# DISPERBYK-182



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

### 1.1 Product identifier

| | | |
|---|---|---|
| Trade name | : | DISPERBYK-182 |
| UFI | : | STPA-J0DT-N00K-Q7J0 |
| Product code | : | 000000000000105205 |

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

| | | |
|---|---|---|
| Use of the Substance/Mixture | : | Wetting & Dispersing 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. |
| Specific target organ toxicity - single exposure, Category 3, Central nervous system | H336: May cause drowsiness or dizziness. |

### 2.2 Label elements

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

Hazard pictograms :



Signal word : Warning

Hazard statements : H226 Flammable liquid and vapour.
H336 May cause drowsiness or dizziness.

Precautionary statements : **Prevention:**
P210 Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.
P261 Avoid breathing mist or vapours.

**Response:**
P303 + P361 + P353 IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water.
P304 + P340 + P312 IF INHALED: Remove person to fresh air and keep comfortable for breathing. Call a POISON CENTER/ doctor if you feel unwell.
P370 + P378 In case of fire: Use dry sand, dry chemical or alcohol-resistant foam to extinguish.

**Storage:**
P403 + P233 Store in a well-ventilated place. Keep container tightly closed.

**Hazardous components which must be listed on the label:**
- 108-65-6 2-methoxy-1-methylethyl acetate

### 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 modified polyurethane

**Components**

| Chemical name | CAS-No.<br>EC-No.<br>Index-No.<br>Registration number | Classification | Concentration (% w/w) |
|---|---|---|---|
| 2-methoxy-1-methylethyl acetate | 108-65-6 | STOT SE 3; H336 | >= 25 - < 30 |

| | | | |
|---|---|---|---|
| | 203-603-9<br>01-2119475791-29 | Flam. Liq. 3; H226 | |
| n-butyl acetate | 123-86-4<br>204-658-1<br>01-2119485493-29 | Flam. Liq. 3; H226<br>STOT SE 3; H336 (Central nervous system)<br>EUH066 | >= 12,5 - < 20 |
| Substances with a workplace exposure limit : | | | |
| (2-methoxymethylethoxy)propanol | 34590-94-8<br>252-104-2<br>01-2119450011-60 | | >= 12,5 - < 20 |

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.
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 on skin, rinse well with water.
If on clothes, remove clothes.

In case of eye contact : Flush eyes with water as a precaution.
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 give milk or alcoholic beverages.
Never give anything by mouth to an unconscious person.
If symptoms persist, call a physician.

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

Symptoms : No information available.

Risks : May cause drowsiness or dizziness.

### 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 | : | Do not allow run-off from fire fighting to enter drains or water courses. |
| Hazardous combustion products | : | Nitrogen oxides (NOx)<br>Carbon 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 | : | 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>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>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 | : | 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. Observe label precautions. 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 |
|---|---|---|---|---|
| 2-methoxy-1-methylethyl acetate | 108-65-6 | TWA | 50 ppm<br>275 mg/m3 | 2000/39/EC |
| | Further information: Identifies the possibility of significant uptake through the | | | |

| | | | | |
|---|---|---|---|---|
| | skin, Indicative | | | |
| | | STEL | 100 ppm<br>550 mg/m3 | 2000/39/EC |
| | Further information: Identifies the possibility of significant uptake through the skin, Indicative | | | |
| | | TWA | 50 ppm<br>275 mg/m3 | CH SUVA |
| | Further information: Harm to the unborn child is not to be expected when the OEL-value is respected | | | |
| | | STEL | 50 ppm<br>275 mg/m3 | CH SUVA |
| | Further information: Harm to the unborn child is not to be expected when the OEL-value is respected | | | |
| (2-methoxymethylethoxy)propanol | 34590-94-8 | TWA | 50 ppm<br>308 mg/m3 | 2000/39/EC |
| | Further information: Identifies the possibility of significant uptake through the skin, Indicative | | | |
| | | TWA | 50 ppm<br>300 mg/m3 | CH SUVA |
| | Further information: National Institute for Occupational Safety and Health | | | |
| | | STEL | 50 ppm<br>300 mg/m3 | CH SUVA |
| | Further information: National Institute for Occupational Safety and Health | | | |
| n-butyl acetate | 123-86-4 | TWA | 50 ppm<br>240 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 | 150 ppm<br>720 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 | 150 ppm<br>723 mg/m3 | 2019/1831/EU |
| | Further information: Indicative | | | |
| | | TWA | 50 ppm<br>241 mg/m3 | 2019/1831/EU |
| | Further information: Indicative | | | |

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

| Substance name | End Use | Exposure routes | Potential health effects | Value |
|---|---|---|---|---|
| 2-methoxy-1-methylethyl acetate | Workers | Skin contact | Long-term systemic effects | 796 mg/kg |
| | Workers | Inhalation | Long-term systemic effects | 275 mg/m3 |
| | Consumers | Skin contact | Long-term systemic effects | 320 mg/kg |

| | | | | |
|---|---|---|---|---|
| | Consumers | Inhalation | Long-term systemic effects | 33 mg/m3 |
| | Consumers | Ingestion | Long-term systemic effects | 36 mg/kg |
| | Workers | Inhalation | Acute local effects | 550 mg/m3 |
| | Consumers | Inhalation | Acute local effects | 33 mg/m3 |
| (2-methoxymethylethoxy)propanol | Workers | Skin contact | Long-term systemic effects | 65 mg/kg |
| | Workers | Inhalation | Long-term systemic effects | 310 mg/m3 |
| | Consumers | Skin contact | Long-term systemic effects | 15 mg/kg |
| | Consumers | Inhalation | Long-term systemic effects | 37,2 mg/m3 |
| | Consumers | Ingestion | Long-term systemic effects | 1,67 mg/kg |
| n-butyl acetate | Workers | Inhalation | Acute local effects | 600 mg/m3 |
| | Workers | Inhalation | Long-term local effects | 300 mg/m3 |
| | Consumers | Inhalation | Acute local effects | 300 mg/m3 |
| | Consumers | Inhalation | Long-term local effects | 35,7 mg/m3 |
| | Workers | Dermal | Long-term systemic effects | 11 mg/kg |
| | Workers | Dermal | Acute systemic effects | 11 mg/kg |
| | Consumers | Dermal | Long-term systemic effects | 6 mg/kg |
| | Consumers | Dermal | Acute systemic effects | 6 mg/kg |
| | Consumers | Oral | Long-term systemic effects | 2 mg/m3 |
| | Consumers | Oral | Acute systemic effects | 2 mg/m3 |

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

| Substance name | Environmental Compartment | Value |
|---|---|---|
| 2-methoxy-1-methylethyl acetate | Fresh water | 0,635 mg/l |
| | Marine water | 0,0635 mg/l |
| | Intermittent releases | 6,35 mg/l |
| | Sewage treatment plant | 100 mg/l |
| | Fresh water sediment | 3,29 mg/kg |
| | Marine sediment | 0,329 mg/kg |
| | Soil | 0,29 mg/kg |
| (2-methoxymethylethoxy)propanol | Fresh water | 19 mg/l |
| | Marine water | 1,9 mg/l |
| | Intermittent releases | 190 mg/l |
| | Sewage treatment plant | 4168 mg/l |
| | Fresh water sediment | 70,2 mg/kg |
| | Marine sediment | 7,02 mg/kg |

| | | |
|---|---|---|
| | Soil | 2,74 mg/kg |
| n-butyl acetate | Fresh water | 0,18 mg/l |
| | Marine water | 0,018 mg/l |
| | Intermittent releases | 0,36 mg/l |
| | Fresh water sediment | 0,981 mg/kg |
| | Marine sediment | 0,0981 mg/kg |
| | Soil | 0,0903 mg/kg |
| | Sewage treatment plant | 35,6 mg/l |

### 8.2 Exposure controls

**Personal protective equipment**

Eye/face protection : Eye wash bottle with pure water
Tightly fitting safety goggles

Hand protection
Material : butyl-rubber
Break through time : > 480 min
Glove thickness : 0,7 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 : colourless, light yellow

Odour : ester-like

Odour Threshold : No data available

Melting point/ range : < 0 °C
Method: derived

Initial boiling point : 124,00 °C
Method: derived

Upper explosion limit / Upper : 12,00 %(V)

flammability limit

| | | |
|---|---|---|
| Lower explosion limit / Lower flammability limit | : | 1,20 %(V) |
| Flash point | : | 38,00 °C<br>Method: 48 (Abel-Pensky) DIN 51755 |
| Auto-ignition temperature | : | > 200,00 °C<br>Method: DIN 51794 |
| Decomposition temperature | : | No data available |
| pH | : | 8 (20 °C)<br>Concentration: 10 %<br>Method: Universal pH-value indicator |
| Viscosity | | |
| Viscosity, dynamic | : | No data available |
| Solubility(ies) | | |
| Water solubility | : | immiscible |
| Solubility in other solvents | : | No data available |
| Partition coefficient: n-octanol/water | : | No data available |
| Vapour pressure | : | 6 hPa (20,00 °C)<br>Method: derived |
| Relative density | : | No data available |
| Density | : | 1,0250 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.

