SAFETY DATA SHEET
according to Regulation (EC) No. 1907/2006

SDS # : 082077

CLERANE 180

Section 1: IDENTIFICATION OF THE SUBSTANCE/MIXTURE AND OF THE
COMPANY/UNDERTAKING

1.1. Product identifier

Product name
REACH Registration Name
REACH registration No
Trade name
Substance/mixture

CLERANE 180
Hydrocarbons, C10-C13, n-alkanes, isoalkanes, cyclics, < 2% aromatics.
01-2119457273-39
-
Substance

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

Identified uses

Manufacture of substances, Distribution of substance, Formulation & (re)packing of
substances and mixtures, Uses in Coatings, Use in Cleaning Agents, Laboratory activities.

1.3. Details of the supplier of the safety data sheet

Supplier

TOTAL FLUIDES
24, cours Michelet.
92800 PUTEAUX.
FRANCE
Tel: +33 (0)1 41 35 40 00
Fax: +33 (0)1 41 35 82 88

For further information, please contact:

Contact Point

Service QSE : Tel : +33 (0)1 41 35 33 64 / Fax : +33 (0)1 41 35 33 50
Emergency number 24h/24h: +33 (0)1 41 35 65 00
E-mail Address

rmfs.lds@total.com

1.4. Emergency telephone number

Emergency telephone: +44 1235 239670
France - ORFILA (INRS) Tél : +33 (0)1 45 42 59 59
In France - Poison centers:
ANGERS : 02 41 48 21 21
BORDEAUX : 05 56 96 40 80
LILLE : 08 00 59 59 59
LYON : 04 72 11 69 11
MARSEILLE : 04 91 75 25 25
NANCY : 03 83 22 50 50
PARIS : 01 40 05 48 48
STRASBOURG : 03 88 37 37 37
TOULOUSE : 05 61 77 74 47

Section 2: HAZARDS IDENTIFICATION
2.1. Classification of the substance or mixture

REGULATION (EC) No 1272/2008
For the full text of the H-Statements mentioned in this Section, see Section 2.2.

Classification
Aspiration toxicity - Category 1 - (H304)

2.2. Label elements

Labelled according to  REGULATION (EC) No 1272/2008
EC-No 918-481-9

Hazard pictograms

Signal Word
DANGER

Hazard Statements
H304 - May be fatal if swallowed and enters airways

Precautionary Statements
P301 + P310 - IF SWALLOWED: Immediately call a POISON CENTER/doctor
P331 - Do NOT induce vomiting

Supplemental Hazard Statements
EUH066 - Repeated exposure may cause skin dryness or cracking

2.3. Other hazards

Physical-Chemical Properties
Vapors may form explosive mixtures with air. Vapours are heavier than air and may spread near ground level to sources of ignition.

Properties Affecting Health
Repeated exposure may cause skin dryness or cracking. Prolonged skin contact may defat the skin and produce dermatitis.

Section 3: COMPOSITION/INFORMATION ON INGREDIENTS

3.1. Substance
Chemical nature
A complex and variable combination of paraffinic and cyclic hydrocarbons having a carbon number range predominantly of C10 to C13 and boiling in the range of approximately 160°C to 245°C.

<table>
<thead>
<tr>
<th>Chemical Name</th>
<th>EC-No</th>
<th>REACH registration No</th>
<th>CAS-No</th>
<th>Weight %</th>
<th>Classification (Reg. 1272/2008)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hydrocarbons, C10-C13, n-alkanes, isoalkanes, cyclics, &lt;2% aromatics</td>
<td>918-481-9</td>
<td>01-2119457273-39</td>
<td>^</td>
<td>100</td>
<td>Asp. Tox. 1 (H304)</td>
</tr>
</tbody>
</table>

Additional information
The EC substance definition and related classification & labelling has been developed in the framework of the Regulation (EC) No 1907/2006 (REACH). For information about the related CAS number see section 15 of this MSDS. Total aromatic content : < 0.03%.

For the full text of the H-Statements mentioned in this Section, see Section 16.

Section 4: FIRST AID MEASURES

4.1. Description of first-aid measures

General advice
IN CASE OF SERIOUS OR PERSISTENT CONDITIONS, CALL A DOCTOR OR EMERGENCY MEDICAL CARE.

Eye contact
Rinse thoroughly with plenty of water, also under the eyelids. Keep eye wide open while rinsing.

Skin contact
Remove contaminated clothing and shoes. Wash off with soap and water.

Inhalation
In case of exposure to intense concentrations of vapours, fumes or spray, transport the person away from the contaminated zone, keep warm and allow to rest.

Ingestion
Do not ingest. If swallowed then seek immediate medical assistance. Risk of product entering the lungs on vomiting after ingestion. In this case, the casualty should be sent immediately to hospital.

Protection of First-aiders
Use personal protective equipment.

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

Eye contact
Contact with eyes may cause irritation.

Skin contact
Redness. Prolonged or repeated contact may dry skin and cause irritation.

Inhalation
The inhalation of vapours or aerosols may be irritating for the respiratory tract and for mucous membranes, Eye Irritation. Vapors inhaled in strong concentration have a narcotic effect on the central nervous system.

Ingestion
If swallowed accidentally, the product may enter the lungs due to its low viscosity and lead to the rapid development of very serious pulmonary lesions (medical survey during 48 hours). Ingestion may cause gastrointestinal irritation, nausea, vomiting and diarrhea. Abdominal pain.
May cause central nervous system depression.

4.3. **Indication of any immediate medical attention and special treatment needed**

**Notes to physician**

Treat symptomatically.

**Section 5: FIRE-FIGHTING MEASURES**

5.1. **Extinguishing media**

**Suitable Extinguishing Media**

Foam. Dry powder. Carbon dioxide (CO₂).

**Unsuitable Extinguishing Media**

Do not use a solid water stream as it may scatter and spread fire.

5.2. **Special hazards arising from the substance or mixture**

**Special Hazard**

Incomplete combustion and thermolysis may produce gases of varying toxicity such as carbon monoxide, carbon dioxide, various hydrocarbons, aldehydes and soot. These may be highly dangerous if inhaled in confined spaces or at high concentration.

5.3. **Advice for fire-fighters**

**Special protective equipment for fire-fighters**

Wear self-contained breathing apparatus and protective suit. In case of a large fire or in confined or poorly ventilated spaces, wear full fire resistant protective clothing and self-contained breathing apparatus (SCBA) with a full face-piece operated in positive pressure mode.

**Other information**

Cool containers / tanks with water spray. Fire residues and contaminated fire extinguishing water must be disposed of in accordance with local regulations.

**Section 6: ACCIDENTAL RELEASE MEASURES**

6.1. **Personal precautions, protective equipment and emergency procedures**

**General Information**

Use personal protective equipment. Evacuate non-essential personnel. Ensure adequate ventilation, especially in confined areas. ELIMINATE all ignition sources (no smoking, flares, sparks or flames in immediate area). Do not touch or walk through spilled material.

6.2. **Environmental precautions**

**General Information**

Prevent further leakage or spillage if safe to do so. Dike to collect large liquid spills. The product should not be allowed to enter drains, water courses or the soil. Local authorities should be advised if significant spillages cannot be contained. See Section 12 for additional Ecological Information.

