# SAFETY DATA SHEET

according to Regulation (EC) No. 1907/2006

Version 6.1
Revision Date 17.04.2021
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## SECTION 1: Identification of the substance/mixture and of the company/undertaking

### 1.1 Product identifiers

Product name : Acetic acid

Product Number : 320099
Brand : SIGALD
Index-No. : 607-002-00-6
REACH No. : 01-2119475328-30-XXXX
CAS-No. : 64-19-7

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

Identified uses : Laboratory chemicals, Manufacture of substances

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

Company : Merck Life Science Limited
Vale Road
Arklow
CO WICKLOW
Y14 EK18
IRELAND

Telephone : +353 402-20300
E-mail address : TechnicalService@merckgroup.com

### 1.4 Emergency telephone

Emergency Phone # : +(353)-19014670 (CHEMTREC)

## SECTION 2: Hazards identification

### 2.1 Classification of the substance or mixture

**Classification according to Regulation (EC) No 1272/2008**
Flammable liquids (Category 3), H226
Skin corrosion (Sub-category 1A), H314
Serious eye damage (Category 1), H318

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

### 2.2 Label elements

**Labelling according Regulation (EC) No 1272/2008**
Pictogram

Signal word Danger

Hazard statement(s)

| | |
|---|---|
| H226 | Flammable liquid and vapor. |
| H314 | Causes severe skin burns and eye damage. |

Precautionary statement(s)

| | |
|---|---|
| P210 | Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking. |
| P280 | Wear protective gloves/ protective clothing/ eye protection/ face protection. |
| P303 + P361 + P353 | IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water. |
| 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. |

| | |
|---|---|
| Supplemental Hazard Statements | none |

**Reduced Labeling (<= 125 ml)**

Pictogram

| | |
|---|---|
| Signal word | Danger |

Hazard statement(s)

| | |
|---|---|
| H314 | Causes severe skin burns and eye damage. |

Precautionary statement(s)

| | |
|---|---|
| P280 | Wear protective gloves/ protective clothing/ eye protection/ face protection. |
| P303 + P361 + P353 | IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water. |
| 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. |

| | |
|---|---|
| Supplemental Hazard Statements | none |

### 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.

## SECTION 3: Composition/information on ingredients

### 3.1 Substances

| | | |
|---|---|---|
| Synonyms | : | Glacial acetic acid |
| Formula | : | $C_2H_4O_2$ |
| Molecular weight | : | 60.05 g/mol |
| CAS-No. | : | 64-19-7 |
| EC-No. | : | 200-580-7 |
| Index-No. | : | 607-002-00-6 |

| Component | | Classification | Concentration |
|---|---|---|---|
| **acetic acid** | | | |
| CAS-No. | 64-19-7 | Flam. Liq. 3; Skin Corr. | <= 100 % |

| | | | |
|---|---|---|---|
| EC-No.<br>Index-No. | 200-580-7<br>607-002-00-6 | 1A; Eye Dam. 1; H226, H314, H318<br>Concentration limits:<br>>= 90 %: Skin Corr. 1A, H314; 25 - < 90 %: Skin Corr. 1B, H314; 10 - < 25 %: Skin Irrit. 2, H315; 10 - < 25 %: Eye Irrit. 2, H319; 10 - < 25 %: Eye Irrit. 2, H319; 10 - < 25 %: Skin Irrit. 2, H315; 25 - < 90 %: Skin Corr. 1B, H314; >= 90 %: Skin Corr. 1A, H314; >= 90 %: 3, H226; | |

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**
Consult a physician. Show this material safety data sheet to the doctor in attendance.

**If inhaled**
If breathed in, move person into fresh air. If not breathing, give artificial respiration. Consult a physician.

**In case of skin contact**
Take off contaminated clothing and shoes immediately. Wash off with soap and plenty of water. Consult a physician.

**In case of eye contact**
Rinse thoroughly with plenty of water for at least 15 minutes and consult a physician.

**If swallowed**
Do NOT induce vomiting. Never give anything by mouth to an unconscious person. Rinse mouth with water. Consult a physician.

