# Acetic Acid 80 % FG

| Version | Revision Date: | SDS Number: | Date of last issue: 12.03.2026 |
|---|---|---|---|
| 2.1 | 19.03.2026 | 100047 | Date of first issue: 04.11.2024 |
| | | Region: DK | Print Date: 01.07.2026 |
| | | Language: EN | |

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

### 1.1 Product identifier

| | | |
|---|---|---|
| Trade name | : | Acetic Acid 80 % FG |
| Product code | : | 100047 |
| REACH Registration Number | : | 01-2119475328-30 |
| CAS-No. | : | 64-19-7 |
| EC-No. | : | 200-580-7 |
| Unique Formula Identifier (UFI) | : | 2F2K-116A-F09Q-AV6A |

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

| | | |
|---|---|---|
| Use of the Substance/Mixture | : | Uses by workers in industrial settings<br>Manufacture<br>Distribution<br>Formulation<br>Intermediate<br>Use in cleaning agents<br>Use in oil field drilling and production operations<br>Use in laboratories<br>Water treatment chemicals<br><br>Uses by professional workers<br>Use in cleaning agents<br>Agrochemical uses<br>Use in laboratories<br>Water treatment chemicals<br><br>Uses by consumers<br>Use in cleaning agents<br>Agrochemical uses<br><br>Most common technical function of substance (what it does):<br>Chemical intermediates<br>Process chemical<br>Cleaning agents<br>Agrochemicals |
| Uses advised against | : | No data available. |
| Reference to relevant exposure scenarios | : | For an overview of the exact titles of the relevant exposure scenarios please refer to section 16 of this SDS. |

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| | | Language: EN | |

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

| | | |
|---|---|---|
| Company | : | HELM SKANDINAVIEN A/S - Sales Office<br>Gustav III:e Boulevard 34<br>169 70 Solna |
| Telephone | : | +45/35860910 |
| E-mail address of person responsible for the SDS | : | HSK-SDS@helmag.com |

### 1.4 Emergency telephone number

For medical advice:
+45 82 12 12 12 (Giftlinjen Bispebjerg Hospital)
+44 1865 407333 (NCEC, National Chemical Emergency Centre)
In case of transport incidents and other emergencies:
+44 1865 407333 (NCEC, National Chemical Emergency Centre)

## SECTION 2: Hazards identification

### 2.1 Classification of the substance or mixture

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

| | |
|---|---|
| Skin corrosion, Sub-category 1B | H314: Causes severe skin burns and eye damage. |

### 2.2 Label elements

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

Hazard pictograms :



GHS05

| | | | |
|---|---|---|---|
| Signal word | : | Danger | |
| Hazard statements | : | H314 | Causes severe skin burns and eye damage. |
| Precautionary statements | : | **Prevention:** | |
| | | P280 | Wear protective gloves/ protective clothing/ eye protection/ face protection. |
| | | P260 | Do not breathe dust/ fume/ gas/ mist/ vapours/ spray. |
| | | P264 | Wash skin thoroughly after handling. |

**Response:**

P303 + P361 + P353 IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water.

P305 + P351 + P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.

P310 Immediately call a POISON CENTER/ doctor.

Hazardous components which must be listed on the label : acetic acid

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

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

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

## SECTION 3: Composition/information on ingredients

### 3.1 Substances

Not applicable

### 3.2 Mixtures

**Components**

| Chemical name | CAS-No.<br>EC-No.<br>Index-No.<br>Registration number | Classification | Concentration (% w/w) |
|---|---|---|---|
| acetic acid | 64-19-7<br>200-580-7<br>607-002-00-6<br>01-2119475328-30 | Flam. Liq. 3; H226<br>Skin Corr. 1A; H314<br>Eye Dam. 1; H318<br>———————<br>specific concentration | >= 75 - < 80 |

| | | | |
|---|---|---|---|
| | | limit<br>Skin Corr. 1A; H314<br>>= 90 %<br>Skin Corr. 1B; H314<br>25 - < 90 %<br>Skin Irrit. 2; H315<br>10 - < 25 %<br>Eye Irrit. 2; H319<br>10 - < 25 % | |

## SECTION 4: First aid measures

### 4.1 Description of first aid measures

General advice : Take off all contaminated clothing immediately.
Call a doctor immediately if allergic signs, particularly in the respiratory tract, are observed.
When symptoms persist or in all cases of doubt seek medical advice.

If inhaled : If inhaled, remove to fresh air.

If breathing is difficult, give oxygen.

In case of skin contact : Call a physician immediately.

In case of skin contact
Flush skin with large amounts of water. If irritation develops and persists, get medical attention.

In case of eye contact : Call a physician immediately.

In case of eye contact, remove contact lens and rinse immediately with plenty of water, also under the eyelids, for at least 15 minutes.
Protect unharmed eye.

If swallowed : Drink plenty of water.

Rinse mouth with water.
Do NOT induce vomiting.
Never give anything by mouth to an unconscious person.

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

Symptoms : No information available.

Risks : If ingested, severe burns of the mouth and throat, as well as a danger of perforation of the oesophagus and the stomach.

Causes serious eye damage.
Causes severe burns.

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

Treatment : Treat symptomatically.

## SECTION 5: Firefighting measures

### 5.1 Extinguishing media

Suitable extinguishing media : Alcohol-resistant foam
Dry chemical
Carbon dioxide (CO2)
Water spray

Unsuitable extinguishing media : High volume water jet

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

Hazardous combustion products : Carbon dioxide (CO2)
Carbon monoxide

### 5.3 Advice for firefighters

Special protective equipment for firefighters : In the event of fire, wear self-contained breathing apparatus.
Use personal protective equipment.

## SECTION 6: Accidental release measures

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

Personal precautions : Refer to protective measures listed in sections 7 and 8.
Ensure adequate ventilation.
Wear suitable protective clothing.
Avoid contact with skin, eyes and clothing.

### 6.2 Environmental precautions

Environmental precautions : Do not flush into surface water or sanitary sewer system.
Do not allow uncontrolled discharge of product into the environment.
Inform the responsible authorities in case of gas leakage, or of entry into waterways, soil or drains.

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

Methods for cleaning up : Contain spillage, and then collect with non-combustible absorbent material, (e.g. sand, earth, diatomaceous earth, ver-

miculite) and place in container for disposal according to local / national regulations (see section 13).

Dilute with plenty of water.
Use neutralizing agents.

### 6.4 Reference to other sections

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

## SECTION 7: Handling and storage

### 7.1 Precautions for safe handling

| | | |
|---|---|---|
| Advice on safe handling | : | Handle with care.<br>Avoid inhalation, ingestion and contact with skin and eyes.<br>Provide sufficient air exchange and/or exhaust in work rooms.<br><br>Avoid formation of aerosol. |
| Advice on protection against fire and explosion | : | Vapours may form explosive mixture with air. Keep away from sources of ignition - No smoking. Take measures to prevent the build up of electrostatic charge. |
| Hygiene measures | : | Avoid contact with skin, eyes and clothing. Contaminated work clothing should not be allowed out of the workplace. Wash hands before breaks and at the end of workday. Wash hands before eating, drinking, or smoking.<br><br>Do not inhale vapours. |

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

| | | |
|---|---|---|
| Requirements for storage areas and containers | : | Keep containers tightly closed in a dry, cool and well-ventilated place. Containers which are opened must be carefully resealed and kept upright to prevent leakage. Keep in properly labelled containers.<br><br>Keep in an area equipped with acid resistant flooring. |
| Advice on common storage | : | Substances to be avoided, pls. See chapter 10. |

### 7.3 Specific end use(s)

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

## SECTION 8: Exposure controls/personal protection

### 8.1 Control parameters

**Occupational Exposure Limits**

| Components | CAS-No. | Value type (Form of exposure) | Control parameters | Basis |
|---|---|---|---|---|
| acetic acid | 64-19-7 | TWA | 10 ppm<br>25 mg/m3 | 2017/164/EU |
| | Further information: Indicative | | | |
| | | STEL | 20 ppm<br>50 mg/m3 | 2017/164/EU |
| | Further information: Indicative | | | |
| | | GV | 10 ppm<br>25 mg/m3 | DK OEL |
| | Further information: Guiding list of organic solvents. | | | |
| | | S | 20 ppm<br>50 mg/m3 | DK OEL |
| | Further information: Guiding list of organic solvents. | | | |

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

| Substance name | End Use | Exposure routes | Potential health effects | Value |
|---|---|---|---|---|
| acetic acid | Workers | Inhalation | Long-term exposure, Chronic effects, Local effects | 25 mg/m3 |
| | Workers | Inhalation | Short-term exposure, Acute effects, Local effects | 25 mg/m3 |
| | Consumers | Inhalation | Long-term exposure, Chronic effects, Local effects | 25 mg/m3 |
| | Consumers | Inhalation | Short-term exposure, Acute effects, Local effects | 25 mg/m3 |

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

| Substance name | Environmental Compartment | Value |
|---|---|---|
| acetic acid | Fresh water | 3,058 mg/l |
| | Marine water | 0,3058 mg/l |
| | Fresh water sediment | 11,36 mg/kg |
| | Other environmental compartments | 1,136 mg/kg |
| | Aqua intermittent | 30,58 mg/l |
| | Soil | 0,47 mg/kg |
| | Sewage treatment plant | 85 mg/l |

### 8.2 Exposure controls

**Engineering measures**

Effective exhaust ventilation system
Maintain air concentrations below occupational exposure standards.

**Personal protective equipment**

Eye/face protection : Tightly fitting safety goggles
Equipment should conform to EN 166

Hand protection

| | | |
|---|---|---|
| Material | : | butyl-rubber |
| Break through time | : | > 480 min |
| Glove thickness | : | 0,6 - 0,8 mm |

Remarks : Protective gloves complying with EN 374. Gloves must be inspected prior to use. Please observe the instructions regarding permeability and breakthrough time which are provided by the supplier of the gloves. Also take into consideration the specific local conditions under which the product is used, such as the danger of cuts, abrasion, and the contact time. Gloves should be discarded and replaced if there is any indication of degradation or chemical breakthrough.

Skin and body protection : Choose body protection in relation to its type, to the concentration and amount of dangerous substances, and to the specific work-place.
acid-resistant protective clothing

Respiratory protection : Apply technical measures to comply with the occupational exposure limits.
When workers are facing concentrations above the exposure limit they must use appropriate certified respirators.

Breathing apparatus needed only when aerosol or mist is formed.

Filter type : Type A (A)

Protective measures : Ensure that eye flushing systems and safety showers are located close to the working place.

## SECTION 9: Physical and chemical properties

9.1 Information on basic physical and chemical properties

Physical state : liquid

| | | |
|---|---|---|
| Colour | : | colourless |
| Odour | : | stinging |
| Odour Threshold | : | No data available |
| Melting point/range | : | 16,64 °C<br>Source: ECHA |
| Boiling point/boiling range | : | 117,9 °C (1.013 hPa)<br>Source: ECHA |
| Flammability | : | Does not sustain combustion. |
| Upper explosion limit / Upper flammability limit | : | 19,9 %(V)<br>Source: ECHA |
| Lower explosion limit / Lower flammability limit | : | 4 %(V)<br>Source: ECHA |
| Flash point | : | > 60 °C |
| Auto-ignition temperature | : | 463 °C<br>Source: ECHA |
| pH | : | ca. 1,8 |
| Viscosity | | |
| Viscosity, dynamic | : | 1,056 mPa.s (25 °C)<br>Source: ECHA |
| Viscosity, kinematic | : | No data available |
| Solubility(ies) | | |
| Water solubility | : | 602,9 g/l (25 °C)<br>Source: ECHA |
| Solubility in other solvents | : | No data available |

| | | |
|---|---|---|
| Partition coefficient: n-octanol/water | : | log Pow: -0,17 (20 °C)<br>Source: CSR |
| Vapour pressure | : | 20,79 hPa (25 °C)<br>Source: ECHA |
| Density | : | ca. 1,09 g/cm3 |
| Relative vapour density | : | No data available |

**9.2 Other information**

## SECTION 10: Stability and reactivity

**10.1 Reactivity**

No dangerous reaction known under conditions of normal use.

**10.2 Chemical stability**

No decomposition if stored and applied as directed.

**10.3 Possibility of hazardous reactions**

Hazardous reactions : No dangerous reaction known under conditions of normal use.

**10.4 Conditions to avoid**

Conditions to avoid : None known.

**10.5 Incompatible materials**

Materials to avoid : Oxidizing agents
Bases
Peroxides
Gives off hydrogen by reaction with metals.
Corrosive to metals

**10.6 Hazardous decomposition products**

None, when used as directed.

## SECTION 11: Toxicological information

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

**Acute toxicity**

Not classified based on available information.

**Product:**

| | | |
|---|---|---|
| Acute oral toxicity | : | LD50 (Rat): 3.320 mg/kg<br>Remarks: Source: ECHA |
| Acute inhalation toxicity | : | LC50 (Rat): > 40.000 mg/m3<br>Exposure time: 4 h<br>Test atmosphere: vapour<br>Remarks: Source: ECHA |

**Components:**

**acetic acid, CAS: 64-19-7, EINECS: 200-580-7**

| | | |
|---|---|---|
| Acute oral toxicity | : | LD50 (Rat, male and female): 3.310 mg/kg |

**Skin corrosion/irritation**

Causes severe burns.

**Serious eye damage/eye irritation**

Causes serious eye damage.

**Product:**

| | | |
|---|---|---|
| Assessment | : | Risk of serious damage to eyes. |

**Respiratory or skin sensitisation**

**Skin sensitisation**

Not classified based on available information.

**Product:**

| | | |
|---|---|---|
| Exposure routes | : | Dermal |
| Result | : | Does not cause skin sensitisation. |
| Remarks | : | Source: ECHA |

**Respiratory sensitisation**

Not classified based on available information.

**Germ cell mutagenicity**

Not classified based on available information.

**Product:**

| | | |
|---|---|---|
| Germ cell mutagenicity- Assessment | : | Based on available data, the classification criteria are not met.<br>Remarks: Source: ECHA |

**Carcinogenicity**

Not classified based on available information.

**Product:**

| | | |
|---|---|---|
| Carcinogenicity - Assessment | : | Based on available data, the classification criteria are not met.<br>Remarks: Source: ECHA |

**Reproductive toxicity**

Not classified based on available information.

**Product:**

| | | |
|---|---|---|
| Reproductive toxicity - Assessment | : | Based on available data, the classification criteria are not met.<br>Remarks: Source: ECHA |

**STOT - single exposure**

Not classified based on available information.

**STOT - repeated exposure**

Not classified based on available information.

**Aspiration toxicity**

Not classified based on available information.

### 11.2 Information on other hazards

**Endocrine disrupting properties**

**Product:**

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

**Further information**

**Product:**

| | | |
|---|---|---|
| Remarks | : | The product causes burns of eyes, skin and mucous membranes. |

## SECTION 12: Ecological information

### 12.1 Toxicity

**Product:**

| | | |
|---|---|---|
| Toxicity to fish | : | LC50 (Oncorhynchus mykiss (rainbow trout)): > 300,82 mg/l<br>Exposure time: 96 h<br>Method: OECD Test Guideline 203<br>Remarks: Source: ECHA |
| Toxicity to daphnia and other aquatic invertebrates | : | EC50 (Daphnia magna (Water flea)): > 300,82 mg/l<br>Exposure time: 48 h<br>Method: OECD Test Guideline 202<br>Remarks: Source: ECHA |

| | | |
|---|---|---|
| Toxicity to algae/aquatic plants | : | EC50 (Skeletonema costatum (marine diatom)): > 300,82 mg/l<br>Exposure time: 72 h<br>Method: OECD Test Guideline 201<br>Remarks: Source: ECHA |

**Components:**

**acetic acid, CAS: 64-19-7, EINECS: 200-580-7**

| | | |
|---|---|---|
| Toxicity to fish | : | NOEC (Oncorhynchus mykiss (rainbow trout)): > 300,82 mg/l<br>Exposure time: 96 h<br>Test Type: semi-static test<br>Method: OECD Test Guideline 203<br>Remarks: Source: ECHA |
| Toxicity to daphnia and other aquatic invertebrates | : | EC50 (Daphnia magna (Water flea)): > 300,82 mg/l<br>Exposure time: 48 h<br>Test Type: static test<br>Remarks: Source: ECHA |
| Toxicity to algae/aquatic plants | : | EC50 (Skeletonema costatum (marine diatom)): > 300,82 mg/l<br>Exposure time: 72 h<br>Test Type: static test<br>Remarks: Source: ECHA |

### 12.2 Persistence and degradability

**Product:**

| | | |
|---|---|---|
| Biodegradability | : | Result: Readily biodegradable.<br>Remarks: Source: ECHA |

### 12.3 Bioaccumulative potential

**Product:**

| | | |
|---|---|---|
| Bioaccumulation | : | Bioconcentration factor (BCF): 3,16<br>Remarks: Not potentially bioaccumulative.<br>Source: ECHA |

### 12.4 Mobility in soil

**Product:**

| | | |
|---|---|---|
| Distribution among environmental compartments | : | Koc: 1,153<br>Remarks: Source: ECHA |

### 12.5 Results of PBT and vPvB assessment

**Product:**

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

### 12.6 Endocrine disrupting properties

**Product:**

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

### 12.7 Other adverse effects

**Product:**

| | | |
|---|---|---|
| Environmental fate and pathways | : | Do not allow uncontrolled discharge of product into the environment. |

## SECTION 13: Disposal considerations

### 13.1 Waste treatment methods

| | | |
|---|---|---|
| Product | : | In accordance with local and national regulations.<br>Waste codes should be assigned by the user, preferably in discussion with the waste disposal authorities.<br><br>Avoid discharge to drain or surface water. |
| Contaminated packaging | : | Packaging that is not properly emptied must be disposed of as the unused product.<br><br>Packaging that is not properly emptied must be disposed of as the unused product.<br>Empty containers should be taken to an approved waste handling site for recycling or disposal. |

## SECTION 14: Transport information

### 14.1 UN number or ID number

| | | |
|---|---|---|
| **ADN** | : | UN 2790 |
| **ADR** | : | UN 2790 |
| **RID** | : | UN 2790 |
| **IMDG** | : | UN 2790 |
| **IATA** | : | UN 2790 |

**14.2 UN proper shipping name**

| | | |
|---|---|---|
| **ADN** | : | ACETIC ACID SOLUTION |
| **ADR** | : | ACETIC ACID SOLUTION |
| **RID** | : | ACETIC ACID SOLUTION |
| **IMDG** | : | ACETIC ACID SOLUTION |
| **IATA** | : | Acetic acid solution |

**14.3 Transport hazard class(es)**

| | | Class | Subsidiary risks |
|---|---|---|---|
| **ADN** | : | 8 | |
| **ADR** | : | 8 | |
| **RID** | : | 8 | |
| **IMDG** | : | 8 | |
| **IATA** | : | 8 | |

**14.4 Packing group**

**ADN**

| | | |
|---|---|---|
| Packing group | : | II |
| Classification Code | : | C3 |
| Hazard Identification Number | : | 80 |
| Labels | : | 8 |

**ADR**

| | | |
|---|---|---|
| Packing group | : | II |
| Classification Code | : | C3 |
| Hazard Identification Number | : | 80 |
| Labels | : | 8 |
| Tunnel restriction code | : | (E) |

**RID**

| | | |
|---|---|---|
| Packing group | : | II |
| Classification Code | : | C3 |
| Hazard Identification Number | : | 80 |
| Labels | : | 8 |

**IMDG**

| | | |
|---|---|---|
| Packing group | : | II |
| Labels | : | 8 |
| EmS Code | : | F-A, S-B |

**IATA (Cargo)**

| | | |
|---|---|---|
| Packing instruction (cargo aircraft) | : | 855 |
| Packing instruction (LQ) | : | Y840 |
| Packing group | : | II |
| Labels | : | Corrosives |

**IATA (Passenger)**

| | | |
|---|---|---|
| Packing instruction (passenger aircraft) | : | 851 |
| Packing instruction (LQ) | : | Y840 |
| Packing group | : | II |
| Labels | : | Corrosives |

### 14.5 Environmental hazards

**ADN**
Environmentally hazardous : no

**ADR**
Environmentally hazardous : no

**RID**
Environmentally hazardous : no

**IMDG**
Marine pollutant : no

### 14.6 Special precautions for user

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

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

| | | |
|---|---|---|
| Ship type | : | 3 |
| Pollution category | : | Z |
| Remarks | : | Product Name: Acetic acid |

## SECTION 15: Regulatory information

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

| | | |
|---|---|---|
| REACH - Restrictions on the manufacture, placing on the market and use of certain dangerous substances, mixtures and articles (Annex XVII) | : | Conditions of restriction for the following entries should be considered: Number on list 3 |
| REACH - Candidate List of Substances of Very High | : | Not listed |

Concern for Authorisation (Article 59).

| | | |
|---|---|---|
| Regulation (EU) No 2024/590 on substances that deplete the ozone layer | : | Not listed |
| Regulation (EU) 2019/1021 on persistent organic pollutants (recast) | : | Not listed |
| Regulation (EU) No 649/2012 of the European Parliament and the Council concerning the export and import of dangerous chemicals | : | Not applicable |
| REACH - List of substances subject to authorisation (Annex XIV) | : | Not listed |
| Seveso III: Directive 2012/18/EU of the European Parliament and of the Council on the control of major-accident hazards involving dangerous substances. | | Not applicable |

**Other regulations:**
Adhere to the national sanitary and occupational safety regulations when using this product.

When evaluating a workplace, measures must be taken to ensure that employees are not exposed to conditions that may pose a risk during pregnancy or breastfeeding (cf. The Danish Working Environment Authority's Executive Order on The Performance of Work)

Young people under the age of 18 are not allowed to use or be exposed to the product professionally. Young people above the age of 15 are, however, except from this rule if the product is a necessary part of their education.

**PR-nr. DK** **:** 1921822

**The components of this product are reported in the following inventories:**

| | | |
|---|---|---|
| TCSI | : | On the inventory, or in compliance with the inventory |
| TSCA | : | All substances listed as active on the TSCA inventory |
| AIIC | : | On the inventory, or in compliance with the inventory |
| DSL | : | All components of this product are on the Canadian DSL |
| ENCS | : | On the inventory, or in compliance with the inventory |
| ISHL | : | On the inventory, or in compliance with the inventory |

| | | |
|---|---|---|
| KECI | : | On the inventory, or in compliance with the inventory |
| PICCS | : | On the inventory, or in compliance with the inventory |
| IECSC | : | On the inventory, or in compliance with the inventory |
| NZIoC | : | On the inventory, or in compliance with the inventory |
| TECI | : | On the inventory, or in compliance with the inventory |

**15.2 Chemical safety assessment**

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

## SECTION 16: Other information

**Sources of key data used to compile the Safety Data Sheet**

Regulation (EC) No 1907/2006 (REACH), 1272/2008 (CLP) as amended in each case.EC Directives 2000/39/EC, 2006/15/EC, 2009/161/EU
National Threshold Limit Values of the corresponding countries as amended in each case.
Transport regulations according to ADR, RID, IMDG, IATA as amended in each case.
The data sources used to determine physical, toxic and ecotoxic data, are indicated directly in the corresponding chapter.