6.3. **Methods and material for containment and cleaning up**

**Methods for cleaning up**

Use non-sparking handtools and explosionproof electrical equipment.
6.4. Reference to other sections

Personal Protective Equipment  See Section 8 for more detail.
Waste treatment  See section 13.
Other information  Remove all sources of ignition.
Stop all work that requires a naked flame, stop all vehicles, stop all machines and equipment that may cause sparks or flames.

Section 7: HANDLING AND STORAGE

7.1. Precautions for safe handling

Advice on safe handling  For personal protection see section 8. Use only in well-ventilated areas. Do not breathe vapors or spray mist. Avoid contact with skin, eyes and clothing.

Technical measures  Ensure adequate ventilation. Do not spray at high pressure (> 3 bar) .
WHILE MOVING THE PRODUCT:. To avoid ignition of vapors by static electricity discharge, all metal parts of the equipment must be grounded. Do not allow splash loading and ensure that the product is poured slowly, particularly at the beginning of the operation.

Prevention of fire and explosion  OPERATE ONLY ON COLD AND DEGASSED TANKS IN VENTILATED PREMISES (TO AVOID RISK OF EXPLOSION). Handle away from any source of ignition (open flame and sparks) and heat (hot manifolds or casings). Do not smoke. Use explosionproof electrical equipment. Take precautionary measures against static discharges. Do not use compressed air for filling, discharging or handling. Design installations (machinery and equipment) to prevent burning product from spreading (tanks, retention systems, interceptors (traps) in drainage systems).

Hygiene measures  Ensure the application of strict rules of hygiene by the personnel exposed to the risk of contact with the product. When using, do not eat, drink or smoke. Regular cleaning of equipment, work area and clothing is recommended. Do not dry hands with rags that have been contaminated with product. Do not use abrasives, solvents or fuels. Wash hands before breaks and at the end of workday.

7.2. Conditions for safe storage, including any incompatibilities

Technical measures/Storage conditions  Design the installations in order to avoid accidental emissions of product (due to seal breakage, for example) onto hot casings or electrical contacts. Storage installations should be designed with adequate bunds so as to prevent ground or water pollution in case of leaks or spills. Use explosionproof electrical equipment. Keep in a bunded area. Keep in a dry, cool and well-ventilated place. Keep away from open flames, hot surfaces and sources of ignition. Ground/bond
containers, tanks and transfer/receiving equipment. Store at room temperature. Keep containers tightly closed and properly labelled.

**Materials to Avoid**

Strong acids. Oxidizing agents.

**Packaging material**

Use material compatible with:. Keep only in the original container or in a suitable container for this kind of product. steel . Stainless steel. Recommended materials for containers, or container linings use mild steel, stainless steel.

### 7.3. Specific end uses

**Specific use(s)**

See exposure scenarios.

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### Section 8: EXPOSURE CONTROLS/PERSONAL PROTECTION

#### 8.1. Control parameters

**Exposure limits**

Ingredients with workplace control parameters

**Legend**

See section 16

**Advisory OEL**

CEFIC-HSPA : 1200 mg/m³

**Derived No Effect Level (DNEL)**

According to our experience and to the information provided to us, the product does not have any harmful effects if it is used and handled as specified

**Predicted No Effect Concentration (PNEC)**

According to our experience and to the information provided to us, the product does not have any harmful effects if it is used and handled as specified

#### 8.2. Exposure controls

**Occupational Exposure Controls**

**Engineering Measures**

When working in confined spaces (tanks, containers, etc.), ensure that there is a supply of air suitable for breathing and wear the recommended equipment. Apply technical measures to comply with the occupational exposure limits.

**Personal Protective Equipment**

**General Information**

Protective engineering solutions should be implemented and in use before personal protective equipment is considered. These recommendations apply to the product as supplied. If the product is used in mixtures, it is recommended that you contact the appropriate protective equipment suppliers.

**Respiratory protection**

When workers are facing concentrations above the exposure limit they must use appropriate certified respirators. For rescue and maintenance work in storage tanks use self-contained breathing apparatus. In an emergency or for exceptional short-lasting jobs in an atmosphere polluted by the product, it is necessary to wear protective respiratory equipment. The use of breathing apparatus must comply strictly with the manufacturer’s instructions and the regulations governing their choices and uses.
Eye Protection
If splashes are likely to occur, wear: Safety glasses with side-shields.

Skin and body protection
Wear suitable protective clothing. Protective shoes or boots. If repeated and/or prolonged skin exposure to the substance is likely, then wear suitable gloves tested to EN374 and provide employee skin care programmes.

Hand Protection
Impervious gloves, aliphatic hydrocarbon resistant. If repeated and/or prolonged skin exposure to the substance is likely, then wear suitable gloves tested to EN374 and provide employee skin care programmes.

<table>
<thead>
<tr>
<th>Repeated or prolonged exposure</th>
<th>Glove material</th>
<th>Glove thickness</th>
<th>Break through time</th>
<th>Remarks</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Nitrile rubber</td>
<td>&gt; 0.3 mm</td>
<td>&gt; 480 min</td>
<td>EN 374</td>
</tr>
<tr>
<td></td>
<td>PVA</td>
<td>(*)</td>
<td>&gt; 480 min</td>
<td>EN 374 (*) any thickness</td>
</tr>
<tr>
<td></td>
<td>Fluorinated rubber Viton (R)</td>
<td>(*)</td>
<td>&gt; 480 min</td>
<td>EN 374 (*) any thickness</td>
</tr>
</tbody>
</table>

In case of contact through splashing:

<table>
<thead>
<tr>
<th>In case of contact through splashing</th>
<th>Glove material</th>
<th>Glove thickness</th>
<th>Break through time</th>
<th>Remarks</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Neoprene Chloroprene</td>
<td>&gt; 0.7 mm</td>
<td>&gt; 60 min</td>
<td>EN 374</td>
</tr>
<tr>
<td></td>
<td>Nitrile rubber</td>
<td>&gt; 0.3 mm</td>
<td>&gt; 60 min</td>
<td>EN 374</td>
</tr>
</tbody>
</table>

Environmental exposure controls

General Information
Do not allow material to contaminate ground water system.

