

# SAFETY DATA SHEET

according to Regulation (EC) No. 1907/2006

Revision Date 31.01.2017

Version 12.0

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

### 1.1 Product identifier

Catalogue No. 102382

Product name Calcium chloride dihydrate for analysis EMSURE® ACS, Reag. Ph Eur

REACH Registration Number 01-2119494219-28-XXXX

CAS-No. 10035-04-8

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

Identified uses Reagent for analysis, Chemical production  
In compliance with the conditions described in the annex to this safety data sheet.

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

Company Merck KGaA \* 64271 Darmstadt \* Germany \* Phone:+49 6151 72-0  
Responsible Department LS-QHC \* e-mail: prodsafe@merckgroup.com

1.4 Emergency telephone number Please contact the regional company representation in your country.

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## SECTION 2. Hazards identification

### 2.1 Classification of the substance or mixture

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

Eye irritation, Category 2, H319

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

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## 2.2 Label elements

Labelling (REGULATION (EC) No 1272/2008)

*Hazard pictograms*



*Signal word*

Warning

*Hazard statements*

H319 Causes serious eye irritation.

*Precautionary statements*

Response

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

**Reduced labelling (≤125 ml)**

*Hazard pictograms*



*Signal word*

Warning

*Index-No.* 017-013-00-2

## 2.3 Other hazards

None known.

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## SECTION 3. Composition/information on ingredients

### 3.1 Substance

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Formula  $\text{CaCl}_2 \cdot 2\text{H}_2\text{O}$  (Hill)  
Index-No. 017-013-00-2  
EC-No. 233-140-8  
Molar mass 147,01 g/mol

## Hazardous components (REGULATION (EC) No 1272/2008)

*Chemical Name (Concentration)*

CAS-No.      Registration number      Classification

Calcium chloride dihydrate ( $\leq 100\%$ )

*PBT/vPvB: Not applicable for inorganic substances*

10035-04-8      01-2119494219-28-

XXXX

Eye irritation, Category 2, H319

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

### 3.2 Mixture

Not applicable

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## SECTION 4. First aid measures

### 4.1 Description of first aid measures

After inhalation: fresh air.

In case of skin contact: Take off immediately all contaminated clothing. Rinse skin with water/shower.

After eye contact: rinse out with plenty of water. Call in ophthalmologist. Remove contact lenses.

After swallowing: immediately make victim drink water (two glasses at most). Consult a physician.

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

irritant effects, Stomach/intestinal disorders

irritant effects

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

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No information available.

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## SECTION 5. Firefighting measures

### 5.1 Extinguishing media

#### *Suitable extinguishing media*

Use extinguishing measures that are appropriate to local circumstances and the surrounding environment.

#### *Unsuitable extinguishing media*

For this substance/mixture no limitations of extinguishing agents are given.

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

Not combustible.

Ambient fire may liberate hazardous vapours.

Fire may cause evolution of:

Hydrogen chloride gas

### 5.3 Advice for firefighters

#### *Special protective equipment for firefighters*

Stay in danger area only with self-contained breathing apparatus. Prevent skin contact by keeping a safe distance or by wearing suitable protective clothing.

#### *Further information*

Suppress (knock down) gases/vapours/mists with a water spray jet. Prevent fire extinguishing water from contaminating surface water or the ground water system.

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## SECTION 6. Accidental release measures

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

Advice for non-emergency personnel: Avoid inhalation of dusts. Avoid substance contact. Ensure adequate ventilation. Evacuate the danger area, observe emergency procedures, consult an expert.

Advice for emergency responders:

Protective equipment see section 8.

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## 6.2 Environmental precautions

Do not let product enter drains.

## 6.3 Methods and materials for containment and cleaning up

Cover drains. Collect, bind, and pump off spills. Observe possible material restrictions (see sections 7 and 10). Take up dry. Dispose of properly. Clean up affected area. Avoid generation of dusts.

## 6.4 Reference to other sections

Indications about waste treatment see section 13.

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## SECTION 7. Handling and storage

### 7.1 Precautions for safe handling

#### *Advice on safe handling*

Observe label precautions.

#### *Hygiene measures*

Change contaminated clothing. Wash hands after working with substance.

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

#### *Storage conditions*

Tightly closed. Dry.

Recommended storage temperature see product label.

### 7.3 Specific end use(s)

See exposure scenario in the Annex to this MSDS.

