

# SAFETY DATA SHEET

according to Regulation (EC) No. 1907/2006

Revision Date 27.08.2018

Version 15.7

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

### 1.1 Product identifier

Catalogue No.	108883
Product name	Zinc sulfate heptahydrate for analysis EMSURE® ACS,ISO,Reag. Ph Eur
REACH Registration Number	01-2119474684-27-XXXX
CAS-No.	7446-20-0

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

Identified uses	Reagent for analysis In compliance with the conditions described in the annex to this safety data sheet.
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### 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)

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Acute toxicity, Category 4, Oral, H302

Serious eye damage, Category 1, H318

Acute aquatic toxicity, Category 1, H400

Chronic aquatic toxicity, Category 1, H410

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

## 2.2 Label elements

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

#### *Hazard pictograms*



#### *Signal word*

Danger

#### *Hazard statements*

H302 Harmful if swallowed.

H318 Causes serious eye damage.

H410 Very toxic to aquatic life with long lasting effects.

#### *Precautionary statements*

Prevention

P273 Avoid release to the environment.

P280 Wear eye protection.

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.

P313 Get medical advice/ attention.

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## Reduced labelling (≤125 ml)

### Hazard pictograms



### Signal word

Danger

### Hazard statements

H318 Causes serious eye damage.

### Precautionary statements

P280 Wear eye protection.

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

P313 Get medical advice/ attention.

Index-No.

030-006-00-9

## 2.3 Other hazards

None known.

## SECTION 3. Composition/information on ingredients

### 3.1 Substance

Formula	ZnSO <sub>4</sub> * 7 H <sub>2</sub> O	O <sub>4</sub> SZn * 7 H <sub>2</sub> O (Hill)
Index-No.	030-006-00-9	
EC-No.	231-793-3	
Molar mass	287,54 g/mol	

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

#### Chemical name (Concentration)

CAS-No.      Registration number      Classification

Zinc sulphate heptahydrate (<= 100 % )

PBT/vPvB: Not applicable for inorganic substances

7446-20-0      01-2119474684-27-

XXXX

Acute toxicity, Category 4, H302

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Serious eye damage, Category 1, H318

Acute aquatic toxicity, Category 1, H400

Chronic aquatic toxicity, Category 1, H410

M-Factor: 1

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. Immediately 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

Irritation and corrosion, pain, Diarrhoea, Vomiting, cardiovascular disorders, collapse

Risk of serious damage to eyes.

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

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.

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## 5.2 Special hazards arising from the substance or mixture

Not combustible.

Ambient fire may liberate hazardous vapours.

Fire may cause evolution of:

Sulphur oxides

## 5.3 Advice for firefighters

*Special protective equipment for firefighters*

In the event of fire, wear self-contained breathing apparatus.

*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.

### 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

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### *Advice on safe handling*

Observe label precautions.

### *Hygiene measures*

Change contaminated clothing. Preventive skin protection recommended. Wash hands after working with substance.

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

### *Requirements for storage areas and containers*

No metal containers.

### *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	Systemic effects	inhalation	1 mg/m <sup>3</sup> (Zinc)
Worker DNEL, longterm	Systemic effects	dermal	8,3 mg/kg Body weight (Zinc)
Consumer DNEL, longterm	Systemic effects	inhalation	1,3 mg/m <sup>3</sup> (Zinc)
Consumer DNEL, longterm	Systemic effects	dermal	8,3 mg/kg Body weight (Zinc)
Consumer DNEL, longterm	Systemic effects	oral	0,83 mg/kg Body weight (Zinc)

## Predicted No Effect Concentration (PNEC)

PNEC Fresh water	20,6 µg/l (Zinc)
PNEC Fresh water sediment	117,8 mg/kg (Zinc)
PNEC Marine water	6,1 µg/l (Zinc)
PNEC Marine sediment	56,5 mg/kg (Zinc)
PNEC Sewage treatment plant	52 µg/l (Zinc)
PNEC Soil	35,6 mg/kg (Zinc)

## 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*

Tightly fitting safety goggles

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## *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

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	off-white
Odour	odourless
Odour Threshold	Not applicable
pH	ca. 4 - 6 at 50 g/l 20 °C
Melting point	100 °C
Boiling point/boiling range	Not applicable
Flash point	Not applicable
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.