**Full text of H-Statements**

| | | |
|---|---|---|
| H226 | : | Flammable liquid and vapour. |
| H314 | : | Causes severe skin burns and eye damage. |
| H318 | : | Causes serious eye damage. |

**Full text of other abbreviations**

| | | |
|---|---|---|
| Eye Dam. | : | Serious eye damage |
| Flam. Liq. | : | Flammable liquids |
| Skin Corr. | : | Skin corrosion |
| 2017/164/EU | : | Europe. Commission Directive 2017/164/EU establishing a fourth list of indicative occupational exposure limit values |
| DK OEL | : | Denmark. Occupational Exposure Limits |
| 2017/164/EU / STEL | : | Short term exposure limit |
| 2017/164/EU / TWA | : | Limit Value - eight hours |
| DK OEL / S | : | Exposure period of 15 minutes |
| DK OEL / GV | : | Long term exposure limit |

ADN - European Agreement concerning the International Carriage of Dangerous Goods by Inland Waterways; ADR - Agreement concerning the International Carriage of Dangerous Goods by Road; AIIC - Australian Inventory of Industrial Chemicals; ASTM - American Society for the Testing of Materials; bw - Body weight; CLP - Classification Labelling Packaging Regulation; Regulation (EC) No 1272/2008; CMR - Carcinogen, Mutagen or Reproductive Toxicant; DIN - Standard of the German Institute for Standardisation; DSL - Domestic Substances List (Canada); ECHA - European Chemicals Agency; EC-Number - European Community number; ECx - Concentration associated with x% response; ELx - Loading rate associated with x% response; EmS - Emergency Schedule; ENCS - Existing and New Chemical Substances (Japan); ErCx - Concentration as-

sociated with x% growth rate response; GHS - Globally Harmonised System; GLP - Good Laboratory Practice; IARC - International Agency for Research on Cancer; IATA - International Air Transport Association; IBC - International Code for the Construction and Equipment of Ships carrying Dangerous Chemicals in Bulk; IC50 - Half maximal inhibitory concentration; ICAO - International Civil Aviation Organization; IECSC - Inventory of Existing Chemical Substances in China; IMDG - International Maritime Dangerous Goods; IMO - International Maritime Organisation; ISHL - Industrial Safety and Health Law (Japan); ISO - International Organisation for Standardisation; KECI - Korea Existing Chemicals Inventory; LC50 - Lethal Concentration to 50 % of a test population; LD50 - Lethal Dose to 50% of a test population (Median Lethal Dose); MARPOL - International Convention for the Prevention of Pollution from Ships; n.o.s. - Not Otherwise Specified; NO(A)EC - No Observed (Adverse) Effect Concentration; NO(A)EL - No Observed (Adverse) Effect Level; NOELR - No Observable Effect Loading Rate; NZIoC - New Zealand Inventory of Chemicals; OECD - Organisation for Economic Co-operation and Development; OPPTS - Office of Chemical Safety and Pollution Prevention; PBT - Persistent, Bioaccumulative and Toxic substance; PICCS - Philippines Inventory of Chemicals and Chemical Substances; (Q)SAR - (Quantitative) Structure Activity Relationship; REACH - Regulation (EC) No 1907/2006 of the European Parliament and of the Council concerning the Registration, Evaluation, Authorisation and Restriction of Chemicals; RID - Regulations concerning the International Carriage of Dangerous Goods by Rail; SADT - Self-Accelerating Decomposition Temperature; SDS - Safety Data Sheet; SVHC - Substance of Very High Concern; TCSI - Taiwan Chemical Substance Inventory; TECI - Thailand Existing Chemicals Inventory; TRGS - Technical Rule for Hazardous Substances; TSCA - Toxic Substances Control Act (United States); UN - United Nations; vPvB - Very Persistent and Very Bioaccumulative

**Further information**

Other information : Safety data sheet according to regulation (EU) No. 2020/878

New main version generated due to SDS template update.

| **Classification of the mixture:** | | **Classification procedure:** |
|---|---|---|
| Skin Corr. 1B | H314 | Calculation method |

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The safety data sheet describes products with a view to safety requirements.
It does not however, constitute a guarantee for any specific product properties and shall not establish a legally valid contractual relationship.

DK / EN

## Acetic Acid 80 % FG

| Version | Revision Date: | SDS Number: | Date of last issue: 12.03.2026 |
|---|---|---|---|
| 2.1 | 19.03.2026 | 100047 | Date of first issue: 04.11.2024 |
| | | Region: DK | Print Date: 01.07.2026 |
| | | Language: EN | |

# Annex: Exposure Scenarios

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## ES 1: Formulation and (re)packing of substance and mixtures, Industrial use

### 1.1. Title section

| | | |
|---|---|---|
| **Exposure Scenario name** | : | Formulation and (re)packing of substance and mixtures, Industrial use |
| **Life Cycle Stage** | : | Formulation |
| **Main user group** | : | SU3 Industrial uses |
| **Substance** | : | acetic acid<br>Registration number: 01-2119475328-30<br>CAS-No.: 64-19-7<br>EC-No.: 200-580-7 |

| | | |
|---|---|---|
| **Environment** | | |
| **CS 1** | Formulation into mixture | ERC2 |
| **Worker** | | |
| **CS 2** | Chemical production or refinery in closed process without likelihood of exposure or processes with equivalent containment conditions | PROC1 |
| **CS 3** | Chemical production or refinery in closed continuous process with occasional controlled exposure or processes with equivalent containment conditions | PROC2 |
| **CS 4** | Manufacture or formulation in the chemical industry in closed batch processes with occasional controlled exposure or processes with equivalent containment condition | PROC3 |
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| **CS 10** | Tabletting, compression, extrusion, pelettisation, granulation | PROC14 |
| **CS 11** | Use as laboratory reagent | PROC15 |

| |
|---|
| **Other information** |

| |
|---|
| The efficiency of a risk management measure is a theoretical value. The efficiency describes to which extend (in percent) the calculated exposure can be diminished by applying a certain measure. If the described operational conditions and risk management measures are fulfilled by a downstream user, the efficiency as highlighted in the ES can be applied. A downstream user might check whether the efficiency of the LEV or general ventilation corresponds to his site. |
| For further instructions related to "Personal protective equipment" please refer to section 8 of the Safety Data Sheet. |

### 1.2. Conditions of use affecting exposure

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

| **Product (article) characteristics** | | |
|---|---|---|
| Physical form of product | : | Liquid<br>Dustiness: not applicable |
| Vapour pressure | : | 20,79 hPa |
| Temperature | : | 25 °C |
| **Conditions and measures related to treatment of waste (including article waste)** | | |
| Waste treatment | : | Ensure all waste water is collected and treated via a WWTP. |

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

| **Product (article) characteristics** | | |
|---|---|---|
| Covers concentrations up to 100 % | | |
| Physical form of product | : | Liquid<br>Dustiness: not applicable |
| Vapour pressure | : | 20,79 hPa |
| Temperature | : | 25 °C |
| **Amount used (or contained in articles), frequency and duration of use/exposure** | | |
| Duration | : | <= 8 h |
| Use frequency | : | <= 220 days per year |
| **Technical and organisational conditions and measures** | | |

| | | |
|---|---|---|
| No specific measures identified. | | |
| **Conditions and measures related to personal protection, hygiene and health evaluation** | | |
| Wear suitable gloves for handling strong sensitizing and corrosive substances in cases where exposure can occur | | |
| **Other conditions affecting workers exposure** | | |
| Indoor or outdoor use | : | Covers indoor and outdoor use. |

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

| | | |
|---|---|---|
| **Product (article) characteristics** | | |
| Covers concentrations up to 100 % | | |
| Physical form of product | : | Liquid<br>Dustiness: not applicable |
| Vapour pressure | : | 20,79 hPa |
| Temperature | : | 25 °C |
| **Amount used (or contained in articles), frequency and duration of use/exposure** | | |
| Duration | : | <= 8 h |
| Use frequency | : | <= 220 days per year |
| **Technical and organisational conditions and measures** | | |
| Provide a good standard of general ventilation (not less than 3 to 5 air changes per hour).<br>No specific measures identified.<br>Inhalation - minimum efficiency of 30 % | | |
| **Conditions and measures related to personal protection, hygiene and health evaluation** | | |
| Wear suitable gloves for handling strong sensitizing and corrosive substances in cases where exposure can occur | | |
| **Other conditions affecting workers exposure** | | |
| Indoor or outdoor use | : | Covers indoor and outdoor use. |

**1.2.4. Control of worker exposure: Manufacture or formulation in the chemical industry in closed batch processes with occasional controlled exposure or processes with equivalent containment condition (PROC3)**

| | | |
|---|---|---|
| **Product (article) characteristics** | | |
| Covers concentrations up to 100 % | | |
| Physical form of product | : | Liquid<br>Dustiness: not applicable |
| Vapour pressure | : | 20,79 hPa |
| Temperature | : | 25 °C |
| **Amount used (or contained in articles), frequency and duration of use/exposure** | | |
| Duration | : | <= 4 h |
| Use frequency | : | <= 220 days per year |
| **Technical and organisational conditions and measures** | | |
| Handle only in a place equipped with local exhaust (or other appropriate exhaust).<br>No specific measures identified.<br>Inhalation - minimum efficiency of 90 % | | |
| **Conditions and measures related to personal protection, hygiene and health evaluation** | | |
| Wear suitable gloves for handling strong sensitizing and corrosive substances in cases where exposure can occur | | |
| **Other conditions affecting workers exposure** | | |
| Indoor or outdoor use | : | Indoor use |

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

| | | |
|---|---|---|
| **Product (article) characteristics** | | |
| Covers concentrations up to 100 % | | |
| Physical form of product | : | Liquid<br>Dustiness: not applicable |
| Vapour pressure | : | 20,79 hPa |
| Temperature | : | 25 °C |

| | | |
|---|---|---|
| **Amount used (or contained in articles), frequency and duration of use/exposure** | | |
| Duration | : | <= 8 h |
| Use frequency | : | <= 220 days per year |
| **Technical and organisational conditions and measures** | | |
| Provide extraction ventilation at points where emissions occur.<br>No specific measures identified.<br>Inhalation - minimum efficiency of 90 % | | |
| **Conditions and measures related to personal protection, hygiene and health evaluation** | | |
| Hand protection: No special measures necessary. | | |
| **Other conditions affecting workers exposure** | | |
| Indoor or outdoor use | : | Indoor use |

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

| | | |
|---|---|---|
| **Product (article) characteristics** | | |
| Covers concentrations up to 100 % | | |
| Physical form of product | : | Liquid<br>Dustiness: not applicable |
| Vapour pressure | : | 20,79 hPa |
| Temperature | : | 25 °C |
| **Amount used (or contained in articles), frequency and duration of use/exposure** | | |
| Duration | : | <= 8 h |
| Use frequency | : | <= 220 days per year |
| **Technical and organisational conditions and measures** | | |
| Provide extraction ventilation at points where emissions occur.<br>No specific measures identified.<br>Inhalation - minimum efficiency of 90 % | | |
| **Conditions and measures related to personal protection, hygiene and health evaluation** | | |
| Wear suitable gloves for handling strong sensitizing and corrosive substances in cases where exposure | | |

| | | |
|---|---|---|
| can occur | | |
| **Other conditions affecting workers exposure** | | |
| Indoor or outdoor use | : | Indoor use |

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

| | | |
|---|---|---|
| **Product (article) characteristics** | | |
| Covers concentrations up to 100 % | | |
| Physical form of product | : | Liquid<br>Dustiness: not applicable |
| Vapour pressure | : | 20,79 hPa |
| Temperature | : | 25 °C |
| **Amount used (or contained in articles), frequency and duration of use/exposure** | | |
| Duration | : | <= 8 h |
| Use frequency | : | <= 220 days per year |
| **Technical and organisational conditions and measures** | | |
| Provide extraction ventilation at points where emissions occur.<br>Drain down and flush system prior to equipment break-in or maintenance.<br>Inhalation - minimum efficiency of 90 % | | |
| **Conditions and measures related to personal protection, hygiene and health evaluation** | | |
| Wear suitable gloves tested to EN374.<br>Dermal - minimum efficiency of 80 % | | |
| **Other conditions affecting workers exposure** | | |
| Indoor or outdoor use | : | Indoor use |

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

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

| | | |
|---|---|---|
| Physical form of product | : | Liquid<br>Dustiness: not applicable |
| Vapour pressure | : | 20,79 hPa |
| Temperature | : | 25 °C |
| **Amount used (or contained in articles), frequency and duration of use/exposure** | | |
| Duration | : | <= 8 h |
| Use frequency | : | <= 220 days per year |
| **Technical and organisational conditions and measures** | | |
| Provide extraction ventilation at points where emissions occur.<br>Clear transfer lines prior to de-coupling.<br>Avoid spillage when withdrawing pump.<br>Inhalation - minimum efficiency of 97 % | | |
| **Conditions and measures related to personal protection, hygiene and health evaluation** | | |
| Wear suitable gloves tested to EN374.<br>Wear suitable gloves for handling strong sensitizing and corrosive substances in cases where exposure can occur | | |
| If above technical/organisational control measures are not feasible, then adopt following PPE:<br>Wear a respirator conforming to EN140 with Type A filter or better. | | |
| **Other conditions affecting workers exposure** | | |
| Indoor or outdoor use | : | Indoor use |

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

| | | |
|---|---|---|
| **Product (article) characteristics** | | |
| Covers concentrations up to 100 % | | |
| Physical form of product | : | Liquid<br>Dustiness: not applicable |
| Vapour pressure | : | 20,79 hPa |
| Temperature | : | 25 °C |
| **Amount used (or contained in articles), frequency and duration of use/exposure** | | |
| Duration | : | <= 8 h |

| | | |
|---|---|---|
| Use frequency | : | <= 220 days per year |
| **Technical and organisational conditions and measures** | | |
| Ensure material transfers are under containment or extract ventilation.<br>Clear spills immediately.<br>Put lids on containers immediately after use.<br>Inhalation - minimum efficiency of 90 % | | |
| **Conditions and measures related to personal protection, hygiene and health evaluation** | | |
| Wear suitable gloves for handling strong sensitizing and corrosive substances in cases where exposure can occur | | |
| **Other conditions affecting workers exposure** | | |
| Indoor or outdoor use | : | Indoor use |

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

| | | |
|---|---|---|
| **Product (article) characteristics** | | |
| Covers concentrations up to 100 % | | |
| Physical form of product | : | Liquid<br>Dustiness: not applicable |
| Vapour pressure | : | 20,79 hPa |
| Temperature | : | 25 °C |
| **Amount used (or contained in articles), frequency and duration of use/exposure** | | |
| Duration | : | <= 8 h |
| Use frequency | : | <= 220 days per year |
| **Technical and organisational conditions and measures** | | |
| Provide extraction ventilation at points where emissions occur.<br>No specific measures identified.<br>Inhalation - minimum efficiency of 90 % | | |
| **Conditions and measures related to personal protection, hygiene and health evaluation** | | |
| Wear suitable gloves for handling strong sensitizing and corrosive substances in cases where exposure can occur | | |

| **Other conditions affecting workers exposure** | | |
|---|---|---|
| Indoor or outdoor use | : | Indoor use |

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

| **Product (article) characteristics** | | |
|---|---|---|
| Covers concentrations up to 100 % | | |
| Physical form of product | : | Liquid<br>Dustiness: not applicable |
| Vapour pressure | : | 20,79 hPa |
| Temperature | : | 25 °C |
| **Amount used (or contained in articles), frequency and duration of use/exposure** | | |
| Duration | : | <= 8 h |
| Use frequency | : | <= 220 days per year |
| **Technical and organisational conditions and measures** | | |
| Handle in a fume cupboard or under extract ventilation.<br>No specific measures identified.<br>Inhalation - minimum efficiency of 90 % | | |
| **Conditions and measures related to personal protection, hygiene and health evaluation** | | |
| Wear suitable gloves for handling strong sensitizing and corrosive substances in cases where exposure can occur | | |
| **Other conditions affecting workers exposure** | | |
| Indoor or outdoor use | : | Indoor use |

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

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

| **Additional information on exposure estimation** |
|---|
| The use is assessed to be safe. |

| |
|---|
| Risk Management Measures are based on qualitative risk characterisation. |

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

| Exposure route | Health effect | Exposure indicator | Exposure estimate | RCR |
|---|---|---|---|---|
| dermal | local | long-term | (ECETOC TRA Version 2) | 0,03 |
| inhalative | local | long-term | (ECETOC TRA Version 2) | 0 |
| combined routes | local | long-term | | 0,04 |

| Additional information on exposure estimation |
|---|
| ECETOC: http://www.ecetoc.org/tra |

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

| Exposure route | Health effect | Exposure indicator | Exposure estimate | RCR |
|---|---|---|---|---|
| dermal | local | long-term | (ECETOC TRA Version 2) | 0,14 |
| inhalative | local | long-term | (ECETOC TRA Version 2) | 0,7 |
| combined routes | local | long-term | | 0,84 |

| Additional information on exposure estimation |
|---|
| ECETOC: http://www.ecetoc.org/tra |

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

| Exposure route | Health effect | Exposure indicator | Exposure estimate | RCR |
|---|---|---|---|---|
| dermal | local | long-term | (ECETOC TRA Version 2) | 0,00 |
| inhalative | local | long-term | (ECETOC TRA | 0,60 |

| | | | | |
|---|---|---|---|---|
| | | | Version 2) | |
| combined routes | local | long-term | | 0,60 |

| Additional information on exposure estimation |
|---|
| ECETOC: http://www.ecetoc.org/tra |

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

| Exposure route | Health effect | Exposure indicator | Exposure estimate | RCR |
|---|---|---|---|---|
| dermal | local | long-term | (ECETOC TRA Version 2) | 0,07 |
| inhalative | local | long-term | (ECETOC TRA Version 2) | 0,2 |
| combined routes | local | long-term | | 0,27 |

| Additional information on exposure estimation |
|---|
| ECETOC: http://www.ecetoc.org/tra |

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

| Exposure route | Health effect | Exposure indicator | Exposure estimate | RCR |
|---|---|---|---|---|
| dermal | local | long-term | (ECETOC TRA Version 2) | 0,01 |
| inhalative | local | long-term | (ECETOC TRA Version 2) | 0,50 |
| combined routes | local | long-term | | 0,51 |

| Additional information on exposure estimation |
|---|
| ECETOC: http://www.ecetoc.org/tra |

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

| Exposure route | Health effect | Exposure indicator | Exposure estimate | RCR |
|---|---|---|---|---|
| dermal | local | long-term | (ECETOC TRA | 0,27 |

| | | | | |
|---|---|---|---|---|
| | | | Version 2) | |
| inhalative | local | long-term | (ECETOC TRA Version 2) | 0,50 |
| combined routes | local | long-term | | 0,77 |

| Additional information on exposure estimation |
|---|
| ECETOC: http://www.ecetoc.org/tra |

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

| Exposure route | Health effect | Exposure indicator | Exposure estimate | RCR |
|---|---|---|---|---|
| dermal | local | long-term | (ECETOC TRA Version 2) | 0,69 |
| inhalative | local | long-term | (ECETOC TRA Version 2) | 0,15 |
| combined routes | local | long-term | | 0,84 |

| Additional information on exposure estimation |
|---|
| ECETOC: http://www.ecetoc.org/tra |

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

| Exposure route | Health effect | Exposure indicator | Exposure estimate | RCR |
|---|---|---|---|---|
| dermal | local | long-term | (ECETOC TRA Version 2) | 0,07 |
| inhalative | local | long-term | (ECETOC TRA Version 2) | 0,50 |
| combined routes | local | long-term | | 0,57 |

| Additional information on exposure estimation |
|---|
| ECETOC: http://www.ecetoc.org/tra |

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

| Exposure route | Health effect | Exposure indicator | Exposure estimate | RCR |
|---|---|---|---|---|
| dermal | local | long-term | (ECETOC TRA Version 2) | 0,03 |
| inhalative | local | long-term | (ECETOC TRA Version 2) | 0,50 |
| combined routes | local | long-term | | 0,53 |

| Additional information on exposure estimation |
|---|
| ECETOC: http://www.ecetoc.org/tra |

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

| Exposure route | Health effect | Exposure indicator | Exposure estimate | RCR |
|---|---|---|---|---|
| dermal | local | long-term | (ECETOC TRA Version 2) | 0,00 |
| inhalative | local | long-term | (ECETOC TRA Version 2) | 0,10 |
| combined routes | local | long-term | | 0,10 |

| Additional information on exposure estimation |
|---|
| ECETOC: http://www.ecetoc.org/tra |

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

**Recommendations and general advice**
**For additional instructions relating to adaptation of conditions of use in view of a scaling, pls. see the "ECHA Guidance for downstream users"**
**http://echa.europa.eu/regulations/reach/downstream-users**
If a downstream user uses the substance/preparation differently than stated in the ES (different operational conditions and/or risk management measures), he has the possibility to vary certain parameters of the exposure assessment. With the help of easy calculations he can check whether he still operates under safe circumstances. This process is called Scaling.

**Scaling instructions**
**Type of ventilation used**
If the type of ventilation at the use site of a downstream user (DU) differs from the instructions in the ES,

a linear correlation between the RCR (Inhalation) and the type of ventilation exists. Following scaling factors (f) apply: General ventilation (< 3 air changes per hour) =1; good general ventilation (3 to 5 air changes per hour, corresponds to outdoor use) = 0,7; enhanced general ventilation (> 5 air changes per hour) = 0,3.
RCR (DU) = f(DU) * RCR (as stated in ES) / f (type of ventilation stated in ES)
In the same manner a scaling for the efficiency of the local extract ventilation (LEV) can be applied.

**Duration of use**
If the duration of the use by a worker at a downstream user (DU) site differs from the instructions in the ES, a linear correlation between the RCR (Inhalation) and the duration of use exist. Following scaling factors (f) apply: duration > 4 hours/day = 1; duration: 1-4 hours/day = 0,6; duration: 15 min/day - 1 hour/day = 0,2; duration < 15 min/day = 0,1.
RCR (DU) = f(DU) * RCR (as stated in ES) / f (duration in ES)

**Concentration of substance in product**
If the downstream user (DU) uses the substance in a different concentration than the one stated in the ES, a linear correlation between the RCR (Inhalation)and the RCR (dermal) and the concentration exists. Following scaling factors (f) apply: Concentration >25% =1; concentration >= 5% = 0,6; concentration >= 1% = 0,2; concentration < 1% = 0,1.
RCR (DU) = f(DU) * RCR (as stated in ES) / f (concentration in ES).