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## SECTION 8. Exposure controls/personal protection

### 8.1 Control parameters

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## Derived No Effect Level (DNEL)

Worker DNEL, longterm	Local effects	inhalation	5 mg/m <sup>3</sup>
Worker DNEL, acute	Local effects	inhalation	10 mg/m <sup>3</sup>
Consumer DNEL, longterm	Local effects	inhalation	2,5 mg/m <sup>3</sup>
Consumer DNEL, acute	Local effects	inhalation	5 mg/m <sup>3</sup>

## 8.2 Exposure controls

### Engineering measures

Technical measures and appropriate working operations should be given priority over the use of personal protective equipment.

See section 7.1.

### Individual protection measures

Protective clothing needs to be selected specifically for the workplace, depending on concentrations and quantities of the hazardous substances handled. The chemical resistance of the protective equipment should be enquired at the respective supplier.

#### *Eye/face protection*

Safety glasses

#### *Hand protection*

full contact:

Glove material:	Nitrile rubber
Glove thickness:	0,11 mm
Break through time:	> 480 min

splash contact:

Glove material:	Nitrile rubber
Glove thickness:	0,11 mm
Break through time:	> 480 min

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The protective gloves to be used must comply with the specifications of EC Directive 89/686/EEC and the related standard EN374, for example KCL 741 Dermatril® L (full contact), KCL 741 Dermatril® L (splash contact).

The breakthrough times stated above were determined by KCL in laboratory tests acc. to EN374 with samples of the recommended glove types.

This recommendation applies only to the product stated in the safety data sheet (>,<) supplied by us and for the designated use. When dissolving in or mixing with other substances and under conditions deviating from those stated in EN374 please contact the supplier of CE-approved gloves (e.g. KCL GmbH, D-36124 Eichenzell, Internet: [www.kcl.de](http://www.kcl.de)).

#### *Other protective equipment*

protective clothing

#### *Respiratory protection*

required when dusts are generated.

Recommended Filter type: Filter P 2 (acc. to DIN 3181) for solid and liquid particles of harmful substances

The entrepreneur has to ensure that maintenance, cleaning and testing of respiratory protective devices are carried out according to the instructions of the producer. These measures have to be properly documented.

#### **Environmental exposure controls**

Do not let product enter drains.

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## **SECTION 9. Physical and chemical properties**

### **9.1 Information on basic physical and chemical properties**

Form	solid
Colour	white
Odour	odourless
Odour Threshold	Not applicable

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pH	4,5 - 8,5 at 50 g/l 20 °C
Melting point	ca. 176 °C
Boiling point	No information available.
Flash point	does not flash
Evaporation rate	No information available.
Flammability (solid, gas)	The product is not flammable.
Lower explosion limit	Not applicable
Upper explosion limit	Not applicable
Vapour pressure	No information available.
Relative vapour density	No information available.
Density	1,85 g/cm <sup>3</sup> at 20 °C
Relative density	No information available.
Water solubility	1.280 g/l at 40 °C
Partition coefficient: n-octanol/water	No information available.
Auto-ignition temperature	No information available.
Decomposition temperature	No information available.



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Viscosity, dynamic No information available.  
Explosive properties Not classified as explosive.  
Oxidizing properties none

## 9.2 Other data

Ignition temperature not combustible

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## SECTION 10. Stability and reactivity

### 10.1 Reactivity

exothermic dissolution process with water

### 10.2 Chemical stability

The product is chemically stable under standard ambient conditions (room temperature) .

### 10.3 Possibility of hazardous reactions

Exothermic reaction with:

boron trifluoride, vinylmethyl ether, Water

Generates dangerous gases or fumes in contact with:

Metals, Zinc

### 10.4 Conditions to avoid

Exposure to moisture

### 10.5 Incompatible materials

no information available

### 10.6 Hazardous decomposition products

in the event of fire: See section 5.

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## SECTION 11. Toxicological information

### 11.1 Information on toxicological effects

#### *Acute oral toxicity*

Symptoms: After uptake of large quantities:, Stomach/intestinal disorders

#### *Acute inhalation toxicity*

Symptoms: Possible damages:, mucosal irritations

#### *Acute dermal toxicity*

LD50 Rat: 2.630 mg/kg

(anhydrous substance) (IUCRID)

#### *Skin irritation*

Rabbit

Result: No irritation

OECD Test Guideline 404

(anhydrous substance)

#### *Eye irritation*

Rabbit

Result: Eye irritation

OECD Test Guideline 405

(anhydrous substance)

Causes serious eye irritation.

