, Isobutanol) |
| **IMDG** | : | FLAMMABLE LIQUID, N.O.S. (XYLENE, Isobutanol) |
| **IATA** | : | Flammable liquid, n.o.s. (Xylene, Isobutanol) |

### 14.3 Transport hazard class(es)

| | | |
|---|---|---|
| **ADN** | : | 3 |
| **ADR** | : | 3 |
| **RID** | : | 3 |
| **IMDG** | : | 3 |
| **IATA** | : | 3 |

### 14.4 Packing group

**ADN**

| | | |
|---|---|---|
| Packing group | : | III |
| Classification Code | : | F1 |
| Hazard Identification Number | : | 30 |
| Labels | : | 3 |

**ADR**

| | | |
|---|---|---|
| Packing group | : | III |
| Classification Code | : | F1 |
| Hazard Identification Number | : | 30 |
| Labels | : | 3 |
| Tunnel restriction code | : | D/E |

**RID**

| | | |
|---|---|---|
| Packing group | : | III |
| Classification Code | : | F1 |
| Hazard Identification Number | : | 30 |
| Labels | : | 3 |

**IMDG**

| | | |
|---|---|---|
| Packing group | : | III |
| Labels | : | 3 |
| EmS Code | : | F-E, S-E |
| Remarks | : | IMDG Code segregation group - none |

**IATA (Cargo)**

| | | |
|---|---|---|
| Packing instruction (cargo aircraft) | : | 366 |
| Packing group | : | III |
| Labels | : | Flammable Liquids |

**IATA (Passenger)**

| | | |
|---|---|---|
| Packing instruction (passenger aircraft) | : | 355 |
| Packing instruction (LQ) | : | Y344 |
| Packing group | : | III |
| Labels | : | Flammable Liquids |

### 14.5 Environmental hazards

**ADN**
Environmentally hazardous : no

**ADR**
Environmentally hazardous : no

**RID**
Environmentally hazardous : no

**IMDG**
Marine pollutant : no

### 14.6 Special precautions for user

The transport classification(s) provided herein are for informational purposes only, and solely based upon the properties of the unpackaged material as it is described within this Safety Data Sheet. Transportation classifications may vary by mode of transportation, package sizes, and variations in regional or country regulations.

### 14.7 Maritime transport in bulk according to IMO instruments

Not applicable for product as supplied.

## SECTION 15: Regulatory information

### 15.1 Safety, health and environmental regulations/legislation specific for the substance or mixture

REACH - Restrictions on the manufacture, placing on the market and use of certain dangerous substances, mixtures and articles (Annex XVII) : Conditions of restriction for the following entries must be considered::

| | | |
|---|---|---|
| | | Number on list 3<br><br>Number on list 5: benzene<br><br>Number on list 72: benzene<br><br>Number on list 75: If you intend to use this product as tattoo ink, please contact your vendor. |
| REACH - Candidate List of Substances of Very High Concern for Authorisation (Article 59). | : | This product does not contain substances of very high concern (Regulation (EC) No 1907/2006 (REACH), Article 57). |
| REACH - List of substances subject to authorisation (Annex XIV) | : | Not applicable |

| | | |
|---|---|---|
| Seveso III: Directive 2012/18/EU of the European Parliament and of the Council on the control of major-accident hazards involving dangerous substances. | P5c | FLAMMABLE LIQUIDS |

| | | |
|---|---|---|
| Volatile organic compounds | : | Ordinance on the Incentive Tax on Volatile Organic Compounds (OVOC)<br>Volatile organic compounds (VOC) content: 48,24 % |

### 15.2 Chemical safety assessment

Not applicable

## SECTION 16: Other information

Items where relevant changes have been made to the previous version are highlighted in the body of this document by two vertical lines.

**Full text of H-Statements**

| | | |
|---|---|---|
| H225 | : | Highly flammable liquid and vapour. |
| H226 | : | Flammable liquid and vapour. |
| H304 | : | May be fatal if swallowed and enters airways. |
| H312 | : | Harmful in contact with skin. |
| H315 | : | Causes skin irritation. |
| H318 | : | Causes serious eye damage. |
| H319 | : | Causes serious eye irritation. |
| H332 | : | Harmful if inhaled. |
| H335 | : | May cause respiratory irritation. |
| H336 | : | May cause drowsiness or dizziness. |
| H373 | : | May cause damage to organs through prolonged or repeated exposure. |
| H411 | : | Toxic to aquatic life with long lasting effects. |

| | | |
|---|---|---|
| H412 | : | Harmful to aquatic life with long lasting effects. |

**Full text of other abbreviations**

| | | |
|---|---|---|
| Acute Tox. | : | Acute toxicity |
| Aquatic Chronic | : | Long-term (chronic) aquatic hazard |
| Asp. Tox. | : | Aspiration hazard |
| Eye Dam. | : | Serious eye damage |
| Eye Irrit. | : | Eye irritation |
| Flam. Liq. | : | Flammable liquids |
| Skin Irrit. | : | Skin irritation |
| STOT RE | : | Specific target organ toxicity - repeated exposure |
| STOT SE | : | Specific target organ toxicity - single exposure |
| 2000/39/EC | : | Europe. Commission Directive 2000/39/EC establishing a first list of indicative occupational exposure limit values |
| CH BAT | : | Switzerland. List of BAT-values |
| CH SUVA | : | Switzerland. Limit values at the work place |
| 2000/39/EC / TWA | : | Limit Value - eight hours |
| 2000/39/EC / STEL | : | Short term exposure limit |
| CH SUVA / TWA | : | Time Weighted Average |
| CH SUVA / STEL | : | Short Term Exposure Limit |

ADN - European Agreement concerning the International Carriage of Dangerous Goods by Inland Waterways; ADR - Agreement concerning the International Carriage of Dangerous Goods by Road; AIIC - Australian Inventory of Industrial Chemicals; ASTM - American Society for the Testing of Materials; BGW - Biological Limit Values; bw - Body weight; CLP - Classification Labelling Packaging Regulation; Regulation (EC) No 1272/2008; CMR - Carcinogen, Mutagen or Reproductive Toxicant; DIN - Standard of the German Institute for Standardisation; DSL - Domestic Substances List (Canada); ECHA - European Chemicals Agency; EC-Number - European Community number; ECx - Concentration associated with x% response; ELx - Loading rate associated with x% response; EmS - Emergency Schedule; ENCS - Existing and New Chemical Substances (Japan); ErCx - Concentration associated with x% growth rate response; GHS - Globally Harmonised System; GLP - Good Laboratory Practice; IARC - International Agency for Research on Cancer; IATA - International Air Transport Association; IBC - International Code for the Construction and Equipment of Ships carrying Dangerous Chemicals in Bulk; IC50 - Half maximal inhibitory concentration; ICAO - International Civil Aviation Organization; IECSC - Inventory of Existing Chemical Substances in China; IMDG - International Maritime Dangerous Goods; IMO - International Maritime Organisation; ISHL - Industrial Safety and Health Law (Japan); ISO - International Organisation for Standardisation; KECI - Korea Existing Chemicals Inventory; LC50 - Lethal Concentration to 50 % of a test population; LD50 - Lethal Dose to 50% of a test population (Median Lethal Dose); LSPN - List of Hazardous Notified Substances (Chile); MARPOL - International Convention for the Prevention of Pollution from Ships; n.o.s. - Not Otherwise Specified; NO(A)EC - No Observed (Adverse) Effect Concentration; NO(A)EL - No Observed (Adverse) Effect Level; NOELR - No Observable Effect Loading Rate; NZIoC - New Zealand Inventory of Chemicals; OECD - Organisation for Economic Co-operation and Development; OPPTS - Office of Chemical Safety and Pollution Prevention; PBT - Persistent, Bioaccumulative and Toxic substance; PICCS - Philippines Inventory of Chemicals and Chemical Substances; (Q)SAR - (Quantitative) Structure Activity Relationship; REACH - Regulation (EC) No 1907/2006 of the European Parliament and of the Council concerning the Registration, Evaluation, Authorisation and Restriction of Chemicals; RID - Regulations concerning the International Carriage of Dangerous Goods by Rail; SADT - Self-Accelerating Decomposition Temperature; SDS - Safety Data Sheet; SVHC - Substance of Very High Concern; TCSI - Taiwan Chemical Substance Inventory; TECI - Thailand Existing Chemicals Inventory; TRGS - Technical

Rule for Hazardous Substances; TSCA - Toxic Substances Control Act (United States); UN - United Nations; vPvB - Very Persistent and Very Bioaccumulative

**Further information**

| **Classification of the mixture:** | | **Classification procedure:** |
|---|---|---|
| Flam. Liq. 3 | H226 | Based on product data or assessment |
| Skin Irrit. 2 | H315 | Calculation method |
| Eye Dam. 1 | H318 | Calculation method |
| STOT SE 3 | H336 | Calculation method |
| STOT SE 3 | H335 | Calculation method |
| STOT RE 2 | H373 | Calculation method |
| Aquatic Chronic 3 | H412 | Calculation method |

The information provided in this Safety Data Sheet is correct to the best of our knowledge, information and belief at the date of its publication. The information given is designed only as a guidance for safe handling, use, processing, storage, transportation, disposal and release and is not to be considered a warranty or quality specification. The information relates only to the specific material designated and may not be valid for such material used in combination with any other materials or in any process, unless specified in the text.

CH / EN

# Annex: Exposure Scenarios

### Table of Contents



| Number | Title |
|---|---|
| **ES 1** | Formulation & (re)packing of substances and mixtures; Industrial uses (SU3).; Formulation [mixing] of preparations and/or re-packaging (SU10). |
| **ES 2** | Use in coatings; Industrial uses (SU3). |
| **ES 3** | Use in laboratories; Industrial uses (SU3).; Formulation [mixing] of preparations and/or re-packaging (SU10). |
| **ES 4** | Use in coatings; Professional uses (SU22). |
| **ES 5** | Use in laboratories; Professional uses (SU22). |
| **ES 6** | Use in coatings; Consumer uses (SU21). |

## ES 1: Formulation & (re)packing of substances and mixtures; Industrial uses (SU3).; Formulation [mixing] of preparations and/or re-packaging (SU10).

### 1.1. Title section

| | | |
|---|---|---|
| **Exposure Scenario name** | : | Formulation & (re)packing of substances and mixtures |
| **Structured Short Title** | : | Formulation & (re)packing of substances and mixtures; Industrial uses (SU3).; Formulation [mixing] of preparations and/or re-packaging (SU10). |

| | | |
|---|---|---|
| **Environment** | | |
| **CS 1** | **Formulation into mixture, Use of non-reactive processing aid at industrial site (no inclusion into or onto article)** | ERC2, ERC4 |
| **Worker** | | |
| **CS 2** | **Chemical production or refinery in closed process without likelihood of exposure or processes with equivalent containment conditions** | PROC1 |
| **CS 3** | **Chemical production or refinery in closed continuous process with occasional controlled exposure or processes with equivalent containment conditions** | PROC2 |
| **CS 4** | **Use in closed batch process (synthesis or formulation)** | PROC3 |
| **CS 5** | **Chemical production where opportunity for exposure arises** | PROC4 |
| **CS 6** | **Mixing or blending in batch processes** | PROC5 |
| **CS 7** | **Transfer of substance or mixture (charging/discharging) at non dedicated-facilities** | PROC8a |
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| **CS 10** | **Chemical production where opportunity for exposure arises** | PROC4 |
| **CS 11** | **Use as laboratory reagent** | PROC15 |

### 1.2. Conditions of use affecting exposure

#### 1.2.1. Control of environmental exposure: Formulation into mixture (ERC2) / Use of non-reactive processing aid at industrial site (no inclusion into or onto article) (ERC4)

| **Product (article) characteristics** |
|---|
| Covers concentrations up to 100 % |

| | | |
|---|---|---|
| Physical form of product | : | Liquid |
| Vapour pressure | : | 50 hPa |
| Temperature | : | 20 °C |
| **Amount used (or contained in articles), frequency and duration of use/exposure** | | |
| Annual amount per site | : | 730000 kg |
| Release type | : | Continuous release |
| Emission days | : | 100 |
| **Conditions and measures related to sewage treatment plant** | | |
| STP type | : | Municipal sewage treatment plant |
| STP sludge treatment | : | No application of sewage sludge to soil<br>Sewage sludge should be incinerated, contained or reclaimed. |
| **Conditions and measures related to treatment of waste (including article waste)** | | |
| Waste treatment | : | External treatment and disposal of waste should comply with applicable local and/or national regulations.<br>External recovery and recycling of waste should comply with applicable local and/or national regulations. |
| **Other conditions affecting environmental exposure** | | |
| Local freshwater dilution factor | : | 10 |
| Local marine water dilution factor | : | 100 |