Section 9: PHYSICAL AND CHEMICAL PROPERTIES

9.1. Information on basic physical and chemical properties

<table>
<thead>
<tr>
<th>Property</th>
<th>Values</th>
<th>Remarks</th>
<th>Method</th>
</tr>
</thead>
<tbody>
<tr>
<td>Color</td>
<td>colorless</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Physical State @20°C</td>
<td>liquid</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Odor</td>
<td>Petroleum solvent</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Odor Threshold</td>
<td></td>
<td>No information available</td>
<td></td>
</tr>
<tr>
<td>pH</td>
<td>Not applicable</td>
<td></td>
<td>EN ISO 3405</td>
</tr>
<tr>
<td>Melting point/range</td>
<td>No information available</td>
<td></td>
<td>EN ISO 3405</td>
</tr>
<tr>
<td>Boiling point/boiling range</td>
<td>175 - 235 °C</td>
<td></td>
<td>EN ISO 3405</td>
</tr>
<tr>
<td></td>
<td>347 - 455 °F</td>
<td></td>
<td>EN ISO 3405</td>
</tr>
<tr>
<td>Flash point</td>
<td>&gt; 63 °C</td>
<td></td>
<td>ASTM D 93</td>
</tr>
<tr>
<td></td>
<td>&gt; 145 °F</td>
<td></td>
<td>ASTM D 93</td>
</tr>
<tr>
<td>Evaporation rate</td>
<td>191</td>
<td></td>
<td>DIN 53170</td>
</tr>
<tr>
<td>Flammability Limits in Air</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>upper</td>
<td>7 %</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Lower</td>
<td>0.6 %</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Vapor Pressure</td>
<td>0.38 hPa</td>
<td></td>
<td>@ 20 °C</td>
</tr>
<tr>
<td>Vapor density</td>
<td></td>
<td>No information available</td>
<td></td>
</tr>
<tr>
<td>Relative density</td>
<td>0.80</td>
<td></td>
<td>No information available</td>
</tr>
<tr>
<td>Density</td>
<td>800 kg/m³</td>
<td></td>
<td>@ 15 °C</td>
</tr>
<tr>
<td>Water solubility</td>
<td>Substance is a UVCB. Standard tests for this endpoint are not appropriate</td>
<td></td>
<td>ISO 12185</td>
</tr>
</tbody>
</table>
9.2. Other information

Solubility in other solvents
Soluble in many common organic solvents

logPow
Not applicable

Autoignition temperature
> 230 °C
This temperature may be significantly lower under particular conditions (slow oxidation on finely divided materials...)
ASTM E 659

Decomposition temperature
> 446 °F
ASTM E 659

Viscosity, kinematic
< 20.5 mm2/s @ 40 °C
ASTM D 445

Explosive properties
Not considered explosive based on chemical structure and oxygen balance considerations

Oxidizing Properties
This product is not considered oxidising based on chemical structure considerations

Possibility of hazardous reactions
None under normal processing

Section 10: STABILITY AND REACTIVITY

10.1. Reactivity
General Information
None under normal processing.

10.2. Chemical stability
Stability
Stable under recommended storage conditions.

10.3. Possibility of hazardous reactions
Hazardous Reactions
None under normal processing.

10.4. Conditions to Avoid
Conditions to Avoid
Heat, flames and sparks. Take precautionary measures against static discharges.

10.5. Incompatible materials
Materials to Avoid
Strong acids. Oxidizing agents.

10.6. Hazardous Decomposition Products
Hazardous Decomposition Products
Incomplete combustion and thermolysis may produce gases of varying toxicity such as carbon monoxide, carbon dioxide, various hydrocarbons, aldehydes and soot.

Section 11: TOXICOLOGICAL INFORMATION
11.1. Information on toxicological effects

Acute toxicity  Local effects Product Information

Skin contact  Symptoms : Redness.
Prolonged or repeated contact may dry skin and cause irritation.

Eye contact  Contact with eyes may cause irritation.

Inhalation  The inhalation of vapours or aerosols may be irritating for the respiratory tract and for
mucous membranes, Eye Irritation.
Vapors inhaled in strong concentration have a narcotic effect on the central nervous
system.

Ingestion  If swallowed accidentally, the product may enter the lungs due to its low viscosity and
lead to the rapid development of very serious pulmonary lesions (medical survey during 48
hours). Ingestion may cause gastrointestinal irritation, nausea, vomiting and diarrhea. Abdominal
pain. May cause central nervous system depression.

Acute toxicity - Component Information

<table>
<thead>
<tr>
<th>Chemical Name</th>
<th>LD50 Oral</th>
<th>LD50 Dermal</th>
<th>LC50 Inhalation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hydrocarbons, C10-C13, n-alkanes,</td>
<td>LD50 &gt; 5000 mg/kg bw (rat -</td>
<td>LD50 (24h) &gt; 2000 mg/kg bw (rat -</td>
<td>LC50(8h) &gt; 5000 mg/m3 (Rat -</td>
</tr>
<tr>
<td>isoalkanes, cyclics, &lt;2% aromatics</td>
<td>OECD 401)</td>
<td>OECD 402)</td>
<td>Vapours - OECD 403)</td>
</tr>
</tbody>
</table>

Sensitization  Not classified as a sensitizer.

Specific effects

Carcinogenicity  This product is not classified carcinogenic.

Mutagenicity  The mutagenic potential of the substance has been extensively studied in a range of in-vivo
and in-vitro assays.

Germ Cell Mutagenicity  Genetic toxicity : negative.

Reproductive toxicity  Studies in rats with the substance did not show any effect on reproductive performance.

Developmental Toxicity  Results of guideline developmental toxicity studies on the substance and OECD
developmental toxicity screening studies showed no evidence of developmental toxicity in
rats.

Repeated Dose Toxicity

Subchronic toxicity  No information available.

Target Organ Effects (STOT)

Specific target organ systemic
toxicity (single exposure)  This substance does not meet the EU criteria for classification.

Specific target organ systemic
toxicity (repeated exposure)  This substance does not meet the EU criteria for classification.

Aspiration toxicity  The fluid can enter the lungs and cause damage (chemical pneumonitis, potentially fatal).

Other information
Other adverse effects
Frequent or prolonged skin contact destroys the lipoacid cutaneous layer and may cause dermatitis.

Section 12: ECOLOGICAL INFORMATION

12.1. Toxicity
Not classified.

Acute aquatic toxicity - Product Information
Not applicable.

Acute aquatic toxicity - Component Information

<table>
<thead>
<tr>
<th>Chemical Name</th>
<th>Toxicity to algae</th>
<th>Toxicity to daphnia and other aquatic invertebrates</th>
<th>Toxicity to fish</th>
<th>Toxicity to microorganisms</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hydrocarbons, C10-C13, n-alkanes, isoalkanes, cyclics, &lt;2% aromatics</td>
<td>ErL50 (72h) &gt; 1000 mg/l (Pseudokirchneriella subcapitata - OECD 201)</td>
<td>EL50 (48h) &gt; 1000 mg/l (Daphnia magna - OECD 202)</td>
<td>LL50 (96h) &gt; 1000 mg/l (Oncorhynchus mykiss - OECD 203)</td>
<td>-</td>
</tr>
</tbody>
</table>

Chronic aquatic toxicity - Product Information
Not applicable.

Chronic aquatic toxicity - Component Information

<table>
<thead>
<tr>
<th>Chemical Name</th>
<th>Toxicity to algae</th>
<th>Toxicity to daphnia and other aquatic invertebrates</th>
<th>Toxicity to fish</th>
<th>Toxicity to microorganisms</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hydrocarbons, C10-C13, n-alkanes, isoalkanes, cyclics, &lt;2% aromatics</td>
<td>NOELR (72h) = 1000 mg/l (Pseudokirchneriella subcapitata - biomass - OECD 201)</td>
<td>NOELR (21d) = 0,18 mg/l (Daphnia magna - QSAR Petrotox)</td>
<td>NOELR (28d) = 0,10 mg/l (Oncorhynchus mykiss - QSAR Petrotox)</td>
<td>-</td>
</tr>
</tbody>
</table>

Effects on terrestrial organisms
No information available.

