

**BTMS PALM FREE**

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Substance key: 000000378391

Revision Date: 18.05.2022

Version : 2 - 6 / GB

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

**1.1. Product identifier**

Trade name **BTMS PALM FREE**

**Chemical nature:** Behenyltrimethylammonium methosulphate (contains ca. 17.5% isopropanol.)

**INCI name:** Behentrimonium Methosulfate

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

**Relevant identified uses of the substance or mixture**

Industry sector : Personal Care  
Type of use : Surface active agent for cosmetics  
Exposure scenarios: see annex

**1.3. Details of the supplier of the safety data sheet**

**Identification of the company**

Company Name: SOAPMAKERS STORE  
Contact: JOHN BLACK  
Address: Unit 3 Quatro Park, Tanners Drive, Milton Keynes MK14 5FJ ENGLAND  
Telephone : + 44 (0) 1908 334108  
Fax: + 44 (0) 1908 211376  
Email : sales@soapmakers-store.com

**1.4. Emergency telephone number**

+ 44 (0) 1908 334108)

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**SECTION 2: Hazards identification**

**2.1 Classification of the substance or mixture**

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

|  |  |
|--|--|
| Skin irritation, Category 2                                    | H315: Causes skin irritation.  |
| Serious eye damage, Category 1                                 | H318: Causes serious eye damage.   |
| Specific target organ toxicity - repeated exposure, Category 2 | H373: May cause damage to organs through prolonged or repeated exposure. |
| Short-term (acute) aquatic hazard, Category 1                  | H400: Very toxic to aquatic life.  |
| Long-term (chronic) aquatic hazard, Category 2                 | H411: Toxic to aquatic life with long lasting effects.                   |

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## 2.2 Label elements

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

Hazard pictograms :



Signal word : Danger

Hazard statements :  
H315 Causes skin irritation.  
H318 Causes serious eye damage.  
H373 May cause damage to organs through prolonged or repeated exposure.  
H410 Very toxic to aquatic life with long lasting effects.

Precautionary statements :

#### Prevention:

P260 Do not breathe dust.  
P273 Avoid release to the environment.  
P280 Wear protective gloves/ eye protection/ face protection.

#### Response:

P305 + P351 + P338 + P310 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Immediately call a POISON CENTER/ doctor.  
P391 Collect spillage.

#### Disposal:

P501 Dispose of contents/ container to an approved waste disposal plant.

Hazardous components which must be listed on the label:

Docosyltrimethylammonium methosulphate

## 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.

Flammable solvent vapours may collect in the vapour spaces of closed containers. Keep away from fire and other sources of ignition.

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**SECTION 3: Composition/information on ingredients**

**3.2 Mixtures**

**Components**

| Chemical name<br>INCI Name   | CAS-No.<br>EC-No.<br>Index-No.<br>Registration number   | Classification  | Concentration<br>(% w/w) |
|--|---|---|--------------------------|
| Docosyltrimethylammonium<br>methosulphate<br><br>Behentrimonium Methosulfate | 81646-13-1<br>279-791-1<br>01-2119949051-44-<br>0000  | Skin Irrit. 2; H315<br>Eye Dam. 1; H318<br>STOT RE 2; H373<br>(Gastrointestinal<br>tract)<br>Aquatic Acute 1;<br>H400<br>Aquatic Chronic 2;<br>H411 | 78 - 82 %                |
| Propan-2-ol<br><br>Isopropyl Alcohol   | 67-63-0<br>200-661-7<br>603-117-00-0<br>01-2119457558-25<br>01-2119457558-25-<br>0001<br>01-2119457558-25-<br>0002<br>01-2119457558-25-<br>0006<br>01-2119457558-25-<br>0016<br>01-2119457558-25-<br>0028<br>01-2119457558-25-<br>0083<br>01-2119457558-25-<br>0150<br>01-2119457558-25-<br>0163<br>01-2119457558-25-<br>XXXX | Flam. Liq. 2; H225<br>Eye Irrit. 2; H319<br>STOT SE 3; H336<br>(Central nervous<br>system)  | 16 - 19 %                |
| Aqua   | 7732-18-5<br>231-791-2  |   | 2 - 3 %                  |

For explanation of abbreviations see section 16.

**SECTION 4: First aid measures**

**4.1 Description of first aid measures**

General advice : Get medical advice/ attention if you feel unwell.  
Remove/ Take off immediately all contaminated clothing.

If inhaled : Remove to fresh air.  
Get medical attention if symptoms occur.

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- In case of skin contact : In case of contact, immediately flush skin with soap and plenty of water.
- In case of eye contact : In the case of contact with eyes, rinse immediately with plenty of water and seek medical advice.
- If swallowed : Get medical attention immediately.

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

- Symptoms : irritant effects  
Damage
- Risks : Causes skin irritation.  
Causes serious eye irritation.  
May cause damage to organs through prolonged or repeated exposure.

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

- Treatment : Treat symptomatically.
- 

## SECTION 5: Firefighting measures

### 5.1 Extinguishing media

- Suitable extinguishing media : Water spray jet  
Alcohol-resistant foam
- Unsuitable extinguishing media : Carbon dioxide (CO<sub>2</sub>)  
Dry powder  
High volume water jet

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

- Specific hazards during firefighting : In case of fires, hazardous combustion gases are formed:  
Carbon monoxide (CO)  
Nitrogen oxides (NO<sub>x</sub>)  
Sulphur trioxide

### 5.3 Advice for firefighters

- Special protective equipment for firefighters : Self-contained breathing apparatus
- 

## SECTION 6: Accidental release measures

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

- Personal precautions : Wear suitable protective equipment.  
Ensure adequate ventilation.  
Keep away sources of ignition.

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## 6.2 Environmental precautions

Environmental precautions : The product should not be allowed to enter drains, water courses or the soil.

## 6.3 Methods and material for containment and cleaning up

Methods for cleaning up : Pick up mechanically. Rinse away rest with warm water.

## 6.4 Reference to other sections

Information regarding Safe handling, see chapter 7., For personal protection see section 8., For disposal considerations see section 13.

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## SECTION 7: Handling and storage

### 7.1 Precautions for safe handling

Advice on safe handling : Provide adequate ventilation.  
Take measures to prevent the build up of electrostatic charge.  
Handle and open container with care.

Advice on protection against fire and explosion : not highly flammable Take precautionary measures against electrostatic charging. In order to avoid electrostatic charging, do not roll or drag the drum, After transportation, the container should be allowed to stand for one hour before opening, thus allowing sufficient time for charge relaxation in the container. Flammable solvent vapours may collect in the vapour spaces of closed containers. Keep away from fire and other sources of ignition.

Hygiene measures : Wash hands before breaks and at the end of workday. Use protective skin cream before handling the product. Take off immediately all contaminated clothing and wash it before reuse.

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

Requirements for storage areas and containers : No special measures necessary.

Further information on storage conditions : Keep containers tightly closed in a dry, cool and well-ventilated place. Keep only in the original container at temperature not exceeding 40 °C hygroscopic Keep away from direct sunlight.

### 7.3 Specific end use(s)

Specific use(s) : No further recommendations.

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## SECTION 8: Exposure controls/personal protection

### 8.1 Control parameters

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

| Substance name                  | End Use      | Exposure routes | Potential health effects   | Value            |
|---------------------------------|--------------|-----------------|----------------------------|------------------|
| Propan-2-ol<br>CAS-No.: 67-63-0 | Workers      | Dermal          | Long-term systemic effects | 888 mg/kg bw/day |
|                                 | Remarks:DNEL |                 |                            |                  |
|                                 | Workers      | Inhalation      | Long-term systemic effects | 500 mg/m3        |
|                                 | Remarks:DNEL |                 |                            |                  |
|                                 | Consumers    | Dermal          | Long-term systemic effects | 319 mg/kg bw/day |
|                                 | Remarks:DNEL |                 |                            |                  |
|                                 | Consumers    | Inhalation      | Long-term systemic effects | 89 mg/m3         |
|                                 | Remarks:DNEL |                 |                            |                  |
|                                 | Consumers    | Oral            | Long-term systemic effects | 26 mg/kg bw/day  |
|                                 | Remarks:DNEL |                 |                            |                  |

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

| Substance name                  | Environmental Compartment    | Value                        |
|---------------------------------|------------------------------|------------------------------|
| Propan-2-ol<br>CAS-No.: 67-63-0 | Fresh water                  | 140.9 mg/l                   |
|                                 | Marine water                 | 140.9 mg/l                   |
|                                 | Fresh water sediment         | 552 mg/kg dry weight (d.w.)  |
|                                 | Marine sediment              | 552 mg/kg dry weight (d.w.)  |
|                                 | Soil                         | 28.0 mg/kg dry weight (d.w.) |
|                                 | Water (intermittent release) | 140.9 mg/l                   |
|                                 | Sewage treatment plant       | 2251 mg/l                    |
|                                 | Oral                         | 160 mg/kg food               |

### 8.2 Exposure controls

#### Personal protective equipment

Eye protection : Depending on the risk, wear sufficient eye protection (safety glasses with side protection or goggles, and if necessary, face shield.)

Hand protection  
Remarks : These types of protective gloves are offered by various manufacturers. Please note the manufacturers' detailed statements, especially about the minimum thickness and the minimum breakthrough time. Consider also the particular working conditions under which the gloves are being used.