**1.2.2. Control of worker exposure: Chemical production or refinery in closed process without likelihood of exposure or processes with equivalent containment conditions (PROC1)**

| | | |
|---|---|---|
| **Product (article) characteristics** | | |
| Covers concentrations up to 100 % | | |
| Physical form of product | : | Liquid |
| Vapour pressure | : | 0,5 kPa |
| Temperature | : | 20 °C |
| **Amount used (or contained in articles), frequency and duration of use/exposure** | | |
| Duration | : | Covers daily exposures up to 8 hours |
| **Technical and organisational conditions and measures** | | |
| Handle substance within a closed system. | | |

| | | |
|---|---|---|
| **Conditions and measures related to personal protection, hygiene and health evaluation** | | |
| Wear suitable gloves tested to EN374. | | |
| **Other conditions affecting workers exposure** | | |
| Temperature | : | Assumes use at not more than 20°C above ambient temperature. |
| **Additional good practice advice. Obligations according to Article 37(4) of REACH do not apply** | | |
| Assumes a good basic standard of occupational hygiene is implemented | | |

**1.2.3. Control of worker exposure: Chemical production or refinery in closed continuous process with occasional controlled exposure or processes with equivalent containment conditions (PROC2)**

| | | |
|---|---|---|
| **Product (article) characteristics** | | |
| Covers concentrations up to 100 % | | |
| Physical form of product | : | Liquid |
| Vapour pressure | : | 0,5 kPa |
| Temperature | : | 20 °C |
| **Amount used (or contained in articles), frequency and duration of use/exposure** | | |
| Duration | : | Covers daily exposures up to 8 hours |
| **Technical and organisational conditions and measures** | | |
| Handle substance within a closed system.<br>Ensure material transfers are under containment or extract ventilation. | | |
| **Conditions and measures related to personal protection, hygiene and health evaluation** | | |
| Wear suitable gloves tested to EN374. | | |
| **Other conditions affecting workers exposure** | | |
| Temperature | : | Assumes use at not more than 20°C above ambient temperature. |
| **Additional good practice advice. Obligations according to Article 37(4) of REACH do not apply** | | |
| Assumes a good basic standard of occupational hygiene is implemented | | |

### 1.2.4. Control of worker exposure: Use in closed batch process (synthesis or formulation) (PROC3)

| | | |
|---|---|---|
| **Product (article) characteristics** | | |
| Covers concentrations up to 100 % | | |
| Physical form of product | : | Liquid |
| Vapour pressure | : | 0,5 kPa |
| Temperature | : | 20 °C |
| **Amount used (or contained in articles), frequency and duration of use/exposure** | | |
| Duration | : | Covers daily exposures up to 8 hours |
| **Technical and organisational conditions and measures** | | |
| Handle substance within a closed system.<br>Ensure material transfers are under containment or extract ventilation. | | |
| **Conditions and measures related to personal protection, hygiene and health evaluation** | | |
| Wear suitable gloves tested to EN374. | | |
| **Other conditions affecting workers exposure** | | |
| Temperature | : | Assumes use at not more than 20°C above ambient temperature. |
| **Additional good practice advice. Obligations according to Article 37(4) of REACH do not apply** | | |
| Assumes a good basic standard of occupational hygiene is implemented | | |

### 1.2.5. Control of worker exposure: Chemical production where opportunity for exposure arises (PROC4)

| | | |
|---|---|---|
| **Product (article) characteristics** | | |
| Covers concentrations up to 100 % | | |
| Physical form of product | : | Liquid |
| Vapour pressure | : | 0,5 kPa |
| Temperature | : | 20 °C |
| **Amount used (or contained in articles), frequency and duration of use/exposure** | | |
| Duration | : | Covers daily exposures up to 8 hours |

| | | |
|---|---|---|
| **Technical and organisational conditions and measures** | | |
| Ensure material transfers are under containment or extract ventilation.<br>Provide a good standard of general ventilation (not less than 3 to 5 air changes per hour). | | |
| **Conditions and measures related to personal protection, hygiene and health evaluation** | | |
| Wear suitable gloves tested to EN374. | | |
| **Other conditions affecting workers exposure** | | |
| Temperature | : | Assumes use at not more than 20°C above ambient temperature. |
| **Additional good practice advice. Obligations according to Article 37(4) of REACH do not apply** | | |
| Assumes a good basic standard of occupational hygiene is implemented | | |

### 1.2.6. Control of worker exposure: Mixing or blending in batch processes (PROC5)

| | | |
|---|---|---|
| **Product (article) characteristics** | | |
| Covers concentrations up to 100 % | | |
| Physical form of product | : | Liquid |
| Vapour pressure | : | 0,5 kPa |
| Temperature | : | 20 °C |
| **Amount used (or contained in articles), frequency and duration of use/exposure** | | |
| Duration | : | Covers daily exposures up to 8 hours |
| **Technical and organisational conditions and measures** | | |
| Provide a good standard of general ventilation (not less than 3 to 5 air changes per hour). | | |
| **Conditions and measures related to personal protection, hygiene and health evaluation** | | |
| Wear suitable gloves tested to EN374. | | |
| **Other conditions affecting workers exposure** | | |
| Temperature | : | Assumes use at not more than 20°C above ambient temperature. |
| **Additional good practice advice. Obligations according to Article 37(4) of REACH do not apply** | | |
| Assumes a good basic standard of occupational hygiene is implemented | | |

### 1.2.7. Control of worker exposure: Transfer of substance or mixture (charging/discharging) at non dedicated-facilities (PROC8a)

| | | |
|---|---|---|
| **Product (article) characteristics** | | |
| Covers concentrations up to 100 % | | |
| Physical form of product | : | Liquid |
| Vapour pressure | : | 0,5 kPa |
| Temperature | : | 20 °C |
| **Amount used (or contained in articles), frequency and duration of use/exposure** | | |
| Duration | : | Covers daily exposures up to 8 hours |
| **Technical and organisational conditions and measures** | | |
| Transfer via enclosed lines.<br>Provide a good standard of general ventilation (not less than 3 to 5 air changes per hour). | | |
| **Conditions and measures related to personal protection, hygiene and health evaluation** | | |
| Wear suitable gloves tested to EN374. | | |
| **Other conditions affecting workers exposure** | | |
| Temperature | : | Assumes use at not more than 20°C above ambient temperature. |
| **Additional good practice advice. Obligations according to Article 37(4) of REACH do not apply** | | |
| Assumes a good basic standard of occupational hygiene is implemented | | |

### 1.2.8. Control of worker exposure: Transfer of substance or mixture (charging/discharging) at dedicated facilities (PROC8b)

| | | |
|---|---|---|
| **Product (article) characteristics** | | |
| Covers concentrations up to 100 % | | |
| Physical form of product | : | Liquid |
| Vapour pressure | : | 0,5 kPa |
| Temperature | : | 20 °C |
| **Amount used (or contained in articles), frequency and duration of use/exposure** | | |

| | | |
|---|---|---|
| Duration | : | Covers daily exposures up to 8 hours |
| **Technical and organisational conditions and measures** | | |
| Ensure material transfers are under containment or extract ventilation.<br>Clear transfer lines prior to de-coupling. | | |
| **Conditions and measures related to personal protection, hygiene and health evaluation** | | |
| Wear suitable gloves tested to EN374. | | |
| **Other conditions affecting workers exposure** | | |
| Temperature | : | Assumes use at not more than 20°C above ambient temperature. |
| **Additional good practice advice. Obligations according to Article 37(4) of REACH do not apply** | | |
| Assumes a good basic standard of occupational hygiene is implemented<br>Clear spills immediately.<br>Return IBCs or tanks to supplier for re-use. | | |

**1.2.9. Control of worker exposure: Transfer of substance or mixture into small containers (dedicated filling line, including weighing) (PROC9)**

| | | |
|---|---|---|
| **Product (article) characteristics** | | |
| Covers concentrations up to 100 % | | |
| Physical form of product | : | Liquid |
| Vapour pressure | : | 0,5 kPa |
| Temperature | : | 20 °C |
| **Amount used (or contained in articles), frequency and duration of use/exposure** | | |
| Duration | : | Covers daily exposures up to 8 hours |
| **Technical and organisational conditions and measures** | | |
| Provide a good standard of general ventilation (not less than 3 to 5 air changes per hour). | | |
| **Conditions and measures related to personal protection, hygiene and health evaluation** | | |
| Wear suitable gloves tested to EN374. | | |
| **Other conditions affecting workers exposure** | | |
| Temperature | : | Assumes use at not more than 20°C above ambient temperature. |

| **Additional good practice advice. Obligations according to Article 37(4) of REACH do not apply** |
|---|
| Assumes a good basic standard of occupational hygiene is implemented<br>Transfer via enclosed lines.<br>Put lids on containers immediately after use.<br>Clear spills immediately. |

### 1.2.10. Control of worker exposure: Chemical production where opportunity for exposure arises (PROC4)

| **Product (article) characteristics** | | |
|---|---|---|
| Covers concentrations up to 100 % | | |
| Physical form of product | : | Liquid |
| Vapour pressure | : | 0,5 kPa |
| Temperature | : | 20 °C |
| **Amount used (or contained in articles), frequency and duration of use/exposure** | | |
| Duration | : | Covers daily exposures up to 8 hours |
| **Technical and organisational conditions and measures** | | |
| Provide a good standard of general ventilation (not less than 3 to 5 air changes per hour). | | |
| **Conditions and measures related to personal protection, hygiene and health evaluation** | | |
| Wear suitable gloves tested to EN374. | | |
| **Other conditions affecting workers exposure** | | |
| Temperature | : | Assumes use at not more than 20°C above ambient temperature. |
| **Additional good practice advice. Obligations according to Article 37(4) of REACH do not apply** | | |
| Assumes a good basic standard of occupational hygiene is implemented | | |

### 1.2.11. Control of worker exposure: Use as laboratory reagent (PROC15)

| **Product (article) characteristics** | | |
|---|---|---|
| Covers concentrations up to 100 % | | |
| Physical form of product | : | Liquid |

| | | |
|---|---|---|
| Vapour pressure | : | 0,5 kPa |
| Temperature | : | 20 °C |
| **Amount used (or contained in articles), frequency and duration of use/exposure** | | |
| Duration | : | Covers daily exposures up to 8 hours |
| **Technical and organisational conditions and measures** | | |
| Handle in a fume cupboard or under extract ventilation. | | |
| **Conditions and measures related to personal protection, hygiene and health evaluation** | | |
| Wear suitable gloves tested to EN374. | | |
| **Other conditions affecting workers exposure** | | |
| Temperature | : | Assumes use at not more than 20°C above ambient temperature. |
| **Additional good practice advice. Obligations according to Article 37(4) of REACH do not apply** | | |
| Assumes a good basic standard of occupational hygiene is implemented | | |

## 1.3. Exposure estimation and reference to its source

### 1.3.1. Environmental release and exposure: Formulation into mixture (ERC2) / Use of non-reactive processing aid at industrial site (no inclusion into or onto article) (ERC4)

| Release route | Release rate | Release estimation method |
|---|---|---|
| Air | 10 kg/day | |
| Waste | 0,2 kg/day | |
| Soil | 0,1 kg/day | |

### 1.3.2. Worker exposure: Chemical production or refinery in closed process without likelihood of exposure or processes with equivalent containment conditions (PROC1)

| Exposure route | Health effect | Exposure indicator | Exposure estimate | RCR |
|---|---|---|---|---|
| inhalative | systemic | long-term | 0,01 ppm | 0 |
| dermal | systemic | long-term | 0,34 mg/kg bw/day | 0 |
| combined routes | | | | 0 |

**1.3.3. Worker exposure: Chemical production or refinery in closed continuous process with occasional controlled exposure or processes with equivalent containment conditions (PROC2)**

| Exposure route | Health effect | Exposure indicator | Exposure estimate | RCR |
|---|---|---|---|---|
| inhalative | systemic | long-term | 10 ppm | 0,56 |
| dermal | systemic | long-term | 1,37 mg/kg bw/day | 0,01 |
| combined routes | | | | 0,57 |

**1.3.4. Worker exposure: Use in closed batch process (synthesis or formulation) (PROC3)**

| Exposure route | Health effect | Exposure indicator | Exposure estimate | RCR |
|---|---|---|---|---|
| inhalative | systemic | long-term | 17,5 ppm | 0,99 |
| dermal | systemic | long-term | 0,34 mg/kg bw/day | 0 |
| combined routes | | | | 0,99 |