12.2. Persistence and degradability

General Information
Readily biodegradable (80% after 28 days).

<table>
<thead>
<tr>
<th>Biodegradation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Type</td>
</tr>
<tr>
<td>------</td>
</tr>
<tr>
<td>OECD 301F</td>
</tr>
</tbody>
</table>
12.3. Bioaccumulative potential

Product Information
Measured experimental data on hydrocarbon UVCB substances are not meaningful, since each of the constituents is likely to behave differently.

logPow
Not applicable

Component Information
Not applicable.

12.4. Mobility in soil

Soil
Given its physical and chemical characteristics, the product has no soil mobility.

Air
The product evaporates readily.

Water
The product is insoluble and floats on water.

12.5. Results of PBT and vPvB assessment

PBT and vPvB assessment
This substance is considered not to be PBT and vPvB.

12.6. Other adverse effects

General Information
No information available.

Section 13: DISPOSAL CONSIDERATIONS

13.1. Waste treatment methods

Waste from Residues / Unused Products
Dispose of in accordance with the European Directives on waste and hazardous waste.

Contaminated packaging
Empty containers may contain flammable or explosive vapors. Empty containers should be taken to an approved waste handling site for recycling or disposal.

EWC Waste Disposal No.
According to the European Waste Catalogue, Waste Codes are not product specific, but application specific. Waste codes should be assigned by the user based on the application for which the product was used.

Section 14: TRANSPORT INFORMATION

ADR/RID
Not regulated

IMDG/IMO
Not regulated

ICAO/IATA
Not regulated

ADN
UN/ID No
UN9003
Proper shipping name
SUBSTANCES WITH A FLASH-POINT ABOVE 60°C AND NOT MORE THAN 100°C
Section 15: REGULATORY INFORMATION

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

European Union

REACH
The EC substance definition is included in the CAS related number description for global inventory entries

Other regulations
Directive 1999/13/EC on the limitation of emissions of volatile organic compounds
Directive 2004/42/EC on the limitation of emissions of volatile organic compounds

Related CAS number
64742-48-9

International Inventories
The substance is listed or exempted from listing in the following inventories:
Europe (EINECS/ELINCS/NLP)
U.S.A. (TSCA)
Canada (DSL/NDSL)
Australia (AICS)
Korea (KECL)
China (IECSC)
Japan (ENCS)
Philippines (PICCS)
New Zealand (NZIoC)
Taiwan (TCSI)

Further information
No information available

15.2. Chemical Safety Assessment

Chemical Safety Assessment
A Chemical Safety Assessment has been carried out for this substance

Section 16: OTHER INFORMATION

Full text of H-Statements referred to under sections 2 and 3
H304 - May be fatal if swallowed and enters airways
EUH066 - Repeated exposure may cause skin dryness or cracking

Abbreviations, acronyms
ACGIH = American Conference of Governmental Industrial Hygienists
bw = body weight
bw/day = body weight/day
EC x = Effect Concentration associated with x% response
GLP = Good Laboratory Practice
IARC = International Agency for Research of Cancer
LC50 = 50% Lethal concentration - Concentration of a chemical in air or a chemical in water which causes the death of 50% (one half) of a group of test animals
LD50 = 50% Lethal Dose - Chemical amount, given at once, which causes the death of 50% (one half) of a group of test animals
LL = Lethal Loading
NIOSH = National Institute of Occupational Safety and Health
NOAEL = No Observed Adverse Effect Level
NOEC = No Observed Effect Concentration
NOEL = No Observed Effect Level
OECD = Organization for Economic Co-operation and Development
OSHA = Occupational Safety and Health Administration
UVCB = Substance of unknown or Variable composition, Complex reaction products or Biological material
DNEL = Derived No Effect Level
PNEC = Predicted No Effect Concentration
dw = dry weight
fw = fresh water
mw = marine water
or = occasional release

Legend  Section 8

TWA: Time Weight Average
STEL: Short Time Exposure Limit
PEL: Permissible exposure limit
REL: Recommended exposure limit
TLV: Threshold Limit Values

<table>
<thead>
<tr>
<th>Sensitizer</th>
<th>Skin designation</th>
</tr>
</thead>
<tbody>
<tr>
<td>+</td>
<td>*</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Hazard Designation</th>
<th>C: Carcinogen</th>
</tr>
</thead>
<tbody>
<tr>
<td>M: Mutagen</td>
<td>R: Toxic to reproduction</td>
</tr>
</tbody>
</table>

Revision Date: 2017-01-03
Revision Note: (M)SDS sections updated. Exposure scenario.
Further information: Other uses than those listed under section 1.2 may have been foreseen for the substance(s) contained in the product. Please contact us if your use is not listed under section 1.2.

This safety data sheet complies with the requirements of Regulation (EC) No. 1907/2006

This safety data sheet serves to complete but not to replace the technical product sheets. The information contained herein is given in good faith and is accurate to the best of knowledge at the date indicated above. It is understood by the user that any use of the product for purposes other than those for which it was designed entails potential risk. The information given herein in no way dispenses the user from knowing and applying all provisions regulating his activity. The user bears sole liability for the precautions required when using the product. The regulatory texts indicated herein are intended to aid the user to fulfill his obligations. This list is not to be considered complete and exhaustive. It is the user's responsibility to ensure that he is subject to no other obligations than those mentioned.

End of the Safety Data Sheet
1. Exposure scenario

Manufacture of substances, Industrial.

Use Descriptor
Sector of use
- SU3: Industrial Manufacturing (all)
- SU8: Manufacture of bulk, large scale chemicals (including petroleum products)
- SU9: Manufacture of fine chemicals
- SU10: Formulation [mixing] of preparations and/or re-packaging (excluding alloys)

Process Category
- PROC1: Use in closed process, no likelihood of exposure
- PROC2: Use in closed, continuous process with occasional controlled exposure
- PROC3: Use in closed batch process (synthesis or formulation)
- PROC4: Use in batch and other process (synthesis) where opportunity for exposure arises
- PROC8a: Transfer of substance or mixture (charging/discharging) from/to vessels/large containers at non dedicated facilities
- PROC8b: Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities
- PROC15: Use as a laboratory reagent

Environmental Release Category
- ERC1: Manufacture of substances
- ERC4: Industrial use of processing aids in processes and products, not becoming part of articles

Processes, tasks, activities covered
Manufacture of the substance or use as a process chemical or extraction agent within closed or contained systems. Includes incidental exposures during recycling/recovery, material transfers, storage, sampling, associated laboratory activities, maintenance and loading (including marine vessel/barge, road/rail car and bulk container).

2. Operational conditions and risk management measures

2.1. Control of environmental exposure

Product characteristics
Not applicable.