### ES 2: Use as an intermediate, process chemical, Industrial use

### 2.1. Title section

| | | |
|---|---|---|
| **Exposure Scenario name** | : | Use as an intermediate, process chemical, Industrial use |
| **Life Cycle Stage** | : | Use at industrial sites |
| **Main user group** | : | SU3 Industrial uses |
| **Substance** | : | acetic acid<br>Registration number: 01-2119475328-30<br>CAS-No.: 64-19-7<br>EC-No.: 200-580-7 |

| | | |
|---|---|---|
| **Environment** | | |
| **CS 1** | Use of intermediate | ERC6a |
| **Worker** | | |
| **CS 2** | Chemical production or refinery in closed process without likelihood of exposure or processes with equivalent containment conditions | PROC1 |
| **CS 3** | Chemical production or refinery in closed continuous process with occasional controlled exposure or processes with equivalent containment conditions | PROC2 |
| **CS 4** | Manufacture or formulation in the chemical industry in closed batch processes with occasional controlled exposure or processes with equivalent containment condition | PROC3 |
| **CS 5** | Chemical production where opportunity for exposure arises | PROC4 |
| **CS 6** | Transfer of substance or mixture (charging/discharging) at non dedicated-facilities | PROC8a |
| **CS 7** | Transfer of substance or mixture (charging/discharging) at dedicated facilities | PROC8b |
| **CS 8** | Use as laboratory reagent | PROC15 |

| **Other information** |
|---|
| The efficiency of a risk management measure is a theoretical value. The efficiency describes to which extend (in percent) the calculated exposure can be diminished by applying a certain measure. If the described operational conditions and risk management measures are fulfilled by a downstream user, the efficiency as highlighted in the ES can be applied. A downstream user might check whether the efficiency of the LEV or general ventilation corresponds to his site. |
| For further instructions related to "Personal protective equipment" please refer to section 8 of the Safety |

| |
|---|
| Data Sheet. |

### 2.2. Conditions of use affecting exposure

#### 2.2.1. Control of environmental exposure: Use of intermediate (ERC6a)

| **Product (article) characteristics** | | |
|---|---|---|
| Physical form of product | : | Liquid<br>Dustiness: not applicable |
| Vapour pressure | : | 20,79 hPa |
| Temperature | : | 25 °C |
| **Conditions and measures related to treatment of waste (including article waste)** | | |
| Waste treatment | : | Ensure all waste water is collected and treated via a WWTP. |

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

| **Product (article) characteristics** | | |
|---|---|---|
| Covers concentrations up to 100 % | | |
| Physical form of product | : | Liquid<br>Dustiness: not applicable |
| Vapour pressure | : | 20,79 hPa |
| Temperature | : | 25 °C |
| **Amount used (or contained in articles), frequency and duration of use/exposure** | | |
| Duration | : | <= 8 h |
| Use frequency | : | <= 220 days per year |
| **Technical and organisational conditions and measures** | | |
| No specific measures identified. | | |
| **Conditions and measures related to personal protection, hygiene and health evaluation** | | |
| Wear suitable gloves for handling strong sensitizing and corrosive substances in cases where exposure can occur | | |

| **Other conditions affecting workers exposure** | | |
|---|---|---|
| Indoor or outdoor use | : | Indoor and outdoor use. |

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

| **Product (article) characteristics** | | |
|---|---|---|
| Covers concentrations up to 100 % | | |
| Physical form of product | : | Liquid<br>Dustiness: not applicable |
| Vapour pressure | : | 20,79 hPa |
| Temperature | : | 25 °C |
| **Amount used (or contained in articles), frequency and duration of use/exposure** | | |
| Duration | : | <= 8 h |
| Use frequency | : | <= 220 days per year |
| **Technical and organisational conditions and measures** | | |
| Provide a good standard of general ventilation (not less than 3 to 5 air changes per hour, corresponds to outdoor use).<br>No specific measures identified.<br>Inhalation - minimum efficiency of 30 % | | |
| **Conditions and measures related to personal protection, hygiene and health evaluation** | | |
| Wear suitable gloves for handling strong sensitizing and corrosive substances in cases where exposure can occur | | |
| **Other conditions affecting workers exposure** | | |
| Indoor or outdoor use | : | Indoor and outdoor use. |

**2.2.4. Control of worker exposure: Manufacture or formulation in the chemical industry in closed batch processes with occasional controlled exposure or processes with equivalent containment condition (PROC3)**

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

| | | |
|---|---|---|
| Covers concentrations up to 100 % | | |
| Physical form of product | : | Liquid<br>Dustiness: not applicable |
| Vapour pressure | : | 20,79 hPa |
| Temperature | : | 25 °C |
| **Amount used (or contained in articles), frequency and duration of use/exposure** | | |
| Duration | : | <= 8 h |
| Use frequency | : | <= 220 days per year |
| **Technical and organisational conditions and measures** | | |
| Handle only in a place equipped with local exhaust (or other appropriate exhaust).<br>No specific measures identified.<br>Inhalation - minimum efficiency of 90 % | | |
| **Conditions and measures related to personal protection, hygiene and health evaluation** | | |
| Hand protection: No special measures necessary. | | |
| **Other conditions affecting workers exposure** | | |
| Indoor or outdoor use | : | Indoor use |

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

| | | |
|---|---|---|
| **Product (article) characteristics** | | |
| Covers concentrations up to 100 % | | |
| Physical form of product | : | Liquid<br>Dustiness: not applicable |
| Vapour pressure | : | 20,79 hPa |
| Temperature | : | 25 °C |
| **Amount used (or contained in articles), frequency and duration of use/exposure** | | |
| Duration | : | <= 8 h |
| Use frequency | : | <= 220 days per year |
| **Technical and organisational conditions and measures** | | |

| |
|---|
| Handle only in a place equipped with local exhaust (or other appropriate exhaust).<br>No specific measures identified.<br>Inhalation - minimum efficiency of 90 % |
| **Conditions and measures related to personal protection, hygiene and health evaluation** |
| Hand protection: No special measures necessary. |
| **Other conditions affecting workers exposure** |

| | | |
|---|---|---|
| Indoor or outdoor use | : | Indoor use |

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

| | | |
|---|---|---|
| **Product (article) characteristics** | | |
| Covers concentrations up to 100 % | | |
| Physical form of product | : | Liquid<br>Dustiness: not applicable |
| Vapour pressure | : | 20,79 hPa |
| Temperature | : | 25 °C |
| **Amount used (or contained in articles), frequency and duration of use/exposure** | | |
| Duration | : | <= 8 h |
| Use frequency | : | <= 220 days per year |
| **Technical and organisational conditions and measures** | | |
| No specific measures identified.<br>Drain down and flush system prior to equipment break-in or maintenance. | | |
| **Conditions and measures related to personal protection, hygiene and health evaluation** | | |
| Wear chemically resistant gloves (tested to EN374) in combination with ‘basic’ employee training.<br>Dermal - minimum efficiency of 80 % | | |
| **Other conditions affecting workers exposure** | | |
| Indoor or outdoor use | : | Indoor and outdoor use. |

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

| | | |
|---|---|---|
| **Product (article) characteristics** | | |
| Covers concentrations up to 100 % | | |
| Physical form of product | : | Liquid<br>Dustiness: not applicable |
| Vapour pressure | : | 20,79 hPa |
| Temperature | : | 25 °C |
| **Amount used (or contained in articles), frequency and duration of use/exposure** | | |
| Duration | : | <= 8 h |
| Use frequency | : | <= 220 days per year |
| **Technical and organisational conditions and measures** | | |
| Ensure material transfers are under containment or extract ventilation.<br>No specific measures identified.<br>Inhalation - minimum efficiency of 97 % | | |
| **Conditions and measures related to personal protection, hygiene and health evaluation** | | |
| Wear suitable gloves for handling strong sensitizing and corrosive substances in cases where exposure can occur | | |
| **Other conditions affecting workers exposure** | | |
| Indoor or outdoor use | : | Indoor use |

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

| | | |
|---|---|---|
| **Product (article) characteristics** | | |
| Covers concentrations up to 100 % | | |
| Physical form of product | : | Liquid<br>Dustiness: not applicable |
| Vapour pressure | : | 20,79 hPa |
| Temperature | : | 25 °C |

| **Amount used (or contained in articles), frequency and duration of use/exposure** | | |
|---|---|---|
| Duration | : | <= 8 h |
| Use frequency | : | <= 220 days per year |
| **Technical and organisational conditions and measures** | | |
| Handle in a fume cupboard or under extract ventilation.<br>No specific measures identified.<br>Inhalation - minimum efficiency of 90 % | | |
| **Conditions and measures related to personal protection, hygiene and health evaluation** | | |
| Wear suitable gloves for handling strong sensitizing and corrosive substances in cases where exposure can occur | | |
| **Other conditions affecting workers exposure** | | |
| Indoor or outdoor use | : | Indoor use |

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

#### 2.3.1. Environmental release and exposure: Use of intermediate (ERC6a)

| **Additional information on exposure estimation** |
|---|
| The use is assessed to be safe.<br>Risk Management Measures are based on qualitative risk characterisation. |

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

| Exposure route | Health effect | Exposure indicator | Exposure estimate | RCR |
|---|---|---|---|---|
| dermal | local | long-term | (ECETOC TRA Version 2) | 0,03 |
| inhalative | local | long-term | (ECETOC TRA Version 2) | 0,00 |
| combined routes | local | long-term | | 0,04 |

| **Additional information on exposure estimation** |
|---|

| |
|---|
| ECETOC: http://www.ecetoc.org/tra |

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

| Exposure route | Health effect | Exposure indicator | Exposure estimate | RCR |
|---|---|---|---|---|
| dermal | local | long-term | (ECETOC TRA Version 2) | 0,14 |
| inhalative | local | long-term | (ECETOC TRA Version 2) | 0,70 |
| combined routes | local | long-term | | 0,84 |

| Additional information on exposure estimation |
|---|
| ECETOC: http://www.ecetoc.org/tra |

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

| Exposure route | Health effect | Exposure indicator | Exposure estimate | RCR |
|---|---|---|---|---|
| dermal | local | long-term | (ECETOC TRA Version 2) | 0,00 |
| inhalative | local | long-term | (ECETOC TRA Version 2) | 0,25 |
| combined routes | local | long-term | | 0,25 |

| Additional information on exposure estimation |
|---|
| ECETOC: http://www.ecetoc.org/tra |

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

| Exposure route | Health effect | Exposure indicator | Exposure estimate | RCR |
|---|---|---|---|---|
| dermal | local | long-term | (ECETOC TRA Version 2) | 0,07 |
| inhalative | local | long-term | (ECETOC TRA Version 2) | 0,20 |

| | | | | |
|---|---|---|---|---|
| combined routes | local | long-term | | 0,27 |

| **Additional information on exposure estimation** |
|---|
| ECETOC: http://www.ecetoc.org/tra |

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

| Exposure route | Health effect | Exposure indicator | Exposure estimate | RCR |
|---|---|---|---|---|
| dermal | local | long-term | (ECETOC TRA Version 2) | 0,27 |
| inhalative | local | long-term | (ECETOC TRA Version 2) | 0,50 |
| combined routes | local | long-term | | 0,77 |

| **Additional information on exposure estimation** |
|---|
| For the organizational measure an efficiency of 80% was assumed. |
| ECETOC: http://www.ecetoc.org/tra |

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

| Exposure route | Health effect | Exposure indicator | Exposure estimate | RCR |
|---|---|---|---|---|
| dermal | local | long-term | (ECETOC TRA Version 2) | 0,07 |
| inhalative | local | long-term | (ECETOC TRA Version 2) | 0,15 |
| combined routes | local | long-term | | 0,22 |

| **Additional information on exposure estimation** |
|---|
| ECETOC: http://www.ecetoc.org/tra |

**2.3.8. Worker exposure: Use as laboratory reagent (PROC15)**

| Exposure route | Health effect | Exposure indicator | Exposure estimate | RCR |
|---|---|---|---|---|

| | | | | |
|---|---|---|---|---|
| dermal | local | long-term | (ECETOC TRA Version 2) | 0,00 |
| inhalative | local | long-term | (ECETOC TRA Version 2) | 0,10 |
| combined routes | local | long-term | | 0,10 |

| **Additional information on exposure estimation** |
|---|
| ECETOC: http://www.ecetoc.org/tra |

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

**Recommendations and general advice**
**For additional instructions relating to adaptation of conditions of use in view of a scaling, pls. see the "ECHA Guidance for downstream users"**
**http://echa.europa.eu/regulations/reach/downstream-users**
If a downstream user uses the substance/preparation differently than stated in the ES (different operational conditions and/or risk management measures), he has the possibility to vary certain parameters of the exposure assessment. With the help of easy calculations he can check whether he still operates under safe circumstances. This process is called Scaling.

**Scaling instructions**
**Type of ventilation used**
If the type of ventilation at the use site of a downstream user (DU) differs from the instructions in the ES, a linear correlation between the RCR (Inhalation) and the type of ventilation exists. Following scaling factors (f) apply: General ventilation (< 3 air changes per hour) =1; good general ventilation (3 to 5 air changes per hour, corresponds to outdoor use) = 0,7; enhanced general ventilation (> 5 air changes per hour) = 0,3.
RCR (DU) = f(DU) * RCR (as stated in ES) / f (type of ventilation stated in ES)
In the same manner a scaling for the efficiency of the local extract ventilation (LEV) can be applied.

**Duration of use**
If the duration of the use by a worker at a downstream user (DU) site differs from the instructions in the ES, a linear correlation between the RCR (Inhalation) and the duration of use exist. Following scaling factors (f) apply: duration > 4 hours/day = 1; duration: 1-4 hours/day = 0,6; duration: 15 min/day - 1 hour/day = 0,2; duration < 15 min/day = 0,1.
RCR (DU) = f(DU) * RCR (as stated in ES) / f (duration in ES)

**Concentration of substance in product**
If the downstream user (DU) uses the substance in a different concentration than the one stated in the ES, a linear correlation between the RCR (Inhalation)and the RCR (dermal) and the concentration exists. Following scaling factors (f) apply: Concentration >25% =1; concentration >= 5% = 0,6; concentration >= 1% = 0,2; concentration < 1% = 0,1.
RCR (DU) = f(DU) * RCR (as stated in ES) / f (concentration in ES).

### ES 3: Use in cleaning agents, Industrial use

### 3.1. Title section

| | | |
|---|---|---|
| **Exposure Scenario name** | : | Use in cleaning agents, Industrial use |
| **Life Cycle Stage** | : | Use at industrial sites |
| **Main user group** | : | SU3 Industrial uses |
| **Substance** | : | acetic acid<br>Registration number: 01-2119475328-30<br>CAS-No.: 64-19-7<br>EC-No.: 200-580-7 |

| | | |
|---|---|---|
| **Environment** | | |
| **CS 1** | Use of non-reactive processing aid at industrial site (no inclusion into or onto article) | ERC4 |
| **Worker** | | |
| **CS 2** | Chemical production or refinery in closed continuous process with occasional controlled exposure or processes with equivalent containment conditions | PROC2 |
| **CS 3** | Manufacture or formulation in the chemical industry in closed batch processes with occasional controlled exposure or processes with equivalent containment condition | PROC3 |
| **CS 4** | Chemical production where opportunity for exposure arises | PROC4 |
| **CS 5** | Industrial spraying | PROC7 |
| **CS 6** | Transfer of substance or mixture (charging/discharging) at non dedicated-facilities | PROC8a |
| **CS 7** | Transfer of substance or mixture (charging/discharging) at dedicated facilities | PROC8b |
| **CS 8** | Roller application or brushing | PROC10 |
| **CS 9** | Treatment of articles by dipping and pouring | PROC13 |

| **Other information** |
|---|
| The efficiency of a risk management measure is a theoretical value. The efficiency describes to which extend (in percent) the calculated exposure can be diminished by applying a certain measure. If the described operational conditions and risk management measures are fulfilled by a downstream user, the efficiency as highlighted in the ES can be applied. A downstream user might check whether the efficiency of the LEV or general ventilation corresponds to his site. |

For further instructions related to "Personal protective equipment" please refer to section 8 of the Safety Data Sheet.

### 3.2. Conditions of use affecting exposure

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

| **Product (article) characteristics** | | |
|---|---|---|
| Physical form of product | : | Liquid<br>Dustiness: not applicable |
| Vapour pressure | : | 20,79 hPa |
| Temperature | : | 25 °C |
| **Conditions and measures related to treatment of waste (including article waste)** | | |
| Waste treatment | : | Ensure all waste water is collected and treated via a WWTP. |

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

| **Product (article) characteristics** | | |
|---|---|---|
| Covers concentrations up to 100 % | | |
| Physical form of product | : | Liquid<br>Dustiness: not applicable |
| Vapour pressure | : | 20,79 hPa |
| Temperature | : | 25 °C |
| **Amount used (or contained in articles), frequency and duration of use/exposure** | | |
| Duration | : | <= 8 h |
| Use frequency | : | <= 220 days per year |
| **Technical and organisational conditions and measures** | | |
| Provide a good standard of general ventilation (not less than 3 to 5 air changes per hour, corresponds to outdoor use).<br>No specific measures identified. | | |

| | | |
|---|---|---|
| Inhalation - minimum efficiency of 30 % | | |
| **Conditions and measures related to personal protection, hygiene and health evaluation** | | |
| Wear suitable gloves for handling strong sensitizing and corrosive substances in cases where exposure can occur | | |
| **Other conditions affecting workers exposure** | | |
| Indoor or outdoor use | : | Indoor and outdoor use. |

**3.2.3. Control of worker exposure: Manufacture or formulation in the chemical industry in closed batch processes with occasional controlled exposure or processes with equivalent containment condition (PROC3)**

| | | |
|---|---|---|
| **Product (article) characteristics** | | |
| Covers concentrations up to 100 % | | |
| Physical form of product | : | Liquid<br>Dustiness: not applicable |
| Vapour pressure | : | 20,79 hPa |
| Temperature | : | 25 °C |
| **Amount used (or contained in articles), frequency and duration of use/exposure** | | |
| Duration | : | <= 1 h |
| Use frequency | : | <= 220 days per year |
| **Technical and organisational conditions and measures** | | |
| Provide a good standard of general ventilation (not less than 3 to 5 air changes per hour, corresponds to outdoor use).<br>No specific measures identified.<br>Inhalation - minimum efficiency of 30 % | | |
| **Conditions and measures related to personal protection, hygiene and health evaluation** | | |
| Wear suitable gloves for handling strong sensitizing and corrosive substances in cases where exposure can occur | | |
| **Other conditions affecting workers exposure** | | |
| Indoor or outdoor use | : | Indoor and outdoor use. |

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

| | | |
|---|---|---|
| **Product (article) characteristics** | | |
| Covers concentrations up to 100 % | | |
| Physical form of product | : | Liquid<br>Dustiness: not applicable |
| Vapour pressure | : | 20,79 hPa |
| Temperature | : | 25 °C |
| **Amount used (or contained in articles), frequency and duration of use/exposure** | | |
| Duration | : | <= 4 h |
| Use frequency | : | <= 220 days per year |
| **Technical and organisational conditions and measures** | | |
| Ensure material transfers are under containment or extract ventilation.<br>No specific measures identified.<br>Inhalation - minimum efficiency of 90 % | | |
| **Conditions and measures related to personal protection, hygiene and health evaluation** | | |
| Hand protection: No special measures necessary. | | |
| **Other conditions affecting workers exposure** | | |
| Indoor or outdoor use | : | Indoor use |

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

| | | |
|---|---|---|
| **Product (article) characteristics** | | |
| Covers concentrations up to 5 % | | |
| Physical form of product | : | Liquid<br>Dustiness: not applicable |
| Vapour pressure | : | 20,79 hPa |
| Temperature | : | 25 °C |
| **Amount used (or contained in articles), frequency and duration of use/exposure** | | |

| | | |
|---|---|---|
| Duration | : | <= 1 h |
| Use frequency | : | <= 220 days per year |
| **Technical and organisational conditions and measures** | | |
| Provide a good standard of general ventilation (not less than 3 to 5 air changes per hour, corresponds to outdoor use).<br>No specific measures identified.<br>Inhalation - minimum efficiency of 30 % | | |
| **Conditions and measures related to personal protection, hygiene and health evaluation** | | |
| Wear suitable gloves tested to EN374.<br>Dermal - minimum efficiency of 80 % | | |
| **Other conditions affecting workers exposure** | | |
| Indoor or outdoor use | : | Indoor and outdoor use. |

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

| | | |
|---|---|---|
| **Product (article) characteristics** | | |
| Covers concentrations up to 100 % | | |
| Physical form of product | : | Liquid<br>Dustiness: not applicable |
| Vapour pressure | : | 20,79 hPa |
| Temperature | : | 25 °C |
| **Amount used (or contained in articles), frequency and duration of use/exposure** | | |
| Duration | : | <= 8 h |
| Use frequency | : | <= 220 days per year |
| **Technical and organisational conditions and measures** | | |
| Ensure material transfers are under containment or extract ventilation.<br>Drain down and flush system prior to equipment break-in or maintenance.<br>Clear transfer lines prior to de-coupling.<br>Inhalation - minimum efficiency of 90 % | | |
| **Conditions and measures related to personal protection, hygiene and health evaluation** | | |

| | | |
|---|---|---|
| Wear suitable gloves for handling strong sensitizing and corrosive substances in cases where exposure can occur | | |
| **Other conditions affecting workers exposure** | | |
| Indoor or outdoor use | : | Indoor use |

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

| | | |
|---|---|---|
| **Product (article) characteristics** | | |
| Covers concentrations up to 100 % | | |
| Physical form of product | : | Liquid<br>Dustiness: not applicable |
| Vapour pressure | : | 20,79 hPa |
| Temperature | : | 25 °C |
| **Amount used (or contained in articles), frequency and duration of use/exposure** | | |
| Duration | : | <= 8 h |
| Use frequency | : | <= 220 days per year |
| **Technical and organisational conditions and measures** | | |
| Ensure material transfers are under containment or extract ventilation.<br>Clear transfer lines prior to de-coupling.<br>Inhalation - minimum efficiency of 97 % | | |
| **Conditions and measures related to personal protection, hygiene and health evaluation** | | |
| Wear suitable gloves for handling strong sensitizing and corrosive substances in cases where exposure can occur | | |
| **Other conditions affecting workers exposure** | | |
| Indoor or outdoor use | : | Indoor use |

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

| | | |
|---|---|---|
| **Product (article) characteristics** | | |
| Covers concentrations up to 5 % | | |

| | | |
|---|---|---|
| Physical form of product | : | Liquid<br>Dustiness: not applicable |
| Vapour pressure | : | 20,79 hPa |
| Temperature | : | 25 °C |
| **Amount used (or contained in articles), frequency and duration of use/exposure** | | |
| Duration | : | <= 4 h |
| Use frequency | : | <= 220 days per year |
| **Technical and organisational conditions and measures** | | |
| Provide a good standard of general ventilation (not less than 3 to 5 air changes per hour, corresponds to outdoor use).<br>No specific measures identified.<br>Inhalation - minimum efficiency of 30 % | | |
| **Conditions and measures related to personal protection, hygiene and health evaluation** | | |
| Wear suitable gloves for handling strong sensitizing and corrosive substances in cases where exposure can occur | | |
| **Other conditions affecting workers exposure** | | |
| Indoor or outdoor use | : | Indoor and outdoor use. |