**1.3.5. Worker exposure: Chemical production where opportunity for exposure arises (PROC4)**

| Exposure route | Health effect | Exposure indicator | Exposure estimate | RCR |
|---|---|---|---|---|
| inhalative | systemic | long-term | 14 ppm | 0,79 |
| dermal | systemic | long-term | 6,86 mg/kg bw/day | 0,04 |
| combined routes | | | | 0,83 |

**1.3.6. Worker exposure: Mixing or blending in batch processes (PROC5)**

| Exposure route | Health effect | Exposure indicator | Exposure estimate | RCR |
|---|---|---|---|---|
| inhalative | systemic | long-term | 15 ppm | 0,85 |
| dermal | systemic | long-term | 13,71 mg/kg bw/day | 0,08 |
| combined routes | | | | 0,92 |

**1.3.7. Worker exposure: Transfer of substance or mixture (charging/discharging) at non dedicated-facilities (PROC8a)**

| Exposure route | Health effect | Exposure indicator | Exposure estimate | RCR |
|---|---|---|---|---|
| inhalative | systemic | long-term | 15 ppm | 0,85 |

| | | | | |
|---|---|---|---|---|
| dermal | systemic | long-term | 13,71 mg/kg bw/day | 0,04 |
| combined routes | | | | 0,92 |

### 1.3.8. Worker exposure: Transfer of substance or mixture (charging/discharging) at dedicated facilities (PROC8b)

| Exposure route | Health effect | Exposure indicator | Exposure estimate | RCR |
|---|---|---|---|---|
| inhalative | systemic | long-term | 1,50 ppm | 0,08 |
| dermal | systemic | long-term | 6,86 mg/kg bw/day | 0,04 |
| combined routes | | | | 0,12 |

### 1.3.9. Worker exposure: Transfer of substance or mixture into small containers (dedicated filling line, including weighing) (PROC9)

| Exposure route | Health effect | Exposure indicator | Exposure estimate | RCR |
|---|---|---|---|---|
| inhalative | systemic | long-term | 15 ppm | 0,85 |
| dermal | systemic | long-term | 6,86 mg/kg bw/day | 0,04 |
| combined routes | | | | 0,88 |

### 1.3.10. Worker exposure: Chemical production where opportunity for exposure arises (PROC4)

| Exposure route | Health effect | Exposure indicator | Exposure estimate | RCR |
|---|---|---|---|---|
| inhalative | systemic | long-term | 15 ppm | 0,85 |
| dermal | systemic | long-term | 3,43 mg/kg bw/day | 0,02 |
| combined routes | | | | 0,87 |

### 1.3.11. Worker exposure: Use as laboratory reagent (PROC15)

| Exposure route | Health effect | Exposure indicator | Exposure estimate | RCR |
|---|---|---|---|---|
| inhalative | systemic | long-term | 10 ppm | 0,56 |
| dermal | systemic | long-term | 0,34 mg/kg bw/day | 0 |
| combined routes | | | | 0,57 |

### 1.4. Guidance to DU to evaluate whether he works inside the boundaries set by the ES

Further details on scaling and control technologies are provided in SPERC factsheet.

## ES 2: Use in coatings; Industrial uses (SU3).

### 2.1. Title section

| | | |
|---|---|---|
| **Exposure Scenario name** | : | Use in coatings |
| **Structured Short Title** | : | Use in coatings; Industrial uses (SU3). |

| | | |
|---|---|---|
| **Environment** | | |
| **CS 1** | **Use of non-reactive processing aid at industrial site (no inclusion into or onto article)** | ERC4 |
| **Worker** | | |
| **CS 2** | **Chemical production or refinery in closed process without likelihood of exposure or processes with equivalent containment conditions** | PROC1 |
| **CS 3** | **Chemical production or refinery in closed continuous process with occasional controlled exposure or processes with equivalent containment conditions** | PROC2 |
| **CS 4** | **Use in closed batch process (synthesis or formulation)** | PROC3 |
| **CS 5** | **Chemical production where opportunity for exposure arises** | PROC4 |
| **CS 6** | **Mixing or blending in batch processes** | PROC5 |
| **CS 7** | **Industrial spraying** | PROC7 |
| **CS 8** | **Transfer of substance or mixture (charging/discharging) at non dedicated-facilities** | PROC8a |
| **CS 9** | **Transfer of substance or mixture (charging/discharging) at dedicated facilities** | PROC8b |
| **CS 10** | **Transfer of substance or mixture into small containers (dedicated filling line, including weighing)** | PROC9 |
| **CS 11** | **Roller application or brushing** | PROC10 |
| **CS 12** | **Treatment of articles by dipping and pouring** | PROC13 |
| **CS 13** | **Chemical production where opportunity for exposure arises** | PROC4 |
| **CS 14** | **Use as laboratory reagent** | PROC15 |

### 2.2. Conditions of use affecting exposure

#### 2.2.1. Control of environmental exposure: Use of non-reactive processing aid at industrial site (no inclusion into or onto article) (ERC4)

| |
|---|
| **Product (article) characteristics** |

| | | |
|---|---|---|
| Covers concentrations up to 100 % | | |
| Physical form of product | : | Liquid |
| Vapour pressure | : | 5 hPa |
| Temperature | : | 20 °C |
| **Amount used (or contained in articles), frequency and duration of use/exposure** | | |
| Release type | : | Continuous release |
| Emission days | : | 300 |
| **Conditions and measures related to sewage treatment plant** | | |
| STP type | : | Municipal Sewage Treatment Plant |
| STP sludge treatment | : | Sewage sludge should be incinerated, contained or reclaimed. |
| **Conditions and measures related to treatment of waste (including article waste)** | | |
| Waste treatment | : | External treatment and disposal of waste should comply with applicable local and/or national regulations. |
| Waste treatment | : | External recovery and recycling of waste should comply with applicable local and/or national regulations. |
| **Other conditions affecting environmental exposure** | | |
| Local freshwater dilution factor | : | 10 |
| Local marine water dilution factor | : | 100 |

**2.2.2. Control of worker exposure: Chemical production or refinery in closed process without likelihood of exposure or processes with equivalent containment conditions (PROC1)**

| | | |
|---|---|---|
| **Product (article) characteristics** | | |
| Covers concentrations up to 100 % | | |
| Physical form of product | : | Liquid |
| Vapour pressure | : | 0,5 kPa |
| Temperature | : | 20 °C |
| **Amount used (or contained in articles), frequency and duration of use/exposure** | | |
| Duration | : | Covers daily exposures up to 8 hours |
| **Technical and organisational conditions and measures** | | |
| Handle substance within a closed system. | | |

| | | |
|---|---|---|
| **Conditions and measures related to personal protection, hygiene and health evaluation** | | |
| Wear suitable gloves tested to EN374. | | |
| **Other conditions affecting workers exposure** | | |
| Temperature | : | Assumes use at not more than 20°C above ambient temperature. |
| **Additional good practice advice. Obligations according to Article 37(4) of REACH do not apply** | | |
| Assumes a good basic standard of occupational hygiene is implemented | | |

**2.2.3. Control of worker exposure: Chemical production or refinery in closed continuous process with occasional controlled exposure or processes with equivalent containment conditions (PROC2)**

| | | |
|---|---|---|
| **Product (article) characteristics** | | |
| Covers concentrations up to 100 % | | |
| Physical form of product | : | Liquid |
| Vapour pressure | : | 0,5 kPa |
| Temperature | : | 20 °C |
| **Amount used (or contained in articles), frequency and duration of use/exposure** | | |
| Duration | : | Covers daily exposures up to 8 hours |
| **Technical and organisational conditions and measures** | | |
| Handle substance within a closed system.<br>Ensure material transfers are under containment or extract ventilation. | | |
| **Conditions and measures related to personal protection, hygiene and health evaluation** | | |
| Wear suitable gloves tested to EN374. | | |
| **Other conditions affecting workers exposure** | | |
| Temperature | : | Assumes use at not more than 20°C above ambient temperature. |
| **Additional good practice advice. Obligations according to Article 37(4) of REACH do not apply** | | |
| Assumes a good basic standard of occupational hygiene is implemented | | |

### 2.2.4. Control of worker exposure: Use in closed batch process (synthesis or formulation) (PROC3)

| | | |
|---|---|---|
| **Product (article) characteristics** | | |
| Covers concentrations up to 100 % | | |
| Physical form of product | : | Liquid |
| Vapour pressure | : | 0,5 kPa |
| Temperature | : | 20 °C |
| **Amount used (or contained in articles), frequency and duration of use/exposure** | | |
| Duration | : | Covers daily exposures up to 8 hours |
| **Technical and organisational conditions and measures** | | |
| Handle substance within a closed system.<br>Ensure material transfers are under containment or extract ventilation. | | |
| **Conditions and measures related to personal protection, hygiene and health evaluation** | | |
| Wear suitable gloves tested to EN374. | | |
| **Other conditions affecting workers exposure** | | |
| Temperature | : | Assumes use at not more than 20°C above ambient temperature. |
| **Additional good practice advice. Obligations according to Article 37(4) of REACH do not apply** | | |
| Assumes a good basic standard of occupational hygiene is implemented | | |

### 2.2.5. Control of worker exposure: Chemical production where opportunity for exposure arises (PROC4)

| | | |
|---|---|---|
| **Product (article) characteristics** | | |
| Covers concentrations up to 100 % | | |
| Physical form of product | : | Liquid |
| Vapour pressure | : | 0,5 kPa |
| Temperature | : | 20 °C |
| **Amount used (or contained in articles), frequency and duration of use/exposure** | | |
| Duration | : | Covers daily exposures up to 8 hours |

| | | |
|---|---|---|
| **Technical and organisational conditions and measures** | | |
| Ensure material transfers are under containment or extract ventilation.<br>Provide a good standard of general ventilation (not less than 3 to 5 air changes per hour). | | |
| **Conditions and measures related to personal protection, hygiene and health evaluation** | | |
| Wear suitable gloves tested to EN374. | | |
| **Other conditions affecting workers exposure** | | |
| Temperature | : | Assumes use at not more than 20°C above ambient temperature. |
| **Additional good practice advice. Obligations according to Article 37(4) of REACH do not apply** | | |
| Assumes a good basic standard of occupational hygiene is implemented | | |

### 2.2.6. Control of worker exposure: Mixing or blending in batch processes (PROC5)

| | | |
|---|---|---|
| **Product (article) characteristics** | | |
| Covers concentrations up to 100 % | | |
| Physical form of product | : | Liquid |
| Vapour pressure | : | 0,5 kPa |
| Temperature | : | 20 °C |
| **Amount used (or contained in articles), frequency and duration of use/exposure** | | |
| Duration | : | Covers daily exposures up to 8 hours |
| **Technical and organisational conditions and measures** | | |
| Provide a good standard of general ventilation (not less than 3 to 5 air changes per hour). | | |
| **Conditions and measures related to personal protection, hygiene and health evaluation** | | |
| Wear suitable gloves tested to EN374. | | |
| **Other conditions affecting workers exposure** | | |
| Temperature | : | Assumes use at not more than 20°C above ambient temperature. |
| **Additional good practice advice. Obligations according to Article 37(4) of REACH do not apply** | | |
| Assumes a good basic standard of occupational hygiene is implemented | | |

### 2.2.7. Control of worker exposure: Industrial spraying (PROC7)

| | | |
|---|---|---|
| **Product (article) characteristics** | | |
| Covers concentrations up to 100 % | | |
| Physical form of product | : | Liquid |
| Vapour pressure | : | 0,5 kPa |
| Temperature | : | 20 °C |
| **Amount used (or contained in articles), frequency and duration of use/exposure** | | |
| Duration | : | Covers daily exposures up to 8 hours |
| **Technical and organisational conditions and measures** | | |
| Carry out in a vented booth provided with laminar airflow. | | |
| **Conditions and measures related to personal protection, hygiene and health evaluation** | | |
| Wear suitable gloves tested to EN374. | | |
| **Other conditions affecting workers exposure** | | |
| Temperature | : | Assumes use at not more than 20°C above ambient temperature. |
| **Additional good practice advice. Obligations according to Article 37(4) of REACH do not apply** | | |
| Assumes a good basic standard of occupational hygiene is implemented | | |