### 4.2 Most important symptoms and effects, both acute and delayed
The most important known symptoms and effects are described in the labelling (see section 2.2) and/or in section 11

### 4.3 Indication of any immediate medical attention and special treatment needed
No data available

## SECTION 5: Firefighting measures

### 5.1 Extinguishing media

**Suitable extinguishing media**
Dry powder Dry sand

**Unsuitable extinguishing media**
Do NOT use water jet.

### 5.2 Special hazards arising from the substance or mixture
Carbon oxides
Combustible.

### 5.3 Advice for firefighters
Wear self-contained breathing apparatus for firefighting if necessary.

### 5.4 Further information
Use water spray to cool unopened containers.

## SECTION 6: Accidental release measures

### 6.1 Personal precautions, protective equipment and emergency procedures
Use personal protective equipment. Avoid breathing vapors, mist or gas. Ensure adequate ventilation. Remove all sources of ignition. Evacuate personnel to safe areas. Beware of vapors accumulating to form explosive concentrations. Vapors can accumulate in low areas.
For personal protection see section 8.

### 6.2 Environmental precautions
Prevent further leakage or spillage if safe to do so. Do not let product enter drains.

### 6.3 Methods and materials for containment and cleaning up
Soak up with inert absorbent material (e.g. sand, silica gel, acid binder, universal binder, sawdust). Contain spillage, soak up with non-combustible absorbent material, (e.g. sand, earth, diatomaceous earth, vermiculite) and transfer to a container for disposal according to local / national regulations (see section 13).Contain spillage, and then collect with non-combustible absorbent material, (e.g. sand, earth, diatomaceous earth, vermiculite) and place in container for disposal according to local / national regulations (see section 13).

### 6.4 Reference to other sections
For disposal see section 13.

## SECTION 7: Handling and storage

### 7.1 Precautions for safe handling

**Advice on safe handling**
Avoid inhalation of vapor or mist.

**Advice on protection against fire and explosion**
Keep away from sources of ignition - No smoking.Take measures to prevent the build up of electrostatic charge.

**Hygiene measures**
Handle in accordance with good industrial hygiene and safety practice. Wash hands before breaks and at the end of workday.
For precautions see section 2.2.

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

**Storage conditions**
Keep container tightly closed in a dry and well-ventilated place. Containers which are opened must be carefully resealed and kept upright to prevent leakage. Store in cool place.

Moisture sensitive.

### 7.3 Specific end use(s)
Apart from the uses mentioned in section 1.2 no other specific uses are stipulated

## SECTION 8: Exposure controls/personal protection

### 8.1 Control parameters

**Ingredients with workplace control parameters**

| Component | CAS-No. | Value | Control parameters | Basis |
|---|---|---|---|---|
| acetic acid | 64-19-7 | TWA | 10 ppm<br>25 mg/m3 | Europe. Commission Directive 2017/164/EU establishing a fourth list of indicative occupational exposure limit values |
| | Remarks | Indicative | | |
| | | STEL | 20 ppm<br>50 mg/m3 | Europe. Commission Directive 2017/164/EU establishing a fourth list of indicative occupational exposure limit values |
| | | Indicative | | |
| | | OELV - 8 hrs (TWA) | 10 ppm<br>25 mg/m3 | Ireland. List of Chemical Agents and Occupational Exposure Limit Values - Schedule 1 |
| | | OELV - 15 min (STEL) | 20 ppm<br>50 mg/m3 | Ireland. List of Chemical Agents and Occupational Exposure Limit Values - Schedule 1 |

### 8.2 Exposure controls

**Personal protective equipment**

**Eye/face protection**
Tightly fitting safety goggles. Faceshield (8-inch minimum). Use equipment for eye protection tested and approved under appropriate government standards such as NIOSH (US) or EN 166(EU).

**Skin protection**
Handle with gloves. Gloves must be inspected prior to use. Use proper glove removal technique (without touching glove's outer surface) to avoid skin contact with this product. Dispose of contaminated gloves after use in accordance with applicable laws and good laboratory practices. Wash and dry hands.

The selected protective gloves have to satisfy the specifications of Regulation (EU) 2016/425 and the standard EN 374 derived from it.

Full contact
Material: butyl-rubber
Minimum layer thickness: 0.3 mm
Break through time: 480 min
Material tested:Butoject® (KCL 897 / Aldrich Z677647, Size M)

Splash contact
Material: Nature latex/chloroprene
Minimum layer thickness: 0.6 mm
Break through time: 32 min
Material tested:Lapren® (KCL 706 / Aldrich Z677558, Size M)

data source: KCL GmbH, D-36124 Eichenzell, phone +49 (0)6659 87300, e-mail sales@kcl.de, test method: EN374
If used in solution, or mixed with other substances, and under conditions which differ from EN 374, contact the supplier of the EC approved gloves. This recommendation is advisory only and must be evaluated by an industrial hygienist and safety officer familiar with the specific situation of anticipated use by our customers. It should not be construed as offering an approval for any specific use scenario.