#### *Sensitisation*

This information is not available.

#### *Germ cell mutagenicity*

#### *Genotoxicity in vitro*

Ames test

Result: negative

(anhydrous substance) (Lit.)

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## *Carcinogenicity*

This information is not available.

## *Reproductive toxicity*

This information is not available.

## *Teratogenicity*

This information is not available.

## *Specific target organ toxicity - single exposure*

This information is not available.

## *Specific target organ toxicity - repeated exposure*

This information is not available.

## *Aspiration hazard*

This information is not available.

## 11.2 Further information

Other dangerous properties can not be excluded.

Handle in accordance with good industrial hygiene and safety practice.

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## SECTION 12. Ecological information

### 12.1 Toxicity

#### *Toxicity to fish*

LC50 *Lepomis macrochirus* (Bluegill sunfish): 10.650 mg/l; 96 h  
(anhydrous substance) (IUCLID)

#### *Toxicity to daphnia and other aquatic invertebrates*

EC50 *Daphnia magna* (Water flea): 144 mg/l; 48 h  
(anhydrous substance) (IUCLID)

#### *Toxicity to algae*

IC50 algae: 3.130 mg/l; 120 h  
(anhydrous substance) (IUCLID)

### 12.2 Persistence and degradability

No information available.

### 12.3 Bioaccumulative potential

No information available.

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## 12.4 Mobility in soil

No information available.

## 12.5 Results of PBT and vPvB assessment

PBT/vPvB: Not applicable for inorganic substances

## 12.6 Other adverse effects

*Additional ecological information*

Discharge into the environment must be avoided.

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## SECTION 13. Disposal considerations

*Waste treatment methods*

See [www.retrologistik.com](http://www.retrologistik.com) for processes regarding the return of chemicals and containers, or contact us there if you have further questions.

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## SECTION 14. Transport information

### Land transport (ADR/RID)

14.1 - 14.6 Not classified as dangerous in the meaning of transport regulations.

### Inland waterway transport (ADN)

Not relevant

### Air transport (IATA)

14.1 - 14.6 Not classified as dangerous in the meaning of transport regulations.

### Sea transport (IMDG)

14.1 - 14.6 Not classified as dangerous in the meaning of transport regulations.

### 14.7 Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code

Not relevant

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## SECTION 15. Regulatory information

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

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## *EU regulations*

Major Accident Hazard SEVESO III  
Legislation Not applicable  
Occupational restrictions Take note of Dir 94/33/EC on the protection of young people at work.

Regulation (EC) No 1005/2009 on substances that deplete the ozone layer not regulated

Regulation (EC) No 850/2004 of the European Parliament and of the Council of 29 April 2004 on persistent organic pollutants and amending Directive 79/117/EEC not regulated

Substances of very high concern (SVHC) This product does not contain substances of very high concern according to Regulation (EC) No 1907/2006 (REACH), Article 57 above the respective regulatory concentration limit of  $\geq 0.1$  % (w/w).

## *National legislation*

Storage class 10 - 13

## 15.2 Chemical Safety Assessment

A Chemical Safety Assessment has been carried out according to regulation (EC) No. 1907/2006 (REACH) for this substance.

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## SECTION 16. Other information

### Full text of H-Statements referred to under sections 2 and 3.

H319 Causes serious eye irritation.

### Training advice

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Provide adequate information, instruction and training for operators.

## Labelling

*Hazard pictograms*



*Signal word*

Warning

*Hazard statements*

H319 Causes serious eye irritation.

*Precautionary statements*

Response

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

## Key or legend to abbreviations and acronyms used in the safety data sheet

Used abbreviations and acronyms can be looked up at [www.wikipedia.org](http://www.wikipedia.org).

## Regional representation

This information is given on the authorised Safety Data Sheet for your country.