### 2.2.8. Control of worker exposure: Transfer of substance or mixture (charging/discharging) at non dedicated-facilities (PROC8a)

| | | |
|---|---|---|
| **Product (article) characteristics** | | |
| Covers concentrations up to 100 % | | |
| Physical form of product | : | Liquid |
| Vapour pressure | : | 0,5 kPa |
| Temperature | : | 20 °C |
| **Amount used (or contained in articles), frequency and duration of use/exposure** | | |
| Duration | : | Covers daily exposures up to 8 hours |

| | | |
|---|---|---|
| **Technical and organisational conditions and measures** | | |
| Drain down system prior to equipment break-in or maintenance.<br>Provide a good standard of controlled ventilation (5 to 10 air changes per hour). | | |
| **Conditions and measures related to personal protection, hygiene and health evaluation** | | |
| Wear suitable gloves tested to EN374. | | |
| **Other conditions affecting workers exposure** | | |
| Temperature | : | Assumes use at not more than 20°C above ambient temperature. |
| **Additional good practice advice. Obligations according to Article 37(4) of REACH do not apply** | | |
| Assumes a good basic standard of occupational hygiene is implemented | | |

**2.2.9. Control of worker exposure: Transfer of substance or mixture (charging/discharging) at dedicated facilities (PROC8b)**

| | | |
|---|---|---|
| **Product (article) characteristics** | | |
| Covers concentrations up to 100 % | | |
| Physical form of product | : | Liquid |
| Vapour pressure | : | 0,5 kPa |
| Temperature | : | 20 °C |
| **Amount used (or contained in articles), frequency and duration of use/exposure** | | |
| Duration | : | Covers daily exposures up to 8 hours |
| **Technical and organisational conditions and measures** | | |
| Ensure material transfers are under containment or extract ventilation.<br>Clear transfer lines prior to de-coupling. | | |
| **Conditions and measures related to personal protection, hygiene and health evaluation** | | |
| Wear suitable gloves tested to EN374. | | |
| **Other conditions affecting workers exposure** | | |
| Temperature | : | Assumes use at not more than 20°C above ambient temperature. |
| **Additional good practice advice. Obligations according to Article 37(4) of REACH do not apply** | | |

| |
|---|
| Assumes a good basic standard of occupational hygiene is implemented<br>Clear spills immediately.<br>Return IBCs or tanks to supplier for re-use. |

### 2.2.10. Control of worker exposure: Transfer of substance or mixture into small containers (dedicated filling line, including weighing) (PROC9)

| | | |
|---|---|---|
| **Product (article) characteristics** | | |
| Covers concentrations up to 100 % | | |
| Physical form of product | : | Liquid |
| Vapour pressure | : | 0,5 kPa |
| Temperature | : | 20 °C |
| **Amount used (or contained in articles), frequency and duration of use/exposure** | | |
| Duration | : | Covers daily exposures up to 8 hours |
| **Technical and organisational conditions and measures** | | |
| Provide a good standard of general ventilation (not less than 3 to 5 air changes per hour). | | |
| **Conditions and measures related to personal protection, hygiene and health evaluation** | | |
| Wear suitable gloves tested to EN374. | | |
| **Other conditions affecting workers exposure** | | |
| Temperature | : | Assumes use at not more than 20°C above ambient temperature. |
| **Additional good practice advice. Obligations according to Article 37(4) of REACH do not apply** | | |
| Assumes a good basic standard of occupational hygiene is implemented<br>Transfer via enclosed lines.<br>Put lids on containers immediately after use.<br>Clear spills immediately. | | |

### 2.2.11. Control of worker exposure: Roller application or brushing (PROC10)

| | | |
|---|---|---|
| **Product (article) characteristics** | | |
| Covers concentrations up to 100 % | | |
| Physical form of product | : | Liquid |
| Vapour pressure | : | 0,5 kPa |

| | | |
|---|---|---|
| Temperature | : | 20 °C |
| **Amount used (or contained in articles), frequency and duration of use/exposure** | | |
| Duration | : | Covers daily exposures up to 8 hours |
| **Technical and organisational conditions and measures** | | |
| Provide extract ventilation to points where emissions occur. | | |
| **Conditions and measures related to personal protection, hygiene and health evaluation** | | |
| Wear suitable gloves tested to EN374. | | |
| **Other conditions affecting workers exposure** | | |
| Temperature | : | Assumes use at not more than 20°C above ambient temperature. |
| **Additional good practice advice. Obligations according to Article 37(4) of REACH do not apply** | | |
| Assumes a good basic standard of occupational hygiene is implemented | | |

**2.2.12. Control of worker exposure: Treatment of articles by dipping and pouring (PROC13)**

| | | |
|---|---|---|
| **Product (article) characteristics** | | |
| Covers concentrations up to 100 % | | |
| Physical form of product | : | Liquid |
| Vapour pressure | : | 0,5 kPa |
| Temperature | : | 20 °C |
| **Amount used (or contained in articles), frequency and duration of use/exposure** | | |
| Duration | : | Covers daily exposures up to 8 hours |
| **Technical and organisational conditions and measures** | | |
| Provide a good standard of controlled ventilation (10 to 15 air changes per hour). | | |
| **Conditions and measures related to personal protection, hygiene and health evaluation** | | |
| Wear suitable gloves tested to EN374. | | |
| **Other conditions affecting workers exposure** | | |
| Temperature | : | Assumes use at not more than 20°C above ambient |

| |
|---|
| temperature. |
| **Additional good practice advice. Obligations according to Article 37(4) of REACH do not apply** |
| Assumes a good basic standard of occupational hygiene is implemented<br>Clear up spills immediately and dispose of waste safely.<br>Avoid manual contact with wet work pieces. |

### 2.2.13. Control of worker exposure: Chemical production where opportunity for exposure arises (PROC4)

| | | |
|---|---|---|
| **Product (article) characteristics** | | |
| Covers concentrations up to 100 % | | |
| Physical form of product | : | Liquid |
| Vapour pressure | : | 0,5 kPa |
| Temperature | : | 20 °C |
| **Amount used (or contained in articles), frequency and duration of use/exposure** | | |
| Duration | : | Covers daily exposures up to 8 hours |
| **Technical and organisational conditions and measures** | | |
| Provide a good standard of general ventilation (not less than 3 to 5 air changes per hour). | | |
| **Conditions and measures related to personal protection, hygiene and health evaluation** | | |
| Wear suitable gloves tested to EN374. | | |
| **Other conditions affecting workers exposure** | | |
| Temperature | : | Assumes use at not more than 20°C above ambient temperature. |
| **Additional good practice advice. Obligations according to Article 37(4) of REACH do not apply** | | |
| Assumes a good basic standard of occupational hygiene is implemented | | |

### 2.2.14. Control of worker exposure: Use as laboratory reagent (PROC15)

| | | |
|---|---|---|
| **Product (article) characteristics** | | |
| Covers concentrations up to 100 % | | |
| Physical form of product | : | Liquid |

| | | |
|---|---|---|
| Vapour pressure | : | 0,5 kPa |
| Temperature | : | 20 °C |
| **Amount used (or contained in articles), frequency and duration of use/exposure** | | |
| Duration | : | Covers daily exposures up to 8 hours |
| **Technical and organisational conditions and measures** | | |
| Handle in a fume cupboard or under extract ventilation. | | |
| **Conditions and measures related to personal protection, hygiene and health evaluation** | | |
| Wear suitable gloves tested to EN374. | | |
| **Other conditions affecting workers exposure** | | |
| Temperature | : | Assumes use at not more than 20°C above ambient temperature. |
| **Additional good practice advice. Obligations according to Article 37(4) of REACH do not apply** | | |
| Assumes a good basic standard of occupational hygiene is implemented | | |

## 2.3. Exposure estimation and reference to its source

### 2.3.1. Environmental release and exposure: Use of non-reactive processing aid at industrial site (no inclusion into or onto article) (ERC4)

| Release route | Release rate | Release estimation method |
|---|---|---|
| Air | 980 kg/day | |
| Waste | 0,7 kg/day | |
| Soil | 0 kg/day | |

### 2.3.2. Worker exposure: Chemical production or refinery in closed process without likelihood of exposure or processes with equivalent containment conditions (PROC1)

| Exposure route | Health effect | Exposure indicator | Exposure estimate | RCR |
|---|---|---|---|---|
| inhalative | systemic | long-term | 0,01 ppm | 0 |
| dermal | systemic | long-term | 0,34 mg/kg bw/day | 0 |
| combined routes | | | | 0 |

**2.3.3. Worker exposure: Chemical production or refinery in closed continuous process with occasional controlled exposure or processes with equivalent containment conditions (PROC2)**

| Exposure route | Health effect | Exposure indicator | Exposure estimate | RCR |
|---|---|---|---|---|
| inhalative | systemic | long-term | 10 ppm | 0,56 |
| dermal | systemic | long-term | 1,37 mg/kg bw/day | 0,01 |
| combined routes | | | | 0,57 |

**2.3.4. Worker exposure: Use in closed batch process (synthesis or formulation) (PROC3)**

| Exposure route | Health effect | Exposure indicator | Exposure estimate | RCR |
|---|---|---|---|---|
| inhalative | systemic | long-term | 17,5 ppm | 0,99 |
| dermal | systemic | long-term | 0,34 mg/kg bw/day | 0 |
| combined routes | | | | 0,99 |

**2.3.5. Worker exposure: Chemical production where opportunity for exposure arises (PROC4)**

| Exposure route | Health effect | Exposure indicator | Exposure estimate | RCR |
|---|---|---|---|---|
| inhalative | systemic | long-term | 14 ppm | 0,79 |
| dermal | systemic | long-term | 6,86 mg/kg bw/day | 0,04 |
| combined routes | | | | 0,83 |

**2.3.6. Worker exposure: Mixing or blending in batch processes (PROC5)**

| Exposure route | Health effect | Exposure indicator | Exposure estimate | RCR |
|---|---|---|---|---|
| inhalative | systemic | long-term | 15 ppm | 0,85 |
| dermal | systemic | long-term | 0,07 mg/kg bw/day | 0,08 |
| combined routes | | | | 0,85 |

**2.3.7. Worker exposure: Industrial spraying (PROC7)**

| Exposure route | Health effect | Exposure indicator | Exposure estimate | RCR |
|---|---|---|---|---|
| inhalative | systemic | long-term | 12,50 ppm | 0,71 |
| dermal | systemic | long-term | 2,14 mg/kg bw/day | 0,01 |

| | | | | |
|---|---|---|---|---|
| combined routes | | | | 0,72 |

### 2.3.8. Worker exposure: Transfer of substance or mixture (charging/discharging) at non dedicated-facilities (PROC8a)

| Exposure route | Health effect | Exposure indicator | Exposure estimate | RCR |
|---|---|---|---|---|
| inhalative | systemic | long-term | 5 ppm | 0,28 |
| dermal | systemic | long-term | 1,37 mg/kg bw/day | 0,01 |
| combined routes | | | | 0,29 |

### 2.3.9. Worker exposure: Transfer of substance or mixture (charging/discharging) at dedicated facilities (PROC8b)

| Exposure route | Health effect | Exposure indicator | Exposure estimate | RCR |
|---|---|---|---|---|
| inhalative | systemic | long-term | 1,50 ppm | 0,08 |
| dermal | systemic | long-term | 6,86 mg/kg bw/day | 0,04 |
| combined routes | | | | 0,12 |

### 2.3.10. Worker exposure: Transfer of substance or mixture into small containers (dedicated filling line, including weighing) (PROC9)

| Exposure route | Health effect | Exposure indicator | Exposure estimate | RCR |
|---|---|---|---|---|
| inhalative | systemic | long-term | 15 ppm | 0,85 |
| dermal | systemic | long-term | 6,86 mg/kg bw/day | 0,04 |
| combined routes | | | | 0,88 |

### 2.3.11. Worker exposure: Roller application or brushing (PROC10)

| Exposure route | Health effect | Exposure indicator | Exposure estimate | RCR |
|---|---|---|---|---|
| inhalative | systemic | long-term | 5 ppm | 0,28 |
| dermal | systemic | long-term | 27,43 mg/kg bw/day | 0,15 |
| combined routes | | | | 0,43 |

### 2.3.12. Worker exposure: Treatment of articles by dipping and pouring (PROC13)

| Exposure route | Health effect | Exposure indicator | Exposure estimate | RCR |
|---|---|---|---|---|
| inhalative | systemic | long-term | 15 ppm | 0,85 |
| dermal | systemic | long-term | 13,71 mg/kg bw/day | 0,08 |
| combined routes | | | | 0,92 |

### 2.3.13. Worker exposure: Chemical production where opportunity for exposure arises (PROC4)

| Exposure route | Health effect | Exposure indicator | Exposure estimate | RCR |
|---|---|---|---|---|
| inhalative | systemic | long-term | 15 ppm | 0,85 |
| dermal | systemic | long-term | 3,43 mg/kg bw/day | 0,02 |
| combined routes | | | | 0,87 |

### 2.3.14. Worker exposure: Use as laboratory reagent (PROC15)

| Exposure route | Health effect | Exposure indicator | Exposure estimate | RCR |
|---|---|---|---|---|
| inhalative | systemic | long-term | 0,60 ppm | 0,03 |
| dermal | systemic | long-term | 0,03 mg/kg bw/day | 0 |
| combined routes | | | | 0,03 |

## 2.4. Guidance to DU to evaluate whether he works inside the boundaries set by the ES

Further details on scaling and control technologies are provided in SPERC factsheet.