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
Strong oxidizing agents

### 10.6 Hazardous decomposition products
No decomposition if stored and applied as directed.

## 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

**Components:**

**2-methoxy-1-methylethyl acetate:**
Acute oral toxicity : LD50 (Rat, female): > 5.000 mg/kg
Method: OECD Test Guideline 401
GLP: yes

Acute inhalation toxicity : Remarks: No data available

Acute dermal toxicity : Remarks: No data available

**n-butyl acetate:**
Acute oral toxicity : LD50 (Rat, male): > 10.000 mg/kg
Method: OECD Test Guideline 423

| | | |
|---|---|---|
| Acute inhalation toxicity | : | LC50 (Rat, male and female): > 21,1 mg/l<br>Exposure time: 4 h<br>Test atmosphere: vapour<br>Method: OECD Test Guideline 403<br>GLP: yes |
| Acute dermal toxicity | : | LD50 (Rabbit, male and female): > 14.000 mg/kg<br>Method: OECD Test Guideline 402 |

**Skin corrosion/irritation**

Not classified due to lack of data.

**Product:**

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

**Components:**

**2-methoxy-1-methylethyl acetate:**

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

**n-butyl acetate:**

| | | |
|---|---|---|
| Species | : | Rabbit |
| Method | : | OECD Test Guideline 404 |
| Result | : | No skin irritation |

**(2-methoxymethylethoxy)propanol:**

| | | |
|---|---|---|
| Species | : | Rabbit |
| Method | : | OECD Test Guideline 404 |
| Result | : | No skin irritation |

**Serious eye damage/eye irritation**

Not classified due to lack of data.

**Product:**

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

**Components:**

**2-methoxy-1-methylethyl acetate:**

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

**n-butyl acetate:**

| | | |
|---|---|---|
| Species | : | Rabbit |

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

**(2-methoxymethylethoxy)propanol:**
Result : No eye irritation

**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:**

**2-methoxy-1-methylethyl acetate:**
Species : Guinea pig
Method : OECD Test Guideline 406
Result : Not a skin sensitizer.
GLP : yes

**n-butyl acetate:**
Test Type : Buehler Test
Species : Guinea pig
Method : OECD Test Guideline 406
Result : Does not cause skin sensitisation.

**(2-methoxymethylethoxy)propanol:**
Result : Does not cause skin sensitisation.

**Germ cell mutagenicity**
Not classified due to lack of data.

**Product:**
Genotoxicity in vivo : Remarks: No data available

**Carcinogenicity**
Not classified due to lack of data.

**Product:**
Remarks : No data available

**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 drowsiness or dizziness.

**Product:**

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

**STOT - repeated exposure**

Not classified due to lack of data.

**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

## 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.<br>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 |
| Toxicity to daphnia and other aquatic invertebrates | : | Remarks: No data available |

**Components:**

**2-methoxy-1-methylethyl acetate:**

| | | |
|---|---|---|
| Toxicity to fish | : | LC50 (Fish): 100 - 180 mg/l<br>Exposure time: 96 h<br>Test Type: static test<br>Method: OECD Test Guideline 203<br>GLP: no |
| Toxicity to algae/aquatic plants | : | EC50 (Pseudokirchneriella subcapitata (green algae)): > 1.000 mg/l<br>Exposure time: 96 h<br>Test Type: static test<br>Method: OECD Test Guideline 201<br>GLP: no |

**n-butyl acetate:**

| | | |
|---|---|---|
| Toxicity to fish | : | LC50 (Pimephales promelas (fathead minnow)): 18 mg/l<br>Exposure time: 96 h<br>Method: OECD Test Guideline 203 |
| Toxicity to daphnia and other aquatic invertebrates | : | EC50 (Daphnia magna (Water flea)): 44 mg/l<br>Exposure time: 48 h |
| Toxicity to algae/aquatic plants | : | ErC50 (Scenedesmus subspicatus): 675 mg/l<br>Exposure time: 72 h |
| Toxicity to daphnia and other aquatic invertebrates (Chronic toxicity) | : | NOEC: 23 mg/l<br>End point: Reproduction<br>Exposure time: 21 d<br>Species: Daphnia magna (Water flea)<br>Method: OECD Test Guideline 211 |

### 12.2 Persistence and degradability

**Product:**

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

**Components:**

**2-methoxy-1-methylethyl acetate:**

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

**n-butyl acetate:**

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

**(2-methoxymethylethoxy)propanol:**

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

### 12.3 Bioaccumulative potential

**Product:**

| | | |
|---|---|---|
| Bioaccumulation | : | Remarks: No data available<br><br>Remarks: No data available |

**Components:**

**2-methoxy-1-methylethyl acetate:**

| | | |
|---|---|---|
| Partition coefficient: n-octanol/water | : | log Pow: 1,2 (20 °C)<br>pH: 6,8<br>Method: OECD Test Guideline 117<br>GLP: yes |

**n-butyl acetate:**

| | | |
|---|---|---|
| Partition coefficient: n-octanol/water | : | log Pow: 2,3 (25 °C)<br>pH: 7<br>Method: OECD Test Guideline 117<br>GLP: yes |

**(2-methoxymethylethoxy)propanol:**

| | | |
|---|---|---|
| Partition coefficient: n-octanol/water | : | log Pow: 0,004<br>Method: OECD Test Guideline 107<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 | : | No data available |

## SECTION 13: Disposal considerations

### 13.1 Waste treatment methods

| | | |
|---|---|---|
| Product | : | Do not dispose of waste into sewer.<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.<br>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 3272 |
| **ADR** | : | UN 3272 |
| **RID** | : | UN 3272 |
| **IMDG** | : | UN 3272 |
| **IATA** | : | UN 3272 |

### 14.2 UN proper shipping name

| | | |
|---|---|---|
| **ADN** | : | ESTERS, N.O.S.<br>(BUTYL ACETATE, 1-Methoxy-2-propanol acetate) |

| | | |
|---|---|---|
| **ADR** | : | ESTERS, N.O.S.<br>(n-Butylacetate, 1-Methoxy-2-propanol acetate) |
| **RID** | : | ESTERS, N.O.S.<br>(n-Butylacetate, 1-Methoxy-2-propanol acetate) |
| **IMDG** | : | ESTERS, N.O.S.<br>(BUTYL ACETATE, 1-Methoxy-2-propanol acetate) |
| **IATA** | : | Esters, n.o.s.<br>(Butyl acetate, 1-Methoxy-2-propanol acetate) |

**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-D |
| Remarks | : | IMDG Code segregation group - none |

**IATA (Cargo)**

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

**IATA (Passenger)**

| | | |
|---|---|---|
| Packing instruction | : | 355 |

(passenger aircraft)
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

Number on list 20: dibutyltin dilaurate, tributyltin compounds

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: 56,71 % |

**15.2 Chemical safety assessment**

For further information see eSDS.

## 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**

| | | |
|---|---|---|
| H226 | : | Flammable liquid and vapour. |
| H336 | : | May cause drowsiness or dizziness. |
| EUH066 | : | Repeated exposure may cause skin dryness or cracking. |

**Full text of other abbreviations**

| | | |
|---|---|---|
| Flam. Liq. | : | Flammable liquids |
| 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 |
| 2019/1831/EU | : | Europe. Commission Directive 2019/1831/EU establishing a fifth list of indicative occupational exposure limit 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 |
| 2019/1831/EU / TWA | : | Limit Value - eight hours |
| 2019/1831/EU / 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 |
| STOT SE 3 | H336 | 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** | Processing aid; Industrial uses (SU3). |
| **ES 2** | Formulation & (re)packing of substances and mixtures; Industrial uses (SU3). |
| **ES 3** | Use in coatings; Industrial uses (SU3). |
| **ES 4** | Use in coatings; Professional uses (SU22). |
| **ES 5** | Cleaning; Industrial uses (SU3). |
| **ES 6** | Cleaning; Professional uses (SU22). |
| **ES 7** | Use in coatings; Consumer uses (SU21). |
| **ES 8** | Cleaning; Consumer uses (SU21). |