Remarks : For short-term exposure (splash protection): Nitrile rubber

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- gloves. Minimum thickness (glove): not determined With solid dry substances permeation is not to be expected, therefore the breakthrough-time for this protective glove has not been measured.
- Remarks : Long-term exposure Impervious butyl rubber gloves Minimum thickness (glove): not determined With solid dry substances permeation is not to be expected, therefore the breakthrough-time for this protective glove has not been measured.
- Respiratory protection : Use respiratory protection in case of insufficient exhaust ventilation or prolonged exposure  
Full mask to standard DIN EN 136  
Filter A (organic gases and vapours) to standard DIN EN 141  
The use of filter apparatus presupposes that the environment atmosphere contains at least 17% oxygen by volume, and does not exceed the maximum gas concentration, usually 0.5% by volume. Relevant guidelines to be considered include EN 136/141/143/371/372 as well as other national regulations.
- Protective measures : Do not inhale vapours  
Avoid contact with skin and eyes.

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## SECTION 9: Physical and chemical properties

### 9.1 Information on basic physical and chemical properties

- Physical state : pellets
- Colour : white to light yellow
- Odour : of isopropanol
- Odour Threshold : not tested.
- Melting point : 80 - 85 °C  
Method: DIN 51004
- Boiling point : Decomposes below the boiling point.
- Upper explosion limit / upper flammability limit : Not applicable
- Lower explosion limit / Lower flammability limit : Not applicable
- Flash point : Not applicable
- Auto-ignition temperature : Not applicable
- Decomposition temperature : approx. 288 °C  
Method: DTA

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|  |   |   |
|--|---|---|
| pH                                     | : | 7.0 - 9.0<br>Concentration: 1 %<br>Method: DIN EN 1262<br>Isopropanol/Water 1:1 |
| Viscosity                              |   |   |
| Viscosity, dynamic                     | : | Not applicable  |
| Viscosity, kinematic                   | : | Not applicable  |
| Solubility(ies)                        |   |   |
| Water solubility                       | : | 0.05 g/l (70 °C)<br>soluble, turbid   |
| Partition coefficient: n-octanol/water | : | Not applicable  |
| Vapour pressure                        | : | 43 hPa<br>Data relate to solvent  |
| Density                                | : | 0.9 g/cm <sup>3</sup> (20 °C)<br>Method: DIN 51757                              |
| Relative vapour density                | : | 2.7<br>The data refer to the solvent  |
| Particle characteristics               |   |   |
| Particle size                          | : | no data available   |

### 9.2 Other information

|                      |   |   |
|----------------------|---|---|
| Flammable solids     |   |   |
| Burning rate         | : | 265 s   |
| Burning number       | : | 5<br>Complete combustion with flames                        |
| Self-ignition        | : | The substance or mixture is not classified as self heating. |
| Metal corrosion rate | : | Not applicable  |
| Evaporation rate     | : | Not applicable  |

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## SECTION 10: Stability and reactivity

### 10.1 Reactivity

See section 10.3. "Possibility of hazardous reactions"

### 10.2 Chemical stability

Stable  
The product is sensitive to light.  
hygroscopic



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## 10.3 Possibility of hazardous reactions

Hazardous reactions : Uncleaned empty vessels may contain product gases which can form explosive mixtures with air.

## 10.4 Conditions to avoid

Conditions to avoid : Keep away from heat.  
Keep away from flames and sparks.

## 10.5 Incompatible materials

Materials to avoid : not known

## 10.6 Hazardous decomposition products

No decomposition if stored and applied as directed.

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## SECTION 11: Toxicological information

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

#### Acute toxicity

##### Product:

Acute oral toxicity : LD50 (Rat): > 2,000 mg/kg  
Method: OECD Test Guideline 401  
Remarks: Information refers to the main component.

Acute inhalation toxicity : Remarks: not tested.

Acute dermal toxicity : Remarks: not tested.

##### Components:

#### **Docosyltrimethylammonium methosulphate:**

Acute oral toxicity : LD50 (Rat, female): 3,190 mg/kg  
Method: OECD Test Guideline 401  
Assessment: The substance or mixture has no acute oral toxicity  
Remarks: By analogy with a product of similar composition

Acute inhalation toxicity : Remarks: no data available

Acute dermal toxicity : LD50: > 2,000 mg/kg  
Method: Other  
Assessment: The substance or mixture has no acute dermal toxicity  
Remarks: By analogy with a product of similar composition

#### **Propan-2-ol:**

Acute oral toxicity : LD50 (Rat, no data available): 5,840 mg/kg  
Method: OECD Test Guideline 401  
GLP: no

Acute inhalation toxicity : LC50 (Rat, male and female): > 25 mg/l, > 10000 ppm

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Exposure time: 6 h  
Test atmosphere: vapour  
Method: OECD Test Guideline 403  
GLP: yes

Acute dermal toxicity : LD50 (Rabbit, no data available): 13,900 mg/kg  
Method: OECD Test Guideline 402  
GLP: no

## **Skin corrosion/irritation**

### **Product:**

Species : Rabbit  
Method : OECD Test Guideline 404  
Result : irritating  
Remarks : Information refers to the main component.

### **Components:**

#### **Docosyltrimethylammonium methosulphate:**

Species : Rabbit  
Method : Other  
Result : Skin irritation  
Remarks : By analogy with a product of similar composition

#### **Propan-2-ol:**

Species : Rabbit  
Exposure time : 4 h  
Method : Other  
Result : No skin irritation  
GLP : no

## **Serious eye damage/eye irritation**

### **Product:**

Species : rabbit eye  
Method : OECD Test Guideline 405  
Result : Risk of serious damage to eyes.  
Remarks : Information refers to the main component.

### **Components:**

#### **Docosyltrimethylammonium methosulphate:**

Species : Rabbit  
Method : Other  
Result : Risk of serious damage to eyes.  
Remarks : By analogy with a product of similar composition

#### **Propan-2-ol:**

Species : Rabbit  
Method : OECD Test Guideline 405

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Result : Irritating to eyes.  
GLP : no

## Respiratory or skin sensitisation

### Product:

Species : Guinea pig  
Method : OECD Test Guideline 406  
Result : non-sensitizing

### Components:

#### **Docosyltrimethylammonium methosulphate:**

Test Type : Maximisation Test  
Species : Guinea pig  
Method : Other  
Result : Not a skin sensitizer.

Assessment : Causes skin irritation., Causes serious eye damage.

#### **Propan-2-ol:**

Test Type : Buehler Test  
Exposure routes : Skin contact  
Species : Guinea pig  
Method : OECD Test Guideline 406  
Result : Not a skin sensitizer.  
GLP : yes

## Germ cell mutagenicity

### Product:

Germ cell mutagenicity-  
Assessment : Not mutagenic in Ames Test

### Components:

#### **Docosyltrimethylammonium methosulphate:**

Genotoxicity in vitro : Test Type: Ames test  
Test system: Salmonella typhimurium  
Metabolic activation: with and without metabolic activation  
Method: OECD Test Guideline 471  
Result: negative  
Remarks: By analogy with a product of similar composition

Test Type: Mammalian cell gene mutation assay  
Test system: Chinese hamster fibroblasts  
Metabolic activation: with and without metabolic activation  
Method: OECD Test Guideline 476  
Result: negative  
Remarks: By analogy with a product of similar composition

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Test Type: Micronucleus test  
Test system: Chinese hamster fibroblasts  
Metabolic activation: with and without metabolic activation  
Method: OECD Test Guideline 487  
Result: negative  
Remarks: By analogy with a product of similar composition

Germ cell mutagenicity-  
Assessment : In vitro tests did not show mutagenic effects

### **Propan-2-ol:**

Genotoxicity in vitro : Test Type: In vitro gene mutation study in mammalian cells  
Test system: Chinese hamster ovary cells  
Concentration: 500 - 5000 µg/ml  
Metabolic activation: with and without metabolic activation  
Method: OECD Test Guideline 476  
Result: negative  
GLP: yes

Test Type: Ames test  
Test system: Salmonella typhimurium  
Concentration: 100 - 10000 µg/plate  
Metabolic activation: with and without metabolic activation  
Method: OECD Test Guideline 471  
Result: negative  
GLP: no

Genotoxicity in vivo : Test Type: Micronucleus test  
Species: Mouse (male and female)  
Strain: ICR  
Cell type: Bone marrow  
Application Route: Intraperitoneal injection  
Exposure time: Single exposure  
Dose: 350-1173-2500-3500 mg/kg  
Method: OECD Test Guideline 474  
Result: negative  
GLP: yes

Germ cell mutagenicity-  
Assessment : In vitro tests did not show mutagenic effects, In vivo tests did not show mutagenic effects

### **Carcinogenicity**

#### **Product:**

Carcinogenicity -  
Assessment : No information available.

#### **Components:**

##### **Docosyltrimethylammonium methosulphate:**

Carcinogenicity -  
Assessment : No information available.

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## **Propan-2-ol:**

Species : Rat, male and female  
Application Route : Inhalation  
Exposure time : 104 w  
Dose : 200 - 2500 - 5000 ppm  
Control Group : yes  
Frequency of Treatment : 6 hours/day, 5 days/week  
: ca. 12.29 mg/l  
Method : OECD Test Guideline 451  
GLP : yes

Carcinogenicity - Assessment : Did not show carcinogenic effects in animal experiments.

## **Reproductive toxicity**

### **Product:**

Reproductive toxicity - Assessment : No information available.

No information available.