**Body Protection**
Complete suit protecting against chemicals, Flame retardant antistatic protective clothing., The type of protective equipment must be selected according to the concentration and amount of the dangerous substance at the specific workplace.

**Respiratory protection**
Where risk assessment shows air-purifying respirators are appropriate use a full-face respirator with multi-purpose combination (US) or type ABEK (EN 14387) respirator cartridges as a backup to engineering controls. If the respirator is the sole means of protection, use a full-face supplied air respirator. Use respirators and components tested and approved under appropriate government standards such as NIOSH (US) or CEN (EU).

**Control of environmental exposure**
Prevent further leakage or spillage if safe to do so. Do not let product enter drains.

## SECTION 9: Physical and chemical properties

### 9.1 Information on basic physical and chemical properties

| | | |
|---|---|---|
| a) | Appearance | Form: liquid<br>Color: colorless |
| b) | Odor | stinging |
| c) | Odor Threshold | No data available |
| d) | pH | 2.5 at 50 g/l at 20 °C |
| e) | Melting point/freezing point | Melting point/range: 16.2 °C - lit. |
| f) | Initial boiling point and boiling range | 117 - 118 °C - lit. |
| g) | Flash point | 39 °C - closed cup |
| h) | Evaporation rate | No data available |
| i) | Flammability (solid, gas) | Not applicable |
| j) | Upper/lower flammability or explosive limits | Upper explosion limit: 19.9 %(V)<br>Lower explosion limit: 4 %(V) |
| k) | Vapor pressure | 20.79 hPa at 25 °C |
| l) | Vapor density | 2.07 |
| m) | Relative density | No data available |
| n) | Water solubility | 602.9 g/l at 25 °C at 1,013 hPa - completely soluble |

| | | |
|---|---|---|
| o) | Partition coefficient: n-octanol/water | log Pow: -0.17 at 25 °C - Bioaccumulation is not expected., (ECHA) |
| p) | Autoignition temperature | 463 °C |
| q) | Decomposition temperature | Distillable in an undecomposed state at normal pressure. |
| r) | Viscosity | Viscosity, kinematic: 1.17 mm2/s at 20 °C<br><br>Viscosity, dynamic: No data available |
| s) | Explosive properties | No data available |
| t) | Oxidizing properties | No data available |

**9.2 Other safety information**

| | |
|---|---|
| Surface tension | 28.8 mN/m at 10.0 °C |
| Relative vapor density | 2.07 |

## SECTION 10: Stability and reactivity

**10.1 Reactivity**
No data available

**10.2 Chemical stability**
Stable under recommended storage conditions.

**10.3 Possibility of hazardous reactions**
No data available

**10.4 Conditions to avoid**
Heat, flames and sparks.

**10.5 Incompatible materials**
Oxidizing agents, Soluble carbonates and phosphates, Hydroxides, Metals, Peroxides, permanganates, for example potassium permanganate, Amines, Alcohols, Nitric acid

**10.6 Hazardous decomposition products**
In the event of fire: see section 5

## SECTION 11: Toxicological information

**11.1 Information on toxicological effects**

**Acute toxicity**
LD50 Oral - Rat - 3,310 mg/kg
Remarks: (RTECS)
LC50 Inhalation - Mouse - 4 h - 2,819 mg/l
Remarks: (RTECS)

**Skin corrosion/irritation**
Skin - Rabbit
Result: Causes burns. - 4 h
(OECD Test Guideline 404)
Remarks: (IUCLID)

**Serious eye damage/eye irritation**
Eyes - Rabbit
Result: Causes burns. - 4 h
(OECD Test Guideline 405)
Remarks: (IUCLID)
Causes serious eye damage.