## ES 1: Processing aid; Industrial uses (SU3).

### 1.1. Title section

| | | |
|---|---|---|
| **Exposure Scenario name** | : | Processing aid |
| **Structured Short Title** | : | Processing aid; 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** | **Manufacture or formulation in the chemical industry in closed batch processes with occasional controlled exposure or processes with equivalent containment condition** | PROC3 |
| **CS 5** | **Chemical production where opportunity for exposure arises** | PROC4 |
| **CS 6** | **Transfer of substance or mixture (charging/discharging) at non dedicated-facilities** | PROC8a |
| **CS 7** | **Transfer of substance or mixture (charging/discharging) at dedicated facilities** | PROC8b |
| **CS 8** | **Use as laboratory reagent** | PROC15 |

### 1.2. Conditions of use affecting exposure

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

| | | |
|---|---|---|
| **Product (article) characteristics** | | |
| Physical form of product | : | Liquid |
| **Amount used (or contained in articles), frequency and duration of use/exposure** | | |
| Daily amount per site | : | 2200 kg |
| Release type | : | Continuous release |

| | | |
|---|---|---|
| Emission days | : | 300 |
| **Technical and organisational conditions and measures** | | |
| Treat air emissions.<br>Air - minimum efficiency of 87,3 % | | |
| **Conditions and measures related to sewage treatment plant** | | |
| STP type | : | Municipal sewage treatment plant |
| **Conditions and measures related to treatment of waste (including article waste)** | | |
| Waste treatment | : | Dispose of waste product or used containers according to local regulations.<br>Hazardous waste incineration |
| **Other conditions affecting environmental exposure** | | |
| Local freshwater dilution factor | : | 10 |
| Local marine water dilution factor | : | 100 |
| **Additional good practice advice. Obligations according to Article 37(4) of REACH do not apply** | | |
| Site should have a spill plan to ensure that adequate safeguards are in place to minimize the impact of episodic releases.<br>Vapour recovery (e.g. adsorption)<br>When not in use, keep containers tightly closed. | | |

**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** | | |
| No other specific measures identified. | | |

| | | |
|---|---|---|
| **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** | | |
| No other specific measures identified. | | |
| **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: Manufacture or formulation in the chemical industry in closed batch processes with occasional controlled exposure or processes with equivalent containment condition (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** | | |
| No other specific measures identified. | | |
| **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** | | |
| No other specific measures identified. | | |
| **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: 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** | | |
| No other specific measures identified. | | |
| **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 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** | | |
| Clear transfer lines prior to de-coupling. | | |

| **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: 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** | | |
| No other specific measures identified. | | |
| **Other conditions affecting workers exposure** | | |
| Temperature | : | Assumes use at not more than 20°C above ambient temperature. |

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

#### 1.3.1. 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 |
|---|---|---|
| Soil | | ESVOC SPERC 4.20.v1 |
| Water | | ESVOC SPERC 4.20.v1 |
| Air | | ESVOC SPERC 4.20.v1 |

| Protection Target | Exposure estimate | RCR |
|---|---|---|

| | | |
|---|---|---|
| Freshwater | 0,0022 mg/L | 0,004 |
| Freshwater sediment | 0,0114 mg/kg dry weight | 0,004 |
| Marine water | 0,0004 mg/L | 0,006 |
| Marine sediment | 0,0020 mg/kg dry weight | 0,006 |
| Soil | 0,00127 mg/kg dry weight | 0,005 |

**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 | 0,06 mg/m³ (ECETOC TRA worker v2.0) | |
| dermal | systemic | long-term | 0,34 mg/kg bw/day | |

**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 | 5,51 mg/m³ (ECETOC TRA worker v2.0) | 0,02 |
| dermal | systemic | long-term | 1,37 mg/kg bw/day (ECETOC TRA worker v2.0) | 0,01 |
| combined routes | | | | 0,03 |

**1.3.4. Worker exposure: Manufacture or formulation in the chemical industry in closed batch processes with occasional controlled exposure or processes with equivalent containment condition (PROC3)**

| Exposure route | Health effect | Exposure indicator | Exposure estimate | RCR |
|---|---|---|---|---|
| inhalative | systemic | long-term | 16,53 mg/m³ (ECETOC TRA worker v2.0) | 0,06 |
| dermal | systemic | long-term | 0,34 mg/kg bw/day (ECETOC TRA worker v2.0) | |

| | | | | |
|---|---|---|---|---|
| combined routes | | | | 0,06 |

### 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 | 27,54 mg/m³ (ECETOC TRA worker v2.0) | 0,10 |
| dermal | systemic | long-term | 6,86 mg/kg bw/day (ECETOC TRA worker v2.0) | 0,04 |
| combined routes | | | | 0,14 |

### 1.3.6. 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 | 55,08 mg/m³ (ECETOC TRA worker v2.0) | 0,20 |
| dermal | systemic | long-term | 13,71 mg/kg bw/day (ECETOC TRA worker v2.0) | 0,09 |
| combined routes | | | | 0,29 |

### 1.3.7. 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 | 27,54 mg/m³ (ECETOC TRA worker v2.0) | 0,10 |
| dermal | systemic | long-term | 6,86 mg/kg bw/day (ECETOC TRA worker v2.0) | 0,04 |
| combined routes | | | | 0,14 |

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

| Exposure route | Health effect | Exposure indicator | Exposure estimate | RCR |
|---|---|---|---|---|
| inhalative | systemic | long-term | 0,06 mg/m³ (ECETOC TRA worker v2.0) | 0,10 |
| dermal | systemic | long-term | 0,34 mg/kg bw/day (ECETOC TRA worker v2.0) | |
| combined routes | | | | 0,10 |

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

Estimated workplace exposures are not expected to exceed DNELs when the identified risk management measures are adopted.
Where other risk management measures/operational conditions are adopted, then users should ensure that risks are managed to at least equivalent levels.

Guidance is based on assumed operating conditions which may not be applicable to all sites; thus, scaling may be necessary to define appropriate site-specific risk management measures.
Further details on scaling and control technologies are provided in SPERC factsheet.

## ES 2: Formulation & (re)packing of substances and mixtures; Industrial uses (SU3).

### 2.1. 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). |

| | | |
|---|---|---|
| **Environment** | | |
| **CS 1** | **Formulation into mixture** | ERC2 |
| **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** | **Manufacture or formulation in the chemical industry in closed batch processes with occasional controlled exposure or processes with equivalent containment condition** | 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** | **Tabletting, compression, extrusion, pelettisation, granulation** | PROC14 |
| **CS 11** | **Use as laboratory reagent** | PROC15 |

### 2.2. Conditions of use affecting exposure

#### 2.2.1. Control of environmental exposure: Formulation into mixture (ERC2)

| | | |
|---|---|---|
| **Product (article) characteristics** | | |
| Physical form of product | : | Liquid |

| | | |
|---|---|---|
| **Amount used (or contained in articles), frequency and duration of use/exposure** | | |
| Daily amount per site | : | 234666 kg |
| Release type | : | Continuous release |
| Emission days | : | 225 |
| **Conditions and measures related to sewage treatment plant** | | |
| STP type | : | Onsite sewage treatment plant |
| STP type | : | Municipal Sewage Treatment Plant |
| **Conditions and measures related to treatment of waste (including article waste)** | | |
| Waste treatment | : | Dispose of waste product or used containers according to local regulations.<br>Hazardous waste incineration |
| **Other conditions affecting environmental exposure** | | |
| Local freshwater dilution factor | : | 10 |
| Local marine water dilution factor | : | 100 |
| **Additional good practice advice. Obligations according to Article 37(4) of REACH do not apply** | | |
| Site should have a spill plan to ensure that adequate safeguards are in place to minimize the impact of episodic releases.<br>Vapour recovery (e.g. adsorption)<br>When not in use, keep containers tightly closed.<br>Prevent leaks and prevent soil / water pollution caused by leaks. | | |

**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** | | |

| | | |
|---|---|---|
| No other specific measures identified. | | |
| **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** | | |
| No other specific measures identified. | | |
| **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: Manufacture or formulation in the chemical industry in closed batch processes with occasional controlled exposure or processes with equivalent containment condition (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** | | |
| No other specific measures identified. | | |
| **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** | | |
| No other specific measures identified. | | |
| **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). | | |
| **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: 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** | | |

| | | |
|---|---|---|
| No other specific measures identified. | | |
| **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 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** | | |
| No other specific measures identified. | | |
| **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 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** | | |
| No other specific measures identified. | | |
| **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 | | |

**2.2.10. Control of worker exposure: Tabletting, compression, extrusion, pelettisation, granulation (PROC14)**

| | | |
|---|---|---|
| **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** | | |
| No other specific measures identified. | | |
| **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 | | |

#### 2.2.11. 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** | | |
| No other specific measures identified. | | |
| **Other conditions affecting workers exposure** | | |
| Temperature | : | Assumes use at not more than 20°C above ambient temperature. |