## **Components:**

### **Docosyltrimethylammonium methosulphate:**

Effects on fertility : Species: Rat, male and female  
Strain: wistar  
Application Route: oral (gavage)  
General Toxicity - Parent: NOAEL: 30 mg/kg body weight  
General Toxicity F1: NOAEL: 30 mg/kg body weight  
Method: OECD Test Guideline 421

Reproductive toxicity - Assessment : No evidence of adverse effects on sexual function and fertility, or on development, based on animal experiments.

## **Propan-2-ol:**

Effects on fertility : Test Type: Fertility/early embryonic development  
Species: Rat, male and female  
Strain: wistar  
Application Route: Drinking water  
Dose: 0,5 - 1 - 2 %  
General Toxicity - Parent: NOAEL: 853 mg/kg body weight  
Method: OECD Test Guideline 415  
GLP: yes

Test Type: Two-generation study  
Species: Rat, male and female  
Strain: Sprague-Dawley  
Application Route: oral (gavage)  
Dose: 100 - 500 - 1000 mg/kg  
General Toxicity - Parent: NOAEL: 500 mg/kg body weight

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General Toxicity F1: NOAEL: 500 mg/kg body weight  
General Toxicity F2: NOAEL: 500 mg/kg body weight  
Method: OECD Test Guideline 416  
GLP: yes

Effects on foetal  
development

: Test Type: Pre-natal  
Species: Rat  
Strain: wistar  
Application Route: Drinking water  
Dose: 0,5 - 1,25 - 2,5 %  
Duration of Single Treatment: 10 d  
General Toxicity Maternal: NOAEL: 596 mg/kg body weight  
Developmental Toxicity: NOAEL: 596 mg/kg body weight  
Method: OECD Test Guideline 414  
GLP: yes

Test Type: Pre-natal  
Species: Rat  
Strain: Sprague-Dawley  
Application Route: oral (gavage)  
Dose: 400 - 800 - 1200 mg/kg  
Duration of Single Treatment: 9 d  
General Toxicity Maternal: NOAEL: 400 mg/kg body weight  
Teratogenicity: NOAEL: 400 mg/kg body weight  
Developmental Toxicity: NOAEL: 400 mg/kg body weight  
Method: OECD Test Guideline 414  
GLP: yes

Reproductive toxicity -  
Assessment

: No reproductive toxicity to be expected.  
No teratogenic effects to be expected.

## STOT - single exposure

### Product:

Remarks : not tested.

### Components:

#### **Docosyltrimethylammonium methosulphate:**

Remarks : no data available

#### **Propan-2-ol:**

Assessment : May cause drowsiness or dizziness.

## STOT - repeated exposure

### Product:

Remarks : not tested.

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## Components:

### **Docosyltrimethylammonium methosulphate:**

Exposure routes : Oral  
Target Organs : Gastrointestinal tract  
Assessment : The substance or mixture is classified as specific target organ toxicant, repeated exposure, category 2.

### **Propan-2-ol:**

Assessment : The substance or mixture is not classified as specific target organ toxicant, repeated exposure.

## **Repeated dose toxicity**

### Product:

Species : Rat  
NOAEL : 10 mg/kg  
Exposure time : 28 d  
Method : OECD Test Guideline 407  
Remarks : Information refers to the main component.

## Components:

### **Docosyltrimethylammonium methosulphate:**

Species : Rat, male and female  
NOAEL : 10 mg/kg bw/day  
Application Route : oral (gavage)  
Exposure time : 28d  
Dose : 10, 50, 150 mg/kg/day  
Method : Other  
Target Organs : Gastrointestinal tract  
Remarks : By analogy with a product of similar composition

### **Propan-2-ol:**

Species : Rat, male and female  
NOAEL : 12.5 mg/l  
Application Route : Inhalation  
Test atmosphere : vapour  
Exposure time : 2 a  
Number of exposures : 6 hours/day, 5 days/week  
Dose : 500 - 2500 - 5000 ppm  
Control Group : yes  
Method : Other  
GLP : yes

## **Aspiration toxicity**

### Product:

no data available

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**Components:**

**Docosyltrimethylammonium methosulphate:**

no data available

**Propan-2-ol:**

No aspiration toxicity classification

## 11.2 Information on other hazards

### 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.

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## SECTION 12: Ecological information

### 12.1 Toxicity

**Product:**

Toxicity to fish : LC50 (Danio rerio (zebra fish)): 0.5 mg/l  
Exposure time: 96 h  
Method: OECD Test Guideline 203

Toxicity to daphnia and other : Remarks: not tested.  
aquatic invertebrates

Toxicity to algae/aquatic : Remarks: not tested.  
plants

Toxicity to microorganisms :  
Remarks: not tested.

**Components:**

**Docosyltrimethylammonium methosulphate:**

Toxicity to fish : LC50 (Danio rerio (zebra fish)): 3.5 mg/l  
Exposure time: 96 h  
Test Type: static test  
Method: OECD Test Guideline 203  
Remarks: By analogy with a product of similar composition

Toxicity to daphnia and other : EC50 (Daphnia magna (Water flea)): 1.39 mg/l  
aquatic invertebrates  
Exposure time: 48 h  
Test Type: static test  
Method: OECD Test Guideline 202  
Remarks: By analogy with a product of similar composition



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- Toxicity to algae/aquatic plants : EC50 (Desmodesmus subspicatus (green algae)): 3.48 mg/l  
Exposure time: 72 h  
Test Type: static test  
Method: OECD Test Guideline 201  
Remarks: By analogy with a product of similar composition
- Toxicity to microorganisms : EC50 (activated sludge, domestic): 43 mg/l  
Exposure time: 3 h  
Test Type: static test  
Method: OECD Test Guideline 209  
Remarks: By analogy with a product of similar composition
- Toxicity to fish (Chronic toxicity) : NOEC: 0.24 mg/l  
Exposure time: 9 d  
Species: Danio rerio (zebra fish)  
Test Type: semi-static test  
Method: OECD Test Guideline 212  
Remarks: By analogy with a product of similar composition
- Toxicity to daphnia and other aquatic invertebrates (Chronic toxicity) : NOEC: 128 µg/l  
End point: Reproduction rate  
Exposure time: 21 d  
Species: Daphnia magna (Water flea)  
Test Type: semi-static test  
Remarks: By analogy with a product of similar composition
- Toxicity to soil dwelling organisms : Test Type: artificial soil  
1,000 mg/kg  
Exposure time: 14 d  
End point: mortality  
Species: Eisenia fetida (earthworms)  
Method: OECD Test Guideline 207  
Remarks: By analogy with a product of similar composition
- Sediment toxicity : NOEC: 62.5 mg/kg dry weight (d.w.)  
Test Type: static test  
Species: Lumbriculus variegatus (Worm)  
Method: OECD 225  
Remarks: By analogy with a product of similar composition

### Ecotoxicology Assessment

- Acute aquatic toxicity : Very toxic to aquatic life.
- Chronic aquatic toxicity : Toxic to aquatic life with long lasting effects.

### Propan-2-ol:

- Toxicity to fish : LC50 (Pimephales promelas (fathead minnow)): 9,640 mg/l  
End point: mortality  
Exposure time: 96 h  
Test Type: flow-through test  
Analytical monitoring: yes  
Method: OECD Test Guideline 203

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|  |   |
|--|---|
|  | GLP: no   |
| Toxicity to daphnia and other aquatic invertebrates                    | : LC50 (Daphnia magna (Water flea)): > 10,000 mg/l<br>End point: Immobilization<br>Exposure time: 24 h<br>Test Type: static test<br>Analytical monitoring: no<br>Method: OECD Test Guideline 202<br>GLP: no |
| Toxicity to algae/aquatic plants                                       | : EC10 (Scenedesmus quadricauda (Green algae)): ca. 1,800 mg/l<br>End point: Growth rate<br>Exposure time: 7 d<br>Test Type: static test<br>Analytical monitoring: no<br>Method: Other<br>GLP: no           |
| Toxicity to microorganisms   | : EC10 (Pseudomonas putida): ca. 1,050 mg/l<br>Exposure time: 16 h<br>Test Type: static test<br>Analytical monitoring: no<br>Method: DIN 38412 T.8<br>GLP: no   |
| Toxicity to fish (Chronic toxicity)                                    | : Remarks: not required   |
| Toxicity to daphnia and other aquatic invertebrates (Chronic toxicity) | : Remarks: not required   |
| Plant toxicity   | : IC50: 2,104 mg/l<br>Exposure time: 3 d<br>End point: Growth<br>Species: Lactuca sativa (lettuce)<br>Analytical monitoring: no<br>Method: Other<br>GLP: no   |
| Sediment toxicity  | : Remarks: Not applicable   |
| Toxicity to terrestrial organisms                                      | : Remarks: Not applicable   |

## 12.2 Persistence and degradability

### Product:

|                  |   |
|------------------|---|
| Biodegradability | : Biodegradation: 80 %<br>Exposure time: 28 d<br>Method: OECD Test Guideline 301B<br>Remarks: Information refers to the main component. |
|------------------|---|

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Biodegradation: > 80 %  
Method: OECD Test Guideline 302B

## Components:

### **Docosyltrimethylammonium methosulphate:**

Biodegradability : Inoculum: activated sludge, domestic  
Result: Readily biodegradable.  
Biodegradation: 80 %  
Related to: Carbon dioxide (CO<sub>2</sub>)  
Exposure time: 28 d  
Method: Other  
Remarks: By analogy with a product of similar composition

### **Propan-2-ol:**

Biodegradability : Test Type: aerobic  
Inoculum: activated sludge  
Result: Readily biodegradable.  
Biodegradation: 53 %  
Related to: Biochemical Oxygen Demand (BOD)  
Exposure time: 5 d  
Method: Directive 67/548/EEC, Annex V, C.5  
GLP: no

Stability in water : Remarks: Not applicable

## **12.3 Bioaccumulative potential**

### Product:

Bioaccumulation : Remarks: not tested.