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

| | | |
|---|---|---|
| **Product (article) characteristics** | | |
| Covers concentrations up to 100 % | | |
| Physical form of product | : | Liquid<br>Dustiness: not applicable |
| Vapour pressure | : | 20,79 hPa |
| Temperature | : | 25 °C |
| **Amount used (or contained in articles), frequency and duration of use/exposure** | | |
| Duration | : | <= 8 h |
| Use frequency | : | <= 220 days per year |
| **Technical and organisational conditions and measures** | | |

| |
|---|
| Provide extraction ventilation at points where emissions occur.<br>Clear spills immediately.<br>Inhalation - minimum efficiency of 90 % |
| **Conditions and measures related to personal protection, hygiene and health evaluation** |
| Wear suitable gloves for handling strong sensitizing and corrosive substances in cases where exposure can occur |
| **Other conditions affecting workers exposure** |
| Indoor or outdoor use : Indoor use |

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

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

| **Additional information on exposure estimation** |
|---|
| The use is assessed to be safe.<br>Risk Management Measures are based on qualitative risk characterisation. |

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

| Exposure route | Health effect | Exposure indicator | Exposure estimate | RCR |
|---|---|---|---|---|
| dermal | local | long-term | (ECETOC TRA Version 2) | 0,14 |
| inhalative | local | long-term | (ECETOC TRA Version 2) | 0,70 |
| combined routes | local | long-term | | 0,84 |

| **Additional information on exposure estimation** |
|---|
| ECETOC: http://www.ecetoc.org/tra |

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

| Exposure route | Health effect | Exposure indicator | Exposure estimate | RCR |
|---|---|---|---|---|
| dermal | local | long-term | (ECETOC TRA Version 2) | 0,03 |
| inhalative | local | long-term | (ECETOC TRA Version 2) | 0,35 |
| combined routes | local | long-term | | 0,38 |

| Additional information on exposure estimation |
|---|
| ECETOC: http://www.ecetoc.org/tra |

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

| Exposure route | Health effect | Exposure indicator | Exposure estimate | RCR |
|---|---|---|---|---|
| dermal | local | long-term | (ECETOC TRA Version 2) | 0,07 |
| inhalative | local | long-term | (ECETOC TRA Version 2) | 0,60 |
| combined routes | local | long-term | | 0,67 |

| Additional information on exposure estimation |
|---|
| ECETOC: http://www.ecetoc.org/tra |

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

| Exposure route | Health effect | Exposure indicator | Exposure estimate | RCR |
|---|---|---|---|---|
| dermal | local | long-term | (ECETOC TRA Version 2) | 0,17 |
| inhalative | local | long-term | (ECETOC TRA Version 2) | 0,70 |
| combined routes | local | long-term | | 0,87 |

| Additional information on exposure estimation |
|---|
| ECETOC: http://www.ecetoc.org/tra |

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

| Exposure route | Health effect | Exposure indicator | Exposure estimate | RCR |
|---|---|---|---|---|
| dermal | local | long-term | (ECETOC TRA Version 2) | 0,01 |
| inhalative | local | long-term | (ECETOC TRA Version 2) | 0,50 |
| combined routes | local | long-term | | 0,51 |

| Additional information on exposure estimation |
|---|
| ECETOC: http://www.ecetoc.org/tra |

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

| Exposure route | Health effect | Exposure indicator | Exposure estimate | RCR |
|---|---|---|---|---|
| dermal | local | long-term | (ECETOC TRA Version 2) | 0,07 |
| inhalative | local | long-term | (ECETOC TRA Version 2) | 0,15 |
| combined routes | local | long-term | | 0,22 |

| Additional information on exposure estimation |
|---|
| ECETOC: http://www.ecetoc.org/tra |

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

| Exposure route | Health effect | Exposure indicator | Exposure estimate | RCR |
|---|---|---|---|---|
| dermal | local | long-term | (ECETOC TRA Version 2) | 0,55 |
| inhalative | local | long-term | (ECETOC TRA Version 2) | 0,42 |
| combined routes | local | long-term | | 0,92 |

| Additional information on exposure estimation |
|---|

| |
|---|
| ECETOC: http://www.ecetoc.org/tra |

**3.3.9. Worker exposure: Treatment of articles by dipping and pouring (PROC13)**

| Exposure route | Health effect | Exposure indicator | Exposure estimate | RCR |
|---|---|---|---|---|
| dermal | local | long-term | (ECETOC TRA Version 2) | 0,07 |
| inhalative | local | long-term | (ECETOC TRA Version 2) | 0,50 |
| combined routes | local | long-term | | 0,57 |

| Additional information on exposure estimation |
|---|
| ECETOC: http://www.ecetoc.org/tra |

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

**Recommendations and general advice**
**For additional instructions relating to adaptation of conditions of use in view of a scaling, pls. see the "ECHA Guidance for downstream users"**
**http://echa.europa.eu/regulations/reach/downstream-users**
If a downstream user uses the substance/preparation differently than stated in the ES (different operational conditions and/or risk management measures), he has the possibility to vary certain parameters of the exposure assessment. With the help of easy calculations he can check whether he still operates under safe circumstances. This process is called Scaling.

**Scaling instructions**
**Type of ventilation used**
If the type of ventilation at the use site of a downstream user (DU) differs from the instructions in the ES, a linear correlation between the RCR (Inhalation) and the type of ventilation exists. Following scaling factors (f) apply: General ventilation (< 3 air changes per hour) =1; good general ventilation (3 to 5 air changes per hour, corresponds to outdoor use) = 0,7; enhanced general ventilation (> 5 air changes per hour) = 0,3.
RCR (DU) = f(DU) * RCR (as stated in ES) / f (type of ventilation stated in ES)
In the same manner a scaling for the efficiency of the local extract ventilation (LEV) can be applied.

**Duration of use**
If the duration of the use by a worker at a downstream user (DU) site differs from the instructions in the ES, a linear correlation between the RCR (Inhalation) and the duration of use exist. Following scaling factors (f) apply: duration > 4 hours/day = 1; duration: 1-4 hours/day = 0,6; duration: 15 min/day - 1 hour/day = 0,2; duration < 15 min/day = 0,1.
RCR (DU) = f(DU) * RCR (as stated in ES) / f (duration in ES)

**Concentration of substance in product**

If the downstream user (DU) uses the substance in a different concentration than the one stated in the ES, a linear correlation between the RCR (Inhalation)and the RCR (dermal) and the concentration exists. Following scaling factors (f) apply: Concentration >25% =1; concentration >= 5% = 0,6; concentration >= 1% = 0,2; concentration < 1% = 0,1.
RCR (DU) = f(DU) * RCR (as stated in ES) / f (concentration in ES).

### ES 4: Use in cleaning agents, Professional use

### 4.1. Title section

| | | |
|---|---|---|
| **Exposure Scenario name** | : | Use in cleaning agents, Professional use |
| **Life Cycle Stage** | : | Professional end use |
| **Main user group** | : | SU22 Professional uses |
| **Substance** | : | acetic acid<br>Registration number: 01-2119475328-30<br>CAS-No.: 64-19-7<br>EC-No.: 200-580-7 |

| | | |
|---|---|---|
| **Environment** | | |
| **CS 1** | Widespread use of non-reactive processing aid (no inclusion into or onto article, outdoor) | ERC8d |
| **CS 2** | Widespread use of non-reactive processing aid (no inclusion into or onto article, indoor) | ERC8a |
| **Worker** | | |
| **CS 3** | Treatment of articles by dipping and pouring | PROC13 |
| **CS 4** | Non-industrial spraying | PROC11 |
| **CS 5** | Roller application or brushing | PROC10 |
| **CS 6** | Transfer of substance or mixture (charging/discharging) at dedicated facilities | PROC8b |
| **CS 7** | Transfer of substance or mixture (charging/discharging) at non dedicated-facilities | PROC8a |
| **CS 8** | Chemical production where opportunity for exposure arises | PROC4 |
| **CS 9** | Manufacture or formulation in the chemical industry in closed batch processes with occasional controlled exposure or processes with equivalent containment condition | PROC3 |
| **CS 10** | Chemical production or refinery in closed continuous process with occasional controlled exposure or processes with equivalent containment conditions | PROC2 |
| **Consumer** | | |
| **CS 11** | Welding and soldering products, flux products | PC38 |
| **CS 12** | Cleaners, trigger sprays (all purpose cleaners, sanitary products, glass clean- | PC8_3, |

| | | |
|---|---|---|
| | ers) | PC35_3 |
| **CS 13** | Cleaners, liquids (all purpose cleaners, sanitary products, floor cleaners, glass cleaners, carpet cleaners, metal cleaners ) | PC8_2, PC35_2 |
| **CS 14** | Laundry and dish washing products | PC35_1, PC8_1 |
| **CS 15** | Sprays | PC24_3 |
| **CS 16** | Pastes | PC24_2 |
| **CS 17** | Lubricants, Greases and Release Products - Liquids | PC24_1 |
| **CS 18** | Finger paints | PC9c |
| **CS 19** | Modelling clay | PC9b_3 |
| **CS 20** | Plasters and floor equalizers | PC9b_2 |
| **CS 21** | Fillers and putty | PC9b_1 |
| **CS 22** | Removers (paint-, glue-, wall paper-, sealant-remover) | PC9a_4, PC15_4 |
| **CS 23** | Aerosol spray can | PC9a_3, PC15_3 |
| **CS 24** | Solvent rich, high solid, water borne paint | PC9a_2, PC15_2 |
| **CS 25** | Waterborne latex wall paint | PC9a_1, PC15_1 |
| **CS 26** | Cleaners, trigger sprays (all purpose cleaners, sanitary products, glass cleaners) | PC8_3, PC35_3 |
| **CS 27** | Cleaners, liquids (all purpose cleaners, sanitary products, floor cleaners, glass cleaners, carpet cleaners, metal cleaners ) | PC8_2, PC35_2 |
| **CS 28** | Laundry and dish washing products | PC35_1, PC8_1 |
| **CS 29** | Lock de-icer | PC4_3 |
| **CS 30** | Pouring into radiator | PC4_2 |
| **CS 31** | Washing car window | PC4_1 |
| **CS 32** | Air care, continuous action (solid and liquid) | PC3_2 |
| **CS 33** | Air care, instant action (aerosol sprays) | PC3_1 |

| **Other information** |
|---|
| The efficiency of a risk management measure is a theoretical value. The efficiency describes to which extend (in percent) the calculated exposure can be diminished by applying a certain measure. If the described operational conditions and risk management measures are fulfilled by a downstream user, the |

| |
|---|
| efficiency as highlighted in the ES can be applied. A downstream user might check whether the efficiency of the LEV or general ventilation corresponds to his site. |
| For further instructions related to "Personal protective equipment" please refer to section 8 of the Safety Data Sheet. |

### 4.2. Conditions of use affecting exposure

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

| **Product (article) characteristics** | | |
|---|---|---|
| Physical form of product | : | Liquid<br>Dustiness: not applicable |
| Vapour pressure | : | 20,79 hPa |
| Temperature | : | 25 °C |
| **Conditions and measures related to treatment of waste (including article waste)** | | |
| Waste treatment | : | Ensure all waste water is collected and treated via a WWTP. |

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

| **Product (article) characteristics** | | |
|---|---|---|
| Physical form of product | : | Liquid<br>Dustiness: not applicable |
| Vapour pressure | : | 20,79 hPa |
| Temperature | : | 25 °C |
| **Conditions and measures related to treatment of waste (including article waste)** | | |
| Waste treatment | : | Ensure all waste water is collected and treated via a WWTP. |

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

| **Product (article) characteristics** |
|---|
| Covers concentrations up to 5 % |

| | | |
|---|---|---|
| Physical form of product | : | Liquid<br>Dustiness: not applicable |
| Vapour pressure | : | 20,79 hPa |
| Temperature | : | 25 °C |
| **Amount used (or contained in articles), frequency and duration of use/exposure** | | |
| Duration | : | <= 8 h |
| Use frequency | : | <= 220 days per year |
| **Technical and organisational conditions and measures** | | |
| Provide a good standard of controlled ventilation (10 to 15 air changes per hour).<br>No specific measures identified.<br>Inhalation - minimum efficiency of 70 % | | |
| **Conditions and measures related to personal protection, hygiene and health evaluation** | | |
| Wear chemically resistant gloves (tested to EN374) in combination with specific activity training.<br>Dermal - minimum efficiency of 80 % | | |
| For this PROC(s) in the ES no further measures are called. | | |
| **Other conditions affecting workers exposure** | | |
| Indoor or outdoor use | : | Indoor use |

**4.2.4. Control of worker exposure: Non-industrial spraying (PROC11)**

| | | |
|---|---|---|
| **Product (article) characteristics** | | |
| Covers concentrations up to 5 % | | |
| Physical form of product | : | Liquid<br>Dustiness: not applicable |
| Vapour pressure | : | 20,79 hPa |
| Temperature | : | 25 °C |
| **Amount used (or contained in articles), frequency and duration of use/exposure** | | |
| Duration | : | <= 8 h |
| Use frequency | : | <= 220 days per year |
| **Technical and organisational conditions and measures** | | |

| |
|---|
| Provide a good standard of general ventilation (not less than 3 to 5 air changes per hour, corresponds to outdoor use).<br>No specific measures identified.<br>Inhalation - minimum efficiency of 30 % |
| **Conditions and measures related to personal protection, hygiene and health evaluation** |
| Wear chemically resistant gloves (tested to EN374) in combination with 'basic' employee training.<br>Dermal - minimum efficiency of 90 % |
| Wear a respirator conforming to EN140 with Type A filter or better.<br>Inhalation - minimum efficiency of 90 % |
| **Other conditions affecting workers exposure** |

| | | |
|---|---|---|
| Indoor or outdoor use | : | Indoor and outdoor use. |

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

| | | |
|---|---|---|
| **Product (article) characteristics** | | |
| Covers concentrations up to 5 % | | |
| Physical form of product | : | Liquid<br>Dustiness: not applicable |
| Vapour pressure | : | 20,79 hPa |
| Temperature | : | 25 °C |
| **Amount used (or contained in articles), frequency and duration of use/exposure** | | |
| Duration | : | <= 4 h |
| Use frequency | : | <= 220 days per year |
| **Technical and organisational conditions and measures** | | |
| Provide a good standard of general ventilation (not less than 3 to 5 air changes per hour, corresponds to outdoor use).<br>No specific measures identified.<br>Inhalation - minimum efficiency of 30 % | | |
| **Conditions and measures related to personal protection, hygiene and health evaluation** | | |
| Wear chemically resistant gloves (tested to EN374) in combination with specific activity training.<br>For this PROC(s) in the ES no further measures are called.<br>Dermal - minimum efficiency of 80 % | | |

| **Other conditions affecting workers exposure** | | |
|---|---|---|
| Indoor or outdoor use | : | Indoor and outdoor use. |

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

| **Product (article) characteristics** | | |
|---|---|---|
| Covers concentrations up to 25 % | | |
| Physical form of product | : | Liquid<br>Dustiness: not applicable |
| Vapour pressure | : | 20,79 hPa |
| Temperature | : | 25 °C |
| **Amount used (or contained in articles), frequency and duration of use/exposure** | | |
| Duration | : | <= 8 h |
| Use frequency | : | <= 220 days per year |
| **Technical and organisational conditions and measures** | | |
| Provide a good standard of controlled ventilation (10 to 15 air changes per hour).<br>No specific measures identified.<br>Inhalation - minimum efficiency of 70 % | | |
| **Conditions and measures related to personal protection, hygiene and health evaluation** | | |
| Wear chemically resistant gloves (tested to EN374) in combination with specific activity training.<br>Dermal - minimum efficiency of 80 % | | |
| For this PROC(s) in the ES no further measures are called. | | |
| **Other conditions affecting workers exposure** | | |
| Indoor or outdoor use | : | Indoor use |

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

| **Product (article) characteristics** |
|---|
| Covers concentrations up to 25 % |

| | | |
|---|---|---|
| Physical form of product | : | Liquid<br>Dustiness: not applicable |
| Vapour pressure | : | 20,79 hPa |
| Temperature | : | 25 °C |
| **Amount used (or contained in articles), frequency and duration of use/exposure** | | |
| Duration | : | <= 1 h |
| Use frequency | : | <= 220 days per year |
| **Technical and organisational conditions and measures** | | |
| No specific measures identified.<br>Drain down and flush system prior to equipment break-in or maintenance. | | |
| **Conditions and measures related to personal protection, hygiene and health evaluation** | | |
| Wear chemically resistant gloves (tested to EN374) in combination with 'basic' employee training.<br>Dermal - minimum efficiency of 90 % | | |
| For this PROC(s) in the ES no further measures are called. | | |
| **Other conditions affecting workers exposure** | | |
| Indoor or outdoor use | : | Indoor and outdoor use. |

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

| | | |
|---|---|---|
| **Product (article) characteristics** | | |
| Covers concentrations up to 25 % | | |
| Physical form of product | : | Liquid<br>Dustiness: not applicable |
| Vapour pressure | : | 20,79 hPa |
| Temperature | : | 25 °C |
| **Amount used (or contained in articles), frequency and duration of use/exposure** | | |
| Duration | : | <= 8 h |
| Use frequency | : | <= 220 days per year |
| **Technical and organisational conditions and measures** | | |

| |
|---|
| Provide a good standard of controlled ventilation (10 to 15 air changes per hour).<br>No specific measures identified.<br>Inhalation - minimum efficiency of 70 % |
| **Conditions and measures related to personal protection, hygiene and health evaluation** |
| Wear suitable gloves tested to EN374.<br>Dermal - minimum efficiency of 80 % |
| For this PROC(s) in the ES no further measures are called. |
| **Other conditions affecting workers exposure** |

| | | |
|---|---|---|
| Indoor or outdoor use | : | Indoor use |

**4.2.9. Control of worker exposure: Manufacture or formulation in the chemical industry in closed batch processes with occasional controlled exposure or processes with equivalent containment condition (PROC3)**

| | | |
|---|---|---|
| **Product (article) characteristics** | | |
| Covers concentrations up to 25 % | | |
| Physical form of product | : | Liquid<br>Dustiness: not applicable |
| Vapour pressure | : | 20,79 hPa |
| Temperature | : | 25 °C |
| **Amount used (or contained in articles), frequency and duration of use/exposure** | | |
| Duration | : | <= 4 h |
| Use frequency | : | <= 220 days per year |
| **Technical and organisational conditions and measures** | | |
| No specific measures identified. | | |
| **Conditions and measures related to personal protection, hygiene and health evaluation** | | |
| Wear suitable gloves tested to EN374.<br>Dermal - minimum efficiency of 80 % | | |
| For this PROC(s) in the ES no further measures are called. | | |
| **Other conditions affecting workers exposure** | | |

| | | |
|---|---|---|
| Indoor or outdoor use | : | Indoor and outdoor use. |

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

| | | |
|---|---|---|
| **Product (article) characteristics** | | |
| Covers concentrations up to 25 % | | |
| Physical form of product | : | Liquid<br>Dustiness: not applicable |
| Vapour pressure | : | 20,79 hPa |
| Temperature | : | 25 °C |
| **Amount used (or contained in articles), frequency and duration of use/exposure** | | |
| Duration | : | <= 8 h |
| Use frequency | : | <= 220 days per year |
| **Technical and organisational conditions and measures** | | |
| Provide a good standard of general ventilation (not less than 3 to 5 air changes per hour, corresponds to outdoor use).<br>No specific measures identified.<br>Inhalation - minimum efficiency of 30 % | | |
| **Conditions and measures related to personal protection, hygiene and health evaluation** | | |
| Wear suitable gloves tested to EN374.<br>Dermal - minimum efficiency of 80 % | | |
| For this PROC(s) in the ES no further measures are called. | | |
| **Other conditions affecting workers exposure** | | |
| Indoor or outdoor use | : | Indoor and outdoor use. |

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

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

| Additional information on exposure estimation |
|---|
| The use is assessed to be safe.<br>Risk Management Measures are based on qualitative risk characterisation. |

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

| Additional information on exposure estimation |
|---|
| The use is assessed to be safe.<br>Risk Management Measures are based on qualitative risk characterisation. |

**4.3.3. Worker exposure: Treatment of articles by dipping and pouring (PROC13)**

| Exposure route | Health effect | Exposure indicator | Exposure estimate | RCR |
|---|---|---|---|---|
| dermal | local | long-term | (ECETOC TRA Version 2) | 0,05 |
| inhalative | local | long-term | (ECETOC TRA Version 2) | 0,60 |
| combined routes | local | long-term | | 0,65 |

| Additional information on exposure estimation |
|---|
| ECETOC: http://www.ecetoc.org/tra |

**4.3.4. Worker exposure: Non-industrial spraying (PROC11)**

| Exposure route | Health effect | Exposure indicator | Exposure estimate | RCR |
|---|---|---|---|---|
| dermal | local | long-term | (ECETOC TRA Version 2) | 0,21 |
| inhalative | local | long-term | (ECETOC TRA Version 2) | 0,70 |
| combined routes | local | long-term | | 0,91 |

| Additional information on exposure estimation |
|---|
| ECETOC: http://www.ecetoc.org/tra |

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

| Exposure route | Health effect | Exposure indicator | Exposure estimate | RCR |
|---|---|---|---|---|
| dermal | local | long-term | (ECETOC TRA Version 2) | 0,11 |
| inhalative | local | long-term | (ECETOC TRA Version 2) | 0,84 |
| combined routes | local | long-term | | 0,95 |

| Additional information on exposure estimation |
|---|
| ECETOC: http://www.ecetoc.org/tra |

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

| Exposure route | Health effect | Exposure indicator | Exposure estimate | RCR |
|---|---|---|---|---|
| dermal | local | long-term | (ECETOC TRA Version 2) | 0,08 |
| inhalative | local | long-term | (ECETOC TRA Version 2) | 0,90 |
| combined routes | local | long-term | | 0,98 |

| Additional information on exposure estimation |
|---|
| ECETOC: http://www.ecetoc.org/tra |

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

| Exposure route | Health effect | Exposure indicator | Exposure estimate | RCR |
|---|---|---|---|---|
| dermal | local | long-term | (ECETOC TRA Version 2) | 0,08 |
| inhalative | local | long-term | (ECETOC TRA Version 2) | 0,84 |
| combined routes | local | long-term | | 0,92 |

| Additional information on exposure estimation |
|---|

| |
|---|
| ECETOC: http://www.ecetoc.org/tra |

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

| Exposure route | Health effect | Exposure indicator | Exposure estimate | RCR |
|---|---|---|---|---|
| dermal | local | long-term | (ECETOC TRA Version 2) | 0,08 |
| inhalative | local | long-term | (ECETOC TRA Version 2) | 0,90 |
| combined routes | local | long-term | | 0,98 |

| Additional information on exposure estimation |
|---|
| ECETOC: http://www.ecetoc.org/tra |

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

| Exposure route | Health effect | Exposure indicator | Exposure estimate | RCR |
|---|---|---|---|---|
| dermal | local | long-term | (ECETOC TRA Version 2) | 0,00 |
| inhalative | local | long-term | (ECETOC TRA Version 2) | 0,90 |
| combined routes | local | long-term | | 0,90 |

| Additional information on exposure estimation |
|---|
| ECETOC: http://www.ecetoc.org/tra |

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

| Exposure route | Health effect | Exposure indicator | Exposure estimate | RCR |
|---|---|---|---|---|
| dermal | local | long-term | (ECETOC TRA Version 2) | 0,02 |
| inhalative | local | long-term | (ECETOC TRA Version 2) | 0,84 |

| | | | | |
|---|---|---|---|---|
| combined routes | local | long-term | | 0,86 |

| **Additional information on exposure estimation** |
|---|
| ECETOC: http://www.ecetoc.org/tra |