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

#### 2.3.1. Environmental release and exposure: Formulation into mixture (ERC2)

| Release route | Release rate | Release estimation method |
|---|---|---|
| Soil | | CEPE SPERC 2.1b.v1 |
| Water | | CEPE SPERC 2.1b.v1 |
| Air | | CEPE SPERC 2.1b.v1 |

| Protection Target | Exposure estimate | RCR |
|---|---|---|
| Freshwater | 0,0022 mg/L | 0,004 |
| Freshwater sediment | 0,011 mg/kg dry weight | 0,004 |
| Marine water | 0,0004 mg/L | 0,006 |
| Marine sediment | 0,00202 mg/kg dry weight | 0,006 |
| Soil | 0,00127 mg/kg dry weight | 0,010 |

**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 | 0,06 mg/m³ (ECETOC TRA worker v2.0) | |
| dermal | systemic | long-term | 0,34 mg/kg bw/day | |

**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 | 5,51 mg/m³ (ECETOC TRA worker v2.0) | 0,02 |
| dermal | systemic | long-term | 1,37 mg/kg bw/day (ECETOC TRA worker v2.0) | 0,01 |
| combined routes | | | | 0,03 |

**2.3.4. Worker exposure: Manufacture or formulation in the chemical industry in closed batch processes with occasional controlled exposure or processes with equivalent containment condition (PROC3)**

| Exposure route | Health effect | Exposure indicator | Exposure estimate | RCR |
|---|---|---|---|---|
| inhalative | systemic | long-term | 16,53 mg/m³ (ECETOC TRA worker v2.0) | 0,06 |
| dermal | systemic | long-term | 0,34 mg/kg bw/day (ECETOC TRA worker v2.0) | |
| combined routes | | | | 0,06 |

**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 | 27,54 mg/m³ (ECETOC TRA | 0,10 |

| | | | | |
|---|---|---|---|---|
| | | | worker v2.0) | |
| dermal | systemic | long-term | 6,86 mg/kg bw/day (ECETOC TRA worker v2.0) | 0,04 |
| combined routes | | | | 0,14 |

### 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 | 27,54 mg/m³ (ECETOC TRA worker v2.0) | 0,70 |
| dermal | systemic | long-term | 13,71 mg/kg bw/day (ECETOC TRA worker v2.0) | 0,09 |
| combined routes | | | | 0,79 |

### 2.3.7. 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 | 55,08 mg/m³ (ECETOC TRA worker v2.0) | 0,20 |
| dermal | systemic | long-term | 13,71 mg/kg bw/day (ECETOC TRA worker v2.0) | 0,09 |
| combined routes | | | | 0,29 |

### 2.3.8. 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 | 27,54 mg/m³ (ECETOC TRA worker v2.0) | 0,10 |
| dermal | systemic | long-term | 6,86 mg/kg bw/day (ECETOC TRA worker v2.0) | 0,04 |
| combined routes | | | | 0,14 |

### 2.3.9. 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 | 27,54 mg/m³ (ECETOC TRA worker v2.0) | 0,10 |
| dermal | systemic | long-term | 6,86 mg/kg bw/day (ECETOC TRA worker v2.0) | 0,04 |
| combined routes | | | | 0,14 |

### 2.3.10. Worker exposure: Tabletting, compression, extrusion, pelettisation, granulation (PROC14)

| Exposure route | Health effect | Exposure indicator | Exposure estimate | RCR |
|---|---|---|---|---|
| inhalative | systemic | long-term | 27,54 mg/m³ (ECETOC TRA worker v2.0) | 0,10 |
| dermal | systemic | long-term | 3,43 mg/kg bw/day (ECETOC TRA worker v2.0) | 0,02 |
| combined routes | | | | 0,12 |

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

| Exposure route | Health effect | Exposure indicator | Exposure estimate | RCR |
|---|---|---|---|---|
| inhalative | systemic | long-term | 27,54 mg/m³ (ECETOC TRA worker v2.0) | 0,10 |
| dermal | systemic | long-term | 0,34 mg/kg bw/day (ECETOC TRA worker v2.0) | |
| combined routes | | | | 0,10 |

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

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

Where other risk management measures/operational conditions are adopted, then users should ensure that risks are managed to at least equivalent levels.

Guidance is based on assumed operating conditions which may not be applicable to all sites; thus, scaling may be necessary to define appropriate site-specific risk management measures.
Further details on scaling and control technologies are provided in SPERC factsheet.

## ES 3: Use in coatings; Industrial uses (SU3).

### 3.1. 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** | **Manufacture or formulation in the chemical industry in closed batch processes with occasional controlled exposure or processes with equivalent containment condition** | 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** | **Industrial spraying** | PROC7 |
| **CS 9** | **Transfer of substance or mixture (charging/discharging) at non dedicated-facilities** | PROC8a |
| **CS 10** | **Transfer of substance or mixture (charging/discharging) at dedicated facilities** | PROC8b |
| **CS 11** | **Transfer of substance or mixture into small containers (dedicated filling line, including weighing)** | PROC9 |
| **CS 12** | **Roller application or brushing** | PROC10 |
| **CS 13** | **Treatment of articles by dipping and pouring** | PROC13 |
| **CS 14** | **Tabletting, compression, extrusion, pelettisation, granulation** | PROC14 |
| **CS 15** | **Use as laboratory reagent** | PROC15 |

## 3.2. Conditions of use affecting exposure

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

| | | |
|---|---|---|
| **Product (article) characteristics** | | |
| Physical form of product | : | Liquid |
| **Amount used (or contained in articles), frequency and duration of use/exposure** | | |
| Daily amount per site | : | 36000 kg |
| Release type | : | Continuous release |
| Emission days | : | 300 |
| **Technical and organisational conditions and measures** | | |
| Treat air emissions.<br>Air - minimum efficiency of 98 % | | |
| **Conditions and measures related to sewage treatment plant** | | |
| STP type | : | Municipal sewage treatment plant |
| STP type | : | Onsite Sewage Treatment Plant |
| **Conditions and measures related to treatment of waste (including article waste)** | | |
| Waste treatment | : | Hazardous waste incineration<br>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 |
| **Additional good practice advice. Obligations according to Article 37(4) of REACH do not apply** | | |
| Site should have a spill plan to ensure that adequate safeguards are in place to minimize the impact of episodic releases.<br>Vapour recovery (e.g. adsorption)<br>When not in use, keep containers tightly closed. | | |

### 3.2.2. 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** | | |
| No other specific measures identified. | | |
| **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: 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** | | |
| No other specific measures identified. | | |

| | | |
|---|---|---|
| **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 | | |

**3.2.4. Control of worker exposure: Manufacture or formulation in the chemical industry in closed batch processes with occasional controlled exposure or processes with equivalent containment condition (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** | | |
| No other specific measures identified. | | |
| **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 | | |

**3.2.5. 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** | | |
| No other specific measures identified. | | |
| **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 | | |

### 3.2.6. 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** | | |
| No other specific measures identified. | | |
| **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 | | |

### 3.2.7. 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 or extracted enclosure. | | |
| **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 | | |

### 3.2.8. 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 |
| **Conditions and measures related to personal protection, hygiene and health evaluation** | | |
| 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 | | |

### 3.2.9. 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** | | |
| No other specific measures identified. | | |
| **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 | | |

### 3.2.10. 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** | | |
| No other specific measures identified. | | |
| **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 | | |

### 3.2.11. 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** | | |
| No other specific measures identified. | | |
| **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 | | |

### 3.2.12. 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** | | |
| No other specific measures identified. | | |
| **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 | | |

### 3.2.13. 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** | | |
| No other specific measures identified. | | |
| **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 |

**3.2.14. Control of worker exposure: Tabletting, compression, extrusion, pelettisation, granulation (PROC14)**

| **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** | | |
| No other specific measures identified. | | |
| **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 | | |

**3.2.15. 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** | | |
|---|---|---|
| No other specific measures identified. | | |
| **Other conditions affecting workers exposure** | | |
| Temperature | : | Assumes use at not more than 20°C above ambient temperature. |

## 3.3. Exposure estimation and reference to its source

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

| Protection Target | Exposure estimate | RCR |
|---|---|---|
| Freshwater | 0,002 mg/L | |
| Freshwater sediment | 0,012 mg/kg dry weight | |
| Marine water | 0,0004 mg/L | |
| Marine sediment | 0,0020 mg/kg dry weight | |
| Soil | 0,00124 mg/kg dry weight | |

### 3.3.2. 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 | 0,06 mg/m³ (ECETOC TRA worker v2.0) | |
| dermal | systemic | long-term | 0,34 mg/kg bw/day | |

### 3.3.3. 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 | 5,51 mg/m³ (ECETOC TRA worker v2.0) | 0,02 |
| dermal | systemic | long-term | 1,37 mg/kg bw/day | 0,01 |

| | | | | |
|---|---|---|---|---|
| | | | (ECETOC TRA worker v2.0) | |
| combined routes | | | | 0,03 |