**Respiratory or skin sensitization**
No data available

**Germ cell mutagenicity**

Test Type: Ames test
Test system: Salmonella typhimurium
Metabolic activation: with and without metabolic activation
Method: OECD Test Guideline 471
Result: negative

Test Type: Mutagenicity (mammal cell test): chromosome aberration.
Test system: Chinese hamster ovary cells
Metabolic activation: with and without metabolic activation
Method: OECD Test Guideline 473
Result: negative

Test Type: Micronucleus test
Species: Rat
Cell type: Bone marrow
Application Route: inhalation (vapor)
Method: Mutagenicity (micronucleus test)
Result: negative

**Carcinogenicity**
No data available

**Reproductive toxicity**
No data available

**Specific target organ toxicity - single exposure**
No data available

**Specific target organ toxicity - repeated exposure**
No data available

**Aspiration hazard**
No data available

## 11.2 Additional Information

RTECS: AF1225000

Material is extremely destructive to tissue of the mucous membranes and upper respiratory tract, eyes, and skin., spasm, inflammation and edema of the larynx, spasm, inflammation and edema of the bronchi, pneumonitis, pulmonary edema, burning sensation, Cough, wheezing, laryngitis, Shortness of breath, Headache, Nausea, Vomiting, Ingestion or inhalation of concentrated acetic acid causes damage to tissues of the respiratory and digestive tracts. Symptoms include: hematemesis, bloody diarrhea, edema and/or perforation of the esophagus and pylorus, pancreatitis, hematuria, anuria, uremia,

albuminuria, hemolysis, convulsions, bronchitis, pulmonary edema, pneumonia, cardiovascular collapse, shock, and death. Direct contact or exposure to high concentrations of vapor with skin or eyes can cause: erythema, blisters, tissue destruction with slow healing, skin blackening, hyperkeratosis, fissures, corneal erosion, opacification, iritis, conjunctivitis, and possible blindness.
To the best of our knowledge, the chemical, physical, and toxicological properties have not been thoroughly investigated.

## SECTION 12: Ecological information

### 12.1 Toxicity

| | |
|---|---|
| Toxicity to fish | semi-static test LC50 - Oncorhynchus mykiss (rainbow trout) - > 1,000 mg/l - 96 h<br>(OECD Test Guideline 203) |
| Toxicity to daphnia and other aquatic invertebrates | static test EC50 - Daphnia magna (Water flea) - > 1,000 mg/l - 48 h<br>(OECD Test Guideline 202) |
| Toxicity to algae | static test EC50 - Skeletonema costatum - > 1,000 mg/l - 72 h<br>(ISO 10253) |
| Toxicity to bacteria | EC5 - Pseudomonas putida - 2,850 mg/l - 16 h<br>Remarks: neutral<br>(maximum permissible toxic concentration)<br>(Lit.)<br><br>microtox test EC50 - Photobacterium phosphoreum - 11 mg/l - 15 min<br>Remarks: (IUCLID) |

### 12.2 Persistence and degradability

| | |
|---|---|
| Biodegradability | Result: 99 % - Readily biodegradable.<br>(OECD Test Guideline 301D)<br>Remarks: (HSDB)<br><br>Result: 95 % - Readily eliminated from water<br>(OECD Test Guideline 302B) |
| Biochemical Oxygen Demand (BOD) | 880 mg/g<br>Remarks: (Lit.) |
| Ratio BOD/ThBOD | 76 %<br>Remarks: (IUCLID) |

### 12.3 Bioaccumulative potential

No data available

### 12.4 Mobility in soil

No data available

### 12.5 Results of PBT and vPvB assessment

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

### 12.6 Other adverse effects

Additional ecological information: No data available

## SECTION 13: Disposal considerations

### 13.1 Waste treatment methods

**Product**
Offer surplus and non-recyclable solutions to a licensed disposal company. Waste material must be disposed of in accordance with the Directive on waste 2008/98/EC as well as other national and local regulations. Leave chemicals in original containers. No mixing with other waste. Handle uncleaned containers like the product itself.

**Contaminated packaging**
Dispose of as unused product.

## SECTION 14: Transport information

### 14.1 UN number

ADR/RID: 2789 IMDG: 2789 IATA: 2789

### 14.2 UN proper shipping name

ADR/RID: ACETIC ACID, GLACIAL
IMDG: ACETIC ACID, GLACIAL
IATA: Acetic acid, glacial

### 14.3 Transport hazard class(es)

ADR/RID: 8 (3) IMDG: 8 (3) IATA: 8 (3)