## ES 3: Use in laboratories; Industrial uses (SU3).; Formulation [mixing] of preparations and/or re-packaging (SU10).

### 3.1. Title section

| | | |
|---|---|---|
| **Exposure Scenario name** | : | Use in laboratories |
| **Structured Short Title** | : | Use in laboratories; Industrial uses (SU3).; Formulation [mixing] of preparations and/or re-packaging (SU10). |

| | | |
|---|---|---|
| **Environment** | | |
| **CS 1** | **Formulation into mixture, Use of non-reactive processing aid at industrial site (no inclusion into or onto article)** | ERC2, ERC4 |
| **Worker** | | |
| **CS 2** | **Roller application or brushing** | PROC10 |
| **CS 3** | **Use as laboratory reagent** | PROC15 |

### 3.2. Conditions of use affecting exposure

#### 3.2.1. Control of environmental exposure: Formulation into mixture (ERC2) / Use of non-reactive processing aid at industrial site (no inclusion into or onto article) (ERC4)

| | | |
|---|---|---|
| **Product (article) characteristics** | | |
| Covers concentrations up to 100 % | | |
| Physical form of product | : | Liquid |
| Vapour pressure | : | 50 hPa |
| Temperature | : | 20 °C |
| **Amount used (or contained in articles), frequency and duration of use/exposure** | | |
| Annual amount per site | : | 730000 kg |
| Release type | : | Continuous release |
| Emission days | : | 100 |
| **Conditions and measures related to sewage treatment plant** | | |
| STP type | : | Municipal sewage treatment plant |
| STP sludge treatment | : | No application of sewage sludge to soil<br>Sewage sludge should be incinerated, contained or reclaimed. |

| | | |
|---|---|---|
| **Conditions and measures related to treatment of waste (including article waste)** | | |
| Waste treatment | : | External treatment and disposal of waste should comply with applicable local and/or national regulations.<br>External recovery and recycling of waste should comply with applicable local and/or national regulations. |
| **Other conditions affecting environmental exposure** | | |
| Local freshwater dilution factor | : | 10 |
| Local marine water dilution factor | : | 100 |

### 3.2.2. Control of worker exposure: Roller application or brushing (PROC10)

| | | |
|---|---|---|
| **Product (article) characteristics** | | |
| Covers concentrations up to 100 % | | |
| Physical form of product | : | Liquid |
| Vapour pressure | : | 0,5 kPa |
| Temperature | : | 20 °C |
| **Amount used (or contained in articles), frequency and duration of use/exposure** | | |
| Duration | : | Covers daily exposures up to 8 hours |
| **Technical and organisational conditions and measures** | | |
| Provide a good standard of controlled ventilation (10 to 15 air changes per hour).<br>Use long handled tools. | | |
| **Conditions and measures related to personal protection, hygiene and health evaluation** | | |
| Wear suitable gloves tested to EN374. | | |
| **Other conditions affecting workers exposure** | | |
| Temperature | : | Assumes use at not more than 20°C above ambient temperature. |
| **Additional good practice advice. Obligations according to Article 37(4) of REACH do not apply** | | |
| Assumes a good basic standard of occupational hygiene is implemented | | |

### 3.2.3. Control of worker exposure: Use as laboratory reagent (PROC15)

| | | |
|---|---|---|
| **Product (article) characteristics** | | |
| Covers concentrations up to 100 % | | |
| Physical form of product | : | Liquid |
| Vapour pressure | : | 10 kPa |
| Temperature | : | 20 °C |
| **Amount used (or contained in articles), frequency and duration of use/exposure** | | |
| Duration | : | Covers daily exposures up to 8 hours |
| **Technical and organisational conditions and measures** | | |
| No specific measures identified. | | |
| **Conditions and measures related to personal protection, hygiene and health evaluation** | | |
| Wear suitable gloves tested to EN374. | | |
| **Other conditions affecting workers exposure** | | |
| Temperature | : | Assumes use at not more than 20°C above ambient temperature. |
| **Additional good practice advice. Obligations according to Article 37(4) of REACH do not apply** | | |
| Assumes a good basic standard of occupational hygiene is implemented | | |

## 3.3. Exposure estimation and reference to its source

### 3.3.1. Environmental release and exposure: Formulation into mixture (ERC2) / Use of non-reactive processing aid at industrial site (no inclusion into or onto article) (ERC4)

| Release route | Release rate | Release estimation method |
|---|---|---|
| Air | 10 kg/day | |
| Waste | 0,2 kg/day | |
| Soil | 0,1 kg/day | |

### 3.3.2. Worker exposure: Roller application or brushing (PROC10)

| Exposure route | Health effect | Exposure indicator | Exposure estimate | RCR |
|---|---|---|---|---|
| inhalative | systemic | long-term | 15 ppm | 0,85 |

| | | | | |
|---|---|---|---|---|
| dermal | systemic | long-term | 1,37 mg/kg bw/day | 0,01 |
| combined routes | | | | 0,86 |

### 3.3.3. Worker exposure: Use as laboratory reagent (PROC15)

| Exposure route | Health effect | Exposure indicator | Exposure estimate | RCR |
|---|---|---|---|---|
| inhalative | systemic | long-term | 10 ppm | 0,56 |
| dermal | systemic | long-term | 0,03 mg/kg bw/day | 0 |
| combined routes | | | | 0,56 |

## 3.4. Guidance to DU to evaluate whether he works inside the boundaries set by the ES

Further details on scaling and control technologies are provided in SPERC factsheet.

## ES 4: Use in coatings; Professional uses (SU22).

### 4.1. Title section

| | | |
|---|---|---|
| **Exposure Scenario name** | : | Use in coatings |
| **Structured Short Title** | : | Use in coatings; Professional uses (SU22). |

| | | |
|---|---|---|
| **Environment** | | |
| **CS 1** | **Widespread use of non-reactive processing aid (no inclusion into or onto article, indoor), Widespread use of non-reactive processing aid (no inclusion into or onto article, outdoor)** | ERC8a, ERC8d |
| **Worker** | | |
| **CS 2** | **Chemical production or refinery in closed process without likelihood of exposure or processes with equivalent containment conditions** | PROC1 |
| **CS 3** | **Chemical production or refinery in closed continuous process with occasional controlled exposure or processes with equivalent containment conditions** | PROC2 |
| **CS 4** | **Use in closed batch process (synthesis or formulation)** | PROC3 |
| **CS 5** | **Chemical production where opportunity for exposure arises** | PROC4 |
| **CS 6** | **Mixing or blending in batch processes** | PROC5 |
| **CS 7** | **Transfer of substance or mixture (charging/discharging) at non dedicated-facilities** | PROC8a |
| **CS 8** | **Transfer of substance or mixture (charging/discharging) at dedicated facilities** | PROC8b |
| **CS 9** | **Transfer of substance or mixture into small containers (dedicated filling line, including weighing)** | PROC9 |
| **CS 10** | **Roller application or brushing** | PROC10 |
| **CS 11** | **Non-industrial spraying** | PROC11 |
| **CS 12** | **Treatment of articles by dipping and pouring** | PROC13 |
| **CS 13** | **Chemical production where opportunity for exposure arises** | PROC4 |
| **CS 14** | **Use as laboratory reagent** | PROC15 |
| **CS 15** | **Manual activities involving hand contact** | PROC19 |

## 4.2. Conditions of use affecting exposure

### 4.2.1. Control of environmental exposure: Widespread use of non-reactive processing aid (no inclusion into or onto article, indoor) (ERC8a) / Widespread use of non-reactive processing aid (no inclusion into or onto article, outdoor) (ERC8d)

| **Product (article) characteristics** | | |
|---|---|---|
| Covers concentrations up to 100 % | | |
| Physical form of product | : | Liquid |
| Vapour pressure | : | 5 hPa |
| Temperature | : | 20 °C |

### 4.2.2. Control of worker exposure: Chemical production or refinery in closed process without likelihood of exposure or processes with equivalent containment conditions (PROC1)

| **Product (article) characteristics** | | |
|---|---|---|
| Covers concentrations up to 100 % | | |
| Physical form of product | : | Liquid |
| Vapour pressure | : | 0,5 kPa |
| Temperature | : | 20 °C |
| **Amount used (or contained in articles), frequency and duration of use/exposure** | | |
| Duration | : | Covers daily exposures up to 8 hours |
| **Technical and organisational conditions and measures** | | |
| Handle substance within a closed system. | | |
| **Conditions and measures related to personal protection, hygiene and health evaluation** | | |
| Wear suitable gloves tested to EN374. | | |
| **Other conditions affecting workers exposure** | | |
| Temperature | : | Assumes use at not more than 20°C above ambient temperature. |
| **Additional good practice advice. Obligations according to Article 37(4) of REACH do not apply** | | |
| Assumes a good basic standard of occupational hygiene is implemented | | |

**4.2.3. Control of worker exposure: Chemical production or refinery in closed continuous process with occasional controlled exposure or processes with equivalent containment conditions (PROC2)**

| | | |
|---|---|---|
| **Product (article) characteristics** | | |
| Covers concentrations up to 100 % | | |
| Physical form of product | : | Liquid |
| Vapour pressure | : | 0,5 kPa |
| Temperature | : | 20 °C |
| **Amount used (or contained in articles), frequency and duration of use/exposure** | | |
| Duration | : | Covers daily exposures up to 8 hours |
| **Technical and organisational conditions and measures** | | |
| Handle substance within a closed system.<br>Ensure material transfers are under containment or extract ventilation. | | |
| **Conditions and measures related to personal protection, hygiene and health evaluation** | | |
| Wear suitable gloves tested to EN374. | | |
| **Other conditions affecting workers exposure** | | |
| Temperature | : | Assumes use at not more than 20°C above ambient temperature. |
| **Additional good practice advice. Obligations according to Article 37(4) of REACH do not apply** | | |
| Assumes a good basic standard of occupational hygiene is implemented | | |

**4.2.4. Control of worker exposure: Use in closed batch process (synthesis or formulation) (PROC3)**

| | | |
|---|---|---|
| **Product (article) characteristics** | | |
| Covers concentrations up to 100 % | | |
| Physical form of product | : | Liquid |
| Vapour pressure | : | 0,5 kPa |
| Temperature | : | 20 °C |
| **Amount used (or contained in articles), frequency and duration of use/exposure** | | |

| | | |
|---|---|---|
| Duration | : | Covers daily exposures up to 8 hours |
| **Technical and organisational conditions and measures** | | |
| Handle substance within a closed system.<br>Provide a good standard of controlled ventilation (10 to 15 air changes per hour).<br>Use drum pumps. | | |
| **Conditions and measures related to personal protection, hygiene and health evaluation** | | |
| Wear suitable gloves tested to EN374. | | |
| **Other conditions affecting workers exposure** | | |
| Temperature | : | Assumes use at not more than 20°C above ambient temperature. |
| **Additional good practice advice. Obligations according to Article 37(4) of REACH do not apply** | | |
| Assumes a good basic standard of occupational hygiene is implemented<br>Clear up spills immediately and dispose of waste safely. | | |

**4.2.5. Control of worker exposure: Chemical production where opportunity for exposure arises (PROC4)**

| | | |
|---|---|---|
| **Product (article) characteristics** | | |
| Covers concentrations up to 100 % | | |
| Physical form of product | : | Liquid |
| Vapour pressure | : | 0,5 kPa |
| Temperature | : | 20 °C |
| **Amount used (or contained in articles), frequency and duration of use/exposure** | | |
| Duration | : | Covers daily exposures up to 8 hours |
| **Technical and organisational conditions and measures** | | |
| Ensure operation is undertaken outdoors.<br>Avoid carrying out activities involving exposure for more than 1 hour per day. | | |
| **Conditions and measures related to personal protection, hygiene and health evaluation** | | |
| Wear suitable gloves tested to EN374. | | |
| **Other conditions affecting workers exposure** | | |
| Temperature | : | Assumes use at not more than 20°C above ambient |

| |
|---|
| temperature. |
| **Additional good practice advice. Obligations according to Article 37(4) of REACH do not apply** |
| Assumes a good basic standard of occupational hygiene is implemented |