### 3.3.4. Worker exposure: Manufacture or formulation in the chemical industry in closed batch processes with occasional controlled exposure or processes with equivalent containment condition (PROC3)

| Exposure route | Health effect | Exposure indicator | Exposure estimate | RCR |
|---|---|---|---|---|
| inhalative | systemic | long-term | 16,53 mg/m³ (ECETOC TRA worker v2.0) | 0,06 |
| dermal | systemic | long-term | 0,34 mg/kg bw/day (ECETOC TRA worker v2.0) | |
| combined routes | | | | 0,06 |

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

| Exposure route | Health effect | Exposure indicator | Exposure estimate | RCR |
|---|---|---|---|---|
| inhalative | systemic | long-term | 27,54 mg/m³ (ECETOC TRA worker v2.0) | 0,10 |
| dermal | systemic | long-term | 6,86 mg/kg bw/day (ECETOC TRA worker v2.0) | 0,04 |
| combined routes | | | | 0,14 |

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

| Exposure route | Health effect | Exposure indicator | Exposure estimate | RCR |
|---|---|---|---|---|
| inhalative | systemic | long-term | 27,54 mg/m³ (ECETOC TRA worker v2.0) | 0,10 |
| dermal | systemic | long-term | 13,71 mg/kg bw/day (ECETOC TRA worker v2.0) | 0,09 |
| combined routes | | | | 0,19 |

### 3.3.7. Worker exposure: Industrial spraying (PROC7)

| Exposure route | Health effect | Exposure indicator | Exposure estimate | RCR |
|---|---|---|---|---|
| inhalative | systemic | long-term | 27,54 mg/m³ (ECETOC TRA worker v2.0) | 0,10 |
| dermal | systemic | long-term | 2,14 mg/kg bw/day (ECETOC TRA worker v2.0) | 0,01 |
| combined routes | | | | 0,11 |

### 3.3.8. Worker exposure: Industrial spraying (PROC7)

| Exposure route | Health effect | Exposure indicator | Exposure estimate | RCR |
|---|---|---|---|---|
| inhalative | systemic | long-term | 55,08 mg/m³ (ECETOC TRA worker v2.0) | 0,20 |
| dermal | systemic | long-term | 42,86 mg/kg bw/day (ECETOC TRA worker v2.0) | 0,28 |
| combined routes | | | | 0,48 |

### 3.3.9. 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 | 55,08 mg/m³ (ECETOC TRA worker v2.0) | 0,20 |
| dermal | systemic | long-term | 13,71 mg/kg bw/day (ECETOC TRA worker v2.0) | 0,09 |
| combined routes | | | | 0,29 |

### 3.3.10. 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 | 27,54 mg/m³ | 0,10 |

| | | | | |
|---|---|---|---|---|
| | | | (ECETOC TRA worker v2.0) | |
| dermal | systemic | long-term | 6,86 mg/kg bw/day (ECETOC TRA worker v2.0) | 0,04 |
| combined routes | | | | 0,14 |

### 3.3.11. 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 | 27,54 mg/m³ (ECETOC TRA worker v2.0) | 0,10 |
| dermal | systemic | long-term | 6,86 mg/kg bw/day (ECETOC TRA worker v2.0) | 0,04 |
| combined routes | | | | 0,14 |

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

| Exposure route | Health effect | Exposure indicator | Exposure estimate | RCR |
|---|---|---|---|---|
| inhalative | systemic | long-term | 55,08 mg/m³ (ECETOC TRA worker v2.0) | 0,20 |
| dermal | systemic | long-term | 27,43 mg/kg bw/day (ECETOC TRA worker v2.0) | 0,18 |
| combined routes | | | | 0,38 |

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

| Exposure route | Health effect | Exposure indicator | Exposure estimate | RCR |
|---|---|---|---|---|
| inhalative | systemic | long-term | 55,08 mg/m³ (ECETOC TRA worker v2.0) | 0,20 |
| dermal | systemic | long-term | 13,71 mg/kg bw/day (ECETOC TRA worker v2.0) | 0,09 |
| combined routes | | | | 0,29 |

### 3.3.14. Worker exposure: Tabletting, compression, extrusion, pelettisation, granulation (PROC14)

| Exposure route | Health effect | Exposure indicator | Exposure estimate | RCR |
|---|---|---|---|---|
| inhalative | systemic | long-term | 27,54 mg/m³ (ECETOC TRA worker v2.0) | 0,10 |
| dermal | systemic | long-term | 3,43 mg/kg bw/day (ECETOC TRA worker v2.0) | 0,02 |
| combined routes | | | | 0,12 |

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

| Exposure route | Health effect | Exposure indicator | Exposure estimate | RCR |
|---|---|---|---|---|
| inhalative | systemic | long-term | 27,54 mg/m³ (ECETOC TRA worker v2.0) | 0,10 |
| dermal | systemic | long-term | 0,34 mg/kg bw/day (ECETOC TRA worker v2.0) | |
| combined routes | | | | 0,10 |

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

Estimated workplace exposures are not expected to exceed DNELs when the identified risk management measures are adopted.
Where other risk management measures/operational conditions are adopted, then users should ensure that risks are managed to at least equivalent levels.

Guidance is based on assumed operating conditions which may not be applicable to all sites; thus, scaling may be necessary to define appropriate site-specific risk management measures.
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)** | ERC8a |
| **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** | **Manufacture or formulation in the chemical industry in closed batch processes with occasional controlled exposure or processes with equivalent containment condition** | PROC3 |
| **CS 5** | **Chemical production where opportunity for exposure arises** | PROC4 |
| **CS 6** | **Mixing or blending in batch processes** | PROC5 |
| **CS 7** | **Mixing or blending in batch processes** | PROC5 |
| **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** | **Non-industrial spraying** | PROC11 |
| **CS 11** | **Roller application or brushing** | PROC10 |
| **CS 12** | **Non-industrial spraying** | PROC11 |
| **CS 13** | **Treatment of articles by dipping and pouring** | PROC13 |
| **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)

| | | |
|---|---|---|
| **Product (article) characteristics** | | |
| Physical form of product | : | Liquid |
| **Amount used (or contained in articles), frequency and duration of use/exposure** | | |
| Daily amount per site | : | 5000 kg |
| Release type | : | Continuous release |
| Emission days | : | 365 |
| **Conditions and measures related to sewage treatment plant** | | |
| STP type | : | Municipal sewage treatment plant |
| STP type | : | Onsite Sewage Treatment Plant |
| **Conditions and measures related to treatment of waste (including article waste)** | | |
| Waste treatment | : | Hazardous waste incineration<br>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 |

**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** | | |
| No other specific measures identified. | | |

| | | |
|---|---|---|
| **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** | | |
| No other specific measures identified. | | |
| **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: Manufacture or formulation in the chemical industry in closed batch processes with occasional controlled exposure or processes with equivalent containment condition (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** | | |
| No other specific measures identified. | | |
| **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 | | |

**4.2.5. 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** | | |
| No other specific measures identified. | | |
| **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** | | |
| No other specific measures identified. | | |
| **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: 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** | | |
| Ensure operation is undertaken outdoors. | | |
| **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 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** | | |
| No other specific measures identified. | | |
| **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 | | |

**4.2.9. 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** | | |
| No other specific measures identified. | | |
| **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 | | |

### 4.2.10. 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 or extracted enclosure. | | |
| **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: 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** | | |
| No other specific measures identified. | | |
| **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: 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 |
| **Conditions and measures related to personal protection, hygiene and health evaluation** | | |
| 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 |

#### 4.2.13. 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** | | |
| No other specific measures identified. | | |
| **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** | | |
| No other specific measures identified. | | |
| **Other conditions affecting workers exposure** | | |
| Temperature | : | Assumes use at not more than 20°C above ambient temperature. |

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

| | | |
|---|---|---|
| **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** | | |
| No other 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. |

### 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)

| Release route | Release rate | Release estimation method |
|---|---|---|
| Soil | | ESVOC SPERC 8.3b.v1 |
| Water | | ESVOC SPERC 8.3b.v1 |

| | | |
|---|---|---|
| Air | | ESVOC SPERC 8.3b.v1 |

| Protection Target | Exposure estimate | RCR |
|---|---|---|
| Freshwater | 0,003 mg/L | 0,004 |
| Freshwater sediment | 0,014 mg/kg dry weight | 0,004 |
| Marine water | 0,0004 mg/L | 0,007 |
| Marine sediment | 0,002 mg/kg dry weight | 0,007 |
| Soil | 0,001 mg/kg dry weight | 0,004 |