### 14.4 Packaging group

ADR/RID: II IMDG: II IATA: II

### 14.5 Environmental hazards

ADR/RID: no IMDG Marine pollutant: no IATA: no

### 14.6 Special precautions for user

No data available

## SECTION 15: Regulatory information

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

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

**National legislation**

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

: FLAMMABLE LIQUIDS

### 15.2 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.

| | |
|---|---|
| H226 | Flammable liquid and vapor. |
| H314 | Causes severe skin burns and eye damage. |
| H315 | Causes skin irritation. |
| H318 | Causes serious eye damage. |
| H319 | Causes serious eye irritation. |

### Further information


The above information is believed to be correct but does not purport to be all inclusive and shall be used only as a guide. The information in this document is based on the present state of our knowledge and is applicable to the product with regard to appropriate safety precautions. It does not represent any guarantee of the properties of the product. Sigma-Aldrich Corporation and its Affiliates shall not be held liable for any damage resulting from handling or from contact with the above product. See www.sigma-aldrich.com and/or the reverse side of invoice or packing slip for additional terms and conditions of sale.

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**Annex: Exposure scenario**

**Identified uses:**

**Use: Industrial use resulting in manufacture of another substance (use of intermediates)**

| |
|---|
| **SU 3:** Industrial uses: Uses of substances as such or in preparations at industrial sites |
| **SU 3, SU9:** Industrial uses: Uses of substances as such or in preparations at industrial sites, Manufacture of fine chemicals |
| **PC19:** Intermediate |
| **PROC1:** Use in closed process, no likelihood of exposure<br>**PROC2:** Use in closed, continuous process with occasional controlled exposure<br>**PROC3:** Use in closed batch process (synthesis or formulation)<br>**PROC4:** Use in batch and other process (synthesis) where opportunity for exposure arises<br>**PROC8a:** Transfer of substance or preparation (charging/ discharging) from/ to vessels/ large containers at non-dedicated facilities<br>**PROC8b:** Transfer of substance or preparation (charging/ discharging) from/ to vessels/ large containers at dedicated facilities |
| **ERC6a:** Industrial use resulting in manufacture of another substance (use of intermediates) |

**Use: Formulation of preparations**

| |
|---|
| **SU 3:** Industrial uses: Uses of substances as such or in preparations at industrial sites |
| **SU 10:** Formulation [mixing] of preparations and/ or re-packaging (excluding alloys) |
| **PROC3:** Use in closed batch process (synthesis or formulation)<br>**PROC4:** Use in batch and other process (synthesis) where opportunity for exposure arises<br>**PROC5:** Mixing or blending in batch processes for formulation of preparations and articles (multistage and/ or significant contact)<br>**PROC9:** Transfer of substance or preparation into small containers (dedicated filling line, including weighing) |
| **ERC2:** Formulation of preparations |

**Use: Surface treatment**

| |
|---|
| **SU 3:** Industrial uses: Uses of substances as such or in preparations at industrial sites |
| **SU 3:** Industrial uses: Uses of substances as such or in preparations at industrial sites |
| **PC35:** Washing and cleaning products (including solvent based products) |
| **PROC7:** Industrial spraying<br>**PROC10:** Roller application or brushing<br>**PROC13:** Treatment of articles by dipping and pouring |
| **ERC4:** Industrial use of processing aids in processes and products, not becoming part of articles |

**Use: Used as laboratory reagent.**

| |
|---|
| **SU 22:** Professional uses: Public domain (administration, education, entertainment, services, craftsmen) |
| **SU 3, SU 22, SU24:** Industrial uses: Uses of substances as such or in preparations at industrial sites, Professional uses: Public domain (administration, education, entertainment, services, craftsmen), Scientific research and development |
| **PC21:** Laboratory chemicals |
| **PROC15:** Use as laboratory reagent |
| **ERC8a:** Wide dispersive indoor use of processing aids in open systems |

## 1. Short title of Exposure Scenario: Industrial use resulting in manufacture of another substance (use of intermediates)

| | | |
|---|---|---|
| Main User Groups | : | **SU 3** |
| Sectors of end-use | : | **SU 3, SU9** |
| Chemical product category | : | **PC19** |
| Process categories | : | **PROC1, PROC2, PROC3, PROC4, PROC8a, PROC8b** |
| Environmental Release Categories | : | **ERC6a:** |

## 2. Exposure scenario

### 2.1 Contributing scenario controlling environmental exposure for: ERC6a

**Product characteristics**

| | | |
|---|---|---|
| Concentration of the Substance in Mixture/Article | : | Covers the percentage of the substance in the product up to 100 % (unless stated differently). |