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*The information contained herein is based on the present state of our knowledge. It characterises the product with regard to the appropriate safety precautions. It does not represent a guarantee of any properties of the product.*

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## EXPOSURE SCENARIO 1 (Industrial use)

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### 1. Industrial use Reagent for analysis, Chemical production)

#### Sectors of end-use

- SU 3* Industrial uses: Uses of substances as such or in preparations at industrial sites
- SU 9* Manufacture of fine chemicals
- SU 10* Formulation [mixing] of preparations and/ or re-packaging (excluding alloys)

#### Chemical product category

- PC19* Intermediate
- PC21* Laboratory chemicals

#### Process categories

- PROC1* Use in closed process, no likelihood of exposure
- PROC2* Use in closed, continuous process with occasional controlled exposure
- PROC3* Use in closed batch process (synthesis or formulation)
- PROC4* Use in batch and other process (synthesis) where opportunity for exposure arises
- PROC5* Mixing or blending in batch processes for formulation of preparations and articles (multistage and/ or significant contact)
- PROC8a* Transfer of substance or preparation (charging/ discharging) from/ to vessels/ large containers at non-dedicated facilities
- PROC8b* Transfer of substance or preparation (charging/ discharging) from/ to vessels/ large containers at dedicated facilities
- PROC9* Transfer of substance or preparation into small containers (dedicated filling line, including weighing)
- PROC10* Roller application or brushing
- PROC13* Treatment of articles by dipping and pouring
- PROC14* Production of preparations or articles by tableting, compression, extrusion, pelletisation
- PROC15* Use as laboratory reagent
- PROC22* Potentially closed processing operations with minerals/ metals at elevated temperature; Industrial setting
- PROC23* Open processing and transfer operations with minerals/ metals at elevated temperature

#### Environmental Release Categories

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<i>ERC2</i>	Formulation of preparations
<i>ERC4</i>	Industrial use of processing aids in processes and products, not becoming part of articles
<i>ERC6a</i>	Industrial use resulting in manufacture of another substance (use of intermediates)
<i>ERC6b</i>	Industrial use of reactive processing aids

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## 2. Contributing scenarios: Operational conditions and risk management measures

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### 2.1 Contributing scenario controlling worker exposure for: PROC1, PROC2, PROC3, PROC8b, PROC13, PROC14, PROC15, PROC22, PROC23

#### Product characteristics

Concentration of the Substance in Mixture/Article	Covers the percentage of the substance in the product up to 100 %.
Physical Form (at time of use)	Solid, medium dustiness

#### Frequency and duration of use

Frequency of use	8 hours/day
Frequency of use	5 days/week

#### Other operational conditions affecting workers exposure

Outdoor / Indoor	Indoor without local exhaust ventilation (LEV)
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#### Organisational measures to prevent /limit releases, dispersion and exposure

Covers daily exposures up to 8 hours.

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

Wear suitable gloves tested to EN374. Tightly fitting safety goggles

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### 2.2 Contributing scenario controlling worker exposure for: PROC4, PROC5, PROC8a, PROC9, PROC10

#### Product characteristics

Concentration of the Substance in Mixture/Article	Covers the percentage of the substance in the product up to 100 %.
Physical Form (at time of use)	Solid, medium dustiness

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## Frequency and duration of use

Frequency of use 8 hours/day

Frequency of use 5 days/week

## Other operational conditions affecting workers exposure

Outdoor / Indoor Indoor with good general ventilation

## Organisational measures to prevent /limit releases, dispersion and exposure

Covers daily exposures up to 8 hours.

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

Wear suitable gloves tested to EN374. Tightly fitting safety goggles

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## 3. Exposure estimation and reference to its source