**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 | 0,06 mg/m³ (ECETOC TRA worker v2.0) | |
| dermal | systemic | long-term | 0,34 mg/kg bw/day | |

**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 | 27,54 mg/m³ (ECETOC TRA worker v2.0) | 0,10 |
| dermal | systemic | long-term | 0,34 mg/kg bw/day (ECETOC TRA worker v2.0) | 0,01 |
| combined routes | | | | 0,11 |

**4.3.4. Worker exposure: Manufacture or formulation in the chemical industry in closed batch processes with occasional controlled exposure or processes with equivalent containment condition (PROC3)**

| Exposure route | Health effect | Exposure indicator | Exposure estimate | RCR |
|---|---|---|---|---|
| inhalative | systemic | long-term | 16,53 mg/m³ (ECETOC TRA worker v2.0) | 0,06 |

| | | | | |
|---|---|---|---|---|
| dermal | systemic | long-term | 0,34 mg/kg bw/day (ECETOC TRA worker v2.0) | |
| combined routes | | | | 0,06 |

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

| Exposure route | Health effect | Exposure indicator | Exposure estimate | RCR |
|---|---|---|---|---|
| inhalative | systemic | long-term | 55,08 mg/m³ (ECETOC TRA worker v2.0) | 0,20 |
| dermal | systemic | long-term | 6,86 mg/kg bw/day (ECETOC TRA worker v2.0) | 0,04 |
| combined routes | | | | 0,24 |

#### 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 | 55,08 mg/m³ (ECETOC TRA worker v2.0) | 0,20 |
| dermal | systemic | long-term | 13,71 mg/kg bw/day (ECETOC TRA worker v2.0) | 0,09 |
| combined routes | | | | 0,29 |

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

| Exposure route | Health effect | Exposure indicator | Exposure estimate | RCR |
|---|---|---|---|---|
| inhalative | systemic | long-term | 55,08 mg/m³ (ECETOC TRA worker v2.0) | 0,20 |
| dermal | systemic | long-term | 13,71 mg/kg bw/day (ECETOC TRA worker v2.0) | 0,09 |
| combined routes | | | | 0,29 |

### 4.3.8. 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 | 137,71 mg/m³ (ECETOC TRA worker v2.0) | 0,50 |
| dermal | systemic | long-term | 13,71 mg/kg bw/day (ECETOC TRA worker v2.0) | 0,09 |
| combined routes | | | | 0,59 |

### 4.3.9. 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 | 55,08 mg/m³ (ECETOC TRA worker v2.0) | 0,20 |
| dermal | systemic | long-term | 6,86 mg/kg bw/day (ECETOC TRA worker v2.0) | 0,04 |
| combined routes | | | | 0,24 |

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

| Exposure route | Health effect | Exposure indicator | Exposure estimate | RCR |
|---|---|---|---|---|
| inhalative | systemic | long-term | 27,54 mg/m³ (ECETOC TRA worker v2.0) | 0,10 |
| dermal | systemic | long-term | 2,14 mg/kg bw/day (ECETOC TRA worker v2.0) | 0,01 |
| combined routes | | | | 0,11 |

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

| Exposure route | Health effect | Exposure indicator | Exposure estimate | RCR |
|---|---|---|---|---|
| inhalative | systemic | long-term | 137,71 mg/m³ | 0,50 |

| | | | | |
|---|---|---|---|---|
| | | | (ECETOC TRA worker v2.0) | |
| dermal | systemic | long-term | 13,71 mg/kg bw/day (ECETOC TRA worker v2.0) | 0,18 |
| combined routes | | | | 0,68 |

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

| Exposure route | Health effect | Exposure indicator | Exposure estimate | RCR |
|---|---|---|---|---|
| inhalative | systemic | long-term | 55,08 mg/m³ (ECETOC TRA worker v2.0) | 0,20 |
| dermal | systemic | long-term | 107,14 mg/kg bw/day (ECETOC TRA worker v2.0) | 0,70 |
| combined routes | | | | 0,90 |

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

| Exposure route | Health effect | Exposure indicator | Exposure estimate | RCR |
|---|---|---|---|---|
| inhalative | systemic | long-term | 55,08 mg/m³ (ECETOC TRA worker v2.0) | 0,20 |
| dermal | systemic | long-term | 13,71 mg/kg bw/day (ECETOC TRA worker v2.0) | 0,09 |
| combined routes | | | | 0,29 |

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

| Exposure route | Health effect | Exposure indicator | Exposure estimate | RCR |
|---|---|---|---|---|
| inhalative | systemic | long-term | 55,08 mg/m³ (ECETOC TRA worker v2.0) | 0,20 |
| dermal | systemic | long-term | 0,34 mg/kg bw/day (ECETOC TRA worker v2.0) | 0,09 |
| combined routes | | | | 0,29 |

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

| Exposure route | Health effect | Exposure indicator | Exposure estimate | RCR |
|---|---|---|---|---|
| inhalative | systemic | long-term | 137,71 mg/m³ (ECETOC TRA worker v2.0) | 0,50 |
| dermal | systemic | long-term | 28,29 mg/kg bw/day (ECETOC TRA worker v2.0) | 0,18 |
| combined routes | | | | 0,69 |

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

Estimated workplace exposures are not expected to exceed DNELs when the identified risk management measures are adopted.
Where other risk management measures/operational conditions are adopted, then users should ensure that risks are managed to at least equivalent levels.

Guidance is based on assumed operating conditions which may not be applicable to all sites; thus, scaling may be necessary to define appropriate site-specific risk management measures.
Further details on scaling and control technologies are provided in SPERC factsheet.

## ES 5: Cleaning; Industrial uses (SU3).

### 5.1. Title section

| | | |
|---|---|---|
| **Exposure Scenario name** | : | Cleaning |
| **Structured Short Title** | : | Cleaning; 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** | **Manufacture or formulation in the chemical industry in closed batch processes with occasional controlled exposure or processes with equivalent containment condition** | PROC3 |
| **CS 5** | **Chemical production where opportunity for exposure arises** | PROC4 |
| **CS 6** | **Industrial spraying** | PROC7 |
| **CS 7** | **Transfer of substance or mixture (charging/discharging) at non dedicated-facilities** | PROC8a |
| **CS 8** | **Roller application or brushing** | PROC10 |
| **CS 9** | **Treatment of articles by dipping and pouring** | PROC13 |

### 5.2. Conditions of use affecting exposure

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

| | | |
|---|---|---|
| **Product (article) characteristics** | | |
| Physical form of product | : | Liquid |
| **Amount used (or contained in articles), frequency and duration of use/exposure** | | |
| Daily amount per site | : | 5000 kg |
| Release type | : | Continuous release |

| | | |
|---|---|---|
| Emission days | : | 20 |
| **Conditions and measures related to sewage treatment plant** | | |
| STP type | : | Municipal sewage treatment plant |
| STP type | : | Onsite Sewage Treatment Plant |
| **Conditions and measures related to treatment of waste (including article waste)** | | |
| Waste treatment | : | Hazardous waste incineration<br>External treatment and disposal 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 |
| **Additional good practice advice. Obligations according to Article 37(4) of REACH do not apply** | | |
| Site should have a spill plan to ensure that adequate safeguards are in place to minimize the impact of episodic releases.<br>Vapour recovery (e.g. adsorption)<br>When not in use, keep containers tightly closed. | | |

**5.2.2. 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** | | |
| No other specific measures identified. | | |
| **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 |

**5.2.3. 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** | | |
| No other specific measures identified. | | |
| **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 | | |

**5.2.4. Control of worker exposure: Manufacture or formulation in the chemical industry in closed batch processes with occasional controlled exposure or processes with equivalent containment condition (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** | | |
| No other specific measures identified. | | |
| **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 | | |

**5.2.5. 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** | | |
| No other specific measures identified. | | |
| **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 | | |

**5.2.6. 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 | : | Exposure duration 240 min |
| **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 | | |

**5.2.7. 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** | | |
| No other specific measures identified. | | |

| | | |
|---|---|---|
| **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 | | |

### 5.2.8. 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** | | |
| No other specific measures identified. | | |
| **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 | | |

### 5.2.9. 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** | | |
| No other specific measures identified. | | |
| **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: Use of non-reactive processing aid at industrial site (no inclusion into or onto article) (ERC4)

| Release route | Release rate | Release estimation method |
|---|---|---|
| Soil | | ESVOC SPERC 4.4a.v1 |
| Water | | ESVOC SPERC 4.4a.v1 |
| Air | | ESVOC SPERC 4.4a.v1 |

| Protection Target | Exposure estimate | RCR |
|---|---|---|
| Freshwater | 0,0024 mg/L | 0,009 |
| Freshwater sediment | 0,0277 mg/kg dry weight | 0,009 |
| Marine water | 0,0004 mg/L | 0,011 |
| Marine sediment | 0,0037 mg/kg dry weight | 0,011 |
| Soil | 0,001 mg/kg dry weight | 0,004 |