### 2.2 Contributing scenario controlling worker exposure for: PROC1, PROC2, PROC3, PROC4, PROC8a, PROC8b, PC19

**Product characteristics**

| | | |
|---|---|---|
| Concentration of the Substance in Mixture/Article | : | Covers the percentage of the substance in the product up to 100 % (unless stated differently). |
| Physical Form (at time of use) | : | Medium volatile liquid |

**Frequency and duration of use**

| | | |
|---|---|---|
| Application duration | : | > 4 h |
| Frequency of use | : | 220 days/year |

**Other operational conditions affecting workers exposure**

| | | |
|---|---|---|
| Outdoor / Indoor | : | Indoor |

**Technical conditions and measures**

Use only in area provided with appropriate exhaust ventilation., Good work practice required.

**Organizational measures to prevent /limit releases, dispersion and exposure**

Ensure operatives are trained to minimize exposures.

**Conditions and measures related to personal protection, hygiene and health evaluation**

Use suitable eye protection and gloves., For personal protection see section 8.

## 3. Exposure estimation and reference to its source

**Environment**

A chemical safety assessment was performed according REACH Article 14(3), Annex I, sections 3 (Environmental Hazard assessment) and 4 (PBT/vPvB Assessment). As no hazard was identified, an exposure assessment and risk characterisation is not necessary (REACH Annex I section 5.0).

**Workers**

| Contributing Scenario | Exposure Assessment Method | Specific conditions | Value | Level of Exposure | RCR* |
|---|---|---|---|---|---|
| PROC1 | ECETOC TRA | Without Local Exhaust Ventilation | Dermal | 0.01 mg/kg BW/d | 0.001 |
| PROC1 | ECETOC TRA | Without Local Exhaust Ventilation | Inhalation | 0.03 mg/m³ | 0.001 |
| PROC2 | ECETOC TRA | With Local Exhaust Ventilation | Dermal | 0.27 mg/kg BW/d | 0.027 |
| PROC2 | ECETOC TRA | With Local Exhaust Ventilation | Inhalation | 1.25 mg/m³ | 0.05 |
| PROC3 | ECETOC TRA | With Local Exhaust Ventilation | Dermal | 0.14 mg/kg BW/d | 0.014 |
| PROC3 | ECETOC TRA | With Local Exhaust Ventilation | Inhalation | 2.5 mg/m³ | 0.1 |
| PROC4 | ECETOC TRA | With Local Exhaust Ventilation | Dermal | 1.37 mg/kg BW/d | 0.137 |
| PROC4 | ECETOC TRA | With Local Exhaust Ventilation | Inhalation | 5 mg/m³ | 0.2 |
| PROC8a | ECETOC TRA | Without Local Exhaust Ventilation | Dermal | 2.74 mg/kg BW/d | 0.274 |
| PROC8a | ECETOC TRA | Without Local Exhaust Ventilation | Inhalation | 12.51 mg/m³ | 0.5 |
| PROC8b | ECETOC TRA | With Local Exhaust Ventilation | Inhalation | 3.13 mg/m³ | 0.125 |
| PROC8b | ECETOC TRA | With Local Exhaust Ventilation | Dermal | 2.74 mg/kg BW/d | 0.274 |

*Risk characterisation ratio

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

Please refer to the following documents: ECHA Guidance on information requirements and chemical safety assessment Part D: Exposure Scenario Building, Part E: Risk Characterisation and Part G: Extending the SDS; VCI/Cefic REACH Practical Guides on Exposure Assessment and Communications in the Supply Chain; CEFIC Guidance Specific Environmental Release Categories (SPERCs).

## 1. Short title of Exposure Scenario: Formulation of preparations

| | | |
|---|---|---|
| Main User Groups | : | **SU 3** |
| Sectors of end-use | : | **SU 10** |
| Process categories | : | **PROC3, PROC4, PROC5, PROC9** |
| Environmental Release Categories | : | **ERC2:** |

## 2. Exposure scenario

### 2.1 Contributing scenario controlling environmental exposure for: ERC2

**Product characteristics**

| | | |
|---|---|---|
| Concentration of the Substance in Mixture/Article | : | Covers the percentage of the substance in the product up to 100 % (unless stated differently). |

### 2.2 Contributing scenario controlling worker exposure for: PROC3, PROC4, PROC5, PROC9

**Product characteristics**

| | | |
|---|---|---|
| Concentration of the Substance in Mixture/Article | : | Covers the percentage of the substance in the product up to 100 % (unless stated differently). |
| Physical Form (at time of use) | : | Medium volatile liquid |

**Frequency and duration of use**

| | | |
|---|---|---|
| Application duration | : | > 4 h |
| Frequency of use | : | 220 days/year |

**Other operational conditions affecting workers exposure**

| | | |
|---|---|---|
| Outdoor / Indoor | : | Indoor |

**Technical conditions and measures**

Use only in area provided with appropriate exhaust ventilation., Good work practice required.