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Density 1,97 g/cm<sup>3</sup>  
at 20 °C

Relative density No information available.

Water solubility 965 g/l  
at 20 °C

Partition coefficient: n-  
octanol/water No information available.

Auto-ignition temperature No information available.

Decomposition temperature > 39 - 280 °C  
Elimination of water of crystallisation

Viscosity, dynamic No information available.

Explosive properties Not classified as explosive.

Oxidizing properties none

## 9.2 Other data

Ignition temperature Not applicable

Bulk density ca.800 - 1.000 kg/m<sup>3</sup>

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## SECTION 10. Stability and reactivity

### 10.1 Reactivity

See section 10.3

### 10.2 Chemical stability

releases water of crystallisation when heated.

### 10.3 Possibility of hazardous reactions

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Violent reactions possible with:

Strong oxidizing agents

#### 10.4 Conditions to avoid

no information available

#### 10.5 Incompatible materials

Metals

#### 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*

LD50 Rat: 1.710 mg/kg

OECD Test Guideline 401

Symptoms: Irritations of mucous membranes in the mouth, pharynx, oesophagus and gastrointestinal tract.

#### *Acute inhalation toxicity*

Symptoms: Possible damages:, mucosal irritations, Inhalation may lead to the formation of oedemas in the respiratory tract.

#### *Acute dermal toxicity*

LD50 Rat: > 2.000 mg/kg

OECD Test Guideline 402

#### *Skin irritation*

Rabbit

Result: No skin irritation

OECD Test Guideline 404

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## *Eye irritation*

Rabbit

Result: Causes serious eye damage.

OECD Test Guideline 405

Causes serious eye damage.

## *Sensitisation*

Maximisation Test Guinea pig

Result: negative

Method: OECD Test Guideline 406

## *Germ cell mutagenicity*

### *Genotoxicity in vivo*

dominant lethal test

Rat

Oral

Result: negative

(ECHA)

### *Genotoxicity in vitro*

Ames test

Salmonella typhimurium

Result: negative

(ECHA)

## *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.

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## *Specific target organ toxicity - repeated exposure*

This information is not available.

## *Aspiration hazard*

This information is not available.

### **11.2 Further information**

Systemic effects:

pain, Vomiting, Diarrhoea

After uptake of large quantities:

drop in blood pressure, cardiovascular disorders, collapse

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*

static test LC50 Pimephales promelas (fathead minnow): 0,78 mg/l; 96 h

Analytical monitoring: yes

(ECHA)

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

semi-static test EC50 Daphnia magna (Water flea): 0,259 mg/l; 48 h

OECD Test Guideline 202

### **12.2 Persistence and degradability**

#### *Biodegradability*

The methods for determining the biological degradability are not applicable to inorganic substances.

### **12.3 Bioaccumulative potential**

No information available.

### **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**

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## *Additional ecological information*

Bactericidal effect.

Hazard for drinking water supplies.

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 UN number** UN 3077

**14.2 Proper shipping name** ENVIRONMENTALLY HAZARDOUS SUBSTANCE, SOLID,  
N.O.S. (ZINC SULFATE)

**14.3 Class** 9

**14.4 Packing group** III

**14.5 Environmentally hazardous** yes

**14.6 Special precautions for** yes

**user**

Tunnel restriction code -

Packages smaller than or equal to 5 kg / L , not dangerous goods of Class 9

### **Inland waterway transport (ADN)**

Not relevant

### **Air transport (IATA)**

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**14.1 UN number** UN 3077  
**14.2 Proper shipping name** ENVIRONMENTALLY HAZARDOUS SUBSTANCE, SOLID,  
N.O.S. (ZINC SULFATE)  
**14.3 Class** 9  
**14.4 Packing group** III  
**14.5 Environmentally hazardous** yes  
**14.6 Special precautions for user** no