#### 4.3.11. Consumer exposure: Welding and soldering products, flux products (PC38)

| Exposure route | Health effect | Exposure indicator | Exposure estimate | RCR |
|---|---|---|---|---|
| oral | systemic | long-term | (ECETOC TRA Version 2) | 0,00 |
| dermal | systemic | long-term | (ECETOC TRA Version 2) | 0,00 |
| inhalative | systemic | long-term | (ECETOC TRA Version 2) | 0,00 |
| combined routes | systemic | long-term | (ECETOC TRA Version 2) | 0,00 |

| **Additional information on exposure estimation** |
|---|
| Assessment not performed with ECETOC TRA. |

#### 4.3.12. Consumer exposure: Cleaners, trigger sprays (all purpose cleaners, sanitary products, glass cleaners) (PC8_3, PC35_3)

| Exposure route | Health effect | Exposure indicator | Exposure estimate | RCR |
|---|---|---|---|---|
| oral | systemic | long-term | (ECETOC TRA Version 2) | 0,00 |
| dermal | systemic | long-term | (ECETOC TRA Version 2) | 0,01 |
| inhalative | systemic | long-term | (ECETOC TRA Version 2) | 0,00 |
| combined routes | systemic | long-term | (ECETOC TRA Version 2) | 0,01 |

#### 4.3.13. Consumer exposure: Cleaners, liquids (all purpose cleaners, sanitary products, floor cleaners, glass cleaners, carpet cleaners, metal cleaners ) (PC8_2, PC35_2)

| Exposure route | Health effect | Exposure indica- | Exposure esti- | RCR |
|---|---|---|---|---|

| | | tor | mate | |
|---|---|---|---|---|
| oral | systemic | long-term | (ECETOC TRA Version 2) | 0,00 |
| dermal | systemic | long-term | (ECETOC TRA Version 2) | 0,03 |
| inhalative | systemic | long-term | (ECETOC TRA Version 2) | 0,00 |
| combined routes | systemic | long-term | (ECETOC TRA Version 2) | 0,03 |

#### 4.3.14. Consumer exposure: Laundry and dish washing products (PC35_1, PC8_1)

| Exposure route | Health effect | Exposure indicator | Exposure estimate | RCR |
|---|---|---|---|---|
| oral | systemic | long-term | (ECETOC TRA Version 2) | 0,00 |
| dermal | systemic | long-term | (ECETOC TRA Version 2) | 0,00 |
| inhalative | systemic | long-term | (ECETOC TRA Version 2) | 0,00 |
| combined routes | systemic | long-term | (ECETOC TRA Version 2) | 0,00 |

#### 4.3.15. Consumer exposure: Sprays (PC24_3)

| Exposure route | Health effect | Exposure indicator | Exposure estimate | RCR |
|---|---|---|---|---|
| oral | systemic | long-term | (ECETOC TRA Version 2) | 0,00 |
| dermal | systemic | long-term | (ECETOC TRA Version 2) | 0,00 |
| inhalative | systemic | long-term | (ECETOC TRA Version 2) | 0,00 |
| combined routes | systemic | long-term | (ECETOC TRA Version 2) | 0,00 |

#### 4.3.16. Consumer exposure: Pastes (PC24_2)

| Exposure route | Health effect | Exposure indica- | Exposure esti- | RCR |
|---|---|---|---|---|

| | | tor | mate | |
|---|---|---|---|---|
| oral | systemic | long-term | (ECETOC TRA Version 2) | 0,00 |
| dermal | systemic | long-term | (ECETOC TRA Version 2) | 0,01 |
| inhalative | systemic | long-term | (ECETOC TRA Version 2) | 0,00 |
| combined routes | systemic | long-term | (ECETOC TRA Version 2) | 0,01 |

#### 4.3.17. Consumer exposure: Lubricants, Greases and Release Products - Liquids (PC24_1)

| Exposure route | Health effect | Exposure indicator | Exposure estimate | RCR |
|---|---|---|---|---|
| oral | systemic | long-term | (ECETOC TRA Version 2) | 0,00 |
| dermal | systemic | long-term | (ECETOC TRA Version 2) | 0,01 |
| inhalative | systemic | long-term | (ECETOC TRA Version 2) | 0,00 |
| combined routes | systemic | long-term | (ECETOC TRA Version 2) | 0,01 |

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

| Exposure route | Health effect | Exposure indicator | Exposure estimate | RCR |
|---|---|---|---|---|
| oral | systemic | long-term | (ECETOC TRA Version 2) | 0,19 |
| dermal | systemic | long-term | (ECETOC TRA Version 2) | 0,04 |
| inhalative | systemic | long-term | (ECETOC TRA Version 2) | 0,00 |
| combined routes | systemic | long-term | (ECETOC TRA Version 2) | 0,22 |

#### 4.3.19. Consumer exposure: Modelling clay (PC9b_3)

| Exposure route | Health effect | Exposure indica- | Exposure esti- | RCR |
|---|---|---|---|---|

| | | tor | mate | |
|---|---|---|---|---|
| oral | systemic | long-term | (ECETOC TRA Version 2) | 0,00 |
| dermal | systemic | long-term | (ECETOC TRA Version 2) | 0,14 |
| inhalative | systemic | long-term | (ECETOC TRA Version 2) | 0,00 |
| combined routes | systemic | long-term | (ECETOC TRA Version 2) | 0,14 |

#### 4.3.20. Consumer exposure: Plasters and floor equalizers (PC9b_2)

| Exposure route | Health effect | Exposure indicator | Exposure estimate | RCR |
|---|---|---|---|---|
| oral | systemic | long-term | (ECETOC TRA Version 2) | 0,00 |
| dermal | systemic | long-term | (ECETOC TRA Version 2) | 0,00 |
| inhalative | systemic | long-term | (ECETOC TRA Version 2) | 0,00 |
| combined routes | systemic | long-term | (ECETOC TRA Version 2) | 0,00 |

#### 4.3.21. Consumer exposure: Fillers and putty (PC9b_1)

| Exposure route | Health effect | Exposure indicator | Exposure estimate | RCR |
|---|---|---|---|---|
| oral | systemic | long-term | (ECETOC TRA Version 2) | 0,00 |
| dermal | systemic | long-term | (ECETOC TRA Version 2) | 0,00 |
| inhalative | systemic | long-term | (ECETOC TRA Version 2) | 0,00 |
| combined routes | systemic | long-term | (ECETOC TRA Version 2) | 0,00 |

#### 4.3.22. Consumer exposure: Removers (paint-, glue-, wall paper-, sealant-remover) (PC9a_4, PC15_4)

| Exposure route | Health effect | Exposure indicator | Exposure estimate | RCR |
|---|---|---|---|---|
| oral | systemic | long-term | (ECETOC TRA Version 2) | 0,00 |
| dermal | systemic | long-term | (ECETOC TRA Version 2) | 0,00 |
| inhalative | systemic | long-term | (ECETOC TRA Version 2) | 0,00 |
| combined routes | systemic | long-term | (ECETOC TRA Version 2) | 0,00 |

**4.3.23. Consumer exposure: Aerosol spray can (PC9a_3, PC15_3)**

| Exposure route | Health effect | Exposure indicator | Exposure estimate | RCR |
|---|---|---|---|---|
| oral | systemic | long-term | (ECETOC TRA Version 2) | 0,00 |
| dermal | systemic | long-term | (ECETOC TRA Version 2) | 0,00 |
| inhalative | systemic | long-term | (ECETOC TRA Version 2) | 0,00 |
| combined routes | systemic | long-term | (ECETOC TRA Version 2) | 0,00 |

**4.3.24. Consumer exposure: Solvent rich, high solid, water borne paint (PC9a_2, PC15_2)**

| Exposure route | Health effect | Exposure indicator | Exposure estimate | RCR |
|---|---|---|---|---|
| oral | systemic | long-term | (ECETOC TRA Version 2) | 0,00 |
| dermal | systemic | long-term | (ECETOC TRA Version 2) | 0,00 |
| inhalative | systemic | long-term | (ECETOC TRA Version 2) | 0,00 |
| combined routes | systemic | long-term | (ECETOC TRA Version 2) | 0,00 |

**4.3.25. Consumer exposure: Waterborne latex wall paint (PC9a_1, PC15_1)**

| Exposure route | Health effect | Exposure indicator | Exposure estimate | RCR |
|---|---|---|---|---|
| oral | systemic | long-term | (ECETOC TRA Version 2) | 0,00 |
| dermal | systemic | long-term | (ECETOC TRA Version 2) | 0,00 |
| inhalative | systemic | long-term | (ECETOC TRA Version 2) | 0,00 |
| combined routes | systemic | long-term | (ECETOC TRA Version 2) | 0,00 |

**4.3.26. Consumer exposure: Cleaners, trigger sprays (all purpose cleaners, sanitary products, glass cleaners) (PC8_3, PC35_3)**

| Exposure route | Health effect | Exposure indicator | Exposure estimate | RCR |
|---|---|---|---|---|
| oral | systemic | long-term | (ECETOC TRA Version 2) | 0,00 |
| dermal | systemic | long-term | (ECETOC TRA Version 2) | 0,01 |
| inhalative | systemic | long-term | (ECETOC TRA Version 2) | 0,00 |
| combined routes | systemic | long-term | (ECETOC TRA Version 2) | 0,01 |

**4.3.27. Consumer exposure: Cleaners, liquids (all purpose cleaners, sanitary products, floor cleaners, glass cleaners, carpet cleaners, metal cleaners ) (PC8_2, PC35_2)**

| Exposure route | Health effect | Exposure indicator | Exposure estimate | RCR |
|---|---|---|---|---|
| oral | systemic | long-term | (ECETOC TRA Version 2) | 0,00 |
| dermal | systemic | long-term | (ECETOC TRA Version 2) | 0,03 |
| inhalative | systemic | long-term | (ECETOC TRA Version 2) | 0,00 |
| combined routes | systemic | long-term | (ECETOC TRA Version 2) | 0,03 |

#### 4.3.28. Consumer exposure: Laundry and dish washing products (PC35_1, PC8_1)

| Exposure route | Health effect | Exposure indicator | Exposure estimate | RCR |
|---|---|---|---|---|
| oral | systemic | long-term | (ECETOC TRA Version 2) | 0,00 |
| dermal | systemic | long-term | (ECETOC TRA Version 2) | 0,00 |
| inhalative | systemic | long-term | (ECETOC TRA Version 2) | 0,00 |
| combined routes | systemic | long-term | (ECETOC TRA Version 2) | 0,00 |

#### 4.3.29. Consumer exposure: Lock de-icer (PC4_3)

| Exposure route | Health effect | Exposure indicator | Exposure estimate | RCR |
|---|---|---|---|---|
| oral | systemic | long-term | (ECETOC TRA Version 2) | 0,13 |
| dermal | systemic | long-term | (ECETOC TRA Version 2) | 0,12 |
| inhalative | systemic | long-term | (ECETOC TRA Version 2) | 0,01 |
| combined routes | systemic | long-term | (ECETOC TRA Version 2) | 0,00 |

#### 4.3.31. Consumer exposure: Washing car window (PC4_1)

| Exposure route | Health effect | Exposure indicator | Exposure estimate | RCR |
|---|---|---|---|---|
| oral | systemic | long-term | (ECETOC TRA Version 2) | 0,00 |
| dermal | systemic | long-term | (ECETOC TRA Version 2) | 0,00 |
| inhalative | systemic | long-term | (ECETOC TRA Version 2) | 0,00 |
| combined routes | systemic | long-term | (ECETOC TRA Version 2) | 0,00 |

#### 4.3.32. Consumer exposure: Air care, continuous action (solid and liquid) (PC3_2)

| Exposure route | Health effect | Exposure indicator | Exposure estimate | RCR |
|---|---|---|---|---|
| oral | systemic | long-term | (ECETOC TRA Version 2) | 0,00 |
| dermal | systemic | long-term | (ECETOC TRA Version 2) | 0,00 |
| inhalative | systemic | long-term | (ECETOC TRA Version 2) | 0,00 |
| combined routes | systemic | long-term | (ECETOC TRA Version 2) | 0,00 |

#### 4.3.33. Consumer exposure: Air care, instant action (aerosol sprays) (PC3_1)

| Exposure route | Health effect | Exposure indicator | Exposure estimate | RCR |
|---|---|---|---|---|
| oral | systemic | long-term | (ECETOC TRA Version 2) | 0,00 |
| dermal | systemic | long-term | (ECETOC TRA Version 2) | 0,00 |
| inhalative | systemic | long-term | (ECETOC TRA Version 2) | 0,00 |
| combined routes | systemic | long-term | (ECETOC TRA Version 2) | 0,00 |

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

**Recommendations and general advice**
**For additional instructions relating to adaptation of conditions of use in view of a scaling, pls. see the "ECHA Guidance for downstream users"**
**http://echa.europa.eu/regulations/reach/downstream-users**
If a downstream user uses the substance/preparation differently than stated in the ES (different operational conditions and/or risk management measures), he has the possibility to vary certain parameters of the exposure assessment. With the help of easy calculations he can check whether he still operates under safe circumstances. This process is called Scaling.

**Scaling instructions**
**Type of ventilation used**
If the type of ventilation at the use site of a downstream user (DU) differs from the instructions in the ES, a linear correlation between the RCR (Inhalation) and the type of ventilation exists. Following scaling factors (f) apply: General ventilation (< 3 air changes per hour) =1; good general ventilation (3 to 5 air

changes per hour, corresponds to outdoor use) = 0,7; enhanced general ventilation (> 5 air changes per hour) = 0,3.
RCR (DU) = f(DU) * RCR (as stated in ES) / f (type of ventilation stated in ES)
In the same manner a scaling for the efficiency of the local extract ventilation (LEV) can be applied.

**Duration of use**
If the duration of the use by a worker at a downstream user (DU) site differs from the instructions in the ES, a linear correlation between the RCR (Inhalation) and the duration of use exist. Following scaling factors (f) apply: duration > 4 hours/day = 1; duration: 1-4 hours/day = 0,6; duration: 15 min/day - 1 hour/day = 0,2; duration < 15 min/day = 0,1.
RCR (DU) = f(DU) * RCR (as stated in ES) / f (duration in ES)

**Concentration of substance in product**
If the downstream user (DU) uses the substance in a different concentration than the one stated in the ES, a linear correlation between the RCR (Inhalation)and the RCR (dermal) and the concentration exists. Following scaling factors (f) apply: Concentration >25% =1; concentration >= 5% = 0,6; concentration >= 1% = 0,2; concentration < 1% = 0,1.
RCR (DU) = f(DU) * RCR (as stated in ES) / f (concentration in ES).

### ES 5: Use in cleaning agents, Consumer use

### 5.1. Title section

| | | |
|---|---|---|
| **Exposure Scenario name** | : | Use in cleaning agents, Consumer use |
| **Life Cycle Stage** | : | Consumer use |
| **Main user group** | : | SU21 Consumer uses |
| **Substance** | : | acetic acid<br>Registration number: 01-2119475328-30<br>CAS-No.: 64-19-7<br>EC-No.: 200-580-7 |

| **Environment** | | |
|---|---|---|
| **CS 1** | Widespread use of non-reactive processing aid (no inclusion into or onto article, indoor) | ERC8a |
| **CS 2** | Widespread use of non-reactive processing aid (no inclusion into or onto article, outdoor) | ERC8d |

| **Other information** |
|---|
| The efficiency of a risk management measure is a theoretical value. The efficiency describes to which extend (in percent) the calculated exposure can be diminished by applying a certain measure. If the described operational conditions and risk management measures are fulfilled by a downstream user, the efficiency as highlighted in the ES can be applied. A downstream user might check whether the efficiency of the LEV or general ventilation corresponds to his site. |
| For further instructions related to "Personal protective equipment" please refer to section 8 of the Safety Data Sheet. |

### 5.2. Conditions of use affecting exposure

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

| **Product (article) characteristics** | | |
|---|---|---|
| Physical form of product | : | Liquid<br>Dustiness: not applicable |
| Vapour pressure | : | 20,79 hPa |

| | | |
|---|---|---|
| Temperature | : | 25 °C |

Covers use under typical household ventilation.
Covers use at ambient temperatures.
Covers outdoor use.

**Additional good practice advice. Obligations according to Article 37(4) of REACH do not apply**

No specific measures identified.

**5.2.2. Control of environmental exposure: Widespread use of non-reactive processing aid (no inclusion into or onto article, outdoor) (ERC8d)**

| **Product (article) characteristics** | | |
|---|---|---|
| Physical form of product | : | Liquid<br>Dustiness: not applicable |
| Vapour pressure | : | 20,79 hPa |
| Temperature | : | 25 °C |

Covers use under typical household ventilation.
Covers use at ambient temperatures.
Covers outdoor use.

**Additional good practice advice. Obligations according to Article 37(4) of REACH do not apply**

No specific measures identified.

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

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

**Additional information on exposure estimation**

The use is assessed to be safe.
Risk Management Measures are based on qualitative risk characterisation.

**5.3.2. Environmental release and exposure: Widespread use of non-reactive processing aid (no inclusion into or onto article, outdoor) (ERC8d)**

**Additional information on exposure estimation**

The use is assessed to be safe.
Risk Management Measures are based on qualitative risk characterisation.

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

**Recommendations and general advice**
**For additional instructions relating to adaptation of conditions of use in view of a scaling, pls. see the "ECHA Guidance for downstream users"**
**http://echa.europa.eu/regulations/reach/downstream-users**
If a downstream user uses the substance/preparation differently than stated in the ES (different operational conditions and/or risk management measures), he has the possibility to vary certain parameters of the exposure assessment. With the help of easy calculations he can check whether he still operates under safe circumstances. This process is called Scaling.

**Scaling instructions**
**Type of ventilation used**
If the type of ventilation at the use site of a downstream user (DU) differs from the instructions in the ES, a linear correlation between the RCR (Inhalation) and the type of ventilation exists. Following scaling factors (f) apply: General ventilation (< 3 air changes per hour) =1; good general ventilation (3 to 5 air changes per hour, corresponds to outdoor use) = 0,7; enhanced general ventilation (> 5 air changes per hour) = 0,3.
RCR (DU) = f(DU) * RCR (as stated in ES) / f (type of ventilation stated in ES)
In the same manner a scaling for the efficiency of the local extract ventilation (LEV) can be applied.

**Duration of use**
If the duration of the use by a worker at a downstream user (DU) site differs from the instructions in the ES, a linear correlation between the RCR (Inhalation) and the duration of use exist. Following scaling factors (f) apply: duration > 4 hours/day = 1; duration: 1-4 hours/day = 0,6; duration: 15 min/day - 1 hour/day = 0,2; duration < 15 min/day = 0,1.
RCR (DU) = f(DU) * RCR (as stated in ES) / f (duration in ES)

**Concentration of substance in product**
If the downstream user (DU) uses the substance in a different concentration than the one stated in the ES, a linear correlation between the RCR (Inhalation)and the RCR (dermal) and the concentration exists. Following scaling factors (f) apply: Concentration >25% =1; concentration >= 5% = 0,6; concentration >= 1% = 0,2; concentration < 1% = 0,1.
RCR (DU) = f(DU) * RCR (as stated in ES) / f (concentration in ES).

### ES 6: Used as a chemical in oil production, Industrial use

### 6.1. Title section

| | | |
|---|---|---|
| **Exposure Scenario name** | : | Used as a chemical in oil production, Industrial use |
| **Life Cycle Stage** | : | Use at industrial sites |
| **Main user group** | : | SU3 Industrial uses |
| **Substance** | : | acetic acid<br>Registration number: 01-2119475328-30<br>CAS-No.: 64-19-7<br>EC-No.: 200-580-7 |

| | | |
|---|---|---|
| **Environment** | | |
| **CS 1** | Use of non-reactive processing aid at industrial site (no inclusion into or onto article) | ERC4 |
| **Worker** | | |
| **CS 2** | Chemical production or refinery in closed process without likelihood of exposure or processes with equivalent containment conditions | PROC1 |
| **CS 3** | Chemical production or refinery in closed continuous process with occasional controlled exposure or processes with equivalent containment conditions | PROC2 |
| **CS 4** | Manufacture or formulation in the chemical industry in closed batch processes with occasional controlled exposure or processes with equivalent containment condition | PROC3 |
| **CS 5** | Chemical production where opportunity for exposure arises | PROC4 |
| **CS 6** | Transfer of substance or mixture (charging/discharging) at non dedicated-facilities | PROC8a |
| **CS 7** | Transfer of substance or mixture (charging/discharging) at dedicated facilities | PROC8b |

| **Other information** |
|---|
| The efficiency of a risk management measure is a theoretical value. The efficiency describes to which extend (in percent) the calculated exposure can be diminished by applying a certain measure. If the described operational conditions and risk management measures are fulfilled by a downstream user, the efficiency as highlighted in the ES can be applied. A downstream user might check whether the efficiency of the LEV or general ventilation corresponds to his site. |
| For further instructions related to "Personal protective equipment" please refer to section 8 of the Safety Data Sheet. |

### 6.2. Conditions of use affecting exposure

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

| **Product (article) characteristics** | | |
|---|---|---|
| Physical form of product | : | Liquid<br>Dustiness: not applicable |
| Vapour pressure | : | 20,79 hPa |
| Temperature | : | 25 °C |
| **Conditions and measures related to treatment of waste (including article waste)** | | |
| Waste treatment | : | Ensure all waste water is collected and treated via a WWTP. |

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

| **Product (article) characteristics** | | |
|---|---|---|
| Covers concentrations up to 100 % | | |
| Physical form of product | : | Liquid<br>Dustiness: not applicable |
| Vapour pressure | : | 20,79 hPa |
| Temperature | : | 25 °C |
| **Amount used (or contained in articles), frequency and duration of use/exposure** | | |
| Duration | : | <= 8 h |
| Use frequency | : | <= 220 days per year |
| **Technical and organisational conditions and measures** | | |
| No specific measures identified. | | |
| **Conditions and measures related to personal protection, hygiene and health evaluation** | | |
| Wear suitable gloves for handling strong sensitizing and corrosive substances in cases where exposure can occur | | |

| | | |
|---|---|---|
| **Other conditions affecting workers exposure** | | |
| Indoor or outdoor use | : | Indoor and outdoor use. |

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

| | | |
|---|---|---|
| **Product (article) characteristics** | | |
| Covers concentrations up to 100 % | | |
| Physical form of product | : | Liquid<br>Dustiness: not applicable |
| Vapour pressure | : | 20,79 hPa |
| Temperature | : | 25 °C |
| **Amount used (or contained in articles), frequency and duration of use/exposure** | | |
| Duration | : | <= 8 h |
| Use frequency | : | <= 220 days per year |
| **Technical and organisational conditions and measures** | | |
| Provide extraction ventilation at points where emissions occur.<br>Inhalation - minimum efficiency of 90 % | | |
| **Conditions and measures related to personal protection, hygiene and health evaluation** | | |
| Wear suitable gloves for handling strong sensitizing and corrosive substances in cases where exposure can occur | | |
| **Other conditions affecting workers exposure** | | |
| Indoor or outdoor use | : | Indoor use |