**Organizational measures to prevent /limit releases, dispersion and exposure**

Ensure operatives are trained to minimize exposures.

**Conditions and measures related to personal protection, hygiene and health evaluation**

Use suitable eye protection and gloves., For personal protection see section 8.

## 3. Exposure estimation and reference to its source

**Environment**

A chemical safety assessment was performed according REACH Article 14(3), Annex I, sections 3 (Environmental Hazard assessment) and 4 (PBT/vPvB Assessment). As no hazard was identified, an exposure assessment and risk characterisation is not necessary (REACH Annex I section 5.0).

**Workers**

| Contributing Scenario | Exposure Assessment Method | Specific conditions | Value | Level of Exposure | RCR* |
|---|---|---|---|---|---|

| | | | | | |
|---|---|---|---|---|---|
| PROC3 | ECETOC TRA | With Local Exhaust Ventilation | Inhalation | 2.5 mg/m³ | 0.1 |
| PROC3 | ECETOC TRA | With Local Exhaust Ventilation | Dermal | 0.14 mg/kg BW/d | 0.014 |
| PROC4 | ECETOC TRA | With Local Exhaust Ventilation | Inhalation | 5 mg/m³ | 0.2 |
| PROC4 | ECETOC TRA | With Local Exhaust Ventilation | Dermal | 1.37 mg/kg BW/d | 0.137 |
| PROC5 | ECETOC TRA | With Local Exhaust Ventilation | Inhalation | 12.51 mg/m³ | 0.5 |
| PROC5 | ECETOC TRA | With Local Exhaust Ventilation | Dermal | 2.74 mg/kg BW/d | 0.274 |
| PROC9 | ECETOC TRA | With Local Exhaust Ventilation | Inhalation | 12.51 mg/m³ | 0.5 |
| PROC9 | ECETOC TRA | With Local Exhaust Ventilation | Dermal | 1.37 mg/kg BW/d | 0.137 |

*Risk characterisation ratio

**4. Guidance to Downstream User to evaluate whether he works inside the boundaries set by the Exposure Scenario**

Please refer to the following documents: ECHA Guidance on information requirements and chemical safety assessment Part D: Exposure Scenario Building, Part E: Risk Characterisation and Part G: Extending the SDS; VCI/Cefic REACH Practical Guides on Exposure Assessment and Communications in the Supply Chain; CEFIC Guidance Specific Environmental Release Categories (SPERCs).

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**1. Short title of Exposure Scenario: Surface treatment**

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Main User Groups : **SU 3**
Sectors of end-use : **SU 3**
Chemical product category : **PC35**
Process categories : **PROC7, PROC10, PROC13**
Environmental Release Categories : **ERC4:**

**2. Exposure scenario**

**2.1 Contributing scenario controlling environmental exposure for: ERC4**

**Product characteristics**

Concentration of the Substance in Mixture/Article : Covers the percentage of the substance in the product up to 25 %.

**2.2 Contributing scenario controlling worker exposure for: PROC7, PROC10, PROC13, PC35**

**Product characteristics**

Concentration of the Substance in Mixture/Article : Covers the percentage of the substance in the product up to 25 %.
Physical Form (at time of use) : Medium volatile liquid

**Frequency and duration of use**
Application duration : 0.25 - 1 h
Frequency of use : 220 days/year

**Other operational conditions affecting workers exposure**
Outdoor / Indoor : Indoor

**Technical conditions and measures**
Use only in area provided with appropriate exhaust ventilation., Good work practice required.

**Organizational measures to prevent /limit releases, dispersion and exposure**
Ensure operatives are trained to minimize exposures.

**Conditions and measures related to personal protection, hygiene and health evaluation**
Use suitable eye protection and gloves., For personal protection see section 8.