Packages smaller than or equal to 5 kg / L , not dangerous goods of Class 9

## Sea transport (IMDG)

**14.1 UN number** UN 3077  
**14.2 Proper shipping name** ENVIRONMENTALLY HAZARDOUS SUBSTANCE, SOLID,  
N.O.S. (ZINC SULFATE)  
**14.3 Class** 9  
**14.4 Packing group** III  
**14.5 Environmentally hazardous** yes  
**14.6 Special precautions for user** yes

EmS F-A S-F

Segregation Group 0007 Heavy Metals and their salts (incl. their organometallic compounds)

Packages smaller than or equal to 5 kg / L , not dangerous goods of Class 9

## 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

*EU regulations*

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Major Accident Hazard	SEVESO III
Legislation	ENVIRONMENTAL HAZARDS E1 Quantity 1: 100 t Quantity 2: 200 t
Occupational restrictions	Take note of Dir 94/33/EC on the protection of young people at work. Observe work restrictions regarding maternity protection in accordance to Dir 92/85/EEC or stricter national regulations where applicable.
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).
<i>National legislation</i>	
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.

H302	Harmful if swallowed.
H318	Causes serious eye damage.
H400	Very toxic to aquatic life.
H410	Very toxic to aquatic life with long lasting effects.

### Training advice

Provide adequate information, instruction and training for operators.

### Labelling

#### Hazard pictograms



#### Signal word

Danger

#### Hazard statements

- H302 Harmful if swallowed.  
H318 Causes serious eye damage.  
H410 Very toxic to aquatic life with long lasting effects.

#### Precautionary statements

##### Prevention

- P273 Avoid release to the environment.  
P280 Wear eye protection.

##### 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.  
P313 Get medical advice/ attention.

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## 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)

#### 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

- 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  
*PROC15* Use as laboratory reagent  
*PROC26* Handling of solid inorganic substances at ambient temperature

#### Environmental Release Categories

- ERC1* Manufacture of substances  
*ERC2* Formulation of preparations  
*ERC6a* Industrial use resulting in manufacture of another substance (use of intermediates)  
*ERC6b* Industrial use of reactive processing aids

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

### 2.1 Contributing scenario controlling environmental exposure for: ERC1, SpERC Eurometaux 1.2.v2.1

#### Amount used

Daily amount per site (Msafe)	2,5 t
Remarks	Zinc

#### Environment factors not influenced by risk management

Flow rate	18.000 m3/d
Dilution Factor (River)	10

#### Other given operational conditions affecting environmental exposure

Number of emission days per year	150
Emission or Release Factor: Air	0,03 %
Emission or Release Factor: Water	0,02 %
Emission or Release Factor: Soil	2,3 %
Remarks	Apply risk management measures and operational conditions as specified in the SpERC description.

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

Type of Sewage Treatment Plant	Municipal sewage treatment plant
Flow rate of sewage treatment plant effluent	2.000 m3/d
Effectiveness (of a measure)	82 %

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### 2.2 Contributing scenario controlling environmental exposure for: ERC2, SpERC Eurometaux 2.2.v2.1

#### Amount used

Daily amount per site (Msafe)	100 kg
Remarks	Zinc

#### Environment factors not influenced by risk management

Flow rate	18.000 m3/d
Dilution Factor (River)	10

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## Other given operational conditions affecting environmental exposure

Number of emission days per year 240  
Emission or Release Factor: Air 0,004 %  
Emission or Release Factor: Water 0,5 %  
Emission or Release Factor: Soil 1 %  
Remarks Apply risk management measures and operational conditions as specified in the SpERC description.