## Components:

### **Docosyltrimethylammonium methosulphate:**

Bioaccumulation : Remarks: Due to the distribution coefficient n-octanol/water, accumulation in organisms is not expected.

Partition coefficient: n-octanol/water : log Pow: 3.01 (20 °C)  
Method: OECD Test Guideline 107

### **Propan-2-ol:**

Bioaccumulation : Remarks: Not applicable

Partition coefficient: n-octanol/water : log Pow: 0.05  
pH: 25  
Method: No information available.

## **12.4 Mobility in soil**

### Product:

Distribution among : Remarks: not tested.

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environmental compartments

### Components:

#### **Docosyltrimethylammonium methosulphate:**

Distribution among environmental compartments : Medium: Other  
Koc: > 950 - < 516000, log Koc: > 3 - < 5.7  
Method: OECD Test Guideline 106  
Remarks: By analogy with a product of similar composition

Stability in soil : Test Type: Laboratory  
Soil temperature: 20 °C  
Dissipation time: 23.2 d  
Percentage dissipation: 50 % (DT50)  
Method: Other  
Remarks: By analogy with a product of similar composition

#### **Propan-2-ol:**

Distribution among environmental compartments : Remarks: Not applicable

### 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.

### Components:

#### **Docosyltrimethylammonium methosulphate:**

Assessment : The substance is not identified as a PBT or as a vPvB substance.

#### **Propan-2-ol:**

Assessment : This substance is not considered to be persistent, bioaccumulating and toxic (PBT).

### 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:

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Environmental fate and pathways : no data available

Additional ecological information : no data available

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## SECTION 13: Disposal considerations

### 13.1 Waste treatment methods

Product : In accordance with local authority regulations, take to special waste incineration plant

Contaminated packaging : Packaging that cannot be cleaned should be disposed of as product waste

---

## SECTION 14: Transport information

### Section 14.1. to 14.5.

#### ADR

UN no. UN 3077  
Proper shipping name: Environmentally hazardous substance, solid, n.o.s.  
Hazard inducer(s): Behenyl trimethyl ammonium methosulfate  
Class: 9  
Primary risk: 9  
Packing group: III  
Hazard no. : 90  
Remarks Shipment permitted

#### ADN

UN no. UN 3077  
Proper shipping name: Environmentally hazardous substance, solid, n.o.s.  
Hazard inducer(s): Behenyl trimethyl ammonium methosulfate  
Class: 9  
Primary risk: 9  
Packing group: III  
Remarks Shipment permitted

#### RID

UN no. UN 3077  
Proper shipping name: Environmentally hazardous substance, solid, n.o.s.  
Hazard inducer(s): Behenyl trimethyl ammonium methosulfate  
Class: 9  
Primary risk: 9  
Packing group: III  
Hazard no. : 90  
Remarks Shipment permitted

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## IATA

|                       |  |
|-----------------------|--|
| UN no.                | UN 3077  |
| Proper shipping name: | Environmentally hazardous substance, solid, n.o.s. |
| Hazard inducer(s):    | Behenyl trimethyl ammonium methosulfate            |
| Class:                | 9  |
| Primary risk:         | 9  |
| Packing group:        | III  |
| Remarks               | Shipment permitted                                 |

## IMDG

|                       |  |
|-----------------------|--|
| UN no.                | UN 3077  |
| Proper shipping name: | Environmentally hazardous substance, solid, n.o.s. |
| Hazard inducer(s):    | Behenyl trimethyl ammonium methosulfate            |
| Class:                | 9  |
| Primary risk:         | 9  |
| Packing group:        | III  |
| Remarks               | Shipment permitted                                 |
| Marine pollutant:     | Marine Pollutant                                   |
| EmS :                 | F-A S-F  |

### 14.6. Special precautions for user

See sections 6 to 8 of this Safety Data Sheet.

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

No transport as bulk according IBC - Code.

#### Further information

Non-dangerous good of class 9 for packagings  $\leq 5$  L / 5 kg

---

## SECTION 15: Regulatory information

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

Relevant EU provisions transposed through retained EU law

- |  |                                 |
|--|---------------------------------|
| REACH - Restrictions on the manufacture, placing on the market and use of certain dangerous substances, mixtures and articles (Annex XVII) | : Not applicable                |
| REACH - Candidate List of Substances of Very High Concern for Authorisation (Article 59).  | : Not applicable                |
| REACH - List of substances subject to authorisation (Annex XIV)  | : Not applicable                |
| Regulation (EC) No 1005/2009 on substances that deplete the ozone layer  | : Not applicable                |
| Regulation (EU) 2019/1021 on persistent organic pollutants (recast)  | : Not applicable                |
| Council Regulation (EC) No 111/2005 laying down rules for the monitoring of trade between the Community and                                | : Neither banned nor restricted |

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third countries in drug precursors

Regulation (EC) No 649/2012 of the European Parliament and the Council concerning the export and import of dangerous chemicals : Not applicable

UK REACH List of substances subject to authorisation (Annex XIV) : Not applicable

### Other regulations:

Apart from the data/regulations specified in this chapter, no further information is available concerning safety, health and environmental protection.

### 15.2 Chemical safety assessment

Chemical Safety Assessments (CSAs) are available for one or more of the component substances contained in this product.

---

## SECTION 16: Other information

### Full text of H-Statements

H225 : Highly flammable liquid and vapour.  
H315 : Causes skin irritation.  
H318 : Causes serious eye damage.  
H319 : Causes serious eye irritation.  
H336 : May cause drowsiness or dizziness.  
H373 : May cause damage to organs through prolonged or repeated exposure if swallowed.  
H400 : Very toxic to aquatic life.  
H411 : Toxic to aquatic life with long lasting effects.

### Full text of other abbreviations

Aquatic Acute : Short-term (acute) aquatic hazard  
Aquatic Chronic : Long-term (chronic) aquatic hazard  
Eye Dam. : Serious eye damage  
Eye Irrit. : Eye irritation  
Flam. Liq. : Flammable liquids  
Skin Irrit. : Skin irritation  
STOT RE : Specific target organ toxicity - repeated exposure  
STOT SE : Specific target organ toxicity - single exposure

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; 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 Harmonized 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

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Chemical Substances in China; IMDG - International Maritime Dangerous Goods; IMO - International Maritime Organization; ISHL - Industrial Safety and Health Law (Japan); ISO - International Organisation for Standardization; 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); 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 - Organization 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; TSCA - Toxic Substances Control Act (United States); UN - United Nations; UNRTDG - United Nations Recommendations on the Transport of Dangerous Goods; vPvB - Very Persistent and Very Bioaccumulative

## Further information

Other information : Observe national and local legal requirements

### Classification of the mixture:

|                   |      |
|-------------------|------|
| Skin Irrit. 2     | H315 |
| Eye Dam. 1        | H318 |
| STOT RE 2         | H373 |
| Aquatic Acute 1   | H400 |
| Aquatic Chronic 2 | H411 |

### Classification procedure:

|                                     |
|-------------------------------------|
| Based on product data or assessment |
| Based on product data or assessment |
| Calculation method                  |
| Based on product data or assessment |
| Calculation method                  |

The information given on this material health and safety sheet is not a warranty as to the performance or suitability of the product. The information must be regarded only as a description of the health, safety and environmental requirements for that product. The information contained herein is true and accurate to the best of our knowledge and belief, but does not claim to be all inclusive.

Soapmakers Store is a Division of Aroma Trading Ltd, Registered No. 2698381, V.A.T. Registration No. 600 516 981 and as such, shall not be held liable for any damage resulting from handling or from contact with the product, since the conditions of use are out of our control. It is the responsibility of the user to take all necessary measures to comply with legal requirements and local regulations.



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**Exposure scenario**

| Number      | Title  |
|-------------|--|
| <b>ES 1</b> | <b>Formulation or re-packing; Cosmetics, personal care products</b><br>SU10 - PROC1, PROC2, PROC3, PROC5, PROC8a, PROC8b, PROC9, PROC15 - ERC2<br>Docosyltrimethylammonium methyl sulphate |
| <b>ES 2</b> | <b>Consumer use; Cosmetics, personal care products</b><br>PC39 - ERC8a<br>Docosyltrimethylammonium methyl sulphate   |

**1. ES 1: Formulation or re-packing; Cosmetics, personal care products; SU10**

**1.1. Title section**

|   |        |
|---|--------|
| Formulation [mixing] of preparations and/or re-packaging (SU10)   |        |
| Environment   |        |
| CS1: Formulation or re-packing (Formulation into mixture)   | ERC2   |
| Workers   |        |
| CS2: Formulation or re-packing (Chemical production or refinery in closed process without likelihood of exposure or processes with equivalent containment conditions)                                 | PROC1  |
| CS3: Formulation or re-packing (Chemical production or refinery in closed continuous process with occasional controlled exposure or processes with equivalent containment conditions)                 | PROC2  |
| CS4: Formulation or re-packing (Manufacture or formulation in the chemical industry in closed batch processes with occasional controlled exposure or processes with equivalent containment condition) | PROC3  |
| CS5: Formulation or re-packing (Mixing or blending in batch processes)  | PROC5  |
| CS6: Formulation or re-packing (Transfer of substance or mixture (charging/discharging) at non dedicated-facilities)  | PROC8a |
| CS7: Formulation or re-packing (Transfer of substance or mixture (charging/discharging) at non dedicated-facilities)  | PROC8a |
| CS8: Formulation or re-packing (Transfer of substance or mixture (charging/discharging) at dedicated facilities)  | PROC8b |
| CS9: Formulation or re-packing (Transfer of substance or mixture (charging/discharging) at dedicated facilities)  | PROC8b |
| CS10: Formulation or re-packing (Transfer of substance or mixture into small containers (dedicated filling line, including weighing))   | PROC9  |
| CS11: Formulation or re-packing (Transfer of substance or mixture into small containers (dedicated filling line, including weighing))   | PROC9  |
| CS12: Formulation or re-packing (Use as laboratory reagent)   | PROC15 |