### 5.3.2. 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 | 0,06 mg/m³ (ECETOC TRA | |

| | | | | |
|---|---|---|---|---|
| | | | worker v2.0) | |
| dermal | systemic | long-term | 0,34 mg/kg bw/day | |

**5.3.3. 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 | 5,51 mg/m³ (ECETOC TRA worker v2.0) | 0,02 |
| dermal | systemic | long-term | 1,37 mg/kg bw/day (ECETOC TRA worker v2.0) | 0,01 |
| combined routes | | | | 0,03 |

**5.3.4. Worker exposure: Manufacture or formulation in the chemical industry in closed batch processes with occasional controlled exposure or processes with equivalent containment condition (PROC3)**

| Exposure route | Health effect | Exposure indicator | Exposure estimate | RCR |
|---|---|---|---|---|
| inhalative | systemic | long-term | 16,53 mg/m³ (ECETOC TRA worker v2.0) | 0,06 |
| dermal | systemic | long-term | 0,34 mg/kg bw/day (ECETOC TRA worker v2.0) | |
| combined routes | | | | 0,06 |

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

| Exposure route | Health effect | Exposure indicator | Exposure estimate | RCR |
|---|---|---|---|---|
| inhalative | systemic | long-term | 27,54 mg/m³ (ECETOC TRA worker v2.0) | 0,10 |
| dermal | systemic | long-term | 6,86 mg/kg bw/day (ECETOC TRA worker v2.0) | 0,04 |
| combined routes | | | | 0,14 |

### 5.3.6. Worker exposure: Industrial spraying (PROC7)

| Exposure route | Health effect | Exposure indicator | Exposure estimate | RCR |
|---|---|---|---|---|
| inhalative | systemic | long-term | 231,35 mg/m³ (ECETOC TRA worker v2.0) | 0,84 |
| dermal | systemic | long-term | 8,57 mg/kg bw/day (ECETOC TRA worker v2.0) | 0,06 |
| combined routes | | | | 0,90 |

### 5.3.7. 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 | 55,08 mg/m³ (ECETOC TRA worker v2.0) | 0,20 |
| dermal | systemic | long-term | 13,71 mg/kg bw/day (ECETOC TRA worker v2.0) | 0,09 |
| combined routes | | | | 0,29 |

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

| Exposure route | Health effect | Exposure indicator | Exposure estimate | RCR |
|---|---|---|---|---|
| inhalative | systemic | long-term | 55,08 mg/m³ (ECETOC TRA worker v2.0) | 0,20 |
| dermal | systemic | long-term | 27,43 mg/kg bw/day (ECETOC TRA worker v2.0) | 0,18 |
| combined routes | | | | 0,38 |

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

| Exposure route | Health effect | Exposure indicator | Exposure estimate | RCR |
|---|---|---|---|---|
| inhalative | systemic | long-term | 55,08 mg/m³ (ECETOC TRA | 0,20 |

| | | | | |
|---|---|---|---|---|
| | | | worker v2.0) | |
| dermal | systemic | long-term | 13,71 mg/kg bw/day (ECETOC TRA worker v2.0) | 0,09 |
| combined routes | | | | 0,29 |

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

Estimated workplace exposures are not expected to exceed DNELs when the identified risk management measures are adopted.
Where other risk management measures/operational conditions are adopted, then users should ensure that risks are managed to at least equivalent levels.

Guidance is based on assumed operating conditions which may not be applicable to all sites; thus, scaling may be necessary to define appropriate site-specific risk management measures.
Further details on scaling and control technologies are provided in SPERC factsheet.

## ES 6: Cleaning; Professional uses (SU22).

### 6.1. Title section

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

| | | |
|---|---|---|
| **Environment** | | |
| **CS 1** | **Widespread use of non-reactive processing aid (no inclusion into or onto article, indoor)** | ERC8a |
| **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** | **Manufacture or formulation in the chemical industry in closed batch processes with occasional controlled exposure or processes with equivalent containment condition** | PROC3 |
| **CS 5** | **Chemical production where opportunity for exposure arises** | PROC4 |
| **CS 6** | **Transfer of substance or mixture (charging/discharging) at non dedicated-facilities** | PROC8a |
| **CS 7** | **Roller application or brushing** | PROC10 |
| **CS 8** | **Treatment of articles by dipping and pouring** | PROC13 |
| **CS 9** | **Non-industrial spraying** | PROC11 |
| **CS 10** | **Non-industrial spraying** | PROC11 |

### 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** | | |
| Physical form of product | : | Liquid |
| **Amount used (or contained in articles), frequency and duration of use/exposure** | | |
| Daily amount per site | : | 5000 kg |

| | | |
|---|---|---|
| Release type | : | Continuous release |
| Emission days | : | 20 |
| **Conditions and measures related to sewage treatment plant** | | |
| STP type | : | Municipal sewage treatment plant |
| STP type | : | Onsite Sewage Treatment Plant |
| **Conditions and measures related to treatment of waste (including article waste)** | | |
| Waste treatment | : | Hazardous waste incineration<br>External treatment and disposal 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 |
| **Additional good practice advice. Obligations according to Article 37(4) of REACH do not apply** | | |
| Site should have a spill plan to ensure that adequate safeguards are in place to minimize the impact of episodic releases.<br>Vapour recovery (e.g. adsorption)<br>When not in use, keep containers tightly closed. | | |

**6.2.2. 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** | | |
| No other specific measures identified. | | |
| **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 | | |

**6.2.3. 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** | | |
| No other specific measures identified. | | |
| **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 | | |

**6.2.4. Control of worker exposure: Manufacture or formulation in the chemical industry in closed batch processes with occasional controlled exposure or processes with equivalent containment condition (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** | | |
| No other specific measures identified. | | |
| **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 | | |

**6.2.5. 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** | | |
| No other specific measures identified. | | |
| **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 | | |

### 6.2.6. 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** | | |
| Ensure operation is undertaken outdoors. | | |
| **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 | | |

### 6.2.7. 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** | | |
| No other specific measures identified. | | |
| **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 | | |

**6.2.8. 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** | | |
| No other specific measures identified. | | |
| **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 | | |

**6.2.9. 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** | | |
| 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 | | |

**6.2.10. 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** | | |
| Ensure operation is undertaken outdoors. | | |
| **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 |

### 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 |
|---|---|---|
| Soil | | ESVOC SPERC 8.4b.v1 |
| Water | | ESVOC SPERC 8.4b.v1 |
| Air | | ESVOC SPERC 8.4b.v1 |

| Protection Target | Exposure estimate | RCR |
|---|---|---|
| Freshwater | 0,0022 mg/L | 0,004 |
| Freshwater sediment | 0,0114 mg/kg dry weight | 0,004 |
| Marine water | 0,0004 mg/L | 0,006 |
| Marine sediment | 0,0020 mg/kg dry weight | 0,006 |
| Soil | 0,001 mg/kg dry weight | 0,003 |

#### 6.3.2. 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 | 0,06 mg/m³ (ECETOC TRA worker v2.0) | |
| dermal | systemic | long-term | 0,34 mg/kg bw/day | |

#### 6.3.3. 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 | 27,54 mg/m³ (ECETOC TRA worker v2.0) | 0,10 |
| dermal | systemic | long-term | 0,34 mg/kg bw/day (ECETOC TRA | 0,01 |

| | | | | |
|---|---|---|---|---|
| | | | worker v2.0) | |
| combined routes | | | | 0,11 |

**6.3.4. Worker exposure: Manufacture or formulation in the chemical industry in closed batch processes with occasional controlled exposure or processes with equivalent containment condition (PROC3)**

| Exposure route | Health effect | Exposure indicator | Exposure estimate | RCR |
|---|---|---|---|---|
| inhalative | systemic | long-term | 16,53 mg/m³ (ECETOC TRA worker v2.0) | 0,06 |
| dermal | systemic | long-term | 0,34 mg/kg bw/day (ECETOC TRA worker v2.0) | |
| combined routes | | | | 0,06 |

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

| Exposure route | Health effect | Exposure indicator | Exposure estimate | RCR |
|---|---|---|---|---|
| inhalative | systemic | long-term | 55,08 mg/m³ (ECETOC TRA worker v2.0) | 0,20 |
| dermal | systemic | long-term | 6,86 mg/kg bw/day (ECETOC TRA worker v2.0) | 0,04 |
| combined routes | | | | 0,24 |

**6.3.6. 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 | 96,40 mg/m³ (ECETOC TRA worker v2.0) | 0,35 |
| dermal | systemic | long-term | 13,71 mg/kg bw/day (ECETOC TRA worker v2.0) | 0,09 |
| combined routes | | | | 0,44 |