## Conditions and measures related to municipal sewage treatment plant

Type of Sewage Treatment Plant Municipal sewage treatment plant  
Flow rate of sewage treatment plant effluent 2.000 m3/d  
Effectiveness (of a measure) 82 %

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## 2.3 Contributing scenario controlling environmental exposure for: ERC6a, ERC6b, SpERC Eurometaux 2.5-6.v2.1

### Amount used

Daily amount per site (Msafe) 85 kg  
Remarks Zinc

### Environment factors not influenced by risk management

Flow rate 18.000 m3/d  
Dilution Factor (River) 10

## Other given operational conditions affecting environmental exposure

Number of emission days per year 200  
Emission or Release Factor: Air 0,1 %  
Emission or Release Factor: Water 0,6 %  
Emission or Release Factor: Soil 1 %  
Remarks Apply risk management measures and operational conditions as specified in the SpERC description.

## Conditions and measures related to municipal sewage treatment plant

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Type of Sewage Treatment Plant Municipal sewage treatment plant  
Flow rate of sewage treatment 2.000 m3/d  
plant effluent  
Effectiveness (of a measure) 82 %

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## 2.4 Contributing scenario controlling worker exposure for: PROC1, PROC2

### 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

### Other operational conditions affecting workers exposure

Outdoor / Indoor Indoor without local exhaust ventilation (LEV)  
Remarks Non-dispersive use, Non-direct handling

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## 2.5 Contributing scenario controlling worker exposure for: PROC3, PROC4, PROC5, PROC8a, PROC8b, PROC9, PROC10, PROC26

### 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

### Other operational conditions affecting workers exposure

Outdoor / Indoor Indoor with local exhaust ventilation (LEV)

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Remarks Non-dispersive use, Non-direct handling

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## 2.6 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

### Other operational conditions affecting workers exposure

Outdoor / Indoor Indoor without local exhaust ventilation (LEV)

Remarks Non-dispersive use, Non-direct handling

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## 3. Exposure estimation and reference to its source

### Environment

CS	Use descriptor	Msafe	Compartment	RCR	Exposure Assessment Method
2.1	ERC1		Fresh water sediment	0,98	EUSES
2.2	ERC2		Fresh water sediment	0,98	EUSES
2.3	ERC6a		Fresh water sediment	0,999	EUSES
2.3	ERC6b		Fresh water sediment	0,999	EUSES

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## Workers

CS	Use descriptor	Exposure duration, route, effect	RCR	Exposure Assessment Method
2.4	PROC1	longterm, inhalative, systemic	0,01	MEASE
		longterm, dermal, systemic	< 0,001	MEASE
		longterm, combined, systemic	0,01	
2.4	PROC2	longterm, inhalative, systemic	0,5	MEASE
		longterm, dermal, systemic	< 0,001	MEASE
		longterm, combined, systemic	0,5	
2.5	PROC3	longterm, inhalative, systemic	0,18	MEASE
		longterm, dermal, systemic	< 0,001	MEASE
		longterm, combined, systemic	0,18	
2.5	PROC4	longterm, inhalative, systemic	0,9	MEASE
		longterm, dermal, systemic	< 0,001	MEASE
		longterm, combined, systemic	0,9	
2.5	PROC5	longterm, inhalative, systemic	0,9	MEASE
		longterm, dermal, systemic	< 0,001	MEASE
		longterm, combined, systemic	0,9	
2.5	PROC8a	longterm, inhalative, systemic	0,9	MEASE
		longterm, dermal, systemic	< 0,001	MEASE
		longterm, combined, systemic	0,9	
2.5	PROC8b	longterm, inhalative, systemic	0,9	MEASE
		longterm, dermal, systemic	< 0,001	MEASE
		longterm, combined, systemic	0,9	
2.5	PROC9	longterm, inhalative, systemic	0,9	MEASE
		longterm, dermal, systemic	< 0,001	MEASE
		longterm, combined, systemic	0,9	
2.5	PROC10	longterm, inhalative, systemic	0,9	MEASE
		longterm, dermal, systemic	< 0,001	MEASE
		longterm, combined, systemic	0,9	
2.5	PROC26	longterm, inhalative, systemic	0,72	MEASE
		longterm, dermal, systemic	0,002	MEASE
		longterm, combined, systemic	0,722	
2.6	PROC15	longterm, inhalative, systemic	0,5	MEASE
		longterm, dermal, systemic	0,002	MEASE
		longterm, combined, systemic	0,502	