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## 1.2. ES 1 Conditions of use affecting exposure

### 1.2.1 ES 1 - CS 1: Control of environmental exposure: Formulation or re-packing (Formulation into mixture) (ERC2)

#### Product characteristics

Concentration of the Substance in Mixture/Article : <= 100 %

Molecular weight : 480 g/mol

Physical Form (at time of use) : Solid, low dustiness

Remarks : Elevated temperature

#### Amount used

Daily amount per site : 620 kg

#### Frequency and duration of use

Continuous exposure : 1 uses per day

Continuous exposure : 300 times per year

#### Environment factors not influenced by risk management

Flow rate of receiving surface water : 18,000 m<sup>3</sup>/d

#### Technical conditions and measures / Organizational measures

Remarks : Ensure operatives are trained to minimise exposures.  
Ensure control measures are regularly inspected and maintained.  
To prevent leaks or spillages from spreading, provide a suitable liquid retention system.  
Sample via a closed loop or other system to avoid exposure.

Remarks : Loading  
Use in contained systems

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

Type of Sewage Treatment Plant : Onsite Sewage Treatment Plant

Flow rate of sewage treatment plant effluent : 2,000 m<sup>3</sup>/d

Effectiveness (of a measure) : 80 %

Sludge Treatment : No application of sewage sludge to soil

#### Waste management measures

Waste treatment : Incineration

Disposal methods : (Effectiveness (of a measure): > 99 %)

Remarks : No waste from process

### 1.2.2 ES 1 - CS 2: Control of worker exposure: Formulation or re-packing (Chemical production or refinery in closed process without likelihood of exposure or processes with equivalent containment conditions) (PROC1)

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### Product characteristics

Concentration of the Substance in Mixture/Article : <= 5 %

Molecular weight : 480 g/mol

Physical Form (at time of use) : Solid, low dustiness

Remarks : Elevated temperature

### Frequency and duration of use

Product sampling : < 1 min

Remarks : Closed systems, short-term, Continuous process

### Human factors not influenced by risk management

Dermal exposure : Palm of one hand

Covers skin contact area up to : 240 cm<sup>2</sup>

Remarks : Product sampling

### Other operational conditions affecting workers exposure

Outdoor / Indoor : Indoor or outdoor use

### Risk Management Measures

Type of Application (Use) : Product sampling

Exposure routes : dermal

Personal protective measures : Wear suitable gloves tested to EN374.  
Wear safety goggles.  
Wear suitable protective clothing.

Type of Application (Use) : Material transfers  
Indoor use

Exposure routes : inhalative

Technical conditions and measures : Local exhaust ventilation

Effectiveness (of a measure) : 80 %

Type of Application (Use) : Equipment cleaning and maintenance

Exposure routes : inhalative

Personal protective measures : Wear suitable respiratory protection.

Effectiveness (of a measure) : 90 %

Organisational measures to prevent /limit releases, dispersion and exposure : Ensure operatives are trained to minimise exposures.  
Ensure control measures are regularly inspected and maintained.  
Supervision in place to check that the risk management measures in place are being used correctly and operation conditions followed.  
Assumes a good basic standard of occupational hygiene is implemented

Technical conditions and measures : Handle substance within a closed system.  
Sample via a closed loop or other system to avoid exposure.

Technical conditions and measures : Remote filling / transfer devices  
Material transfers  
Transfer via enclosed lines.

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### 1.2.3 ES 1 - CS 3: Control of worker exposure: Formulation or re-packing (Chemical production or refinery in closed continuous process with occasional controlled exposure or processes with equivalent containment conditions) (PROC2)

#### Product characteristics

Concentration of the Substance in Mixture/Article : <= 5 %

Physical Form (at time of use) : Solid, low dustiness  
Remarks : Elevated temperature

#### Frequency and duration of use

Product sampling : < 1 min  
Remarks : Closed systems, Continuous process

#### Human factors not influenced by risk management

Dermal exposure : Assumes that potential dermal contact is limited to inside hands / one hand / palm of hands.  
Covers skin contact area up to : 480 cm<sup>2</sup>  
Remarks : Product sampling

#### Other operational conditions affecting workers exposure

Outdoor / Indoor : Indoor or outdoor use

#### Risk Management Measures

Type of Application (Use) : Product sampling  
Exposure routes : dermal  
Personal protective measures : Wear suitable gloves tested to EN374.  
Wear safety goggles.  
Wear suitable protective clothing.

Type of Application (Use) : Material transfers  
Indoor use  
Exposure routes : inhalative  
Technical conditions and measures : Local exhaust ventilation  
Effectiveness (of a measure) : 80 %

Type of Application (Use) : Equipment cleaning and maintenance  
Exposure routes : inhalative  
Personal protective measures : Wear suitable respiratory protection.  
Effectiveness (of a measure) : 90 %

Organisational measures to prevent /limit releases, dispersion and exposure : Ensure operatives are trained to minimise exposures.  
Ensure control measures are regularly inspected and maintained.  
Supervision in place to check that the risk management measures in place are being used correctly and operation conditions followed.  
Assumes a good basic standard of occupational hygiene is implemented

Technical conditions and : Handle substance within a closed system.

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measures : Sample via a closed loop or other system to avoid exposure.

Technical conditions and measures : Remote filling / transfer devices  
Material transfers  
Transfer via enclosed lines.

## 1.2.4 ES 1 - CS 4: Control of worker exposure: Formulation or re-packing (Manufacture or formulation in the chemical industry in closed batch processes with occasional controlled exposure or processes with equivalent containment condition) (PROC3)

### Product characteristics

Concentration of the Substance in Mixture/Article : <= 5 %

Physical Form (at time of use) : Solid, low dustiness  
Remarks : Elevated temperature

### Frequency and duration of use

Product sampling : < 1 min  
Remarks : Closed systems, Batch process, short-term, Continuous process

### Human factors not influenced by risk management

Dermal exposure : Palm of one hand  
Covers skin contact area up to : 240 cm<sup>2</sup>  
Remarks : Product sampling

### Other operational conditions affecting workers exposure

Outdoor / Indoor : Indoor or outdoor use

### Risk Management Measures

Type of Application (Use) : Product sampling  
Exposure routes : dermal  
Personal protective measures : Wear suitable gloves tested to EN374.  
Wear safety goggles.  
Wear suitable protective clothing.

Type of Application (Use) : Material transfers  
Indoor use  
Exposure routes : inhalative  
Technical conditions and measures : Local exhaust ventilation  
Effectiveness (of a measure) : 80 %

Type of Application (Use) : Equipment cleaning and maintenance  
Exposure routes : inhalative  
Personal protective measures : Wear suitable respiratory protection.  
Effectiveness (of a measure) : 90 %

Organisational measures to prevent /limit releases, dispersion and exposure : Ensure operatives are trained to minimise exposures.  
Ensure control measures are regularly inspected and maintained.

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|                                   |  |
|-----------------------------------|--|
| Technical conditions and measures | : Supervision in place to check that the risk management measures in place are being used correctly and operation conditions followed.<br>Assumes a good basic standard of occupational hygiene is implemented |
| Technical conditions and measures | : Handle substance within a closed system.<br>Sample via a closed loop or other system to avoid exposure.  |
| Technical conditions and measures | : Remote filling / transfer devices<br>Material transfers<br>Transfer via enclosed lines.  |

## 1.2.5 ES 1 - CS 5: Control of worker exposure: Formulation or re-packing (Mixing or blending in batch processes) (PROC5)

### Product characteristics

|   |                        |
|---|------------------------|
| Concentration of the Substance in Mixture/Article | : <= 5 %               |
| Physical Form (at time of use)                    | : Solid, low dustiness |
| Remarks   | : Elevated temperature |

### Frequency and duration of use

|                   |                      |
|-------------------|----------------------|
| Exposure duration | : > 4 h              |
| Product sampling  | : < 1 min            |
| Frequency of use  | : 1 uses per day     |
| Frequency of use  | : 350 times per year |

### Human factors not influenced by risk management

|                                |  |
|--------------------------------|--|
| Dermal exposure                | : Assumes that potential dermal contact is limited to inside hands / one hand / palm of hands. |
| Covers skin contact area up to | : 480 cm <sup>2</sup>  |
| Remarks                        | : Product sampling   |

### Other operational conditions affecting workers exposure

|                  |                         |
|------------------|-------------------------|
| Outdoor / Indoor | : Indoor or outdoor use |
|------------------|-------------------------|