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

| Exposure route | Health effect | Exposure indicator | Exposure estimate | RCR |
|---|---|---|---|---|
| inhalative | systemic | long-term | 137,71 mg/m³ (ECETOC TRA worker v2.0) | 0,50 |
| dermal | systemic | long-term | 27,43 mg/kg bw/day (ECETOC TRA worker v2.0) | 0,18 |
| combined routes | | | | 0,68 |

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

| Exposure route | Health effect | Exposure indicator | Exposure estimate | RCR |
|---|---|---|---|---|
| inhalative | systemic | long-term | 55,08 mg/m³ (ECETOC TRA worker v2.0) | 0,20 |
| dermal | systemic | long-term | 13,71 mg/kg bw/day (ECETOC TRA worker v2.0) | 0,09 |
| combined routes | | | | 0,29 |

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

| Exposure route | Health effect | Exposure indicator | Exposure estimate | RCR |
|---|---|---|---|---|
| inhalative | systemic | long-term | 165,25 mg/m³ (ECETOC TRA worker v2.0) | 0,60 |
| dermal | systemic | long-term | 21,43 mg/kg bw/day (ECETOC TRA worker v2.0) | 0,14 |
| combined routes | | | | 0,74 |

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

| Exposure route | Health effect | Exposure indicator | Exposure estimate | RCR |
|---|---|---|---|---|
| inhalative | systemic | long-term | 231,35 mg/m³ (ECETOC TRA worker v2.0) | 0,84 |

| | | | | |
|---|---|---|---|---|
| dermal | systemic | long-term | 21,43 mg/kg bw/day (ECETOC TRA worker v2.0) | 0,14 |
| combined routes | | | | 0,98 |

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

Estimated workplace exposures are not expected to exceed DNELs when the identified risk management measures are adopted.
Where other risk management measures/operational conditions are adopted, then users should ensure that risks are managed to at least equivalent levels.

Guidance is based on assumed operating conditions which may not be applicable to all sites; thus, scaling may be necessary to define appropriate site-specific risk management measures.
Further details on scaling and control technologies are provided in SPERC factsheet.

## ES 7: Use in coatings; Consumer uses (SU21).

### 7.1. 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 |
| **Consumer** | | |
| **CS 2** | Coatings and paints, thinners, paint removers | PC9a |
| **CS 3** | Ink and toners | PC18 |

### 7.2. Conditions of use affecting exposure

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

| | | |
|---|---|---|
| **Product (article) characteristics** | | |
| Physical form of product | : | Liquid |
| **Amount used (or contained in articles), frequency and duration of use/exposure** | | |
| Daily amount per site | : | 0,52 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. |
| **Other conditions affecting environmental exposure** | | |
| Local freshwater dilution factor | : | 10 |
| Local marine water dilution factor | : | 100 |

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

| | | |
|---|---|---|
| **Product (article) characteristics** | | |
| Covers concentrations up to 10 % | | |
| Physical form of product | : | Liquid |
| Vapour pressure | : | 10 Pa |
| Temperature | : | 20 °C |
| **Amount used (or contained in articles), frequency and duration of use/exposure** | | |
| Amount used per event | : | 10 kg |
| Duration | : | 132 min |
| Use frequency | : | 1 uses per day |
| **Other conditions affecting consumers exposure** | | |
| Room size | : | 20 m3 |
| Ventilation rate | : | Covers use under typical household ventilation. |

**7.2.3. Control of consumer exposure: Ink and toners (PC18)**

| | | |
|---|---|---|
| **Product (article) characteristics** | | |
| Covers concentrations up to 10 % | | |
| Physical form of product | : | Liquid |
| Vapour pressure | : | 10 Pa |
| Temperature | : | 20 °C |
| **Amount used (or contained in articles), frequency and duration of use/exposure** | | |
| Amount used per event | : | 0,04 kg |
| Duration | : | 30 min |
| **Other conditions affecting consumers exposure** | | |
| Room size | : | 20 m3 |
| Ventilation rate | : | Covers use under typical household ventilation. |

## 7.3. Exposure estimation and reference to its source

### 7.3.1. 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 |
|---|---|---|
| Soil | | ESVOC SPERC 8.3c.v1 |
| Water | | ESVOC SPERC 8.3c.v1 |
| Air | | ESVOC SPERC 8.3c.v1 |

| Protection Target | Exposure estimate | RCR |
|---|---|---|
| Freshwater | 0,0023 mg/L | 0,004 |
| Freshwater sediment | 0,0116 mg/kg dry weight | 0,004 |
| Marine water | 0,0004 mg/L | 0,007 |
| Marine sediment | 0,0021 mg/kg dry weight | 0,007 |
| Soil | 0,001 mg/kg dry weight | 0,003 |

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

| Exposure route | Health effect | Exposure indicator | Exposure estimate | RCR |
|---|---|---|---|---|
| inhalative | systemic | long-term | 6,83 mg/m³ | 0,60 |
| dermal | systemic | long-term | 6 mg/kg bw/day | 0,11 |
| combined routes | | | | 0,70 |

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

| Exposure route | Health effect | Exposure indicator | Exposure estimate | RCR |
|---|---|---|---|---|
| inhalative | systemic | long-term | 0,181 mg/m³ | 0,02 |
| dermal | systemic | long-term | 7,5 mg/kg bw/day | 0,14 |
| combined routes | | | | 0,16 |

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

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

Where other risk management measures/operational conditions are adopted, then users should ensure that risks are managed to at least equivalent levels.

Guidance is based on assumed operating conditions which may not be applicable to all sites; thus, scaling may be necessary to define appropriate site-specific risk management measures.
Further details on scaling and control technologies are provided in SPERC factsheet.

## ES 8: Cleaning; Consumer uses (SU21).

### 8.1. Title section

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

| | | |
|---|---|---|
| **Environment** | | |
| **CS 1** | **Widespread use of non-reactive processing aid (no inclusion into or onto article, indoor)** | ERC8a |
| **Consumer** | | |
| **CS 2** | Washing and cleaning products | PC35 |

### 8.2. Conditions of use affecting exposure

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

| | | |
|---|---|---|
| **Product (article) characteristics** | | |
| Physical form of product | : | Liquid |
| **Amount used (or contained in articles), frequency and duration of use/exposure** | | |
| Daily amount per site | : | 0,27 kg |
| Emission days | : | 365 |
| **Other conditions affecting environmental exposure** | | |
| Local freshwater dilution factor | : | 10 |
| Local marine water dilution factor | : | 100 |

#### 8.2.2. Control of consumer exposure: Washing and cleaning products (PC35)

| | | |
|---|---|---|
| **Product (article) characteristics** | | |
| Covers concentrations up to 10 % | | |
| Physical form of product | : | Liquid |
| Vapour pressure | : | 10 Pa |

| | | |
|---|---|---|
| Temperature | : | 20 °C |
| **Amount used (or contained in articles), frequency and duration of use/exposure** | | |
| Amount used per event | : | 0,016 kg |
| Duration | : | 60 min |
| **Other conditions affecting consumers exposure** | | |
| Room size | : | 15 m3 |
| Ventilation rate | : | Covers use under typical household ventilation. |

## 8.3. Exposure estimation and reference to its source

### 8.3.1. 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 |
|---|---|---|
| Soil | | ESVOC SPERC 8.4c.v1 |
| Water | | ESVOC SPERC 8.4c.v1 |
| Air | | ESVOC SPERC 8.4c.v1 |

| Protection Target | Exposure estimate | RCR |
|---|---|---|
| Freshwater | 0,0022 mg/L | 0,004 |
| Freshwater sediment | 0,011 mg/kg dry weight | 0,004 |
| Marine water | 0,00039 mg/L | 0,006 |
| Marine sediment | 0,0020 mg/kg dry weight | 0,006 |
| Soil | 0,001 mg/kg dry weight | 0,003 |

### 8.3.2. Consumer exposure: Washing and cleaning products (PC35)

| Exposure route | Health effect | Exposure indicator | Exposure estimate | RCR |
|---|---|---|---|---|
| inhalative | systemic | long-term | 0,181 mg/m³ | 0,02 |
| dermal | systemic | long-term | 7,5 mg/kg bw/day | 0,14 |
| combined routes | | | | 0,16 |

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

Estimated workplace exposures are not expected to exceed DNELs when the identified risk management measures are adopted.
Where other risk management measures/operational conditions are adopted, then users should ensure that risks are managed to at least equivalent levels.

Guidance is based on assumed operating conditions which may not be applicable to all sites; thus, scaling may be necessary to define appropriate site-specific risk management measures.
Further details on scaling and control technologies are provided in SPERC factsheet.