**6.2.4. Control of worker exposure: Manufacture or formulation in the chemical industry in closed batch processes with occasional controlled exposure or processes with equivalent containment condition (PROC3)**

| | | |
|---|---|---|
| **Product (article) characteristics** | | |
| Covers concentrations up to 25 % | | |

| | | |
|---|---|---|
| Physical form of product | : | Liquid<br>Dustiness: not applicable |
| Vapour pressure | : | 20,79 hPa |
| Temperature | : | 25 °C |
| **Amount used (or contained in articles), frequency and duration of use/exposure** | | |
| Duration | : | <= 4 h |
| Use frequency | : | <= 220 days per year |
| **Technical and organisational conditions and measures** | | |
| Provide a good standard of general ventilation (not less than 3 to 5 air changes per hour, corresponds to outdoor use).<br>Inhalation - minimum efficiency of 30 % | | |
| **Conditions and measures related to personal protection, hygiene and health evaluation** | | |
| Wear suitable gloves for handling strong sensitizing and corrosive substances in cases where exposure can occur | | |
| **Other conditions affecting workers exposure** | | |
| Indoor or outdoor use | : | Indoor and outdoor use. |

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

| | | |
|---|---|---|
| **Product (article) characteristics** | | |
| Covers concentrations up to 100 % | | |
| Physical form of product | : | Liquid<br>Dustiness: not applicable |
| Vapour pressure | : | 20,79 hPa |
| Temperature | : | 25 °C |
| **Amount used (or contained in articles), frequency and duration of use/exposure** | | |
| Duration | : | <= 8 h |
| Use frequency | : | <= 220 days per year |
| **Technical and organisational conditions and measures** | | |

| | | |
|---|---|---|
| Handle only in a place equipped with local exhaust (or other appropriate exhaust).<br>Inhalation - minimum efficiency of 90 % | | |
| **Conditions and measures related to personal protection, hygiene and health evaluation** | | |
| Wear suitable gloves tested to EN374. | | |
| Wear suitable coveralls to prevent exposure to the skin. | | |
| **Other conditions affecting workers exposure** | | |
| Indoor or outdoor use | : | Indoor use |
| Temperature | : | <= 60 °C |

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

| | | |
|---|---|---|
| **Product (article) characteristics** | | |
| Covers concentrations up to 100 % | | |
| Physical form of product | : | Liquid<br>Dustiness: not applicable |
| Vapour pressure | : | 20,79 hPa |
| Temperature | : | 25 °C |
| **Amount used (or contained in articles), frequency and duration of use/exposure** | | |
| Duration | : | <= 1 h |
| Use frequency | : | <= 220 days per year |
| **Technical and organisational conditions and measures** | | |
| Provide a good standard of general ventilation (not less than 3 to 5 air changes per hour, corresponds to outdoor use).<br>Inhalation - minimum efficiency of 30 % | | |
| **Conditions and measures related to personal protection, hygiene and health evaluation** | | |
| Wear suitable gloves tested to EN374.<br>Dermal - minimum efficiency of 80 % | | |
| **Other conditions affecting workers exposure** | | |
| Indoor or outdoor use | : | Indoor and outdoor use. |

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

| **Product (article) characteristics** | | |
|---|---|---|
| Covers concentrations up to 100 % | | |
| Physical form of product | : | Liquid<br>Dustiness: not applicable |
| Vapour pressure | : | 20,79 hPa |
| Temperature | : | 25 °C |
| **Amount used (or contained in articles), frequency and duration of use/exposure** | | |
| Duration | : | <= 8 h |
| Use frequency | : | <= 220 days per year |
| **Technical and organisational conditions and measures** | | |
| Use drum pumps.<br>Provide a good standard of general ventilation (not less than 3 to 5 air changes per hour, corresponds to outdoor use).<br>Inhalation - minimum efficiency of 30 % | | |
| **Conditions and measures related to personal protection, hygiene and health evaluation** | | |
| Wear suitable gloves tested to EN374.<br>Dermal - minimum efficiency of 80 % | | |
| **Other conditions affecting workers exposure** | | |
| Indoor or outdoor use | : | Indoor and outdoor use. |

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

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

| **Additional information on exposure estimation** |
|---|
| The use is assessed to be safe.<br>Risk Management Measures are based on qualitative risk characterisation. |

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

| Exposure route | Health effect | Exposure indicator | Exposure estimate | RCR |
|---|---|---|---|---|
| dermal | local | long-term | (ECETOC TRA Version 2) | 0,03 |
| inhalative | local | long-term | (ECETOC TRA Version 2) | 0,00 |
| combined routes | local | long-term | | 0,04 |

| Additional information on exposure estimation |
|---|
| ECETOC: http://www.ecetoc.org/tra |

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

| Exposure route | Health effect | Exposure indicator | Exposure estimate | RCR |
|---|---|---|---|---|
| dermal | local | long-term | (ECETOC TRA Version 2) | 0,01 |
| inhalative | local | long-term | (ECETOC TRA Version 2) | 0,25 |
| combined routes | local | long-term | | 0,26 |

| Additional information on exposure estimation |
|---|
| ECETOC: http://www.ecetoc.org/tra |

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

| Exposure route | Health effect | Exposure indicator | Exposure estimate | RCR |
|---|---|---|---|---|
| dermal | local | long-term | (ECETOC TRA Version 2) | 0,03 |
| inhalative | local | long-term | (ECETOC TRA Version 2) | 0,63 |
| combined routes | local | long-term | | 0,66 |

| Additional information on exposure estimation |
|---|
| ECETOC: http://www.ecetoc.org/tra |

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

| Exposure route | Health effect | Exposure indicator | Exposure estimate | RCR |
|---|---|---|---|---|
| dermal | local | long-term | (ECETOC TRA Version 2) | 0,14 |
| inhalative | local | long-term | (ECETOC TRA Version 2) | 0,84 |
| combined routes | local | long-term | | 0,98 |

| Additional information on exposure estimation |
|---|
| ECETOC: http://www.ecetoc.org/tra |

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

| Exposure route | Health effect | Exposure indicator | Exposure estimate | RCR |
|---|---|---|---|---|
| dermal | local | long-term | (ECETOC TRA Version 2) | 0,27 |
| inhalative | local | long-term | (ECETOC TRA Version 2) | 0,70 |
| combined routes | local | long-term | | 0,97 |

| Additional information on exposure estimation |
|---|
| ECETOC: http://www.ecetoc.org/tra |

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

| Exposure route | Health effect | Exposure indicator | Exposure estimate | RCR |
|---|---|---|---|---|
| dermal | local | long-term | (ECETOC TRA Version 2) | 0,14 |
| inhalative | local | long-term | (ECETOC TRA | 0,70 |

| | | | | |
|---|---|---|---|---|
| | | | Version 2) | |
| combined routes | local | long-term | | 0,84 |

| **Additional information on exposure estimation** |
|---|
| ECETOC: http://www.ecetoc.org/tra |

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

**Recommendations and general advice**
**For additional instructions relating to adaptation of conditions of use in view of a scaling, pls. see the "ECHA Guidance for downstream users"**
**http://echa.europa.eu/regulations/reach/downstream-users**
If a downstream user uses the substance/preparation differently than stated in the ES (different operational conditions and/or risk management measures), he has the possibility to vary certain parameters of the exposure assessment. With the help of easy calculations he can check whether he still operates under safe circumstances. This process is called Scaling.

**Scaling instructions**
**Type of ventilation used**
If the type of ventilation at the use site of a downstream user (DU) differs from the instructions in the ES, a linear correlation between the RCR (Inhalation) and the type of ventilation exists. Following scaling factors (f) apply: General ventilation (< 3 air changes per hour) =1; good general ventilation (3 to 5 air changes per hour, corresponds to outdoor use) = 0,7; enhanced general ventilation (> 5 air changes per hour) = 0,3.
RCR (DU) = f(DU) * RCR (as stated in ES) / f (type of ventilation stated in ES)
In the same manner a scaling for the efficiency of the local extract ventilation (LEV) can be applied.

**Duration of use**
If the duration of the use by a worker at a downstream user (DU) site differs from the instructions in the ES, a linear correlation between the RCR (Inhalation) and the duration of use exist. Following scaling factors (f) apply: duration > 4 hours/day = 1; duration: 1-4 hours/day = 0,6; duration: 15 min/day - 1 hour/day = 0,2; duration < 15 min/day = 0,1.
RCR (DU) = f(DU) * RCR (as stated in ES) / f (duration in ES)

**Concentration of substance in product**
If the downstream user (DU) uses the substance in a different concentration than the one stated in the ES, a linear correlation between the RCR (Inhalation)and the RCR (dermal) and the concentration exists. Following scaling factors (f) apply: Concentration >25% =1; concentration >= 5% = 0,6; concentration >= 1% = 0,2; concentration < 1% = 0,1.
RCR (DU) = f(DU) * RCR (as stated in ES) / f (concentration in ES).

### ES 7: Use in agriculture - professional use

### 7.1. Title section

| | | |
|---|---|---|
| **Exposure Scenario name** | : | Use in agriculture - professional use |
| **Life Cycle Stage** | : | Professional end use |
| **Main user group** | : | SU22 Professional uses |
| **Substance** | : | acetic acid<br>Registration number: 01-2119475328-30<br>CAS-No.: 64-19-7<br>EC-No.: 200-580-7 |

| | | |
|---|---|---|
| **Environment** | | |
| **CS 1** | Widespread use of non-reactive processing aid (no inclusion into or onto article, outdoor) | ERC8d |
| **Worker** | | |
| **CS 2** | Chemical production or refinery in closed process without likelihood of exposure or processes with equivalent containment conditions | PROC1 |
| **CS 3** | Chemical production or refinery in closed continuous process with occasional controlled exposure or processes with equivalent containment conditions | PROC2 |
| **CS 4** | Chemical production where opportunity for exposure arises | PROC4 |
| **CS 5** | Transfer of substance or mixture (charging/discharging) at non dedicated-facilities | PROC8a |
| **CS 6** | Transfer of substance or mixture (charging/discharging) at dedicated facilities | PROC8b |
| **CS 7** | Non-industrial spraying | PROC11 |
| **CS 8** | Treatment of articles by dipping and pouring | PROC13 |
| **Consumer** | | |
| **CS 9** | Lawn and garden preparations | PC12_1 |
| **CS 10** | Plant protection products | PC27 |

| **Other information** |
|---|
| The efficiency of a risk management measure is a theoretical value. The efficiency describes to which extend (in percent) the calculated exposure can be diminished by applying a certain measure. If the de- |

| |
|---|
| scribed operational conditions and risk management measures are fulfilled by a downstream user, the efficiency as highlighted in the ES can be applied. A downstream user might check whether the efficiency of the LEV or general ventilation corresponds to his site. |
| For further instructions related to "Personal protective equipment" please refer to section 8 of the Safety Data Sheet. |

### 7.2. Conditions of use affecting exposure

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

| **Product (article) characteristics** | | |
|---|---|---|
| Physical form of product | : | Liquid<br>Dustiness: not applicable |
| Vapour pressure | : | 20,79 hPa |
| Temperature | : | 25 °C |
| **Conditions and measures related to treatment of waste (including article waste)** | | |
| Waste treatment | : | Ensure all waste water is collected and treated via a WWTP. |

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

| **Product (article) characteristics** | | |
|---|---|---|
| Covers concentrations up to 100 % | | |
| Physical form of product | : | Liquid<br>Dustiness: not applicable |
| Vapour pressure | : | 20,79 hPa |
| Temperature | : | 25 °C |
| **Amount used (or contained in articles), frequency and duration of use/exposure** | | |
| Duration | : | <= 8 h |
| Use frequency | : | <= 220 days per year |
| **Technical and organisational conditions and measures** | | |
| Provide a good standard of general ventilation (not less than 3 to 5 air changes per hour, corresponds to | | |

| |
|---|
| outdoor use).<br>Inhalation - minimum efficiency of 30 % |
| **Conditions and measures related to personal protection, hygiene and health evaluation** |
| Wear suitable gloves for handling strong sensitizing and corrosive substances in cases where exposure can occur |
| **Other conditions affecting workers exposure** |

| | | |
|---|---|---|
| Indoor or outdoor use | : | Indoor and outdoor use. |

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

| **Product (article) characteristics** | | |
|---|---|---|
| Covers concentrations up to 100 % | | |
| Physical form of product | : | Liquid<br>Dustiness: not applicable |
| Vapour pressure | : | 20,79 hPa |
| Temperature | : | 25 °C |
| **Amount used (or contained in articles), frequency and duration of use/exposure** | | |
| Duration | : | <= 4 h |
| Use frequency | : | <= 220 days per year |

| |
|---|
| **Technical and organisational conditions and measures** |
| Provide a good standard of general ventilation (not less than 3 to 5 air changes per hour, corresponds to outdoor use).<br>Inhalation - minimum efficiency of 30 % |
| **Conditions and measures related to personal protection, hygiene and health evaluation** |
| Wear suitable gloves for handling strong sensitizing and corrosive substances in cases where exposure can occur |
| **Other conditions affecting workers exposure** |

| | | |
|---|---|---|
| Indoor or outdoor use | : | Indoor and outdoor use. |

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

| | | |
|---|---|---|
| **Product (article) characteristics** | | |
| Covers concentrations up to 100 % | | |
| Physical form of product | : | Liquid<br>Dustiness: not applicable |
| Vapour pressure | : | 20,79 hPa |
| Temperature | : | 25 °C |
| **Amount used (or contained in articles), frequency and duration of use/exposure** | | |
| Duration | : | <= 1 h |
| Use frequency | : | <= 220 days per year |
| **Technical and organisational conditions and measures** | | |
| Provide a good standard of general ventilation (not less than 3 to 5 air changes per hour, corresponds to outdoor use).<br>Inhalation - minimum efficiency of 30 % | | |
| **Conditions and measures related to personal protection, hygiene and health evaluation** | | |
| Wear suitable gloves tested to EN374.<br>Dermal - minimum efficiency of 80 % | | |
| **Other conditions affecting workers exposure** | | |
| Indoor or outdoor use | : | Indoor and outdoor use. |

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

| | | |
|---|---|---|
| **Product (article) characteristics** | | |
| Covers concentrations up to 5 % | | |
| Physical form of product | : | Liquid<br>Dustiness: not applicable |
| Vapour pressure | : | 20,79 hPa |
| Temperature | : | 25 °C |

| | | |
|---|---|---|
| **Amount used (or contained in articles), frequency and duration of use/exposure** | | |
| Duration | : | <= 1 h |
| Use frequency | : | <= 220 days per year |
| **Technical and organisational conditions and measures** | | |
| Provide a good standard of general ventilation (not less than 3 to 5 air changes per hour, corresponds to outdoor use).<br>Inhalation - minimum efficiency of 30 % | | |
| **Conditions and measures related to personal protection, hygiene and health evaluation** | | |
| Wear suitable gloves for handling strong sensitizing and corrosive substances in cases where exposure can occur | | |
| **Other conditions affecting workers exposure** | | |
| Indoor or outdoor use | : | Indoor and outdoor use. |

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

| | | |
|---|---|---|
| **Product (article) characteristics** | | |
| Covers concentrations up to 100 % | | |
| Physical form of product | : | Liquid<br>Dustiness: not applicable |
| Vapour pressure | : | 20,79 hPa |
| Temperature | : | 25 °C |
| **Amount used (or contained in articles), frequency and duration of use/exposure** | | |
| Duration | : | <= 4 h |
| Use frequency | : | <= 220 days per year |
| **Technical and organisational conditions and measures** | | |
| Use drum pumps or carefully pour from container.<br>Dermal - minimum efficiency of 80 % | | |
| **Conditions and measures related to personal protection, hygiene and health evaluation** | | |

| | | |
|---|---|---|
| Wear suitable gloves tested to EN374.<br>Dermal - minimum efficiency of 80 % | | |
| **Other conditions affecting workers exposure** | | |
| Indoor or outdoor use | : | Indoor and outdoor use. |

**7.2.7. Control of worker exposure: Non-industrial spraying (PROC11)**

| | | |
|---|---|---|
| **Product (article) characteristics** | | |
| Covers concentrations up to 5 % | | |
| Physical form of product | : | Liquid<br>Dustiness: not applicable |
| Vapour pressure | : | 20,79 hPa |
| Temperature | : | 25 °C |
| **Amount used (or contained in articles), frequency and duration of use/exposure** | | |
| Duration | : | <= 4 h |
| Use frequency | : | <= 220 days per year |
| **Technical and organisational conditions and measures** | | |
| Apply within a vented cab supplied with filtered air under positive pressure and with a protection factor of >20.<br>Inhalation - minimum efficiency of 95 % | | |
| **Conditions and measures related to personal protection, hygiene and health evaluation** | | |
| Wear chemically resistant gloves (tested to EN374) in combination with ‘basic’ employee training.<br>Dermal - minimum efficiency of 90 % | | |
| Wear a respirator conforming to EN140 with Type A filter or better.<br>Inhalation - minimum efficiency of 90 % | | |
| If above technical control measures are not feasible, then adopt following PPE: | | |
| **Other conditions affecting workers exposure** | | |
| Indoor or outdoor use | : | Indoor and outdoor use. |

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

| **Product (article) characteristics** | | |
|---|---|---|
| Covers concentrations up to 5 % | | |
| Physical form of product | : | Liquid<br>Dustiness: not applicable |
| Vapour pressure | : | 20,79 hPa |
| Temperature | : | 25 °C |
| **Amount used (or contained in articles), frequency and duration of use/exposure** | | |
| Duration | : | <= 1 h |
| Use frequency | : | <= 220 days per year |
| **Technical and organisational conditions and measures** | | |
| No specific measures identified. | | |
| **Conditions and measures related to personal protection, hygiene and health evaluation** | | |
| Wear suitable gloves for handling strong sensitizing and corrosive substances in cases where exposure can occur | | |
| **Other conditions affecting workers exposure** | | |
| Indoor or outdoor use | : | Indoor and outdoor use. |

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

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

| **Additional information on exposure estimation** |
|---|
| The use is assessed to be safe.<br>Risk Management Measures are based on qualitative risk characterisation. |

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

| Exposure route | Health effect | Exposure indicator | Exposure estimate | RCR |
|---|---|---|---|---|
| dermal | local | long-term | (ECETOC TRA | 0,00 |

| | | | | |
|---|---|---|---|---|
| | | | Version 2) | |
| inhalative | local | long-term | (ECETOC TRA Version 2) | 0,00 |
| combined routes | local | long-term | | 0,00 |

| Additional information on exposure estimation |
|---|
| ECETOC: http://www.ecetoc.org/tra |

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

| Exposure route | Health effect | Exposure indicator | Exposure estimate | RCR |
|---|---|---|---|---|
| dermal | local | long-term | (ECETOC TRA Version 2) | 0,01 |
| inhalative | local | long-term | (ECETOC TRA Version 2) | 0,84 |
| combined routes | local | long-term | | 0,85 |

| Additional information on exposure estimation |
|---|
| ECETOC: http://www.ecetoc.org/tra |

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

| Exposure route | Health effect | Exposure indicator | Exposure estimate | RCR |
|---|---|---|---|---|
| dermal | local | long-term | (ECETOC TRA Version 2) | 0,14 |
| inhalative | local | long-term | (ECETOC TRA Version 2) | 0,70 |
| combined routes | local | long-term | | 0,84 |

| Additional information on exposure estimation |
|---|
| ECETOC: http://www.ecetoc.org/tra |

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

| Exposure route | Health effect | Exposure indicator | Exposure estimate | RCR |
|---|---|---|---|---|
| dermal | local | long-term | (ECETOC TRA Version 2) | 0,27 |
| inhalative | local | long-term | (ECETOC TRA Version 2) | 0,28 |
| combined routes | local | long-term | | 0,55 |

| Additional information on exposure estimation |
|---|
| ECETOC: http://www.ecetoc.org/tra |

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

| Exposure route | Health effect | Exposure indicator | Exposure estimate | RCR |
|---|---|---|---|---|
| dermal | local | long-term | (ECETOC TRA Version 2) | 0,14 |
| inhalative | local | long-term | (ECETOC TRA Version 2) | 0,60 |
| combined routes | local | long-term | | 0,74 |

| Additional information on exposure estimation |
|---|
| ECETOC: http://www.ecetoc.org/tra |

**7.3.7. Worker exposure: Non-industrial spraying (PROC11)**

| Exposure route | Health effect | Exposure indicator | Exposure estimate | RCR |
|---|---|---|---|---|
| dermal | local | long-term | (ECETOC TRA Version 2) | 0,60 |
| inhalative | local | long-term | (ECETOC TRA Version 2) | 0,21 |
| combined routes | local | long-term | | 0,81 |

| Additional information on exposure estimation |
|---|
| ECETOC: http://www.ecetoc.org/tra |

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

| Exposure route | Health effect | Exposure indicator | Exposure estimate | RCR |
|---|---|---|---|---|
| dermal | local | long-term | (ECETOC TRA Version 2) | 0,27 |
| inhalative | local | long-term | (ECETOC TRA Version 2) | 0,40 |
| combined routes | local | long-term | | 0,67 |

| Additional information on exposure estimation |
|---|
| ECETOC: http://www.ecetoc.org/tra |

### 7.3.9. Consumer exposure: Lawn and garden preparations (PC12_1)

| Exposure route | Health effect | Exposure indicator | Exposure estimate | RCR |
|---|---|---|---|---|
| oral | systemic | long-term | (ECETOC TRA Version 2) | 0,63 |
| dermal | systemic | long-term | (ECETOC TRA Version 2) | 0,30 |
| inhalative | systemic | long-term | (ECETOC TRA Version 2) | 0,00 |
| combined routes | systemic | long-term | (ECETOC TRA Version 2) | 0,92 |

### 7.3.10. Consumer exposure: Plant protection products (PC27)

| Exposure route | Health effect | Exposure indicator | Exposure estimate | RCR |
|---|---|---|---|---|
| oral | systemic | long-term | (ECETOC TRA Version 2) | 0,63 |
| dermal | systemic | long-term | (ECETOC TRA Version 2) | 0,30 |
| inhalative | systemic | long-term | (ECETOC TRA Version 2) | 0,00 |
| combined routes | systemic | long-term | (ECETOC TRA Version 2) | 0,92 |

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

**Recommendations and general advice**
**For additional instructions relating to adaptation of conditions of use in view of a scaling, pls. see the "ECHA Guidance for downstream users"**
**http://echa.europa.eu/regulations/reach/downstream-users**
If a downstream user uses the substance/preparation differently than stated in the ES (different operational conditions and/or risk management measures), he has the possibility to vary certain parameters of the exposure assessment. With the help of easy calculations he can check whether he still operates under safe circumstances. This process is called Scaling.

**Scaling instructions**
**Type of ventilation used**
If the type of ventilation at the use site of a downstream user (DU) differs from the instructions in the ES, a linear correlation between the RCR (Inhalation) and the type of ventilation exists. Following scaling factors (f) apply: General ventilation (< 3 air changes per hour) =1; good general ventilation (3 to 5 air changes per hour, corresponds to outdoor use) = 0,7; enhanced general ventilation (> 5 air changes per hour) = 0,3.
RCR (DU) = f(DU) * RCR (as stated in ES) / f (type of ventilation stated in ES)
In the same manner a scaling for the efficiency of the local extract ventilation (LEV) can be applied.