#### 4.2.6. Control of worker exposure: Mixing or blending in batch processes (PROC5)

| | | |
|---|---|---|
| **Product (article) characteristics** | | |
| Covers concentrations up to 100 % | | |
| Physical form of product | : | Liquid |
| Vapour pressure | : | 0,5 kPa |
| Temperature | : | 20 °C |
| **Amount used (or contained in articles), frequency and duration of use/exposure** | | |
| Duration | : | Covers daily exposures up to 8 hours |
| **Technical and organisational conditions and measures** | | |
| Provide a good standard of controlled ventilation (10 to 15 air changes per hour).<br>Avoid carrying out activities involving exposure for more than 1 hour per day. | | |
| **Conditions and measures related to personal protection, hygiene and health evaluation** | | |
| Wear suitable gloves tested to EN374. | | |
| **Other conditions affecting workers exposure** | | |
| Temperature | : | Assumes use at not more than 20°C above ambient temperature. |
| **Additional good practice advice. Obligations according to Article 37(4) of REACH do not apply** | | |
| Assumes a good basic standard of occupational hygiene is implemented | | |

#### 4.2.7. Control of worker exposure: Transfer of substance or mixture (charging/discharging) at non dedicated-facilities (PROC8a)

| | | |
|---|---|---|
| **Product (article) characteristics** | | |
| Covers concentrations up to 100 % | | |
| Physical form of product | : | Liquid |
| Vapour pressure | : | 0,5 kPa |

| | | |
|---|---|---|
| Temperature | : | 20 °C |
| **Amount used (or contained in articles), frequency and duration of use/exposure** | | |
| Duration | : | Covers daily exposures up to 8 hours |
| **Technical and organisational conditions and measures** | | |
| Transfer via enclosed lines.<br>Provide a good standard of general ventilation (not less than 3 to 5 air changes per hour). | | |
| **Conditions and measures related to personal protection, hygiene and health evaluation** | | |
| Wear suitable gloves tested to EN374. | | |
| **Other conditions affecting workers exposure** | | |
| Temperature | : | Assumes use at not more than 20°C above ambient temperature. |
| **Additional good practice advice. Obligations according to Article 37(4) of REACH do not apply** | | |
| Assumes a good basic standard of occupational hygiene is implemented | | |

**4.2.8. Control of worker exposure: Transfer of substance or mixture (charging/discharging) at dedicated facilities (PROC8b)**

| | | |
|---|---|---|
| **Product (article) characteristics** | | |
| Covers concentrations up to 100 % | | |
| Physical form of product | : | Liquid |
| Vapour pressure | : | 0,5 kPa |
| Temperature | : | 20 °C |
| **Amount used (or contained in articles), frequency and duration of use/exposure** | | |
| Duration | : | Covers daily exposures up to 8 hours |
| **Technical and organisational conditions and measures** | | |
| Transfer via enclosed lines.<br>Provide a good standard of general ventilation (not less than 3 to 5 air changes per hour). | | |
| **Conditions and measures related to personal protection, hygiene and health evaluation** | | |
| Wear suitable gloves tested to EN374. | | |

| | | |
|---|---|---|
| **Other conditions affecting workers exposure** | | |
| Temperature | : | Assumes use at not more than 20°C above ambient temperature. |
| **Additional good practice advice. Obligations according to Article 37(4) of REACH do not apply** | | |
| Assumes a good basic standard of occupational hygiene is implemented<br>Clear spills immediately.<br>Return IBCs or tanks to supplier for re-use. | | |

**4.2.9. Control of worker exposure: Transfer of substance or mixture into small containers (dedicated filling line, including weighing) (PROC9)**

| | | |
|---|---|---|
| **Product (article) characteristics** | | |
| Covers concentrations up to 100 % | | |
| Physical form of product | : | Liquid |
| Vapour pressure | : | 0,5 kPa |
| Temperature | : | 20 °C |
| **Amount used (or contained in articles), frequency and duration of use/exposure** | | |
| Duration | : | Covers daily exposures up to 8 hours |
| **Technical and organisational conditions and measures** | | |
| Provide a good standard of general ventilation (not less than 3 to 5 air changes per hour). | | |
| **Conditions and measures related to personal protection, hygiene and health evaluation** | | |
| Wear suitable gloves tested to EN374. | | |
| **Other conditions affecting workers exposure** | | |
| Temperature | : | Assumes use at not more than 20°C above ambient temperature. |
| **Additional good practice advice. Obligations according to Article 37(4) of REACH do not apply** | | |
| Assumes a good basic standard of occupational hygiene is implemented<br>Transfer via enclosed lines.<br>Put lids on containers immediately after use.<br>Clear spills immediately. | | |

### 4.2.10. Control of worker exposure: Roller application or brushing (PROC10)

| | | |
|---|---|---|
| **Product (article) characteristics** | | |
| Covers concentrations up to 100 % | | |
| Physical form of product | : | Liquid |
| Vapour pressure | : | 0,5 kPa |
| Temperature | : | 20 °C |
| **Amount used (or contained in articles), frequency and duration of use/exposure** | | |
| Duration | : | Covers daily exposures up to 8 hours |
| **Technical and organisational conditions and measures** | | |
| Provide a good standard of controlled ventilation (10 to 15 air changes per hour). | | |
| **Conditions and measures related to personal protection, hygiene and health evaluation** | | |
| Wear suitable gloves tested to EN374.<br>Wear a respirator conforming to EN140. | | |
| **Other conditions affecting workers exposure** | | |
| Temperature | : | Assumes use at not more than 20°C above ambient temperature. |
| **Additional good practice advice. Obligations according to Article 37(4) of REACH do not apply** | | |
| Assumes a good basic standard of occupational hygiene is implemented | | |

### 4.2.11. Control of worker exposure: Non-industrial spraying (PROC11)

| | | |
|---|---|---|
| **Product (article) characteristics** | | |
| Covers concentrations up to 100 % | | |
| Physical form of product | : | Liquid |
| Vapour pressure | : | 0,5 kPa |
| Temperature | : | 20 °C |
| **Amount used (or contained in articles), frequency and duration of use/exposure** | | |
| Duration | : | Covers daily exposures up to 8 hours |
| **Technical and organisational conditions and measures** | | |

| | | |
|---|---|---|
| Carry out in a vented booth provided with laminar airflow. | | |
| **Conditions and measures related to personal protection, hygiene and health evaluation** | | |
| Wear suitable gloves tested to EN374. | | |
| **Other conditions affecting workers exposure** | | |
| Temperature | : | Assumes use at not more than 20°C above ambient temperature. |
| **Additional good practice advice. Obligations according to Article 37(4) of REACH do not apply** | | |
| Assumes a good basic standard of occupational hygiene is implemented | | |

#### 4.2.12. Control of worker exposure: Treatment of articles by dipping and pouring (PROC13)

| | | |
|---|---|---|
| **Product (article) characteristics** | | |
| Covers concentrations up to 100 % | | |
| Physical form of product | : | Liquid |
| Vapour pressure | : | 0,5 kPa |
| Temperature | : | 20 °C |
| **Amount used (or contained in articles), frequency and duration of use/exposure** | | |
| Duration | : | Covers daily exposures up to 8 hours |
| **Technical and organisational conditions and measures** | | |
| Provide extract ventilation to points where emissions occur.<br>Avoid carrying out activities involving exposure for more than 1 hour per day. | | |
| **Conditions and measures related to personal protection, hygiene and health evaluation** | | |
| Wear suitable gloves tested to EN374. | | |
| **Other conditions affecting workers exposure** | | |
| Temperature | : | Assumes use at not more than 20°C above ambient temperature. |
| **Additional good practice advice. Obligations according to Article 37(4) of REACH do not apply** | | |
| Assumes a good basic standard of occupational hygiene is implemented<br>Clear up spills immediately and dispose of waste safely.<br>Avoid manual contact with wet work pieces. | | |

### 4.2.13. Control of worker exposure: Chemical production where opportunity for exposure arises (PROC4)

| | | |
|---|---|---|
| **Product (article) characteristics** | | |
| Covers concentrations up to 100 % | | |
| Physical form of product | : | Liquid |
| Vapour pressure | : | 0,5 kPa |
| Temperature | : | 20 °C |
| **Amount used (or contained in articles), frequency and duration of use/exposure** | | |
| Duration | : | Covers daily exposures up to 8 hours |
| **Technical and organisational conditions and measures** | | |
| Provide a good standard of general ventilation (not less than 3 to 5 air changes per hour). | | |
| **Conditions and measures related to personal protection, hygiene and health evaluation** | | |
| Wear suitable gloves tested to EN374. | | |
| **Other conditions affecting workers exposure** | | |
| Temperature | : | Assumes use at not more than 20°C above ambient temperature. |
| **Additional good practice advice. Obligations according to Article 37(4) of REACH do not apply** | | |
| Assumes a good basic standard of occupational hygiene is implemented | | |

### 4.2.14. Control of worker exposure: Use as laboratory reagent (PROC15)

| | | |
|---|---|---|
| **Product (article) characteristics** | | |
| Covers concentrations up to 100 % | | |
| Physical form of product | : | Liquid |
| Vapour pressure | : | 0,5 kPa |
| Temperature | : | 20 °C |
| **Amount used (or contained in articles), frequency and duration of use/exposure** | | |
| Duration | : | Covers daily exposures up to 8 hours |
| **Technical and organisational conditions and measures** | | |

| | | |
|---|---|---|
| Handle in a fume cupboard or under extract ventilation. | | |
| **Conditions and measures related to personal protection, hygiene and health evaluation** | | |
| Wear suitable gloves tested to EN374. | | |
| **Other conditions affecting workers exposure** | | |
| Temperature | : | Assumes use at not more than 20°C above ambient temperature. |
| **Additional good practice advice. Obligations according to Article 37(4) of REACH do not apply** | | |
| Assumes a good basic standard of occupational hygiene is implemented | | |

**4.2.15. Control of worker exposure: Manual activities involving hand contact (PROC19)**

| | | |
|---|---|---|
| **Product (article) characteristics** | | |
| Covers concentrations up to 5 % | | |
| Physical form of product | : | Liquid |
| Vapour pressure | : | 0,5 kPa |
| Temperature | : | 20 °C |
| **Amount used (or contained in articles), frequency and duration of use/exposure** | | |
| Duration | : | Covers daily exposures up to 8 hours |
| **Technical and organisational conditions and measures** | | |
| Provide a good standard of controlled ventilation (10 to 15 air changes per hour). | | |
| **Conditions and measures related to personal protection, hygiene and health evaluation** | | |
| Wear suitable gloves tested to EN374. | | |
| **Other conditions affecting workers exposure** | | |
| Temperature | : | Assumes use at not more than 20°C above ambient temperature. |
| **Additional good practice advice. Obligations according to Article 37(4) of REACH do not apply** | | |
| Assumes a good basic standard of occupational hygiene is implemented | | |

### 4.3. Exposure estimation and reference to its source

#### 4.3.1. Environmental release and exposure: Widespread use of non-reactive processing aid (no inclusion into or onto article, indoor) (ERC8a) / Widespread use of non-reactive processing aid (no inclusion into or onto article, outdoor) (ERC8d)

| Release route | Release rate | Release estimation method |
|---|---|---|
| Air | 980 kg/day | |
| Waste | 10 kg/day | |
| Soil | 10 kg/day | |

#### 4.3.2. Worker exposure: Chemical production or refinery in closed process without likelihood of exposure or processes with equivalent containment conditions (PROC1)

| Exposure route | Health effect | Exposure indicator | Exposure estimate | RCR |
|---|---|---|---|---|
| inhalative | systemic | long-term | 0,01 ppm | 0 |
| dermal | systemic | long-term | 0,34 mg/kg bw/day | 0 |
| combined routes | | | | 0 |

#### 4.3.3. Worker exposure: Chemical production or refinery in closed continuous process with occasional controlled exposure or processes with equivalent containment conditions (PROC2)

| Exposure route | Health effect | Exposure indicator | Exposure estimate | RCR |
|---|---|---|---|---|
| inhalative | systemic | long-term | 4 ppm | 0,23 |
| dermal | systemic | long-term | 0,14 mg/kg bw/day | 0 |
| combined routes | | | | 0,23 |