Amounts used
Not applicable

Environment factors not influenced by risk management
Not applicable

Other operational conditions of use affecting environmental exposure
Not applicable

Technical conditions and measures at process level to prevent release
Not applicable

Technical onsite conditions and measures to reduce or limit discharges, air emissions and releases to soil
Not applicable

Organizational measures to prevent/limit release from the site
Not applicable

Conditions and measures related to municipal sewage treatment plant
Not applicable

Conditions and measures related to external treatment of waste for disposal
Not applicable

Conditions and measures related to external recovery of waste
2.2. Control of exposure - Workers / Consumers

Product characteristics
Physical State
liquid

Concentration of substance in product
Covers percentage substance in the product up to 100 % (unless stated differently).

Frequency and duration of use
Covers daily exposures up to 8 hours (unless stated differently)

Other operational conditions affecting exposure
Assumes a good basic standard of occupational hygiene is implemented.

2.2a. Control of worker exposure

<table>
<thead>
<tr>
<th>Contributing Scenarios</th>
<th>Operational conditions and risk management measures</th>
</tr>
</thead>
<tbody>
<tr>
<td>Remarks</td>
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</tr>
</tbody>
</table>

2.2b. Control of consumer exposure

<table>
<thead>
<tr>
<th>Product Category(ies)</th>
<th>Operational conditions and risk management measures</th>
</tr>
</thead>
<tbody>
<tr>
<td>Remarks</td>
<td>Not applicable.</td>
</tr>
</tbody>
</table>

3. Exposure estimation and references

Health
Not applicable

Environment
Not applicable.

4. Guidance for Downstream User to check compliance with the Exposure scenario

Health
Available hazard data do not support the need for a DNEL to be established for other health effects. Risk Management Measures are based on qualitative risk characterisation.

Environment
Not applicable.
1. Exposure scenario

Distribution of substance, Industrial.

Use Descriptor
Sector of use
SU3 - Industrial Manufacturing (all)
SU8 - Manufacture of bulk, large scale chemicals (including petroleum products)
SU9 - Manufacture of fine chemicals

Process Category
PROC1 - Use in closed process, no likelihood of exposure
PROC2 - Use in closed, continuous process with occasional controlled exposure
PROC3 - Use in closed batch process (synthesis or formulation)
PROC4 - Use in batch and other process (synthesis) where opportunity for exposure arises
PROC8a - Transfer of substance or mixture (charging/discharging) from/to vessels/large containers at non dedicated facilities
PROC8b - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities
PROC9 - Transfer of substance or mixture into small containers (dedicated filling line, including weighing)
PROC15 - Use as a laboratory reagent

Environmental Release Category
ERC1 - Manufacture of substances
ERC2 - Formulation of mixtures
ERC3 - Formulation in materials
ERC4 - Industrial use of processing aids in processes and products, not becoming part of articles
ERC5 - Industrial use resulting in inclusion into or onto a matrix
ERC6a - Industrial use resulting in manufacture of another substance (use of intermediates)
ERC6b - Industrial use of reactive processing aids
ERC6c - Industrial use of monomers for manufacture of thermoplastics
ERC6d - Industrial use of process regulators for polymerization processes in production of resins, rubbers, polymers
ERC7 - Industrial use of substances in closed systems

Processes, tasks, activities covered
Loading (including marine vessel/barge, rail/road car and IBC loading) and repacking (including drums and small packs) of substance, including its sampling, storage, unloading distribution and associated laboratory activities.

2. Operational conditions and risk management measures

2.1. Control of environmental exposure

Product characteristics
Not applicable.

Amounts used
Not applicable

Environment factors not influenced by risk management
Not applicable

Other operational conditions of use affecting environmental exposure
Not applicable.

Technical conditions and measures at process level to prevent release
Not applicable.

Technical onsite conditions and measures to reduce or limit discharges, air emissions and releases to soil
Not applicable.

Organizational measures to prevent/limit release from the site
Not applicable.
2.2. Control of exposure - Workers / Consumers

Product characteristics
Physical State
liquid

Concentration of substance in product
Covers percentage substance in the product up to 100 % (unless stated differently).

Frequency and duration of use
Covers daily exposures up to 8 hours (unless stated differently)

Other operational conditions affecting exposure
Assumes a good basic standard of occupational hygiene is implemented.

2.2. Control of worker exposure

| Remarks |
| Contributing Scenarios | Operational conditions and risk management measures |
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2.2b. Control of consumer exposure

| Remarks |
| Product Category(ies) | Operational conditions and risk management measures |
| Not applicable. |

3. Exposure estimation and references

Health
Not applicable

Environment
Not applicable

4. Guidance for Downstream User to check compliance with the Exposure scenario

Health
Available hazard data do not support the need for a DNEL to be established for other health effects. Risk Management Measures are based on qualitative risk characterisation.

Environment
Not applicable.
1. Exposure scenario

Formulation & (re)packing of substances and mixtures, Industrial.

Use Descriptor
Sector of use
SU3 - Industrial Manufacturing (all)
SU10 - Formulation [mixing] of preparations and/or re-packing (excluding alloys)

Process Category
PROC1 - Use in closed process, no likelihood of exposure
PROC2 - Use in closed, continuous process with occasional controlled exposure
PROC3 - Use in closed batch process (synthesis or formulation)
PROC4 - Use in batch and other process (synthesis) where opportunity for exposure arises
PROC5 - Mixing or blending in batch processes for formulation of preparations and articles (multistage and/or significant contact)
PROC8a - Transfer of substance or mixture (charging/discharging) from/to vessels/large containers at non dedicated facilities
PROC8b - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities
PROC9 - Transfer of substance or mixture into small containers (dedicated filling line, including weighing)
PROC14 - Production of mixtures or articles by tabletting, compression, extrusion, pelletization
PROC15 - Use as a laboratory reagent

Environmental Release Category
ERC2 - Formulation of mixtures

Processes, tasks, activities covered
Formulation, packing and re-packing of the substance and its mixtures in batch or continuous operations, including storage, materials transfers, mixing, tabletting, compression, pelletisation, extrusion, large and small scale packing, sampling, maintenance and associated laboratory activities.

2. Operational conditions and risk management measures

2.1. Control of environmental exposure

Product characteristics
Not applicable.

Amounts used
Not applicable

Environment factors not influenced by risk management
Not applicable

Other operational conditions of use affecting environmental exposure
Not applicable.

Technical conditions and measures at process level to prevent release
Not applicable.

Technical onsite conditions and measures to reduce or limit discharges, air emissions and releases to soil
Not applicable.

Organizational measures to prevent/limit release from the site
Not applicable.

Conditions and measures related to municipal sewage treatment plant
Not applicable.

Conditions and measures related to external treatment of waste for disposal
Not applicable.

Conditions and measures related to external recovery of waste
2.2. Control of exposure - Workers / Consumers

Product characteristics

Physical State
liquid

Concentration of substance in product
Covers percentage substance in the product up to 100 % (unless stated differently).

Frequency and duration of use
Covers daily exposures up to 8 hours (unless stated differently)

Other operational conditions affecting exposure
Assumes a good basic standard of occupational hygiene is implemented.