**Duration of use**
If the duration of the use by a worker at a downstream user (DU) site differs from the instructions in the ES, a linear correlation between the RCR (Inhalation) and the duration of use exist. Following scaling factors (f) apply: duration > 4 hours/day = 1; duration: 1-4 hours/day = 0,6; duration: 15 min/day - 1 hour/day = 0,2; duration < 15 min/day = 0,1.
RCR (DU) = f(DU) * RCR (as stated in ES) / f (duration in ES)

**Concentration of substance in product**
If the downstream user (DU) uses the substance in a different concentration than the one stated in the ES, a linear correlation between the RCR (Inhalation)and the RCR (dermal) and the concentration exists. Following scaling factors (f) apply: Concentration >25% =1; concentration >= 5% = 0,6; concentration >= 1% = 0,2; concentration < 1% = 0,1.
RCR (DU) = f(DU) * RCR (as stated in ES) / f (concentration in ES).

### ES 8: Use in agriculture - consumer use

### 8.1. Title section

| | | |
|---|---|---|
| **Exposure Scenario name** | : | Use in agriculture - consumer use |
| **Life Cycle Stage** | : | Consumer use |
| **Main user group** | : | SU21 Consumer uses |
| **Substance** | : | acetic acid<br>Registration number: 01-2119475328-30<br>CAS-No.: 64-19-7<br>EC-No.: 200-580-7 |

| **Environment** | | |
|---|---|---|
| **CS 1** | Widespread use of non-reactive processing aid (no inclusion into or onto article, indoor) | ERC8a |
| **CS 2** | Widespread use of non-reactive processing aid (no inclusion into or onto article, outdoor) | ERC8d |

| **Other information** |
|---|
| The efficiency of a risk management measure is a theoretical value. The efficiency describes to which extend (in percent) the calculated exposure can be diminished by applying a certain measure. If the described operational conditions and risk management measures are fulfilled by a downstream user, the efficiency as highlighted in the ES can be applied. A downstream user might check whether the efficiency of the LEV or general ventilation corresponds to his site. |
| For further instructions related to "Personal protective equipment" please refer to section 8 of the Safety Data Sheet. |

### 8.2. Conditions of use affecting exposure

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

| **Product (article) characteristics** | | |
|---|---|---|
| Physical form of product | : | Liquid<br>Dustiness: not applicable |
| Vapour pressure | : | 20,79 hPa |

| | | |
|---|---|---|
| Temperature | : | 25 °C |

Covers use under typical household ventilation.
Covers use at ambient temperatures.
Covers outdoor use.

**Additional good practice advice. Obligations according to Article 37(4) of REACH do not apply**

No specific measures identified.

**8.2.2. Control of environmental exposure: Widespread use of non-reactive processing aid (no inclusion into or onto article, outdoor) (ERC8d)**

| **Product (article) characteristics** | | |
|---|---|---|
| Physical form of product | : | Liquid<br>Dustiness: not applicable |
| Vapour pressure | : | 20,79 hPa |
| Temperature | : | 25 °C |

Covers use under typical household ventilation.
Covers use at ambient temperatures.
Covers outdoor use.

**Additional good practice advice. Obligations according to Article 37(4) of REACH do not apply**

No specific measures identified.

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

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

**Additional information on exposure estimation**

The use is assessed to be safe.
Risk Management Measures are based on qualitative risk characterisation.

**8.3.2. Environmental release and exposure: Widespread use of non-reactive processing aid (no inclusion into or onto article, outdoor) (ERC8d)**

**Additional information on exposure estimation**

The use is assessed to be safe.
Risk Management Measures are based on qualitative risk characterisation.

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

**Recommendations and general advice**
**For additional instructions relating to adaptation of conditions of use in view of a scaling, pls. see the "ECHA Guidance for downstream users"**
**http://echa.europa.eu/regulations/reach/downstream-users**
If a downstream user uses the substance/preparation differently than stated in the ES (different operational conditions and/or risk management measures), he has the possibility to vary certain parameters of the exposure assessment. With the help of easy calculations he can check whether he still operates under safe circumstances. This process is called Scaling.

**Scaling instructions**
**Type of ventilation used**
If the type of ventilation at the use site of a downstream user (DU) differs from the instructions in the ES, a linear correlation between the RCR (Inhalation) and the type of ventilation exists. Following scaling factors (f) apply: General ventilation (< 3 air changes per hour) =1; good general ventilation (3 to 5 air changes per hour, corresponds to outdoor use) = 0,7; enhanced general ventilation (> 5 air changes per hour) = 0,3.
RCR (DU) = f(DU) * RCR (as stated in ES) / f (type of ventilation stated in ES)
In the same manner a scaling for the efficiency of the local extract ventilation (LEV) can be applied.

**Duration of use**
If the duration of the use by a worker at a downstream user (DU) site differs from the instructions in the ES, a linear correlation between the RCR (Inhalation) and the duration of use exist. Following scaling factors (f) apply: duration > 4 hours/day = 1; duration: 1-4 hours/day = 0,6; duration: 15 min/day - 1 hour/day = 0,2; duration < 15 min/day = 0,1.
RCR (DU) = f(DU) * RCR (as stated in ES) / f (duration in ES)

**Concentration of substance in product**
If the downstream user (DU) uses the substance in a different concentration than the one stated in the ES, a linear correlation between the RCR (Inhalation)and the RCR (dermal) and the concentration exists. Following scaling factors (f) apply: Concentration >25% =1; concentration >= 5% = 0,6; concentration >= 1% = 0,2; concentration < 1% = 0,1.
RCR (DU) = f(DU) * RCR (as stated in ES) / f (concentration in ES).

### ES 9: Use as laboratory reagent, Industrial use

### 9.1. Title section

| | | |
|---|---|---|
| **Exposure Scenario name** | : | Use as laboratory reagent, Industrial use |
| **Life Cycle Stage** | : | Use at industrial sites |
| **Main user group** | : | SU3 Industrial uses |
| **Substance** | : | acetic acid<br>Registration number: 01-2119475328-30<br>CAS-No.: 64-19-7<br>EC-No.: 200-580-7 |

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

| **Other information** |
|---|
| The efficiency of a risk management measure is a theoretical value. The efficiency describes to which extend (in percent) the calculated exposure can be diminished by applying a certain measure. If the described operational conditions and risk management measures are fulfilled by a downstream user, the efficiency as highlighted in the ES can be applied. A downstream user might check whether the efficiency of the LEV or general ventilation corresponds to his site. |
| For further instructions related to "Personal protective equipment" please refer to section 8 of the Safety Data Sheet. |

### 9.2. Conditions of use affecting exposure

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

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

| | | |
|---|---|---|
| | | Dustiness: not applicable |
| Vapour pressure | : | 20,79 hPa |
| Temperature | : | 25 °C |
| **Conditions and measures related to treatment of waste (including article waste)** | | |
| Waste treatment | : | Ensure all waste water is collected and treated via a WWTP. |

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

| | | |
|---|---|---|
| **Product (article) characteristics** | | |
| Covers concentrations up to 100 % | | |
| Physical form of product | : | Liquid<br>Dustiness: not applicable |
| Vapour pressure | : | 20,79 hPa |
| Temperature | : | 25 °C |
| **Amount used (or contained in articles), frequency and duration of use/exposure** | | |
| Duration | : | <= 1 h |
| Use frequency | : | <= 220 days per year |
| **Technical and organisational conditions and measures** | | |
| Provide a good standard of controlled ventilation (10 to 15 air changes per hour).<br>Inhalation - minimum efficiency of 70 % | | |
| **Conditions and measures related to personal protection, hygiene and health evaluation** | | |
| Wear suitable gloves tested to EN374.<br>Dermal - minimum efficiency of 80 % | | |
| **Other conditions affecting workers exposure** | | |
| Indoor or outdoor use | : | Indoor use |

**9.2.3. Control of worker exposure: Use as laboratory reagent (PROC15)**

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

| | | |
|---|---|---|
| Covers concentrations up to 100 % | | |
| Physical form of product | : | Liquid<br>Dustiness: not applicable |
| Vapour pressure | : | 20,79 hPa |
| Temperature | : | 25 °C |
| **Amount used (or contained in articles), frequency and duration of use/exposure** | | |
| Duration | : | <= 8 h |
| Use frequency | : | <= 220 days per year |
| **Technical and organisational conditions and measures** | | |
| Handle in a fume cupboard or under extract ventilation.<br>Inhalation - minimum efficiency of 90 % | | |
| **Conditions and measures related to personal protection, hygiene and health evaluation** | | |
| Wear suitable gloves for handling strong sensitizing and corrosive substances in cases where exposure can occur | | |
| **Other conditions affecting workers exposure** | | |
| Indoor or outdoor use | : | Indoor use |

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

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

| **Additional information on exposure estimation** |
|---|
| The use is assessed to be safe.<br>Risk Management Measures are based on qualitative risk characterisation. |

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

| Exposure route | Health effect | Exposure indicator | Exposure estimate | RCR |
|---|---|---|---|---|
| dermal | local | long-term | (ECETOC TRA Version 2) | 0,56 |
| inhalative | local | long-term | (ECETOC TRA | 0,30 |

| | | | | |
|---|---|---|---|---|
| | | | Version 2) | |
| combined routes | local | long-term | | 0,86 |

| **Additional information on exposure estimation** |
|---|
| ECETOC: http://www.ecetoc.org/tra |

**9.3.3. Worker exposure: Use as laboratory reagent (PROC15)**

| **Exposure route** | **Health effect** | **Exposure indicator** | **Exposure estimate** | **RCR** |
|---|---|---|---|---|
| dermal | local | long-term | (ECETOC TRA Version 2) | 0,00 |
| inhalative | local | long-term | (ECETOC TRA Version 2) | 0,10 |
| combined routes | local | long-term | | 0,00 |

| **Additional information on exposure estimation** |
|---|
| ECETOC: http://www.ecetoc.org/tra |

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

**Recommendations and general advice**
**For additional instructions relating to adaptation of conditions of use in view of a scaling, pls. see the "ECHA Guidance for downstream users"**
**http://echa.europa.eu/regulations/reach/downstream-users**
If a downstream user uses the substance/preparation differently than stated in the ES (different operational conditions and/or risk management measures), he has the possibility to vary certain parameters of the exposure assessment. With the help of easy calculations he can check whether he still operates under safe circumstances. This process is called Scaling.

**Scaling instructions**
**Type of ventilation used**
If the type of ventilation at the use site of a downstream user (DU) differs from the instructions in the ES, a linear correlation between the RCR (Inhalation) and the type of ventilation exists. Following scaling factors (f) apply: General ventilation (< 3 air changes per hour) =1; good general ventilation (3 to 5 air changes per hour, corresponds to outdoor use) = 0,7; enhanced general ventilation (> 5 air changes per hour) = 0,3.
RCR (DU) = f(DU) * RCR (as stated in ES) / f (type of ventilation stated in ES)
In the same manner a scaling for the efficiency of the local extract ventilation (LEV) can be applied.

**Duration of use**
If the duration of the use by a worker at a downstream user (DU) site differs from the instructions in the

ES, a linear correlation between the RCR (Inhalation) and the duration of use exist. Following scaling factors (f) apply: duration > 4 hours/day = 1; duration: 1-4 hours/day = 0,6; duration: 15 min/day - 1 hour/day = 0,2; duration < 15 min/day = 0,1.
RCR (DU) = f(DU) * RCR (as stated in ES) / f (duration in ES)

**Concentration of substance in product**
If the downstream user (DU) uses the substance in a different concentration than the one stated in the ES, a linear correlation between the RCR (Inhalation)and the RCR (dermal) and the concentration exists. Following scaling factors (f) apply: Concentration >25% =1; concentration >= 5% = 0,6; concentration >= 1% = 0,2; concentration < 1% = 0,1.
RCR (DU) = f(DU) * RCR (as stated in ES) / f (concentration in ES).

### ES 10: Use as laboratory reagent, Professional use

### 10.1. Title section

| | | |
|---|---|---|
| **Exposure Scenario name** | : | Use as laboratory reagent, Professional use |
| **Life Cycle Stage** | : | Professional end use |
| **Main user group** | : | SU22 Professional uses |
| **Substance** | : | acetic acid<br>Registration number: 01-2119475328-30<br>CAS-No.: 64-19-7<br>EC-No.: 200-580-7 |

| | | |
|---|---|---|
| **Environment** | | |
| **CS 1** | Widespread use of non-reactive processing aid (no inclusion into or onto article, indoor) | ERC8a |
| **Worker** | | |
| **CS 2** | Roller application or brushing | PROC10 |
| **CS 3** | Use as laboratory reagent | PROC15 |

| **Other information** |
|---|
| The efficiency of a risk management measure is a theoretical value. The efficiency describes to which extend (in percent) the calculated exposure can be diminished by applying a certain measure. If the described operational conditions and risk management measures are fulfilled by a downstream user, the efficiency as highlighted in the ES can be applied. A downstream user might check whether the efficiency of the LEV or general ventilation corresponds to his site. |
| For further instructions related to "Personal protective equipment" please refer to section 8 of the Safety Data Sheet. |

### 10.2. Conditions of use affecting exposure

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

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

| | | |
|---|---|---|
| | | Dustiness: not applicable |
| Vapour pressure | : | 20,79 hPa |
| Temperature | : | 25 °C |
| **Conditions and measures related to treatment of waste (including article waste)** | | |
| Waste treatment | : | Ensure all waste water is collected and treated via a WWTP. |

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

| | | |
|---|---|---|
| **Product (article) characteristics** | | |
| Covers concentrations up to 100 % | | |
| Physical form of product | : | Liquid<br>Dustiness: not applicable |
| Vapour pressure | : | 20,79 hPa |
| Temperature | : | 25 °C |
| **Amount used (or contained in articles), frequency and duration of use/exposure** | | |
| Duration | : | <= 1 h |
| Use frequency | : | <= 220 days per year |
| **Technical and organisational conditions and measures** | | |
| Provide a good standard of controlled ventilation (10 to 15 air changes per hour).<br>Use long handled tools where possible.<br>Inhalation - minimum efficiency of 70 % | | |
| **Conditions and measures related to personal protection, hygiene and health evaluation** | | |
| Wear chemically resistant gloves (tested to EN374) in combination with ‘basic’ employee training.<br>Dermal - minimum efficiency of 90 % | | |
| **Other conditions affecting workers exposure** | | |
| Indoor or outdoor use | : | Indoor use |

**10.2.3. Control of worker exposure: Use as laboratory reagent (PROC15)**

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

| | | |
|---|---|---|
| Covers concentrations up to 100 % | | |
| Physical form of product | : | Liquid<br>Dustiness: not applicable |
| Vapour pressure | : | 20,79 hPa |
| Temperature | : | 25 °C |
| **Amount used (or contained in articles), frequency and duration of use/exposure** | | |
| Amount per use | : | 1 l |
| Duration | : | <= 8 h |
| Use frequency | : | <= 220 days per year |
| **Technical and organisational conditions and measures** | | |
| Handle in a fume cupboard or under extract ventilation.<br>Inhalation - minimum efficiency of 80 % | | |
| **Conditions and measures related to personal protection, hygiene and health evaluation** | | |
| Wear suitable gloves for handling strong sensitizing and corrosive substances in cases where exposure can occur | | |
| **Other conditions affecting workers exposure** | | |
| Indoor or outdoor use | : | Indoor use |

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

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

| **Additional information on exposure estimation** |
|---|
| The use is assessed to be safe.<br>Risk Management Measures are based on qualitative risk characterisation. |

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

| Exposure route | Health effect | Exposure indicator | Exposure estimate | RCR |
|---|---|---|---|---|
| dermal | local | long-term | (ECETOC TRA Version 2) | 0,27 |

| | | | | |
|---|---|---|---|---|
| inhalative | local | long-term | (ECETOC TRA Version 2) | 0,60 |
| combined routes | local | long-term | | 0,87 |

| Additional information on exposure estimation |
|---|
| ECETOC: http://www.ecetoc.org/tra |

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

| Exposure route | Health effect | Exposure indicator | Exposure estimate | RCR |
|---|---|---|---|---|
| dermal | local | long-term | (ECETOC TRA Version 2) | 0,00 |
| inhalative | local | long-term | (ECETOC TRA Version 2) | 0,20 |
| combined routes | local | long-term | | 0,20 |

| Additional information on exposure estimation |
|---|
| ECETOC: http://www.ecetoc.org/tra |

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

**Recommendations and general advice**
**For additional instructions relating to adaptation of conditions of use in view of a scaling, pls. see the "ECHA Guidance for downstream users"**
**http://echa.europa.eu/regulations/reach/downstream-users**
If a downstream user uses the substance/preparation differently than stated in the ES (different operational conditions and/or risk management measures), he has the possibility to vary certain parameters of the exposure assessment. With the help of easy calculations he can check whether he still operates under safe circumstances. This process is called Scaling.

**Scaling instructions**
**Type of ventilation used**
If the type of ventilation at the use site of a downstream user (DU) differs from the instructions in the ES, a linear correlation between the RCR (Inhalation) and the type of ventilation exists. Following scaling factors (f) apply: General ventilation (< 3 air changes per hour) =1; good general ventilation (3 to 5 air changes per hour, corresponds to outdoor use) = 0,7; enhanced general ventilation (> 5 air changes per hour) = 0,3.
RCR (DU) = f(DU) * RCR (as stated in ES) / f (type of ventilation stated in ES)
In the same manner a scaling for the efficiency of the local extract ventilation (LEV) can be applied.

**Duration of use**
If the duration of the use by a worker at a downstream user (DU) site differs from the instructions in the ES, a linear correlation between the RCR (Inhalation) and the duration of use exist. Following scaling factors (f) apply: duration > 4 hours/day = 1; duration: 1-4 hours/day = 0,6; duration: 15 min/day - 1 hour/day = 0,2; duration < 15 min/day = 0,1.
RCR (DU) = f(DU) * RCR (as stated in ES) / f (duration in ES)

**Concentration of substance in product**
If the downstream user (DU) uses the substance in a different concentration than the one stated in the ES, a linear correlation between the RCR (Inhalation)and the RCR (dermal) and the concentration exists. Following scaling factors (f) apply: Concentration >25% =1; concentration >= 5% = 0,6; concentration >= 1% = 0,2; concentration < 1% = 0,1.
RCR (DU) = f(DU) * RCR (as stated in ES) / f (concentration in ES).

### ES 11: Use in water treatment, Industrial use

### 11.1. Title section

| | | |
|---|---|---|
| **Exposure Scenario name** | : | Use in water treatment, Industrial use |
| **Life Cycle Stage** | : | Use at industrial sites |
| **Main user group** | : | SU3 Industrial uses |
| **Substance** | : | acetic acid<br>Registration number: 01-2119475328-30<br>CAS-No.: 64-19-7<br>EC-No.: 200-580-7 |

| | | |
|---|---|---|
| **Environment** | | |
| **CS 1** | Use of non-reactive processing aid at industrial site (no inclusion into or onto article) | ERC4 |
| **Worker** | | |
| **CS 2** | Chemical production or refinery in closed process without likelihood of exposure or processes with equivalent containment conditions | PROC1 |
| **CS 3** | Chemical production or refinery in closed continuous process with occasional controlled exposure or processes with equivalent containment conditions | PROC2 |
| **CS 4** | Manufacture or formulation in the chemical industry in closed batch processes with occasional controlled exposure or processes with equivalent containment condition | PROC3 |
| **CS 5** | Chemical production where opportunity for exposure arises | PROC4 |
| **CS 6** | Transfer of substance or mixture (charging/discharging) at non dedicated-facilities | PROC8a |
| **CS 7** | Transfer of substance or mixture (charging/discharging) at dedicated facilities | PROC8b |
| **CS 8** | Treatment of articles by dipping and pouring | PROC13 |

| **Other information** |
|---|
| The efficiency of a risk management measure is a theoretical value. The efficiency describes to which extend (in percent) the calculated exposure can be diminished by applying a certain measure. If the described operational conditions and risk management measures are fulfilled by a downstream user, the efficiency as highlighted in the ES can be applied. A downstream user might check whether the efficiency of the LEV or general ventilation corresponds to his site. |

For further instructions related to "Personal protective equipment" please refer to section 8 of the Safety Data Sheet.