#### 4.3.4. Worker exposure: Use in closed batch process (synthesis or formulation) (PROC3)

| Exposure route | Health effect | Exposure indicator | Exposure estimate | RCR |
|---|---|---|---|---|
| inhalative | systemic | long-term | 7,5 ppm | 0,42 |
| dermal | systemic | long-term | 0,03 mg/kg bw/day | 0 |
| combined routes | | | | 0,42 |

#### 4.3.5. Worker exposure: Chemical production where opportunity for exposure arises (PROC4)

| Exposure route | Health effect | Exposure | Exposure | RCR |
|---|---|---|---|---|

| | | indicator | estimate | |
|---|---|---|---|---|
| inhalative | systemic | long-term | 7 ppm | 0,39 |
| dermal | systemic | long-term | 1,37 mg/kg bw/day | 0,01 |
| combined routes | | | | 0,40 |

### 4.3.6. Worker exposure: Mixing or blending in batch processes (PROC5)

| Exposure route | Health effect | Exposure indicator | Exposure estimate | RCR |
|---|---|---|---|---|
| inhalative | systemic | long-term | 6 ppm | 0,34 |
| dermal | systemic | long-term | 13,71 mg/kg bw/day | 0,08 |
| combined routes | | | | 0,41 |

### 4.3.7. Worker exposure: Transfer of substance or mixture (charging/discharging) at non dedicated-facilities (PROC8a)

| Exposure route | Health effect | Exposure indicator | Exposure estimate | RCR |
|---|---|---|---|---|
| inhalative | systemic | long-term | 14 ppm | 0,79 |
| dermal | systemic | long-term | 13,71 mg/kg bw/day | 0,08 |
| combined routes | | | | 0,87 |

### 4.3.8. Worker exposure: Transfer of substance or mixture (charging/discharging) at dedicated facilities (PROC8b)

| Exposure route | Health effect | Exposure indicator | Exposure estimate | RCR |
|---|---|---|---|---|
| inhalative | systemic | long-term | 15 ppm | 0,85 |
| dermal | systemic | long-term | 6,86 mg/kg bw/day | 0,04 |
| combined routes | | | | 0,88 |

### 4.3.9. Worker exposure: Transfer of substance or mixture into small containers (dedicated filling line, including weighing) (PROC9)

| Exposure route | Health effect | Exposure indicator | Exposure estimate | RCR |
|---|---|---|---|---|
| inhalative | systemic | long-term | 15 ppm | 0,85 |
| dermal | systemic | long-term | 6,86 mg/kg bw/day | 0,04 |

| | | | | |
|---|---|---|---|---|
| combined routes | | | | 0,88 |

### 4.3.10. Worker exposure: Roller application or brushing (PROC10)

| Exposure route | Health effect | Exposure indicator | Exposure estimate | RCR |
|---|---|---|---|---|
| inhalative | systemic | long-term | 3 ppm | 0,17 |
| dermal | systemic | long-term | 27,43 mg/kg bw/day | 0,15 |
| combined routes | | | | 0,32 |

### 4.3.11. Worker exposure: Non-industrial spraying (PROC11)

| Exposure route | Health effect | Exposure indicator | Exposure estimate | RCR |
|---|---|---|---|---|
| inhalative | systemic | long-term | 5 ppm | 0,28 |
| dermal | systemic | long-term | 13,71 mg/kg bw/day | 0,08 |
| combined routes | | | | 0,29 |

### 4.3.12. Worker exposure: Treatment of articles by dipping and pouring (PROC13)

| Exposure route | Health effect | Exposure indicator | Exposure estimate | RCR |
|---|---|---|---|---|
| inhalative | systemic | long-term | 12 ppm | 0,68 |
| dermal | systemic | long-term | 0,69 mg/kg bw/day | 0 |
| combined routes | | | | 0,68 |

### 4.3.13. Worker exposure: Chemical production where opportunity for exposure arises (PROC4)

| Exposure route | Health effect | Exposure indicator | Exposure estimate | RCR |
|---|---|---|---|---|
| inhalative | systemic | long-term | 15 ppm | 0,85 |
| dermal | systemic | long-term | 3,43 mg/kg bw/day | 0,02 |
| combined routes | | | | 0,87 |

### 4.3.14. Worker exposure: Use as laboratory reagent (PROC15)

| Exposure route | Health effect | Exposure | Exposure | RCR |
|---|---|---|---|---|

| | | indicator | estimate | |
|---|---|---|---|---|
| inhalative | systemic | long-term | 10 ppm | 0,56 |
| dermal | systemic | long-term | 0,34 mg/kg bw/day | 0 |
| combined routes | | | | 0,57 |

#### 4.3.15. Worker exposure: Manual activities involving hand contact (PROC19)

| Exposure route | Health effect | Exposure indicator | Exposure estimate | RCR |
|---|---|---|---|---|
| inhalative | systemic | long-term | 6 ppm | 0,34 |
| dermal | systemic | long-term | 28,29 mg/kg bw/day | 0,16 |
| combined routes | | | | 0,50 |

### 4.4. Guidance to DU to evaluate whether he works inside the boundaries set by the ES

Further details on scaling and control technologies are provided in SPERC factsheet.

## ES 5: Use in laboratories; Professional uses (SU22).

### 5.1. Title section

| | | |
|---|---|---|
| **Exposure Scenario name** | : | Use in laboratories |
| **Structured Short Title** | : | Use in laboratories; Professional uses (SU22). |

| | | |
|---|---|---|
| **Environment** | | |
| **CS 1** | **Industrial use of processing aids in processes and products, not becoming part of articles** | ERC4 |
| **CS 2** | **Widespread use of non-reactive processing aid (no inclusion into or onto article, indoor)** | ERC8a |
| **Worker** | | |
| **CS 3** | **Roller application or brushing** | PROC10 |

### 5.2. Conditions of use affecting exposure

#### 5.2.1. Control of environmental exposure: Industrial use of processing aids in processes and products, not becoming part of articles (ERC4)

| | | |
|---|---|---|
| **Product (article) characteristics** | | |
| Covers percentage substance in the product up to 100 %. | | |
| Physical form of product | : | Liquid |
| **Amount used (or contained in articles), frequency and duration of use/exposure** | | |
| Annual amount used in the EU | : | 50000000 kg |
| Fraction of regional tonnage used locally | : | 5000000 kg |
| Emission days | : | 300 |
| **Conditions and measures related to sewage treatment plant** | | |
| STP type | : | Onsite sewage treatment plant |
| STP sludge treatment | : | No application of sewage sludge to soil |
| STP type | : | Municipal Sewage Treatment Plant |
| STP effluent | : | 2.000 m3/d |

| | | |
|---|---|---|
| **Conditions and measures related to treatment of waste (including article waste)** | | |
| Waste treatment | : | External treatment and disposal of waste should comply with applicable local and/or national regulations.<br>External recovery and recycling of waste should comply with applicable local and/or national regulations. |
| **Other conditions affecting environmental exposure** | | |
| Local freshwater dilution factor | : | 10 |
| Local marine water dilution factor | : | 100 |

**5.2.2. Control of environmental exposure: Widespread use of non-reactive processing aid (no inclusion into or onto article, indoor) (ERC8a)**

| | | |
|---|---|---|
| **Product (article) characteristics** | | |
| Covers concentrations up to 100 % | | |
| Physical form of product | : | Liquid |
| Vapour pressure | : | 10 hPa |
| Temperature | : | 20 °C |
| **Amount used (or contained in articles), frequency and duration of use/exposure** | | |
| Annual amount per site | : | 1 kg |
| Release type | : | Continuous release |
| Emission days | : | 365 |
| **Conditions and measures related to sewage treatment plant** | | |
| STP type | : | Municipal Sewage Treatment Plant |
| STP sludge treatment | : | No application of sewage sludge to soil<br>Sewage sludge should be incinerated, contained or reclaimed. |
| **Other conditions affecting environmental exposure** | | |
| Local freshwater dilution factor | : | 10 |
| Local marine water dilution factor | : | 100 |

**5.2.3. Control of worker exposure: Roller application or brushing (PROC10)**

| | | |
|---|---|---|
| **Product (article) characteristics** | | |

| | | |
|---|---|---|
| Covers concentrations up to 100 % | | |
| Physical form of product | : | Liquid |
| Vapour pressure | : | 0,5 kPa |
| Temperature | : | 20 °C |
| **Amount used (or contained in articles), frequency and duration of use/exposure** | | |
| Duration | : | Covers daily exposures up to 8 hours |
| **Technical and organisational conditions and measures** | | |
| Use long handled tools.<br>Provide a good standard of general ventilation (not less than 3 to 5 air changes per hour).<br>Handle in a fume cupboard or under extract ventilation. | | |
| **Conditions and measures related to personal protection, hygiene and health evaluation** | | |
| Wear suitable gloves tested to EN374. | | |
| **Other conditions affecting workers exposure** | | |
| Temperature | : | Assumes use at not more than 20°C above ambient temperature. |
| **Additional good practice advice. Obligations according to Article 37(4) of REACH do not apply** | | |
| Assumes a good basic standard of occupational hygiene is implemented | | |

## 5.3. Exposure estimation and reference to its source

### 5.3.1. Environmental release and exposure: Industrial use of processing aids in processes and products, not becoming part of articles (ERC4)

| Protection Target | Exposure estimate | RCR |
|---|---|---|
| Freshwater | 0,00150 mg/L | 0,005 |
| Marine water | 0,000145 mg/L | < 0,000 |
| Freshwater sediment | 0,0160 mg/kg wet weight | 0,006 |
| Marine sediment | 0,00156 mg/kg wet weight | 0,001 |
| Soil | 0,0112 mg/kg wet weight | 0,006 |
| Sewage treatment plant | 0,00866 mg/L | 0,001 |

**5.3.2. Environmental release and exposure: Widespread use of non-reactive processing aid (no inclusion into or onto article, indoor) (ERC8a)**

| Release route | Release rate | Release estimation method |
|---|---|---|
| Air | 0,01 kg/day | |
| Waste | 0,01 kg/day | |
| Soil | 0 kg/day | |

**5.3.3. Worker exposure: Roller application or brushing (PROC10)**

| Exposure route | Health effect | Exposure indicator | Exposure estimate | RCR |
|---|---|---|---|---|
| inhalative | systemic | long-term | 14 ppm | 0,78 |
| dermal | systemic | long-term | 27,43 mg/kg bw/day | 0,15 |
| combined routes | | | | 0,93 |

## 5.4. Guidance to DU to evaluate whether he works inside the boundaries set by the ES

Further details on scaling and control technologies are provided in SPERC factsheet.