2.2a. Control of worker exposure

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2.2b. Control of consumer exposure

<table>
<thead>
<tr>
<th>Remarks</th>
</tr>
</thead>
<tbody>
<tr>
<td>Not applicable.</td>
</tr>
</tbody>
</table>

3. Exposure estimation and references

Health
Not applicable

Environment
Not applicable

4. Guidance for Downstream User to check compliance with the Exposure scenario

Health
Available hazard data do not support the need for a DNEL to be established for other health effects. Risk Management Measures are based on qualitative risk characterisation.

Environment
Not applicable.
1. Exposure scenario

Uses in Coatings, Industrial.

Use Descriptor
Sector of use
SU3 - Industrial Manufacturing (all)

Process Category
PROC1 - Use in closed process, no likelihood of exposure
PROC2 - Use in closed, continuous process with occasional controlled exposure
PROC3 - Use in closed batch process (synthesis or formulation)
PROC4 - Use in batch and other process (synthesis) where opportunity for exposure arises
PROC5 - Mixing or blending in batch processes for formulation of preparations and articles (multistage and/or significant contact)
PROC7 - Industrial spraying
PROC8a - Transfer of substance or mixture (charging/discharging) from/to vessels/large containers at non dedicated facilities
PROC8b - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities
PROC9 - Transfer of substance or mixture into small containers (dedicated filling line, including weighing)
PROC10 - Roller application or brushing
PROC13 - Treatment of articles by dipping and pouring
PROC14 - Production of mixtures or articles by tabletting, compression, extrusion, pelletization
PROC15 - Use as a laboratory reagent

Environmental Release Category
ERC4 - Industrial use of processing aids in processes and products, not becoming part of articles

Processes, tasks, activities covered
Covers the use in coatings (paints, inks, adhesives, etc) including exposures during use (including materials receipt, storage, preparation and transfer from bulk and semi-bulk, application by spray, roller, spreader, dip, flow, fluidised bed on production lines and film formation) and equipment cleaning, maintenance and associated laboratory activities.

2. Operational conditions and risk management measures

2.1. Control of environmental exposure

Product characteristics
Not applicable.

Amounts used
Not applicable

Environment factors not influenced by risk management
Not applicable

Other operational conditions of use affecting environmental exposure
Not applicable.

Technical conditions and measures at process level to prevent release
Not applicable.

Technical onsite conditions and measures to reduce or limit discharges, air emissions and releases to soil
Not applicable.

Organizational measures to prevent/limit release from the site
Not applicable.

Conditions and measures related to municipal sewage treatment plant
Not applicable.

Conditions and measures related to external treatment of waste for disposal
Not applicable.
Conditions and measures related to external recovery of waste
Not applicable.

### 2.2. Control of exposure - Workers / Consumers

#### Product characteristics

**Physical State**
liquid

**Concentration of substance in product**
Covers percentage substance in the product up to 100 % (unless stated differently).

**Frequency and duration of use**
Covers daily exposures up to 8 hours (unless stated differently)

**Other operational conditions affecting exposure**
Assumes a good basic standard of occupational hygiene is implemented.

#### 2.2a. Control of worker exposure

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#### 2.2b. Control of consumer exposure

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<tr>
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</tr>
</thead>
<tbody>
<tr>
<td>Not applicable.</td>
</tr>
</tbody>
</table>

### 3. Exposure estimation and references

#### Health
Not applicable

#### Environment
Not applicable.

### 4. Guidance for Downstream User to check compliance with the Exposure scenario

#### Health
Available hazard data do not support the need for a DNEL to be established for other health effects. Risk Management Measures are based on qualitative risk characterisation.

#### Environment
Not applicable.
1. Exposure scenario

Uses in Coatings, Professional.

Use Descriptor
Sector of use
SU22 - Professional uses: Public domain (administration, education, entertainment, services, craftsmen)

Process Category
PROC1 - Use in closed process, no likelihood of exposure
PROC2 - Use in closed, continuous process with occasional controlled exposure
PROC3 - Use in closed batch process (synthesis or formulation)
PROC4 - Use in batch and other process (synthesis) where opportunity for exposure arises
PROC5 - Mixing or blending in batch processes for formulation of preparations and articles (multistage and/or significant contact)
PROC8a - Transfer of substance or mixture (charging/discharging) from/to vessels/large containers at non dedicated facilities
PROC8b - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities
PROC10 - Roller application or brushing
PROC11 - Non industrial spraying
PROC13 - Treatment of articles by dipping and pouring
PROC15 - Use as a laboratory reagent
PROC19 - Hand-mixing with intimate contact and only PPE available

Environmental Release Category
ERC8a - Wide dispersive indoor use of processing aids in open systems
ERC8d - Wide dispersive outdoor use of processing aids in open systems

Processes, tasks, activities covered
Covers the use in coatings (paints, inks, adhesives, etc) including exposures during use (including materials receipt, storage, preparation and transfer from bulk and semi-bulk, application by spray, roller, brush, spreader by hand or similar methods, and film formation), and equipment cleaning, maintenance and associated laboratory activities.

2. Operational conditions and risk management measures

2.1. Control of environmental exposure

Product characteristics
Not applicable.

Amounts used
Not applicable

Environment factors not influenced by risk management
Not applicable

Other operational conditions of use affecting environmental exposure
Not applicable.

Technical conditions and measures at process level to prevent release
Not applicable.

Technical onsite conditions and measures to reduce or limit discharges, air emissions and releases to soil
Not applicable

Organizational measures to prevent/limit release from the site
Not applicable.

Conditions and measures related to municipal sewage treatment plant
Not applicable

Conditions and measures related to external treatment of waste for disposal
Not applicable.
Conditions and measures related to external recovery of waste
Not applicable.

2.2. Control of exposure - Workers / Consumers

Product characteristics
Physical State
liquid

Concentration of substance in product
Covers percentage substance in the product up to 100 % (unless stated differently).

Frequency and duration of use
Covers daily exposures up to 8 hours (unless stated differently)

Other operational conditions affecting exposure
Assumes a good basic standard of occupational hygiene is implemented.

### 2.2a. Control of worker exposure

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### 2.2b. Control of consumer exposure

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<thead>
<tr>
<th>Product Category(ies)</th>
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</tr>
</thead>
</table>

Remarks
Not applicable.

3. Exposure estimation and references

Health
Not applicable

Environment
Not applicable.

4. Guidance for Downstream User to check compliance with the Exposure scenario

Health
Available hazard data do not support the need for a DNEL to be established for other health effects. Risk Management Measures are based on qualitative risk characterisation.

Environment
Not applicable.
1. Exposure scenario

Uses in Coatings, Consumer.

Use Descriptor
Sector of use
SU21 - Private households (=general public = consumers)

Product Category
PC1 - Adhesives, Sealants
PC4 - Anti-Freeze and De-icing products
PC9a - Coatings and Paints, Thinners, Paint removers
PC9b - Fillers, putties, plasters, modelling clay
PC9c - Finger paints
PC15 - Non-metal-surface treatment products
PC18 - Ink and Toners
PC23 - Leather tanning, dyes, finishing, impregnation and care products
PC24 - Lubricants, Greases and Release Products
PC31 - Polishes and Wax Blends
PC34 - Textile dyes, finishing and impregnating products including bleaches and other processing aids
PC0 - Other, excipient only

Environmental Release Category
ERC8a - Wide dispersive indoor use of processing aids in open systems
ERC8d - Wide dispersive outdoor use of processing aids in open systems

Processes, tasks, activities covered
Covers the use in coatings (paints, inks, adhesives, etc) including exposures during use (including product transfer and preparation, application by brush, spray by hand or similar methods) and equipment cleaning.