### 11.2. Conditions of use affecting exposure

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

| **Product (article) characteristics** | | |
|---|---|---|
| Physical form of product | : | Liquid<br>Dustiness: not applicable |
| Vapour pressure | : | 20,79 hPa |
| Temperature | : | 25 °C |
| **Conditions and measures related to treatment of waste (including article waste)** | | |
| Waste treatment | : | Ensure all waste water is collected and treated via a WWTP. |

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

| **Product (article) characteristics** | | |
|---|---|---|
| Covers concentrations up to 100 % | | |
| Physical form of product | : | Liquid<br>Dustiness: not applicable |
| Vapour pressure | : | 20,79 hPa |
| Temperature | : | 25 °C |
| **Amount used (or contained in articles), frequency and duration of use/exposure** | | |
| Duration | : | <= 8 h |
| Use frequency | : | <= 220 days per year |
| **Technical and organisational conditions and measures** | | |
| No specific measures identified. | | |
| **Conditions and measures related to personal protection, hygiene and health evaluation** | | |

| |
|---|
| Wear suitable gloves for handling strong sensitizing and corrosive substances in cases where exposure can occur |
| **Other conditions affecting workers exposure** |
| Indoor or outdoor use : Indoor and outdoor use. |

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

| | | |
|---|---|---|
| **Product (article) characteristics** | | |
| Covers concentrations up to 100 % | | |
| Physical form of product | : | Liquid<br>Dustiness: not applicable |
| Vapour pressure | : | 20,79 hPa |
| Temperature | : | 25 °C |
| **Amount used (or contained in articles), frequency and duration of use/exposure** | | |
| Duration | : | <= 4 h |
| Use frequency | : | <= 220 days per year |
| **Technical and organisational conditions and measures** | | |
| No specific measures identified. | | |
| **Conditions and measures related to personal protection, hygiene and health evaluation** | | |
| Wear suitable gloves for handling strong sensitizing and corrosive substances in cases where exposure can occur | | |
| **Other conditions affecting workers exposure** | | |
| Indoor or outdoor use | : | Indoor and outdoor use. |

**11.2.4. Control of worker exposure: Manufacture or formulation in the chemical industry in closed batch processes with occasional controlled exposure or processes with equivalent containment condition (PROC3)**

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

| | | |
|---|---|---|
| Covers concentrations up to 100 % | | |
| Physical form of product | : | Liquid<br>Dustiness: not applicable |
| Vapour pressure | : | 20,79 hPa |
| Temperature | : | 25 °C |
| **Amount used (or contained in articles), frequency and duration of use/exposure** | | |
| Duration | : | <= 1 h |
| Use frequency | : | <= 220 days per year |
| **Technical and organisational conditions and measures** | | |
| Provide a good standard of general ventilation (not less than 3 to 5 air changes per hour, corresponds to outdoor use).<br>No specific measures identified.<br>Inhalation - minimum efficiency of 30 % | | |
| **Conditions and measures related to personal protection, hygiene and health evaluation** | | |
| Wear suitable gloves for handling strong sensitizing and corrosive substances in cases where exposure can occur | | |
| **Other conditions affecting workers exposure** | | |
| Indoor or outdoor use | : | Indoor and outdoor use. |

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

| | | |
|---|---|---|
| **Product (article) characteristics** | | |
| Covers concentrations up to 100 % | | |
| Physical form of product | : | Liquid<br>Dustiness: not applicable |
| Vapour pressure | : | 20,79 hPa |
| Temperature | : | 25 °C |
| **Amount used (or contained in articles), frequency and duration of use/exposure** | | |
| Duration | : | <= 4 h |
| Use frequency | : | <= 220 days per year |

| **Technical and organisational conditions and measures** |
|---|
| Provide a good standard of general ventilation (not less than 3 to 5 air changes per hour, corresponds to outdoor use).<br>No specific measures identified.<br>Inhalation - minimum efficiency of 30 % |
| **Conditions and measures related to personal protection, hygiene and health evaluation** |
| Wear suitable gloves tested to EN374.<br>Dermal - minimum efficiency of 80 % |
| **Other conditions affecting workers exposure** |

| | | |
|---|---|---|
| Indoor or outdoor use | : | Indoor and outdoor use. |

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

| **Product (article) characteristics** | | |
|---|---|---|
| Covers concentrations up to 100 % | | |
| Physical form of product | : | Liquid<br>Dustiness: not applicable |
| Vapour pressure | : | 20,79 hPa |
| Temperature | : | 25 °C |
| **Amount used (or contained in articles), frequency and duration of use/exposure** | | |
| Duration | : | <= 8 h |
| Use frequency | : | <= 220 days per year |

| **Technical and organisational conditions and measures** |
|---|
| Provide a good standard of general ventilation (not less than 3 to 5 air changes per hour, corresponds to outdoor use).<br>Drain down and flush system prior to equipment break-in or maintenance.<br>Inhalation - minimum efficiency of 30 % |
| **Conditions and measures related to personal protection, hygiene and health evaluation** |
| Wear suitable gloves tested to EN374.<br>Dermal - minimum efficiency of 80 % |

| **Other conditions affecting workers exposure** | | |
|---|---|---|
| Indoor or outdoor use | : | Indoor and outdoor use. |

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

| **Product (article) characteristics** | | |
|---|---|---|
| Covers concentrations up to 100 % | | |
| Physical form of product | : | Liquid<br>Dustiness: not applicable |
| Vapour pressure | : | 20,79 hPa |
| Temperature | : | 25 °C |
| **Amount used (or contained in articles), frequency and duration of use/exposure** | | |
| Duration | : | <= 4 h |
| Use frequency | : | <= 220 days per year |
| **Technical and organisational conditions and measures** | | |
| Use drum pumps.<br>No specific measures identified.<br>Inhalation - minimum efficiency of 80 % | | |
| **Conditions and measures related to personal protection, hygiene and health evaluation** | | |
| Wear suitable gloves tested to EN374.<br>Dermal - minimum efficiency of 80 % | | |
| **Other conditions affecting workers exposure** | | |
| Indoor or outdoor use | : | Indoor and outdoor use. |

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

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

| | | |
|---|---|---|
| | | Dustiness: not applicable |
| Vapour pressure | : | 20,79 hPa |
| Temperature | : | 25 °C |
| **Amount used (or contained in articles), frequency and duration of use/exposure** | | |
| Duration | : | <= 4 h |
| Use frequency | : | <= 220 days per year |
| **Technical and organisational conditions and measures** | | |
| Provide extraction ventilation at points where emissions occur.<br>No specific measures identified.<br>Inhalation - minimum efficiency of 80 % | | |
| **Conditions and measures related to personal protection, hygiene and health evaluation** | | |
| Wear suitable gloves tested to EN374.<br>Dermal - minimum efficiency of 80 % | | |
| **Other conditions affecting workers exposure** | | |
| Indoor or outdoor use | : | Indoor use |

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

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

| **Additional information on exposure estimation** |
|---|
| The use is assessed to be safe.<br>Risk Management Measures are based on qualitative risk characterisation. |

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

| Exposure route | Health effect | Exposure indicator | Exposure estimate | RCR |
|---|---|---|---|---|
| dermal | local | long-term | (ECETOC TRA Version 2) | 0,00 |
| inhalative | local | long-term | (ECETOC TRA | 0,00 |

| | | | | |
|---|---|---|---|---|
| | | | Version 2) | |
| combined routes | local | long-term | | 0,00 |

| **Additional information on exposure estimation** |
|---|
| For the organizational measure an efficiency of 80% was assumed. |
| ECETOC: http://www.ecetoc.org/tra |

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

| Exposure route | Health effect | Exposure indicator | Exposure estimate | RCR |
|---|---|---|---|---|
| dermal | local | long-term | (ECETOC TRA Version 2) | 0,14 |
| inhalative | local | long-term | (ECETOC TRA Version 2) | 0,60 |
| combined routes | local | long-term | | 0,74 |

| **Additional information on exposure estimation** |
|---|
| For the organizational measure an efficiency of 80% was assumed. |
| ECETOC: http://www.ecetoc.org/tra |

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

| Exposure route | Health effect | Exposure indicator | Exposure estimate | RCR |
|---|---|---|---|---|
| dermal | local | long-term | (ECETOC TRA Version 2) | 0,03 |
| inhalative | local | long-term | (ECETOC TRA Version 2) | 0,35 |
| combined routes | local | long-term | | 0,38 |

| **Additional information on exposure estimation** |
|---|
| For the organizational measure an efficiency of 80% was assumed. |
| ECETOC: http://www.ecetoc.org/tra |

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

| Exposure route | Health effect | Exposure indicator | Exposure estimate | RCR |
|---|---|---|---|---|
| dermal | local | long-term | (ECETOC TRA Version 2) | 0,14 |
| inhalative | local | long-term | (ECETOC TRA Version 2) | 0,84 |
| combined routes | local | long-term | | 0,98 |

| Additional information on exposure estimation |
|---|
| For the organizational measure an efficiency of 80% was assumed. |
| ECETOC: http://www.ecetoc.org/tra |

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

| Exposure route | Health effect | Exposure indicator | Exposure estimate | RCR |
|---|---|---|---|---|
| dermal | local | long-term | (ECETOC TRA Version 2) | 0,27 |
| inhalative | local | long-term | (ECETOC TRA Version 2) | 0,70 |
| combined routes | local | long-term | | 0,97 |

| Additional information on exposure estimation |
|---|
| For the organizational measure an efficiency of 80% was assumed. |
| ECETOC: http://www.ecetoc.org/tra |

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

| Exposure route | Health effect | Exposure indicator | Exposure estimate | RCR |
|---|---|---|---|---|
| dermal | local | long-term | (ECETOC TRA Version 2) | 0,14 |
| inhalative | local | long-term | (ECETOC TRA Version 2) | 0,60 |

| | | | | |
|---|---|---|---|---|
| combined routes | local | long-term | | 0,74 |

| **Additional information on exposure estimation** |
|---|
| For the organizational measure an efficiency of 80% was assumed. |
| ECETOC: http://www.ecetoc.org/tra |

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

| Exposure route | Health effect | Exposure indicator | Exposure estimate | RCR |
|---|---|---|---|---|
| dermal | local | long-term | (ECETOC TRA Version 2) | 0,27 |
| inhalative | local | long-term | (ECETOC TRA Version 2) | 0,60 |
| combined routes | local | long-term | | 0,87 |

| **Additional information on exposure estimation** |
|---|
| For the organizational measure an efficiency of 80% was assumed. |
| ECETOC: http://www.ecetoc.org/tra |

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

**Recommendations and general advice**
**For additional instructions relating to adaptation of conditions of use in view of a scaling, pls. see the "ECHA Guidance for downstream users"**
**http://echa.europa.eu/regulations/reach/downstream-users**
If a downstream user uses the substance/preparation differently than stated in the ES (different operational conditions and/or risk management measures), he has the possibility to vary certain parameters of the exposure assessment. With the help of easy calculations he can check whether he still operates under safe circumstances. This process is called Scaling.

**Scaling instructions**
**Type of ventilation used**
If the type of ventilation at the use site of a downstream user (DU) differs from the instructions in the ES, a linear correlation between the RCR (Inhalation) and the type of ventilation exists. Following scaling factors (f) apply: General ventilation (< 3 air changes per hour) =1; good general ventilation (3 to 5 air changes per hour, corresponds to outdoor use) = 0,7; enhanced general ventilation (> 5 air changes per hour) = 0,3.
RCR (DU) = f(DU) * RCR (as stated in ES) / f (type of ventilation stated in ES)
In the same manner a scaling for the efficiency of the local extract ventilation (LEV) can be applied.

**Duration of use**
If the duration of the use by a worker at a downstream user (DU) site differs from the instructions in the ES, a linear correlation between the RCR (Inhalation) and the duration of use exist. Following scaling factors (f) apply: duration > 4 hours/day = 1; duration: 1-4 hours/day = 0,6; duration: 15 min/day - 1 hour/day = 0,2; duration < 15 min/day = 0,1.
RCR (DU) = f(DU) * RCR (as stated in ES) / f (duration in ES)

**Concentration of substance in product**
If the downstream user (DU) uses the substance in a different concentration than the one stated in the ES, a linear correlation between the RCR (Inhalation)and the RCR (dermal) and the concentration exists. Following scaling factors (f) apply: Concentration >25% =1; concentration >= 5% = 0,6; concentration >= 1% = 0,2; concentration < 1% = 0,1.
RCR (DU) = f(DU) * RCR (as stated in ES) / f (concentration in ES).

### ES 12: Use in water treatment, Professional use

### 12.1. Title section

| | | |
|---|---|---|
| **Exposure Scenario name** | : | Use in water treatment, Professional use |
| **Life Cycle Stage** | : | Professional end use |
| **Main user group** | : | SU22 Professional uses |
| **Substance** | : | acetic acid<br>Registration number: 01-2119475328-30<br>CAS-No.: 64-19-7<br>EC-No.: 200-580-7 |

| | | |
|---|---|---|
| **Environment** | | |
| **CS 1** | Widespread use leading to inclusion into/onto article (outdoor) | ERC8f |
| **Worker** | | |
| **CS 2** | Chemical production or refinery in closed process without likelihood of exposure or processes with equivalent containment conditions | PROC1 |
| **CS 3** | Manufacture or formulation in the chemical industry in closed batch processes with occasional controlled exposure or processes with equivalent containment condition | PROC3 |
| **CS 4** | Chemical production where opportunity for exposure arises | PROC4 |
| **CS 5** | Transfer of substance or mixture (charging/discharging) at non dedicated-facilities | PROC8a |
| **CS 6** | Transfer of substance or mixture (charging/discharging) at dedicated facilities | PROC8b |
| **CS 7** | Treatment of articles by dipping and pouring | PROC13 |

| **Other information** |
|---|
| The efficiency of a risk management measure is a theoretical value. The efficiency describes to which extend (in percent) the calculated exposure can be diminished by applying a certain measure. If the described operational conditions and risk management measures are fulfilled by a downstream user, the efficiency as highlighted in the ES can be applied. A downstream user might check whether the efficiency of the LEV or general ventilation corresponds to his site. |
| For further instructions related to "Personal protective equipment" please refer to section 8 of the Safety Data Sheet. |

### 12.2. Conditions of use affecting exposure

#### 12.2.1. Control of environmental exposure: Widespread use leading to inclusion into/onto article (outdoor) (ERC8f)

| **Product (article) characteristics** | | |
|---|---|---|
| Physical form of product | : | Liquid<br>Dustiness: not applicable |
| Vapour pressure | : | 20,79 hPa |
| Temperature | : | 25 °C |
| **Conditions and measures related to treatment of waste (including article waste)** | | |
| Waste treatment | : | Ensure all waste water is collected and treated via a WWTP. |

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

| **Product (article) characteristics** | | |
|---|---|---|
| Covers concentrations up to 100 % | | |
| Physical form of product | : | Liquid<br>Dustiness: not applicable |
| Vapour pressure | : | 20,79 hPa |
| Temperature | : | 25 °C |
| **Amount used (or contained in articles), frequency and duration of use/exposure** | | |
| Duration | : | <= 8 h |
| Use frequency | : | <= 220 days per year |
| **Technical and organisational conditions and measures** | | |
| No specific measures identified. | | |
| **Conditions and measures related to personal protection, hygiene and health evaluation** | | |
| Wear suitable gloves for handling strong sensitizing and corrosive substances in cases where exposure can occur | | |

| **Other conditions affecting workers exposure** | | |
|---|---|---|
| Indoor or outdoor use | : | Indoor and outdoor use. |

**12.2.3. Control of worker exposure: Manufacture or formulation in the chemical industry in closed batch processes with occasional controlled exposure or processes with equivalent containment condition (PROC3)**

| **Product (article) characteristics** | | |
|---|---|---|
| Covers concentrations up to 100 % | | |
| Physical form of product | : | Liquid<br>Dustiness: not applicable |
| Vapour pressure | : | 20,79 hPa |
| Temperature | : | 25 °C |
| **Amount used (or contained in articles), frequency and duration of use/exposure** | | |
| Duration | : | <= 1 h |
| Use frequency | : | <= 220 days per year |
| **Technical and organisational conditions and measures** | | |
| Provide a good standard of general ventilation (not less than 3 to 5 air changes per hour, corresponds to outdoor use).<br>No specific measures identified.<br>Inhalation - minimum efficiency of 30 % | | |
| **Conditions and measures related to personal protection, hygiene and health evaluation** | | |
| Wear suitable gloves for handling strong sensitizing and corrosive substances in cases where exposure can occur | | |
| **Other conditions affecting workers exposure** | | |
| Indoor or outdoor use | : | Indoor and outdoor use. |

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

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

| | | |
|---|---|---|
| Covers concentrations up to 100 % | | |
| Physical form of product | : | Liquid<br>Dustiness: not applicable |
| Vapour pressure | : | 20,79 hPa |
| Temperature | : | 25 °C |
| **Amount used (or contained in articles), frequency and duration of use/exposure** | | |
| Duration | : | <= 1 h |
| Use frequency | : | <= 220 days per year |
| **Technical and organisational conditions and measures** | | |
| Provide a good standard of general ventilation (not less than 3 to 5 air changes per hour, corresponds to outdoor use).<br>No specific measures identified.<br>Inhalation - minimum efficiency of 30 % | | |
| **Conditions and measures related to personal protection, hygiene and health evaluation** | | |
| Wear suitable gloves tested to EN374.<br>Dermal - minimum efficiency of 80 % | | |
| **Other conditions affecting workers exposure** | | |
| Indoor or outdoor use | : | Indoor and outdoor use. |

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

| | | |
|---|---|---|
| **Product (article) characteristics** | | |
| Covers concentrations up to 100 % | | |
| Physical form of product | : | Liquid<br>Dustiness: not applicable |
| Vapour pressure | : | 20,79 hPa |
| Temperature | : | 25 °C |
| **Amount used (or contained in articles), frequency and duration of use/exposure** | | |
| Duration | : | <= 8 h |
| Use frequency | : | <= 220 days per year |

| **Technical and organisational conditions and measures** |
|---|
| Provide a good standard of general ventilation (not less than 3 to 5 air changes per hour, corresponds to outdoor use).<br>Drain down and flush system prior to equipment break-in or maintenance.<br>Inhalation - minimum efficiency of 30 % |
| **Conditions and measures related to personal protection, hygiene and health evaluation** |
| Wear chemically resistant gloves (tested to EN374) in combination with 'basic' employee training.<br>Dermal - minimum efficiency of 90 % |
| **Other conditions affecting workers exposure** |

| | | |
|---|---|---|
| Indoor or outdoor use | : | Indoor and outdoor use. |

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

| **Product (article) characteristics** | | |
|---|---|---|
| Covers concentrations up to 100 % | | |
| Physical form of product | : | Liquid<br>Dustiness: not applicable |
| Vapour pressure | : | 20,79 hPa |
| Temperature | : | 25 °C |
| **Amount used (or contained in articles), frequency and duration of use/exposure** | | |
| Duration | : | <= 8 h |
| Use frequency | : | <= 220 days per year |

| **Technical and organisational conditions and measures** |
|---|
| Provide a good standard of general ventilation (not less than 3 to 5 air changes per hour, corresponds to outdoor use).<br>Use drum pumps.<br>Avoid spillage when withdrawing pump.<br>Inhalation - minimum efficiency of 80 % |
| **Conditions and measures related to personal protection, hygiene and health evaluation** |
| Wear suitable gloves tested to EN374.<br>Dermal - minimum efficiency of 80 % |

| **Other conditions affecting workers exposure** | | |
|---|---|---|
| Indoor or outdoor use | : | Indoor and outdoor use. |

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

| **Product (article) characteristics** | | |
|---|---|---|
| Covers concentrations up to 100 % | | |
| Physical form of product | : | Liquid<br>Dustiness: not applicable |
| Vapour pressure | : | 20,79 hPa |
| Temperature | : | 25 °C |
| **Amount used (or contained in articles), frequency and duration of use/exposure** | | |
| Duration | : | <= 15 min |
| Use frequency | : | <= 220 days per year |
| **Technical and organisational conditions and measures** | | |
| Provide a good standard of general ventilation (not less than 3 to 5 air changes per hour, corresponds to outdoor use).<br>No specific measures identified.<br>Inhalation - minimum efficiency of 30 % | | |
| **Conditions and measures related to personal protection, hygiene and health evaluation** | | |
| Wear chemically resistant gloves (tested to EN374) in combination with ‘basic’ employee training.<br>Dermal - minimum efficiency of 90 % | | |
| **Other conditions affecting workers exposure** | | |
| Indoor or outdoor use | : | Indoor and outdoor use. |

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

**12.3.1. Environmental release and exposure: Widespread use leading to inclusion into/onto article (outdoor) (ERC8f)**

| **Additional information on exposure estimation** |
|---|

| |
|---|
| The use is assessed to be safe.<br>Risk Management Measures are based on qualitative risk characterisation. |

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

| Exposure route | Health effect | Exposure indicator | Exposure estimate | RCR |
|---|---|---|---|---|
| dermal | local | long-term | (ECETOC TRA Version 2) | 0,03 |
| inhalative | local | long-term | (ECETOC TRA Version 2) | 0,00 |
| combined routes | local | long-term | | 0,03 |

| Additional information on exposure estimation |
|---|
| ECETOC: http://www.ecetoc.org/tra |

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

| Exposure route | Health effect | Exposure indicator | Exposure estimate | RCR |
|---|---|---|---|---|
| dermal | local | long-term | (ECETOC TRA Version 2) | 0,03 |
| inhalative | local | long-term | (ECETOC TRA Version 2) | 0,35 |
| combined routes | local | long-term | | 0,38 |

| Additional information on exposure estimation |
|---|
| ECETOC: http://www.ecetoc.org/tra |

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

| Exposure route | Health effect | Exposure indicator | Exposure estimate | RCR |
|---|---|---|---|---|
| dermal | local | long-term | (ECETOC TRA Version 2) | 0,14 |
| inhalative | local | long-term | (ECETOC TRA | 0,70 |

| | | | | |
|---|---|---|---|---|
| | | | Version 2) | |
| combined routes | local | long-term | | 0,84 |

| Additional information on exposure estimation |
|---|
| ECETOC: http://www.ecetoc.org/tra |

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

| Exposure route | Health effect | Exposure indicator | Exposure estimate | RCR |
|---|---|---|---|---|
| dermal | local | long-term | (ECETOC TRA Version 2) | 0,14 |
| inhalative | local | long-term | (ECETOC TRA Version 2) | 0,70 |
| combined routes | local | long-term | | 0,84 |

| Additional information on exposure estimation |
|---|
| For the organizational measure an efficiency of 80% was assumed. |
| ECETOC: http://www.ecetoc.org/tra |

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

| Exposure route | Health effect | Exposure indicator | Exposure estimate | RCR |
|---|---|---|---|---|
| dermal | local | long-term | (ECETOC TRA Version 2) | 0,14 |
| inhalative | local | long-term | (ECETOC TRA Version 2) | 0,70 |
| combined routes | local | long-term | | 0,84 |

| Additional information on exposure estimation |
|---|
| ECETOC: http://www.ecetoc.org/tra |

**12.3.7. Worker exposure: Treatment of articles by dipping and pouring (PROC13)**

| Exposure route | Health effect | Exposure indica- | Exposure esti- | RCR |
|---|---|---|---|---|

| | | tor | mate | |
|---|---|---|---|---|
| dermal | local | long-term | (ECETOC TRA Version 2) | 0,14 |
| inhalative | local | long-term | (ECETOC TRA Version 2) | 0,70 |
| combined routes | local | long-term | | 0,84 |

| Additional information on exposure estimation |
|---|
| ECETOC: http://www.ecetoc.org/tra |

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

**Recommendations and general advice**
**For additional instructions relating to adaptation of conditions of use in view of a scaling, pls. see the "ECHA Guidance for downstream users"**
**http://echa.europa.eu/regulations/reach/downstream-users**
If a downstream user uses the substance/preparation differently than stated in the ES (different operational conditions and/or risk management measures), he has the possibility to vary certain parameters of the exposure assessment. With the help of easy calculations he can check whether he still operates under safe circumstances. This process is called Scaling.

**Scaling instructions**
**Type of ventilation used**
If the type of ventilation at the use site of a downstream user (DU) differs from the instructions in the ES, a linear correlation between the RCR (Inhalation) and the type of ventilation exists. Following scaling factors (f) apply: General ventilation (< 3 air changes per hour) =1; good general ventilation (3 to 5 air changes per hour, corresponds to outdoor use) = 0,7; enhanced general ventilation (> 5 air changes per hour) = 0,3.
RCR (DU) = f(DU) * RCR (as stated in ES) / f (type of ventilation stated in ES)
In the same manner a scaling for the efficiency of the local extract ventilation (LEV) can be applied.

**Duration of use**
If the duration of the use by a worker at a downstream user (DU) site differs from the instructions in the ES, a linear correlation between the RCR (Inhalation) and the duration of use exist. Following scaling factors (f) apply: duration > 4 hours/day = 1; duration: 1-4 hours/day = 0,6; duration: 15 min/day - 1 hour/day = 0,2; duration < 15 min/day = 0,1.
RCR (DU) = f(DU) * RCR (as stated in ES) / f (duration in ES)

**Concentration of substance in product**
If the downstream user (DU) uses the substance in a different concentration than the one stated in the ES, a linear correlation between the RCR (Inhalation)and the RCR (dermal) and the concentration exists. Following scaling factors (f) apply: Concentration >25% =1; concentration >= 5% = 0,6; concentration >= 1% = 0,2; concentration < 1% = 0,1.
RCR (DU) = f(DU) * RCR (as stated in ES) / f (concentration in ES).

# Acetic Acid 80 % FG

| Version | Revision Date: | SDS Number: | Date of last issue: 12.03.2026 |
|---|---|---|---|
| 2.1 | 19.03.2026 | 100047 | Date of first issue: 04.11.2024 |
| | | Region: DK | Print Date: 01.07.2026 |
| | | Language: EN | |