## ES 6: Use in coatings; Consumer uses (SU21).

### 6.1. Title section

| | | |
|---|---|---|
| **Exposure Scenario name** | : | Use in coatings |
| **Structured Short Title** | : | Use in coatings; Consumer uses (SU21). |

| | | |
|---|---|---|
| **Environment** | | |
| **CS 1** | **Widespread use of non-reactive processing aid (no inclusion into or onto article, indoor)** | ERC8a |
| **CS 2** | **Wide dispersive indoor use of reactive substances in open systems** | ERC8b |
| **Consumer** | | |
| **CS 3** | Adhesives, sealants | PC1 |
| **CS 4** | Coatings and paints, thinners, paint removers | PC9a |
| **CS 5** | Fillers, putties, plasters, modelling clay | PC9b |
| **CS 6** | Finger paints | PC9c |
| **CS 7** | Non-metal surface treatment products | PC15 |
| **CS 8** | Ink and toners | PC18 |
| **CS 9** | Leather treatment products | PC23 |
| **CS 10** | Lubricants, greases, release products | PC24 |
| **CS 11** | Polishes and wax blends | PC31 |
| **CS 12** | Textile dyes, finishing and impregnating products; including bleaches and other processing aids | PC34 |

### 6.2. Conditions of use affecting exposure

#### 6.2.1. Control of environmental exposure: Widespread use of non-reactive processing aid (no inclusion into or onto article, indoor) (ERC8a)

| | | |
|---|---|---|
| **Product (article) characteristics** | | |
| Covers concentrations up to 100 % | | |
| Physical form of product | : | Liquid |
| Vapour pressure | : | 10 hPa |
| Temperature | : | 20 °C |

| | | |
|---|---|---|
| **Amount used (or contained in articles), frequency and duration of use/exposure** | | |
| Annual amount per site | : | 130 kg |
| Daily amount per site | : | 370 kg |
| Regional use tonnage | : | 270000 kg |
| Release type | : | Continuous release |
| Emission days | : | 365 |
| **Conditions and measures related to treatment of waste (including article waste)** | | |
| Waste treatment | : | External treatment and disposal of waste should comply with applicable local and/or national regulations.<br>External recovery and recycling of waste should comply with applicable local and/or national regulations. |
| **Other conditions affecting environmental exposure** | | |
| Local freshwater dilution factor | : | 10 |
| Local marine water dilution factor | : | 100 |

**6.2.2. Control of environmental exposure: Wide dispersive indoor use of reactive substances in open systems (ERC8b)**

| | | |
|---|---|---|
| **Product (article) characteristics** | | |
| Covers concentrations up to 100 % | | |
| Physical form of product | : | Liquid |
| Vapour pressure | : | 10 hPa |
| Temperature | : | 20 °C |
| **Amount used (or contained in articles), frequency and duration of use/exposure** | | |
| Annual amount per site | : | 130 kg |
| Daily amount per site | : | 370 kg |
| Regional use tonnage | : | 270000 kg |
| Release type | : | Continuous release |
| Emission days | : | 365 |
| **Conditions and measures related to treatment of waste (including article waste)** | | |
| Waste treatment | : | External treatment and disposal of waste should comply with applicable local and/or national regulations.<br>External recovery and recycling of waste should comply with |

| | | |
|---|---|---|
| | | applicable local and/or national regulations. |
| **Other conditions affecting environmental exposure** | | |
| Local freshwater dilution factor | : | 10 |
| Local marine water dilution factor | : | 100 |

**6.2.3. Control of consumer exposure: Adhesives, sealants (PC1)**

| | | |
|---|---|---|
| **Product (article) characteristics** | | |
| Covers concentrations up to 30 % | | |
| Physical form of product | : | Liquid |
| Vapour pressure | : | 0,5 kPa |
| Temperature | : | 20 °C |
| **Amount used (or contained in articles), frequency and duration of use/exposure** | | |
| Amount per use | : | 0,009 kg |
| Use frequency | : | 365 days/year |
| **Other conditions affecting consumers exposure** | | |
| Room size | : | 20 m3 |

**6.2.4. Control of consumer exposure: Coatings and paints, thinners, paint removers (PC9a)**

| | | |
|---|---|---|
| **Product (article) characteristics** | | |
| Covers concentrations up to 0,5 % | | |
| Physical form of product | : | Liquid |
| Vapour pressure | : | 0,5 kPa |
| Temperature | : | 20 °C |
| **Amount used (or contained in articles), frequency and duration of use/exposure** | | |
| Amount used per event | : | 2,760 kg |
| Use frequency | : | 4 days/year |
| **Other conditions affecting consumers exposure** | | |
| Room size | : | 20 m3 |

### 6.2.5. Control of consumer exposure: Fillers, putties, plasters, modelling clay (PC9b)

| | | |
|---|---|---|
| **Product (article) characteristics** | | |
| Covers concentrations up to 2 % | | |
| Physical form of product | : | Liquid |
| Vapour pressure | : | 0,5 kPa |
| Temperature | : | 20 °C |
| **Amount used (or contained in articles), frequency and duration of use/exposure** | | |
| Amount used per event | : | 0,085 kg |
| Use frequency | : | 12 days/year |
| **Other conditions affecting consumers exposure** | | |
| Room size | : | 20 m3 |

### 6.2.6. Control of consumer exposure: Finger paints (PC9c)

| | | |
|---|---|---|
| **Product (article) characteristics** | | |
| Covers concentrations up to 1 % | | |
| Physical form of product | : | Liquid |
| Vapour pressure | : | 0,5 kPa |
| Temperature | : | 20 °C |
| **Amount used (or contained in articles), frequency and duration of use/exposure** | | |
| Amount used per event | : | 0,001 kg |
| Use frequency | : | 365 days/year |
| **Other conditions affecting consumers exposure** | | |
| Room size | : | 20 m3 |

### 6.2.7. Control of consumer exposure: Non-metal surface treatment products (PC15)

| | | |
|---|---|---|
| **Product (article) characteristics** | | |
| Covers concentrations up to 0,5 % | | |
| Physical form of product | : | Liquid |

| | | |
|---|---|---|
| Vapour pressure | : | 0,5 kPa |
| Temperature | : | 20 °C |
| **Amount used (or contained in articles), frequency and duration of use/exposure** | | |
| Amount used per event | : | 2,760 kg |
| Use frequency | : | 4 days/year |
| **Other conditions affecting consumers exposure** | | |
| Room size | : | 20 m3 |

### 6.2.8. Control of consumer exposure: Ink and toners (PC18)

| | | |
|---|---|---|
| **Product (article) characteristics** | | |
| Covers concentrations up to 10 % | | |
| Physical form of product | : | Liquid |
| Vapour pressure | : | 0,5 kPa |
| Temperature | : | 20 °C |
| **Amount used (or contained in articles), frequency and duration of use/exposure** | | |
| Amount used per event | : | 0,004 kg |
| Use frequency | : | 365 days/year |

### 6.2.9. Control of consumer exposure: Leather treatment products (PC23)

| | | |
|---|---|---|
| **Product (article) characteristics** | | |
| Covers concentrations up to 25 % | | |
| Physical form of product | : | Liquid |
| Vapour pressure | : | 0,5 kPa |
| Temperature | : | 20 °C |
| **Amount used (or contained in articles), frequency and duration of use/exposure** | | |
| Amount used per event | : | 0,056 kg |
| Use frequency | : | 29 days/year |

### 6.2.10. Control of consumer exposure: Lubricants, greases, release products (PC24)

| **Product (article) characteristics** | | |
|---|---|---|
| Covers concentrations up to 100 % | | |
| Physical form of product | : | Liquid |
| Vapour pressure | : | 0,5 kPa |
| Temperature | : | 20 °C |
| **Amount used (or contained in articles), frequency and duration of use/exposure** | | |
| Amount used per event | : | 2,200 kg |
| Use frequency | : | 4 days/year |
| **Other conditions affecting consumers exposure** | | |
| Room size | : | 34 m3 |

### 6.2.11. Control of consumer exposure: Polishes and wax blends (PC31)

| **Product (article) characteristics** | | |
|---|---|---|
| Covers concentrations up to 10 % | | |
| Physical form of product | : | Liquid |
| Vapour pressure | : | 0,5 kPa |
| Temperature | : | 20 °C |
| **Amount used (or contained in articles), frequency and duration of use/exposure** | | |
| Amount used per event | : | 0,142 kg |
| Use frequency | : | 29 days/year |
| **Other conditions affecting consumers exposure** | | |
| Room size | : | 20 m3 |

### 6.2.12. Control of consumer exposure: Textile dyes, finishing and impregnating products; including bleaches and other processing aids (PC34)

| **Product (article) characteristics** |
|---|
| Covers concentrations up to 10 % |

| | | |
|---|---|---|
| Physical form of product | : | Liquid |
| Vapour pressure | : | 0,5 kPa |
| Temperature | : | 20 °C |
| **Amount used (or contained in articles), frequency and duration of use/exposure** | | |
| Amount used per event | : | 0,115 kg |
| Use frequency | : | 365 days/year |
| **Other conditions affecting consumers exposure** | | |
| Room size | : | 20 m3 |

## 6.3. Exposure estimation and reference to its source

### 6.3.1. Environmental release and exposure: Widespread use of non-reactive processing aid (no inclusion into or onto article, indoor) (ERC8a)

| Release route | Release rate | Release estimation method |
|---|---|---|
| Air | 985 kg/day | |
| Waste | 10 kg/day | |
| Soil | 5 kg/day | |

### 6.3.2. Environmental release and exposure: Wide dispersive indoor use of reactive substances in open systems (ERC8b)

| Release route | Release rate | Release estimation method |
|---|---|---|
| Air | 985 kg/day | |
| Waste | 10 kg/day | |
| Soil | 5 kg/day | |

### 6.3.3. Consumer exposure: Adhesives, sealants (PC1)

| Exposure route | Health effect | Exposure indicator | Exposure estimate | RCR |
|---|---|---|---|---|
| dermal | systemic | long-term | 1,55 mg/kg dry weight | |
| oral | systemic | long-term | 0 mg/kg dry weight | |
| combined routes | | | | 0,59 |

| | | | | |
|---|---|---|---|---|
| inhalative | systemic | long-term | 5,525 mg/m³ | |

### 6.3.4. Consumer exposure: Coatings and paints, thinners, paint removers (PC9a)

| Exposure route | Health effect | Exposure indicator | Exposure estimate | RCR |
|---|---|---|---|---|
| dermal | systemic | long-term | 0 mg/kg dry weight | |
| oral | systemic | long-term | 0 mg/kg dry weight | |
| combined routes | | | | 0,01 |
| inhalative | systemic | long-term | 0,126 mg/m³ | |

### 6.3.5. Consumer exposure: Fillers, putties, plasters, modelling clay (PC9b)

| Exposure route | Health effect | Exposure indicator | Exposure estimate | RCR |
|---|---|---|---|---|
| dermal | systemic | long-term | 0 mg/kg dry weight | |
| oral | systemic | long-term | 0 mg/kg dry weight | |
| combined routes | | | | 0,01 |
| inhalative | systemic | long-term | 0,176 mg/m³ | |

### 6.3.6. Consumer exposure: Finger paints (PC9c)

| Exposure route | Health effect | Exposure indicator | Exposure estimate | RCR |
|---|---|---|---|---|
| dermal | systemic | long-term | 2,21 mg/kg dry weight | |
| oral | systemic | long-term | 1,35 mg/kg dry weight | |
| combined routes | | | | 0,86 |
| inhalative | systemic | long-term | 0 mg/m³ | |

### 6.3.7. Consumer exposure: Non-metal surface treatment products (PC15)

| Exposure route | Health effect | Exposure indicator | Exposure estimate | RCR |
|---|---|---|---|---|
| dermal | systemic | long-term | 0 mg/kg dry weight | |
| oral | systemic | long-term | 0 mg/kg dry weight | |
| combined routes | | | | 0,01 |
| inhalative | systemic | long-term | 0,126 mg/m³ | |

### 6.3.8. Consumer exposure: Ink and toners (PC18)

| Exposure route | Health effect | Exposure indicator | Exposure estimate | RCR |
|---|---|---|---|---|
| dermal | systemic | long-term | 1,04 mg/kg dry weight | |
| oral | systemic | long-term | 0 mg/kg dry weight | |
| combined routes | | | | 0,70 |
| inhalative | systemic | long-term | 10,179 mg/m³ | |

### 6.3.9. Consumer exposure: Leather treatment products (PC23)

| Exposure route | Health effect | Exposure indicator | Exposure estimate | RCR |
|---|---|---|---|---|
| dermal | systemic | long-term | 3,26 mg/kg dry weight | |
| oral | systemic | long-term | 0 mg/kg dry weight | |
| combined routes | | | | 0,07 |
| inhalative | systemic | long-term | 0,607 mg/m³ | |

### 6.3.10. Consumer exposure: Lubricants, greases, release products (PC24)

| Exposure route | Health effect | Exposure indicator | Exposure estimate | RCR |
|---|---|---|---|---|
| dermal | systemic | long-term | 0,74 mg/kg dry weight | |
| oral | systemic | long-term | 0 mg/kg dry weight | |
| combined routes | | | | 0,01 |
| inhalative | systemic | long-term | 0,044 mg/m³ | |

### 6.3.11. Consumer exposure: Polishes and wax blends (PC31)

| Exposure route | Health effect | Exposure indicator | Exposure estimate | RCR |
|---|---|---|---|---|
| dermal | systemic | long-term | 0,50 mg/kg dry weight | |
| oral | systemic | long-term | 0 mg/kg dry weight | |
| combined routes | | | | 0,07 |

| | | | | |
|---|---|---|---|---|
| inhalative | systemic | long-term | 0,903 mg/m³ | |

### 6.3.12. Consumer exposure: Textile dyes, finishing and impregnating products; including bleaches and other processing aids (PC34)

| Exposure route | Health effect | Exposure indicator | Exposure estimate | RCR |
|---|---|---|---|---|
| dermal | systemic | long-term | 0,12 mg/kg dry weight | |
| oral | systemic | long-term | 0 mg/kg dry weight | |
| combined routes | | | | 0,60 |
| inhalative | systemic | long-term | 8,797 mg/m³ | |

## 6.4. Guidance to DU to evaluate whether he works inside the boundaries set by the ES

Further details on scaling and control technologies are provided in SPERC factsheet.