## 3. Exposure estimation and reference to its source

### Environment

A chemical safety assessment was performed according REACH Article 14(3), Annex I, sections 3 (Environmental Hazard assessment) and 4 (PBT/vPvB Assessment). As no hazard was identified, an exposure assessment and risk characterisation is not necessary (REACH Annex I section 5.0).

### Workers

| Contributing Scenario | Exposure Assessment Method | Specific conditions | Value | Level of Exposure | RCR* |
|---|---|---|---|---|---|
| PROC7 | ECETOC TRA | Without Local Exhaust Ventilation | Dermal | 1.71 mg/kg BW/d | 0.171 |
| PROC7 | ECETOC TRA | Without Local Exhaust Ventilation | Inhalation | 6.26 mg/m³ | 0.25 |
| PROC10 | ECETOC TRA | Without Local Exhaust Ventilation | Dermal | 1.1 mg/kg BW/d | 0.11 |
| PROC10 | ECETOC TRA | Without Local Exhaust Ventilation | Inhalation | 2.5 mg/m³ | 0.1 |
| PROC13 | ECETOC TRA | Without Local Exhaust Ventilation | Dermal | 0.55 mg/kg BW/d | 0.055 |
| PROC13 | ECETOC TRA | Without Local Exhaust Ventilation | Inhalation | 2.5 mg/m³ | 0.1 |

*Risk characterisation ratio

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

Please refer to the following documents: ECHA Guidance on information requirements and chemical safety assessment Part D: Exposure Scenario Building, Part E: Risk Characterisation and Part G: Extending the SDS; VCI/Cefic REACH Practical Guides on Exposure Assessment and Communications in the Supply Chain; CEFIC Guidance Specific Environmental Release Categories (SPERCs).

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## 1. Short title of Exposure Scenario: Used as laboratory reagent.

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| | | |
|---|---|---|
| Main User Groups | : | **SU 22** |
| Sectors of end-use | : | **SU 3, SU 22, SU24** |
| Chemical product category | : | **PC21** |
| Process categories | : | **PROC15** |
| Environmental Release Categories | : | **ERC8a:** |

## 2. Exposure scenario

### 2.1 Contributing scenario controlling environmental exposure for: ERC8a

**Product characteristics**

| | | |
|---|---|---|
| Concentration of the Substance in Mixture/Article | : | Covers the percentage of the substance in the product up to 100 % (unless stated differently). |

### 2.2 Contributing scenario controlling worker exposure for: PROC15, PC21

**Product characteristics**

| | | |
|---|---|---|
| Concentration of the Substance in Mixture/Article | : | Covers the percentage of the substance in the product up to 100 % (unless stated differently). |
| Physical Form (at time of use) | : | Medium volatile liquid |

**Frequency and duration of use**

| | | |
|---|---|---|
| Application duration | : | > 4 h |
| Frequency of use | : | 220 days/year |

**Other operational conditions affecting workers exposure**

| | | |
|---|---|---|
| Outdoor / Indoor | : | Indoor |

**Technical conditions and measures**

Use only in area provided with appropriate exhaust ventilation., Good work practice required.

**Organizational measures to prevent /limit releases, dispersion and exposure**

Ensure operatives are trained to minimize exposures.

**Conditions and measures related to personal protection, hygiene and health evaluation**

Use suitable eye protection and gloves., For personal protection see section 8.

## 3. Exposure estimation and reference to its source

**Environment**

A chemical safety assessment was performed according REACH Article 14(3), Annex I, sections 3 (Environmental Hazard assessment) and 4 (PBT/vPvB Assessment). As no

hazard was identified, an exposure assessment and risk characterisation is not necessary (REACH Annex I section 5.0).

**Workers**

| Contributing Scenario | Exposure Assessment Method | Specific conditions | Value | Level of Exposure | RCR* |
|---|---|---|---|---|---|
| PROC15 | ECETOC TRA | With Local Exhaust Ventilation | Dermal | 0.07 mg/kg BW/d | 0.007 |
| PROC15 | ECETOC TRA | With Local Exhaust Ventilation | Inhalation | 5 mg/m³ | 0.2 |

*Risk characterisation ratio

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

Please refer to the following documents: ECHA Guidance on information requirements and chemical safety assessment Part D: Exposure Scenario Building, Part E: Risk Characterisation and Part G: Extending the SDS; VCI/Cefic REACH Practical Guides on Exposure Assessment and Communications in the Supply Chain; CEFIC Guidance Specific Environmental Release Categories (SPERCs).