2. Operational conditions and risk management measures

2.1. Control of environmental exposure

Product characteristics
Not applicable.

Amounts used
Not applicable

Environment factors not influenced by risk management
Not applicable

Other operational conditions of use affecting environmental exposure
Not applicable.

Technical conditions and measures at process level to prevent release
Not applicable.

Technical onsite conditions and measures to reduce or limit discharges, air emissions and releases to soil
Not applicable

Organizational measures to prevent/limit release from the site
Not applicable.

Conditions and measures related to municipal sewage treatment plant
Not applicable.

Conditions and measures related to external treatment of waste for disposal
Not applicable.
2.2. Control of exposure - Workers / Consumers

Product characteristics
Physical State
liquid

Concentration of substance in product
Covers percentage substance in the product up to 100 % (unless stated differently).

Frequency and duration of use
Covers daily exposures up to 8 hours (unless stated differently)

Other operational conditions affecting exposure
Assumes a good basic standard of occupational hygiene is implemented.

2.2a. Control of worker exposure

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3. Exposure estimation and references

Health
Not applicable

Environment
Not applicable.

4. Guidance for Downstream User to check compliance with the Exposure scenario

Health
Available hazard data do not support the need for a DNEL to be established for other health effects. Risk Management Measures are based on qualitative risk characterisation.

Environment
Not applicable.
### 1. Exposure scenario

**Use in Cleaning Agents, Industrial.**

**Use Descriptor**
- **Sector of use**
  - SU3 - Industrial Manufacturing (all)

**Process Category**
- PROC1 - Use in closed process, no likelihood of exposure
- PROC2 - Use in closed, continuous process with occasional controlled exposure
- PROC3 - Use in closed batch process (synthesis or formulation)
- PROC4 - Use in batch and other process (synthesis) where opportunity for exposure arises
- PROC7 - Industrial spraying
- PROC8a - Transfer of substance or mixture (charging/discharging) from/to vessels/large containers at non dedicated facilities
- PROC8b - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities
- PROC10 - Roller application or brushing
- PROC13 - Treatment of articles by dipping and pouring

**Environmental Release Category**
- ERC4 - Industrial use of processing aids in processes and products, not becoming part of articles

**Processes, tasks, activities covered**
Covers the use as a component of cleaning products including transfer from storage, pouring/unloading from drums or containers
Exposures during mixing/diluting in the preparatory phase and cleaning activities (including spraying, brushing, dipping, wiping, automated and by hand), related equipment cleaning and maintenance.

### 2. Operational conditions and risk management measures

#### 2.1. Control of environmental exposure

**Product characteristics**
- Not applicable.

**Amounts used**
- Not applicable

**Environment factors not influenced by risk management**
- Not applicable

**Other operational conditions of use affecting environmental exposure**
- Not applicable.

**Technical conditions and measures at process level to prevent release**
- Not applicable.

**Technical onsite conditions and measures to reduce or limit discharges, air emissions and releases to soil**
- Not applicable

**Organizational measures to prevent/limit release from the site**
- Not applicable

**Conditions and measures related to municipal sewage treatment plant**
- Not applicable

**Conditions and measures related to external treatment of waste for disposal**
- Not applicable

**Conditions and measures related to external recovery of waste**
- Not applicable
2.2. Control of exposure - Workers / Consumers

Product characteristics

Physical State
liquid

Concentration of substance in product
Covers percentage substance in the product up to 100 % (unless stated differently).

Frequency and duration of use
Covers daily exposures up to 8 hours (unless stated differently)

Other operational conditions affecting exposure
Assumes a good basic standard of occupational hygiene is implemented.

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Operational Conditions (OCs) and implementation of Risk Management Measures (RMMs) need to be proportional to the degree of concern for the health hazard presented by the substance. The exposure by ingestion should not exist in the case of any permitted uses of the substance. The hazard statement H304 is related to a misuse that should not occur during the identified uses stated in section 1.2 of Material Safety Data Sheet (MSDS). In case of any risk, it should be controlled by implementing RMMs tailored specifically. For any substance classified H304, these RMMs should be communicated via the MSDS by the use of the following statement: « Do not ingest. If swallowed then seek immediate medical assistance », to cover this risk.

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</thead>
<tbody>
<tr>
<td><strong>Product Category(ies)</strong></td>
</tr>
<tr>
<td>Remarks</td>
</tr>
</tbody>
</table>
Not applicable.

3. Exposure estimation and references

Health
Not applicable

Environment
Not applicable

4. Guidance for Downstream User to check compliance with the Exposure scenario

Health
Available hazard data do not support the need for a DNEL to be established for other health effects. Risk Management Measures are based on qualitative risk characterisation.

Environment
Not applicable.
1. Exposure scenario

Use in Cleaning Agents, Professional.

Use Descriptor
Sector of use
SU22 - Professional uses: Public domain (administration, education, entertainment, services, craftsmen)

Process Category
PROC1 - Use in closed process, no likelihood of exposure
PROC2 - Use in closed, continuous process with occasional controlled exposure
PROC3 - Use in closed batch process (synthesis or formulation)
PROC4 - Use in batch and other process (synthesis) where opportunity for exposure arises
PROC8a - Transfer of substance or mixture (charging/discharging) from/to vessels/large containers at non dedicated facilities
PROC8b - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities
PROC10 - Roller application or brushing
PROC11 - Non industrial spraying
PROC13 - Treatment of articles by dipping and pouring

Environmental Release Category
ERC8a - Wide dispersive indoor use of processing aids in open systems
ERC8d - Wide dispersive outdoor use of processing aids in open systems

Processes, tasks, activities covered
Covers the use as a component of cleaning products including pouring/unloading from drums or containers; and exposures during mixing/diluting in the preparatory phase and cleaning activities (including spraying, brushing, dipping, wiping automated and by hand).

2. Operational conditions and risk management measures

2.1. Control of environmental exposure

Product characteristics
Not applicable.

Amounts used
Not applicable

Environment factors not influenced by risk management
Not applicable

Other operational conditions of use affecting environmental exposure
Not applicable

Technical conditions and measures at process level to prevent release
Not applicable

Technical onsite conditions and measures to reduce or limit discharges, air emissions and releases to soil
Not applicable

Organizational measures to prevent/limit release from the site
Not applicable

Conditions and measures related to municipal sewage treatment plant
Not applicable

Conditions and measures related to external treatment of waste for disposal
Not applicable

Conditions and measures related to external recovery of waste
Not applicable
2.2. Control of exposure - Workers / Consumers

Product characteristics
Physical State
liquid

Concentration of substance in product
Covers percentage substance in the product up to 100 % (unless stated differently).

Frequency and duration of use
Covers daily exposures up to 8 hours (unless stated differently)

Other operational conditions affecting exposure
Assumes a good basic standard of occupational hygiene is implemented.