### Risk Management Measures

|                                   |   |
|-----------------------------------|---|
| Type of Application (Use)         | : Product sampling  |
| Exposure routes                   | : dermal  |
| Personal protective measures      | : Wear suitable gloves tested to EN374.<br>Wear safety goggles.<br>Wear suitable protective clothing. |
| Type of Application (Use)         | : Material transfers<br>Indoor use  |
| Exposure routes                   | : inhalative  |
| Technical conditions and measures | : Local exhaust ventilation   |
| Effectiveness (of a measure)      | : 80 %  |
| Type of Application (Use)         | : Equipment cleaning and maintenance  |
| Exposure routes                   | : inhalative  |

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|   |   |
|---|---|
| Personal protective measures  | : Wear suitable respiratory protection.   |
| Effectiveness (of a measure)  | : 90 %  |
| Organisational measures to prevent /limit releases, dispersion and exposure | : Ensure operatives are trained to minimise exposures.<br>Ensure control measures are regularly inspected and maintained.<br>Supervision in place to check that the risk management measures in place are being used correctly and operation conditions followed.<br>Assumes a good basic standard of occupational hygiene is implemented |
| Technical conditions and measures   | : Handle substance within a closed system.<br>Sample via a closed loop or other system to avoid exposure.   |
| Technical conditions and measures   | : Remote filling / transfer devices<br>Material transfers<br>Transfer via enclosed lines.   |

## 1.2.6 ES 1 - CS 6: Control of worker exposure: Formulation or re-packing (Transfer of substance or mixture (charging/discharging) at non dedicated-facilities) (PROC8a)

### Product characteristics

|   |                        |
|---|------------------------|
| Concentration of the Substance in Mixture/Article | : <= 5 %               |
| Physical Form (at time of use)                    | : Solid, low dustiness |
| Remarks   | : Elevated temperature |

### Frequency and duration of use

|                   |                      |
|-------------------|----------------------|
| Exposure duration | : > 4 h              |
| Frequency of use  | : 1 uses per day     |
| Frequency of use  | : 350 times per year |

### Human factors not influenced by risk management

|                                |  |
|--------------------------------|--|
| Dermal exposure                | : Assumes that potential dermal contact is limited to hands. |
| Covers skin contact area up to | : 960 cm <sup>2</sup>  |
| Remarks                        | : Loading and unloading, Loading                             |

### Other operational conditions affecting workers exposure

|                  |  |
|------------------|--|
| Outdoor / Indoor | : Indoor or outdoor use                              |
| Remarks          | : Loading and unloading, Loading, Material transfers |

### Risk Management Measures

|                              |   |
|------------------------------|---|
| Exposure routes              | : dermal  |
| Personal protective measures | : Wear chemically resistant gloves (tested to EN374) in combination with 'basic' employee training.<br>Wear safety goggles.<br>Wear suitable protective clothing. |
| Type of Application (Use)    | : Material transfers<br>Indoor use  |
| Exposure routes              | : inhalative  |
| Technical conditions and     | : Local exhaust ventilation   |

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|   |   |
|---|---|
| measures  |   |
| Effectiveness (of a measure)  | : 80 %  |
| Organisational measures to prevent /limit releases, dispersion and exposure | : Ensure operatives are trained to minimise exposures.<br>Ensure control measures are regularly inspected and maintained.<br>Supervision in place to check that the risk management measures in place are being used correctly and operation conditions followed.<br>Assumes a good basic standard of occupational hygiene is implemented |
| Technical conditions and measures   | : Handle substance within a closed system.<br>Sample via a closed loop or other system to avoid exposure.   |
| Technical conditions and measures   | : Remote filling / transfer devices<br>Material transfers<br>Transfer via enclosed lines.   |

## 1.2.7 ES 1 - CS 7: Control of worker exposure: Formulation or re-packing (Transfer of substance or mixture (charging/discharging) at non dedicated-facilities) (PROC8a)

### Product characteristics

|   |                        |
|---|------------------------|
| Concentration of the Substance in Mixture/Article | : <= 100 %             |
| Physical Form (at time of use)                    | : Solid, low dustiness |
| Remarks   | : Elevated temperature |

### Frequency and duration of use

|                   |                      |
|-------------------|----------------------|
| Exposure duration | : <= 4 h             |
| Frequency of use  | : 1 uses per day     |
| Frequency of use  | : 350 times per year |

### Human factors not influenced by risk management

|                                |  |
|--------------------------------|--|
| Dermal exposure                | : Assumes that potential dermal contact is limited to hands. |
| Covers skin contact area up to | : 960 cm <sup>2</sup>  |
| Remarks                        | : Loading and unloading, Loading                             |

### Other operational conditions affecting workers exposure

|                  |  |
|------------------|--|
| Outdoor / Indoor | : Indoor or outdoor use                              |
| Remarks          | : Loading and unloading, Loading, Material transfers |

### Risk Management Measures

|                              |   |
|------------------------------|---|
| Exposure routes              | : dermal  |
| Personal protective measures | : Wear chemically resistant gloves (tested to EN374) in combination with 'basic' employee training.<br>Wear safety goggles.<br>Wear suitable protective clothing. |
| Type of Application (Use)    | : Material transfers<br>Indoor use  |
| Exposure routes              | : inhalative  |
| Technical conditions and     | : Local exhaust ventilation   |



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|   |   |
|---|---|
| measures  |   |
| Effectiveness (of a measure)  | : 80 %  |
| Organisational measures to prevent /limit releases, dispersion and exposure | : Ensure operatives are trained to minimise exposures.<br>Ensure control measures are regularly inspected and maintained.<br>Supervision in place to check that the risk management measures in place are being used correctly and operation conditions followed.<br>Assumes a good basic standard of occupational hygiene is implemented |
| Technical conditions and measures   | : Handle substance within a closed system.<br>Sample via a closed loop or other system to avoid exposure.   |
| Technical conditions and measures   | : Remote filling / transfer devices<br>Material transfers<br>Transfer via enclosed lines.   |

## 1.2.8 ES 1 - CS 8: Control of worker exposure: Formulation or re-packing (Transfer of substance or mixture (charging/discharging) at dedicated facilities) (PROC8b)

### Product characteristics

|   |                        |
|---|------------------------|
| Concentration of the Substance in Mixture/Article | : <= 5 %               |
| Physical Form (at time of use)                    | : Solid, low dustiness |
| Remarks   | : Elevated temperature |

### Frequency and duration of use

|                   |                      |
|-------------------|----------------------|
| Exposure duration | : > 4 h              |
| Frequency of use  | : 1 uses per day     |
| Frequency of use  | : 350 times per year |

### Human factors not influenced by risk management

|                                |  |
|--------------------------------|--|
| Dermal exposure                | : Assumes that potential dermal contact is limited to hands. |
| Covers skin contact area up to | : 960 cm <sup>2</sup>  |
| Remarks                        | : Loading and unloading, Loading                             |

### Other operational conditions affecting workers exposure

|                  |  |
|------------------|--|
| Outdoor / Indoor | : Indoor or outdoor use                              |
| Remarks          | : Loading and unloading, Loading, Material transfers |

### Risk Management Measures

|                              |   |
|------------------------------|---|
| Exposure routes              | : dermal  |
| Personal protective measures | : Wear chemically resistant gloves (tested to EN374) in combination with 'basic' employee training.<br>Wear safety goggles.<br>Wear suitable protective clothing. |
| Type of Application (Use)    | : Material transfers<br>Indoor use  |
| Exposure routes              | : inhalative  |
| Technical conditions and     | : Local exhaust ventilation   |

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|   |   |
|---|---|
| measures  |   |
| Effectiveness (of a measure)  | : 80 %  |
| Organisational measures to prevent /limit releases, dispersion and exposure | : Ensure operatives are trained to minimise exposures.<br>Ensure control measures are regularly inspected and maintained.<br>Supervision in place to check that the risk management measures in place are being used correctly and operation conditions followed.<br>Assumes a good basic standard of occupational hygiene is implemented |
| Technical conditions and measures   | : Handle substance within a closed system.<br>Sample via a closed loop or other system to avoid exposure.   |
| Technical conditions and measures   | : Remote filling / transfer devices<br>Material transfers<br>Transfer via enclosed lines.   |

## 1.2.9 ES 1 - CS 9: Control of worker exposure: Formulation or re-packing (Transfer of substance or mixture (charging/discharging) at dedicated facilities) (PROC8b)

### Product characteristics

|   |                        |
|---|------------------------|
| Concentration of the Substance in Mixture/Article | : <= 100 %             |
| Physical Form (at time of use)                    | : Solid, low dustiness |
| Remarks   | : Elevated temperature |

### Frequency and duration of use

|                   |                      |
|-------------------|----------------------|
| Exposure duration | : <= 4 h             |
| Frequency of use  | : 1 uses per day     |
| Frequency of use  | : 350 times per year |

### Human factors not influenced by risk management

|                                |  |
|--------------------------------|--|
| Dermal exposure                | : Assumes that potential dermal contact is limited to hands. |
| Covers skin contact area up to | : 960 cm <sup>2</sup>  |
| Remarks                        | : Loading and unloading, Loading                             |

### Other operational conditions affecting workers exposure

|                  |  |
|------------------|--|
| Outdoor / Indoor | : Indoor or outdoor use                              |
| Remarks          | : Loading and unloading, Loading, Material transfers |

### Risk Management Measures

|                              |   |
|------------------------------|---|
| Exposure routes              | : dermal  |
| Personal protective measures | : Wear chemically resistant gloves (tested to EN374) in combination with 'basic' employee training.<br>Wear safety goggles.<br>Wear suitable protective clothing. |
| Type of Application (Use)    | : Material transfers<br>Indoor use  |
| Exposure routes              | : inhalative  |
| Technical conditions and     | : Local exhaust ventilation   |