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

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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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## EXPOSURE SCENARIO 2 (Professional use)

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### 1. Professional use Reagent for analysis)

#### Sectors of end-use

*SU22* Professional uses: Public domain (administration, education, entertainment, services, craftsmen)

#### Chemical product category

*PC21* Laboratory chemicals

#### Process categories

*PROC15* Use as laboratory reagent

#### Environmental Release Categories

*ERC2* Formulation of preparations

*ERC6a* Industrial use resulting in manufacture of another substance (use of intermediates)

*ERC6b* Industrial use of reactive processing aids

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

#### 2.1 Contributing scenario controlling environmental exposure for: ERC2, SpERC Eurometaux 2.2.v2.1

#### Amount used

Daily amount per site (Msafe) 100 kg

Remarks Zinc

#### Environment factors not influenced by risk management

Flow rate 18.000 m<sup>3</sup>/d

Dilution Factor (River) 10

#### Other given operational conditions affecting environmental exposure

Number of emission days per year 240

Emission or Release Factor: Air 0,004 %

Emission or Release Factor: Water 0,5 %

Emission or Release Factor: Soil 1 %

Remarks Apply risk management measures and operational conditions as specified in the SpERC description.

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## Conditions and measures related to municipal sewage treatment plant

Type of Sewage Treatment Plant	Municipal sewage treatment plant
Flow rate of sewage treatment plant effluent	2.000 m3/d
Effectiveness (of a measure)	82 %

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## 2.2 Contributing scenario controlling environmental exposure for: ERC6a, ERC6b, SpERC Eurometaux 2.5-6.v2.1

### Amount used

Daily amount per site (Msafe)	85 kg
Remarks	Zinc

### Environment factors not influenced by risk management

Flow rate	18.000 m3/d
Dilution Factor (River)	10

### Other given operational conditions affecting environmental exposure

Number of emission days per year	200
Emission or Release Factor: Air	0,1 %
Emission or Release Factor: Water	0,6 %
Emission or Release Factor: Soil	1 %
Remarks	Apply risk management measures and operational conditions as specified in the SpERC description.

## Conditions and measures related to municipal sewage treatment plant

Type of Sewage Treatment Plant	Municipal sewage treatment plant
Flow rate of sewage treatment plant effluent	2.000 m3/d
Effectiveness (of a measure)	82 %

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## 2.3 Contributing scenario controlling worker exposure for: PROC15

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## 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

## Other operational conditions affecting workers exposure

Outdoor / Indoor Indoor without local exhaust ventilation (LEV)  
Remarks Non-dispersive use, Non-direct handling

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## 3. Exposure estimation and reference to its source

### Environment

CS	Use descriptor	Msafe	Compartment	RCR	Exposure Assessment Method
2.1	ERC2		Fresh water sediment	0,98	EUSES
2.2	ERC6a		Fresh water sediment	0,999	EUSES
2.2	ERC6b		Fresh water sediment	0,999	EUSES

### Workers

CS	Use descriptor	Exposure duration, route, effect	RCR	Exposure Assessment Method
2.3	PROC15	longterm, inhalative, systemic	0,5	MEASE
		longterm, dermal, systemic	0,002	MEASE
		longterm, combined, systemic	0,502	

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Catalogue No. 108883

Product name Zinc sulfate heptahydrate for analysis EMSURE® ACS,ISO,Reag. Ph Eur

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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).