### 2.2a. Control of worker exposure

<table>
<thead>
<tr>
<th>Remarks</th>
<th>Operational conditions and risk management measures</th>
</tr>
</thead>
<tbody>
<tr>
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### 2.2b. Control of consumer exposure

<table>
<thead>
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</tr>
</thead>
<tbody>
<tr>
<td>Not applicable.</td>
<td></td>
</tr>
</tbody>
</table>

3. Exposure estimation and references

Health
Not applicable

Environment
Not applicable.

4. Guidance for Downstream User to check compliance with the Exposure scenario

Health
Available hazard data do not support the need for a DNEL to be established for other health effects. Risk Management Measures are based on qualitative risk characterisation.

Environment
Not applicable.
1. Exposure scenario

Use in Cleaning Agents, Consumer.

Use Descriptor
Sector of use
SU21 - Private households (=general public = consumers)

Product Category
PC3 - Air care products
PC4 - Anti-Freeze and De-icing products
PC9a - Coatings and Paints, Thinners, Paint removers
PC9b - Fillers, putties, plasters, modelling clay
PC9c - Finger paints
PC24 - Lubricants, Greases and Release Products
PC35 - Washing and Cleaning Products (including solvent based products)
PC38 - Welding and soldering products (with flux coatings or flux cores.), flux products
PC0 - Other, excipient only

Environmental Release Category
ERC8a - Wide dispersive indoor use of processing aids in open systems
ERC8d - Wide dispersive outdoor use of processing aids in open systems

Processes, tasks, activities covered
Covers general exposures to consumers arising from the use of household products sold as washing and cleaning products, aerosols, coatings, de-icers, lubricants and air care products.

2. Operational conditions and risk management measures

2.1. Control of environmental exposure

Product characteristics
Not applicable.

Amounts used
Not applicable

Environment factors not influenced by risk management
Not applicable

Other operational conditions of use affecting environmental exposure
Not applicable.

Technical conditions and measures at process level to prevent release
Not applicable.

Technical onsite conditions and measures to reduce or limit discharges, air emissions and releases to soil
Not applicable.

Organizational measures to prevent/limit release from the site
Not applicable.

Conditions and measures related to municipal sewage treatment plant
Not applicable.

Conditions and measures related to external treatment of waste for disposal
Not applicable.

Conditions and measures related to external recovery of waste
Not applicable.
2.2. Control of exposure - Workers / Consumers

Product characteristics

Physical State
liquid

Concentration of substance in product
Covers percentage substance in the product up to 100 % (unless stated differently).

Frequency and duration of use
Covers daily exposures up to 8 hours (unless stated differently)

Other operational conditions affecting exposure
Assumes a good basic standard of occupational hygiene is implemented.

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Remarks
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Operational Conditions (OCs) and implementation of Risk Management Measures (RMMs) need to be proportional to the degree of concern for the health hazard presented by the substance.

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3. Exposure estimation and references

Health
Not applicable

Environment
Not applicable.

4. Guidance for Downstream User to check compliance with the Exposure scenario

Health
Available hazard data do not support the need for a DNEL to be established for other health effects. Risk Management Measures are based on qualitative risk characterisation.

Environment
Not applicable.
## 1. Exposure scenario

Use in laboratories, Industrial.

**Use Descriptor**  
Sector of use  
SU3 - Industrial Manufacturing (all)

**Process Category**  
PROC10 - Roller application or brushing  
PROC15 - Use as a laboratory reagent

**Environmental Release Category**  
ERC2 - Formulation of mixtures  
ERC4 - Industrial use of processing aids in processes and products, not becoming part of articles

**Processes, tasks, activities covered**  
Use of the substance within laboratory settings, including material transfers and equipment cleaning.

## 2. Operational conditions and risk management measures

### 2.1. Control of environmental exposure

**Product characteristics**  
Not applicable.

**Amounts used**  
Not applicable

**Environment factors not influenced by risk management**  
Not applicable

**Other operational conditions of use affecting environmental exposure**  
Not applicable.

**Technical conditions and measures at process level to prevent release**  
Not applicable.

**Technical onsite conditions and measures to reduce or limit discharges, air emissions and releases to soil**  
Not applicable.

**Organizational measures to prevent/limit release from the site**  
Not applicable.

**Conditions and measures related to municipal sewage treatment plant**  
Not applicable.

**Conditions and measures related to external treatment of waste for disposal**  
Not applicable.

**Conditions and measures related to external recovery of waste**  
Not applicable.

### 2.2. Control of exposure - Workers / Consumers

**Product characteristics**  
**Physical State**  
liquid

**Concentration of substance in product**  
Covers percentage substance in the product up to 100 % (unless stated differently).
Frequency and duration of use
Covers daily exposures up to 8 hours (unless stated differently)

Other operational conditions affecting exposure
Assumes a good basic standard of occupational hygiene is implemented.

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Remarks
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Remarks
Not applicable.

3. Exposure estimation and references

Health
Not applicable

Environment
Not applicable.

4. Guidance for Downstream User to check compliance with the Exposure scenario

Health
Available hazard data do not support the need for a DNEL to be established for other health effects.
Risk Management Measures are based on qualitative risk characterisation.

Environment
Not applicable.
1. Exposure scenario
Use in laboratories, Professional.

Use Descriptor
Sector of use
SU22 - Professional uses: Public domain (administration, education, entertainment, services, craftsmen)

Process Category
PROC10 - Roller application or brushing
PROC15 - Use as a laboratory reagent

Environmental Release Category
ERC8a - Wide dispersive indoor use of processing aids in open systems

Processes, tasks, activities covered
Use of the substance within laboratory settings, including material transfers and equipment cleaning.

2. Operational conditions and risk management measures

2.1. Control of environmental exposure

Product characteristics
Not applicable.

Amounts used
Not applicable

Environment factors not influenced by risk management
Not applicable

Other operational conditions of use affecting environmental exposure
Not applicable.

Technical conditions and measures at process level to prevent release
Not applicable.

Technical onsite conditions and measures to reduce or limit discharges, air emissions and releases to soil
Not applicable.

Organizational measures to prevent/limit release from the site
Not applicable.

Conditions and measures related to municipal sewage treatment plant
Not applicable.

Conditions and measures related to external treatment of waste for disposal
Not applicable.

Conditions and measures related to external recovery of waste
Not applicable.

2.2. Control of exposure - Workers / Consumers

Product characteristics
Physical State
liquid

Concentration of substance in product
Covers percentage substance in the product up to 100 % (unless stated differently).
**Frequency and duration of use**
Covers daily exposures up to 8 hours (unless stated differently)

**Other operational conditions affecting exposure**
Assumes a good basic standard of occupational hygiene is implemented.

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Not applicable.

**3. Exposure estimation and references**

**Health**
Not applicable

**Environment**
Not applicable.

**4. Guidance for Downstream User to check compliance with the Exposure scenario**

**Health**
Available hazard data do not support the need for a DNEL to be established for other health effects. Risk Management Measures are based on qualitative risk characterisation.

**Environment**
Not applicable.