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|   |   |
|---|---|
| measures  |   |
| Effectiveness (of a measure)  | : 80 %  |
| Organisational measures to prevent /limit releases, dispersion and exposure | : Ensure operatives are trained to minimise exposures.<br>Ensure control measures are regularly inspected and maintained.<br>Supervision in place to check that the risk management measures in place are being used correctly and operation conditions followed.<br>Assumes a good basic standard of occupational hygiene is implemented |
| Technical conditions and measures   | : Handle substance within a closed system.<br>Sample via a closed loop or other system to avoid exposure.   |
| Technical conditions and measures   | : Remote filling / transfer devices<br>Material transfers<br>Transfer via enclosed lines.   |

### 1.2.10 ES 1 - CS 10: Control of worker exposure: Formulation or re-packing (Transfer of substance or mixture into small containers (dedicated filling line, including weighing)) (PROC9)

#### Product characteristics

|   |                        |
|---|------------------------|
| Concentration of the Substance in Mixture/Article | : <= 5 %               |
| Physical Form (at time of use)                    | : Solid, low dustiness |
| Remarks   | : Elevated temperature |

#### Frequency and duration of use

|                   |                      |
|-------------------|----------------------|
| Exposure duration | : > 4 h              |
| Frequency of use  | : 1 uses per day     |
| Frequency of use  | : 350 times per year |

#### Human factors not influenced by risk management

|                                |  |
|--------------------------------|--|
| Dermal exposure                | : Assumes that potential dermal contact is limited to inside hands / one hand / palm of hands. |
| Covers skin contact area up to | : 480 cm <sup>2</sup>  |
| Remarks                        | : Loading and unloading, Loading   |

#### Other operational conditions affecting workers exposure

|                  |  |
|------------------|--|
| Outdoor / Indoor | : Indoor or outdoor use                              |
| Remarks          | : Loading and unloading, Loading, Material transfers |

#### Risk Management Measures

|                              |   |
|------------------------------|---|
| Exposure routes              | : dermal  |
| Personal protective measures | : Wear suitable gloves tested to EN374.<br>Wear safety goggles.<br>Wear suitable protective clothing. |
| Type of Application (Use)    | : Material transfers<br>Indoor use  |
| Exposure routes              | : inhalative  |

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|   |   |   |
|---|---|---|
| Technical conditions and measures   | : | Local exhaust ventilation   |
| Effectiveness (of a measure)  | : | 80 %  |
| Organisational measures to prevent /limit releases, dispersion and exposure | : | Ensure operatives are trained to minimise exposures.<br>Ensure control measures are regularly inspected and maintained.<br>Supervision in place to check that the risk management measures in place are being used correctly and operation conditions followed.<br>Assumes a good basic standard of occupational hygiene is implemented |
| Technical conditions and measures   | : | Handle substance within a closed system.<br>Sample via a closed loop or other system to avoid exposure.   |
| Technical conditions and measures   | : | Remote filling / transfer devices<br>Material transfers<br>Transfer via enclosed lines.   |

### 1.2.11 ES 1 - CS 11: Control of worker exposure: Formulation or re-packing (Transfer of substance or mixture into small containers (dedicated filling line, including weighing)) (PROC9)

#### Product characteristics

|   |   |                      |
|---|---|----------------------|
| Concentration of the Substance in Mixture/Article | : | <= 100 %             |
| Physical Form (at time of use)                    | : | Solid, low dustiness |
| Remarks   | : | Elevated temperature |

#### Frequency and duration of use

|                   |   |                    |
|-------------------|---|--------------------|
| Exposure duration | : | <= 4 h             |
| Frequency of use  | : | 1 uses per day     |
| Frequency of use  | : | 350 times per year |

#### Human factors not influenced by risk management

|                                |   |  |
|--------------------------------|---|--|
| Dermal exposure                | : | Assumes that potential dermal contact is limited to inside hands / one hand / palm of hands. |
| Covers skin contact area up to | : | 480 cm <sup>2</sup>  |
| Remarks                        | : | Loading and unloading, Loading   |

#### Other operational conditions affecting workers exposure

|                  |   |  |
|------------------|---|--|
| Outdoor / Indoor | : | Indoor or outdoor use                              |
| Remarks          | : | Loading and unloading, Loading, Material transfers |

#### Risk Management Measures

|                              |   |   |
|------------------------------|---|---|
| Exposure routes              | : | dermal  |
| Personal protective measures | : | Wear suitable gloves tested to EN374.<br>Wear safety goggles.<br>Wear suitable protective clothing. |
| Type of Application (Use)    | : | Material transfers<br>Indoor use  |

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|   |   |
|---|---|
| Exposure routes   | : inhalative  |
| Technical conditions and measures   | : Local exhaust ventilation   |
| Effectiveness (of a measure)  | : 80 %  |
| Organisational measures to prevent /limit releases, dispersion and exposure | : Ensure operatives are trained to minimise exposures.<br>Ensure control measures are regularly inspected and maintained.<br>Supervision in place to check that the risk management measures in place are being used correctly and operation conditions followed.<br>Assumes a good basic standard of occupational hygiene is implemented |
| Technical conditions and measures   | : Handle substance within a closed system.<br>Sample via a closed loop or other system to avoid exposure.   |
| Technical conditions and measures   | : Remote filling / transfer devices<br>Material transfers<br>Transfer via enclosed lines.   |

## 1.2.12 ES 1 - CS 12: Control of worker exposure: Formulation or re-packing (Use as laboratory reagent) (PROC15)

### Product characteristics

|   |                        |
|---|------------------------|
| Concentration of the Substance in Mixture/Article | : <= 100 %             |
| Physical Form (at time of use)                    | : Solid, low dustiness |
| Remarks   | : Elevated temperature |

### Frequency and duration of use

|                   |                      |
|-------------------|----------------------|
| Exposure duration | : <= 4 h             |
| Frequency of use  | : 1 uses per day     |
| Frequency of use  | : 350 times per year |

### Human factors not influenced by risk management

|                                |                       |
|--------------------------------|-----------------------|
| Dermal exposure                | : Palm of one hand    |
| Covers skin contact area up to | : 240 cm <sup>2</sup> |

### Other operational conditions affecting workers exposure

|                  |                         |
|------------------|-------------------------|
| Outdoor / Indoor | : Indoor or outdoor use |
|------------------|-------------------------|

### Risk Management Measures

|                                   |   |
|-----------------------------------|---|
| Exposure routes                   | : dermal  |
| Personal protective measures      | : Wear suitable gloves tested to EN374.<br>Wear safety goggles.<br>Wear suitable protective clothing. |
| Type of Application (Use)         | : Material transfers<br>Indoor use  |
| Exposure routes                   | : inhalative  |
| Technical conditions and measures | : Local exhaust ventilation   |

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|   |   |
|---|---|
| Effectiveness (of a measure)  | : 80 %  |
| Organisational measures to prevent /limit releases, dispersion and exposure | : Ensure operatives are trained to minimise exposures.<br>Ensure control measures are regularly inspected and maintained.<br>Supervision in place to check that the risk management measures in place are being used correctly and operation conditions followed.<br>Assumes a good basic standard of occupational hygiene is implemented |
| Technical conditions and measures   | : Handle substance within a closed system.<br>Sample via a closed loop or other system to avoid exposure.   |
| Technical conditions and measures   | : Remote filling / transfer devices<br>Material transfers<br>Transfer via enclosed lines.   |

## 1.3. ES 1 Exposure estimation and reference to its source

### 1.3.1 ES 1 - CS 1: Environmental release and exposure: Formulation or re-packing (Formulation into mixture) (ERC2)

| Release route | Release rate | Release estimation method |
|---------------|--------------|---------------------------|
| Air           | 0 kg/day     | EUSES v2.1                |
| Waste         | 0 kg/day     | EUSES v2.1                |
| Water         | 1.24 kg/day  | EUSES v2.1                |

| protection target                               | Exposure estimation and reference to its source (EUSES v2.1) | RCR    |
|---|--|--------|
| Freshwater                                      | 1.00 µg/L  | 0.086  |
| Freshwater sediment                             | 21.0 µg/kg wet weight  | 0.077  |
| Soil  | 86.0 µg/kg dry weight  | 0.086  |
| Sewage treatment plant                          | 6.2 µg/L   | 0.0144 |
| Secondary poisoning                             | 0.054 mg/kg bw/day (Only highest exposure levels are given.) | 0.0081 |
| Indirect exposure to humans via the environment | 0.00015 mg/kg bw/day   | < 0.01 |

### 1.3.2 ES 1 - CS 2: Worker exposure: Formulation or re-packing (Chemical production or refinery in closed process without likelihood of exposure or processes with equivalent containment conditions) (PROC1)

| Route of exposure and type of effects | Exposure estimate                                      | RCR    |
|---------------------------------------|--|--------|
| dermal                                | 0.007 mg/kg bw/day (ECETOC TRA worker v3, Tier 1)      | < 0.01 |
| inhalative                            | 0.002 mg/m <sup>3</sup> (ECETOC TRA worker v3, Tier 1) | < 0.01 |
| combined routes                       |  | < 1    |