### Environment

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

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## Workers

CS	Use descriptor	Exposure duration, route, effect	RCR	Exposure Assessment Method
2.1	PROC1	acute, inhalative, local	< 0,01	ECETOC TRA 3
		longterm, inhalative, local	< 0,01	ECETOC TRA 3
2.1	PROC2	acute, inhalative, local	0,05	ECETOC TRA 3
		longterm, inhalative, local	0,1	ECETOC TRA 3
2.1	PROC3	acute, inhalative, local	0,1	ECETOC TRA 3
		longterm, inhalative, local	0,2	ECETOC TRA 3
2.1	PROC8b	acute, inhalative, local	0,1	ECETOC TRA 3
		longterm, inhalative, local	0,2	ECETOC TRA 3
2.1	PROC13	acute, inhalative, local	0,1	ECETOC TRA 3
		longterm, inhalative, local	0,2	ECETOC TRA 3
2.1	PROC14	acute, inhalative, local	0,1	ECETOC TRA 3
		longterm, inhalative, local	0,2	ECETOC TRA 3
2.1	PROC15	acute, inhalative, local	0,05	ECETOC TRA 3
		longterm, inhalative, local	0,1	ECETOC TRA 3
2.1	PROC22	acute, inhalative, local	0,3	ECETOC TRA 3
		longterm, inhalative, local	0,6	ECETOC TRA 3
2.1	PROC23	acute, inhalative, local	0,3	ECETOC TRA 3
		longterm, inhalative, local	0,6	ECETOC TRA 3
2.2	PROC4	acute, inhalative, local	0,35	ECETOC TRA 3
		longterm, inhalative, local	0,7	ECETOC TRA 3
2.2	PROC5	acute, inhalative, local	0,35	ECETOC TRA 3
		longterm, inhalative, local	0,7	ECETOC TRA 3
2.2	PROC8a	acute, inhalative, local	0,35	ECETOC TRA 3
		longterm, inhalative, local	0,7	ECETOC TRA 3
2.2	PROC9	acute, inhalative, local	0,35	ECETOC TRA 3
		longterm, inhalative, local	0,7	ECETOC TRA 3
2.2	PROC10	acute, inhalative, local	0,35	ECETOC TRA 3
		longterm, inhalative, local	0,7	ECETOC TRA 3

The default parameters and -efficiencies of the applied exposure assessment model were used for the calculation (unless stated differently).

For (other) local effects risk management measures are based on qualitative risk characterisation.

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

Please refer to the following documents: ECHA Guidance on information requirements and chemical safety assessment Chapter R.12: Use descriptor system; ECHA Guidance for downstream users; ECHA Guidance on information requirements and chemical safety assessment Part D: Exposure Scenario Building, Part E: Risk Characterisation and Part G: Extending the SDS; VCI/Cefic REACH Practical Guides on Exposure Assessment and Communications in the Supply Chain; CEFIC Guidance Specific Environmental Release Categories (SPERCs).

For scaling of worker exposure assessments performed with ECETOC TRA, please consult the Merck tool SciDeEx® at [www.merckmillipore.com/scideex](http://www.merckmillipore.com/scideex).

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## EXPOSURE SCENARIO 2 (Professional use)

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### 1. Professional use Reagent for analysis, Chemical production)

#### Sectors of end-use

*SU 22* Professional uses: Public domain (administration, education, entertainment, services, craftsmen)

#### Chemical product category

*PC 21* Laboratory chemicals

#### Process categories

*PROC 15* Use as laboratory reagent

#### Environmental Release Categories

*ERC 2* Formulation of preparations

*ERC 8a* Wide dispersive indoor use of processing aids in open systems

*ERC 8b* Wide dispersive indoor use of reactive substances in open systems

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### 2. Contributing scenarios: Operational conditions and risk management measures

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#### 2.1 Contributing scenario controlling worker exposure for: PROC15

#### Product characteristics

Concentration of the Substance in Mixture/Article Covers the percentage of the substance in the product up to 100 %.

Physical Form (at time of use) Solid, medium dustiness

#### Frequency and duration of use

Frequency of use 8 hours/day

Frequency of use 5 days/week

#### Other operational conditions affecting workers exposure

Outdoor / Indoor Indoor without local exhaust ventilation (LEV)

#### Organisational measures to prevent /limit releases, dispersion and exposure

Covers daily exposures up to 8 hours.

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

Wear suitable gloves tested to EN374. Tightly fitting safety goggles

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## 3. Exposure estimation and reference to its source

### Environment

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

### Workers

CS	Use descriptor	Exposure duration, route, effect	RCR	Exposure Assessment Method
2.1	PROC15	acute, inhalative, local	0,05	ECETOC TRA 3
		longterm, inhalative, local	0,1	ECETOC TRA 3

The default parameters and -efficiencies of the applied exposure assessment model were used for the calculation (unless stated differently).

For (other) local effects risk management measures are based on qualitative risk characterisation.

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

Please refer to the following documents: ECHA Guidance on information requirements and chemical safety assessment Chapter R.12: Use descriptor system; ECHA Guidance for downstream users; ECHA Guidance on information requirements and chemical safety assessment Part D: Exposure Scenario Building, Part E: Risk Characterisation and Part G: Extending the SDS; VCI/Cefic REACH Practical Guides on Exposure Assessment and Communications in the Supply Chain; CEFIC Guidance Specific Environmental Release Categories (SPERCs).

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