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### 1.3.3 ES 1 - CS 3: Worker exposure: Formulation or re-packing (Chemical production or refinery in closed continuous process with occasional controlled exposure or processes with equivalent containment conditions) (PROC2)

| Route of exposure and type of effects | Exposure estimate                                      | RCR    |
|---------------------------------------|--|--------|
| dermal                                | 0.27 mg/kg bw/day (ECETOC TRA worker v3, Tier 1)       | 0.09   |
| inhalative                            | 0.002 mg/m <sup>3</sup> (ECETOC TRA worker v3, Tier 1) | < 0.01 |
| combined routes                       |  | < 1    |

### 1.3.4 ES 1 - CS 4: Worker exposure: Formulation or re-packing (Manufacture or formulation in the chemical industry in closed batch processes with occasional controlled exposure or processes with equivalent containment condition) (PROC3)

| Route of exposure and type of effects | Exposure estimate                                     | RCR  |
|---------------------------------------|---|------|
| dermal                                | 0.14 mg/kg bw/day (ECETOC TRA worker v3, Tier 1)      | 0.05 |
| inhalative                            | 0.02 mg/m <sup>3</sup> (ECETOC TRA worker v3, Tier 1) | 0.03 |
| combined routes                       |   | < 1  |

### 1.3.5 ES 1 - CS 5: Worker exposure: Formulation or re-packing (Mixing or blending in batch processes) (PROC5)

| Route of exposure and type of effects | Exposure estimate                                    | RCR  |
|---------------------------------------|--|------|
| dermal                                | 0.54 mg/kg bw/day (ECETOC TRA worker v3, Tier 1)     | 0.18 |
| inhalative                            | 0.1 mg/m <sup>3</sup> (ECETOC TRA worker v3, Tier 1) | 0.17 |
| combined routes                       |  | < 1  |

### 1.3.6 ES 1 - CS 6: Worker exposure: Formulation or re-packing (Transfer of substance or mixture (charging/discharging) at non dedicated-facilities) (PROC8a)

| Route of exposure and type of effects | Exposure estimate                                    | RCR  |
|---------------------------------------|--|------|
| dermal                                | 0.54 mg/kg bw/day (ECETOC TRA worker v3, Tier 1)     | 0.18 |
| inhalative                            | 0.1 mg/m <sup>3</sup> (ECETOC TRA worker v3, Tier 1) | 0.17 |
| combined routes                       |  | < 1  |

### 1.3.7 ES 1 - CS 7: Worker exposure: Formulation or re-packing (Transfer of substance or mixture (charging/discharging) at non dedicated-facilities) (PROC8a)

| Route of exposure and type of effects | Exposure estimate                                | RCR  |
|---------------------------------------|--|------|
| dermal                                | 0.82 mg/kg bw/day (ECETOC TRA worker v3, Tier 1) | 0.27 |

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|                 |  |     |
|-----------------|--|-----|
| inhalative      | 0.3 mg/m <sup>3</sup> (ECETOC TRA worker v3, Tier 1) | 0.5 |
| combined routes |  | < 1 |

## 1.3.8 ES 1 - CS 8: Worker exposure: Formulation or re-packing (Transfer of substance or mixture (charging/discharging) at dedicated facilities) (PROC8b)

| Route of exposure and type of effects | Exposure estimate                                     | RCR  |
|---------------------------------------|---|------|
| dermal                                | 2.74 mg/kg bw/day (ECETOC TRA worker v3, Tier 1)      | 0.91 |
| inhalative                            | 0.02 mg/m <sup>3</sup> (ECETOC TRA worker v3, Tier 1) | 0.03 |
| combined routes                       |   | < 1  |

## 1.3.9 ES 1 - CS 9: Worker exposure: Formulation or re-packing (Transfer of substance or mixture (charging/discharging) at dedicated facilities) (PROC8b)

| Route of exposure and type of effects | Exposure estimate                                     | RCR  |
|---------------------------------------|---|------|
| dermal                                | 1.37 mg/kg bw/day (ECETOC TRA worker v3, Tier 1)      | 0.46 |
| inhalative                            | 0.10 mg/m <sup>3</sup> (ECETOC TRA worker v3, Tier 1) | 0.17 |
| combined routes                       |   | < 1  |

## 1.3.10 ES 1 - CS 10: Worker exposure: Formulation or re-packing (Transfer of substance or mixture into small containers (dedicated filling line, including weighing)) (PROC9)

| Route of exposure and type of effects | Exposure estimate                                     | RCR  |
|---------------------------------------|---|------|
| dermal                                | 1.37 mg/kg bw/day (ECETOC TRA worker v3, Tier 1)      | 0.46 |
| inhalative                            | 0.02 mg/m <sup>3</sup> (ECETOC TRA worker v3, Tier 1) | 0.03 |
| combined routes                       |   | < 1  |

## 1.3.11 ES 1 - CS 11: Worker exposure: Formulation or re-packing (Transfer of substance or mixture into small containers (dedicated filling line, including weighing)) (PROC9)

| Route of exposure and type of effects | Exposure estimate                                     | RCR  |
|---------------------------------------|---|------|
| dermal                                | 1.37 mg/kg bw/day (ECETOC TRA worker v3, Tier 1)      | 0.46 |
| inhalative                            | 0.10 mg/m <sup>3</sup> (ECETOC TRA worker v3, Tier 1) | 0.17 |
| combined routes                       |   | < 1  |

## 1.3.12 ES 1 - CS 12: Worker exposure: Formulation or re-packing (Use as laboratory reagent) (PROC15)



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| Route of exposure and type of effects | Exposure estimate                                     | RCR  |
|---------------------------------------|---|------|
| dermal                                | 0.34 mg/kg bw/day (ECETOC TRA worker v3, Tier 1)      | 0.11 |
| inhalative                            | 0.10 mg/m <sup>3</sup> (ECETOC TRA worker v3, Tier 1) | 0.17 |
| combined routes                       |   | < 1  |

## 1.4. ES 1 Guidance to Downstream User to evaluate whether he works inside the boundaries set by the Exposure Scenario

No information available.

## 2. ES 2: Consumer use; Cosmetics, personal care products

### 2.1. Title section

|   |       |
|---|-------|
| Cosmetics, personal care products (PC39)  |       |
| Environment   |       |
| CS1: Consumer use (Widespread use of non-reactive processing aid (no inclusion into or onto article, indoor)) | ERC8a |
| Consumer  |       |
| CS2: Consumer use (Cosmetics, personal care products)   | PC39  |

### 2.2. ES 2 Conditions of use affecting exposure

#### 2.2.1 ES 2 - CS 1: Control of environmental exposure: Consumer use (Widespread use of non-reactive processing aid (no inclusion into or onto article, indoor)) (ERC8a)

##### Product characteristics

Concentration of the Substance in Mixture/Article : < 3 %

Physical Form (at time of use) : Liquid  
Remarks : Covers use at ambient temperatures.

##### Amount used

Amounts used : 0.31 kg/day

##### Frequency and duration of use

Continuous exposure : 1 uses per day

Continuous exposure : 365 times per year

##### Environment factors not influenced by risk management

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Flow rate of receiving surface water : 18,000 m3/d

### Technical conditions and measures / Organizational measures

Remarks : Observe the usage / storage instructions.

### Conditions and measures related to sewage treatment plant

Type of Sewage Treatment Plant : Municipal Sewage Treatment Plant  
Flow rate of sewage treatment plant effluent : 2,000 m3/d

### Waste management measures

Waste treatment : Incineration, Not applicable  
Waste treatment : Landfill, Not applicable  
Waste treatment : Recycling/recovery, Not applicable

## 2.2.2 ES 2 - CS 2: Control of consumer exposure: Consumer use (Cosmetics, personal care products) (PC39)

Remarks : No exposure assessment presented for human health. In accordance to the Article 14 (5b) of the REACH Regulation (EC) No 1907/2006, exposure estimation and risk characterisation for human health does not need to be performed for end uses in cosmetic products within the scope of Directive 76/768/EEC.

## 2.3. ES 2 Exposure estimation and reference to its source

### 2.3.1 ES 2 - CS 1: Environmental release and exposure: Consumer use (Widespread use of non-reactive processing aid (no inclusion into or onto article, indoor)) (ERC8a)

| Release route | Release rate | Release estimation method |
|---------------|--------------|---------------------------|
| Air           | 0 kg/day     | EUSES v2.1                |
| Waste         | 0 kg/day     | EUSES v2.1                |
| Water         | 0.31 kg/day  | EUSES v2.1                |

| protection target | Exposure estimation and reference to its source (EUSES v2.1) | RCR |
|-------------------|--|-----|
|-------------------|--|-----|

# SAFETY DATA SHEET

according to Regulation (EC) No. 1907/2006

**BTMS PALM FREE**

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|   |  |        |
|---|--|--------|
| Freshwater                                      | 0.66 µg/L  | 0.051  |
| Freshwater sediment                             | 56.0 µg/kg wet weight  | 0.045  |
| Soil  | 21.4 µg/kg dry weight  | 0.021  |
| Sewage treatment plant                          | 1.6 µg/L   | < 0.01 |
| Secondary poisoning                             | 0.04 mg/kg bw/day (Only highest exposure levels are given.)  | < 0.01 |
| Indirect exposure to humans via the environment | Not applicable, In accordance to the Article 14 (5b) of the REACH Regulation (EC) No 1907/2006, exposure estimation and risk characterisation for human health does not need to be performed for end uses in cosmetic products within the scope of Directive 76/768/EEC. |        |

## 2.4. ES 2 Guidance to Downstream User to evaluate whether he works inside the boundaries set by the Exposure Scenario

Observe the usage / storage instructions.