SAFETY DATA SHEET

according to Regulation (EC) No. 1907/2006

Revision Date 24.08.2018 Version 12.8

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

1.1 Product identifier

Catalogue No.	108816
Product name	Zinc chloride for analysis EMSURE® ACS,ISO,Reag. Ph Eur
REACH Registration Number	01-2119472431-44-XXXX
CAS-No.	7646-85-7

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.

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.

SECTION 2. Hazards identification

2.1 Classification of the substance or mixture

Classification (REGULATION (EC) No 1272/2008)

Acute toxicity, Category 4, Oral, H302
Skin corrosion, Category 1B, H314
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.

H314 Causes severe skin burns and eye damage.

H410 Very toxic to aquatic life with long lasting effects.

Precautionary statements

Prevention

P273 Avoid release to the environment.

P280 Wear protective gloves/ protective clothing/ eye protection/ face protection.

Response

P301 + P330 + P331 IF SWALLOWED: Rinse mouth. Do NOT induce vomiting.

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

P308 + P310 IF exposed or concerned: immediately call a POISON CENTER or doctor/ physician.

Reduced labelling (≤125 ml)

Hazard pictograms

Signal word

Danger

Hazard statements
H314 Causes severe skin burns and eye damage.

Precautionary statements
P280 Wear protective gloves/ protective clothing/ eye protection/ face protection.
P301 + P330 + P331 IF SWALLOWED: Rinse mouth. Do NOT induce vomiting.
P305 + P351 + P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
P308 + P310 IF exposed or concerned: immediately call a POISON CENTER or doctor/ physician.

Index-No. 030-003-00-2

2.3 Other hazards
None known.

SECTION 3. Composition/information on ingredients

3.1 Substance

Formula	$ZnCl_2$	Cl_2Zn (Hill)
Index-No.	030-003-00-2	
EC-No.	231-592-0	
Molar mass	136,30 g/mol	

Hazardous components (REGULATION (EC) No 1272/2008)
Chemical name (Concentration)

CAS-No.	Registration number	Classification
zinc chloride (>= 80 % - <= 100 %)		
PBT/vPvB: Not applicable for inorganic substances		
7646-85-7	01-2119472431-44-XXXX	Acute toxicity, Category 4, H302 Skin corrosion, Category 1B, H314 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

SECTION 4. First aid measures

4.1 Description of first aid measures

General advice

First aider needs to protect himself.

After inhalation: fresh air. Call in physician.

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

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

After swallowing: make victim drink water (two glasses at most), avoid vomiting (risk of perforation). Call a physician immediately. Do not attempt to neutralise.

4.2 Most important symptoms and effects, both acute and delayed

Irritation and corrosion, Cough, Nausea, Vomiting, bronchitis, Diarrhoea, cardiovascular disorders, metallic taste, Shortness of breath, collapse, Risk of blindness!

4.3 Indication of any immediate medical attention and special treatment needed

No information available.

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.

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.

SECTION 7. Handling and storage

7.1 Precautions for safe handling

Advice on safe handling

Observe label precautions.

Hygiene measures

Immediately change contaminated clothing. Apply preventive skin protection. Wash hands and face 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.

SECTION 8. Exposure controls/personal protection

8.1 Control parameters

Derived No Effect Level (DNEL)

Worker DNEL, longterm	Systemic effects	inhalation	1 mg/m³ (Zinc)
Worker DNEL, longterm	Systemic effects	dermal	8,3 mg/kg Body weight (Zinc)
Consumer DNEL, longterm	Systemic effects	inhalation	1,3 mg/m³ (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

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).

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 entrepeneur 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.

SECTION 9. Physical and chemical properties

9.1 Information on basic physical and chemical properties

Form	powder
Colour	white
Odour	odourless
Odour Threshold	Not applicable
pH	ca. 5 at 100 g/l 20 °C
Melting point/range	287 - 304 °C at ca.1.013 hPa Method: OECD Test Guideline 102
Boiling point/boiling range	732 °C at 1.013 hPa
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	1,33 hPa at 428 °C
Relative vapour density	No information available.
Density	2,93 g/cm3 at 22 °C Method: OECD Test Guideline 109
Relative density	No information available.
Water solubility	851 g/l at 25 °C Method: OECD Test Guideline 105
Partition coefficient: n-octanol/water	No information available.
Auto-ignition temperature	No information available.
Decomposition temperature	ca.360 °C
Viscosity, dynamic	No information available.
Explosive properties	Not classified as explosive.
Oxidizing properties	none

9.2 Other data

Ignition temperature	not combustible
Bulk density	ca.1.400 - 1.800 kg/m3
Particle size	Mean particle size ca.0,288 mm

SECTION 10. Stability and reactivity

10.1 Reactivity

See section 10.3

10.2 Chemical stability

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

10.3 Possibility of hazardous reactions

Violent reactions possible with:

sodium, Strong oxidizing agents

10.4 Conditions to avoid

no information available

10.5 Incompatible materials

various metals

10.6 Hazardous decomposition products

in the event of fire: See section 5.

SECTION 11. Toxicological information

11.1 Information on toxicological effects

Acute oral toxicity

LD50 Rat: 1.100 mg/kg

OECD Test Guideline 401

Symptoms: If ingested, severe burns of the mouth and throat, as well as a danger of perforation of the oesophagus and the stomach., Nausea, Vomiting, strong pain (risk of perforation!)

Acute inhalation toxicity

Symptoms: mucosal irritations, Cough, Shortness of breath, Possible damages:, damage of respiratory tract, bronchitis, Necrosis, Inhalation may lead to the formation of oedemas in the respiratory tract.

Acute dermal toxicity

This information is not available.

Skin irritation

Causes burns.

Eye irritation

Risk of blindness!

Causes serious eye damage.

Sensitisation

This information is not available.

Germ cell mutagenicity

Genotoxicity in vitro

In vitro mammalian cell gene mutation test

Mouse lymphoma test

Result: negative

(ECHA)

Mutagenicity (mammal cell test): chromosome aberration.

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.

Specific target organ toxicity - repeated exposure

This information is not available.

Aspiration hazard

This information is not available.

11.2 Further information

Systemic effects:

After uptake:

metallic taste, drop in blood pressure, tachycardia, cardiovascular disorders, Diarrhoea,

Circulatory collapse, disturbed electrolyte balance.

Causes impaired function of:

Kidney

Other dangerous properties can not be excluded.

Handle in accordance with good industrial hygiene and safety practice.

SECTION 12. Ecological information

12.1 Toxicity

Toxicity to fish

static test LC50 Oncorhynchus mykiss (rainbow trout): 0,169 mg/l; 96 h

(ECHA)

Toxicity to daphnia and other aquatic invertebrates

static test EC50 Daphnia magna (Water flea): 0,33 mg/l; 48 h

Analytical monitoring: yes

OECD Test Guideline 202

Toxicity to algae

static test NOEC Pseudokirchneriella subcapitata (green algae): 0,0049 mg/l; 72 h

Analytical monitoring: yes

OECD Test Guideline 201

Toxicity to bacteria

static test IC50 activated sludge: 0,35 mg/l; 4 h

ISO/TC 147

(referred to the cation)

Toxicity to fish (Chronic toxicity)

flow-through test NOEC Oncorhynchus mykiss (rainbow trout): 0,199 mg/l; 30 d

Analytical monitoring: yes

OECD Test Guideline 215

Toxicity to daphnia and other aquatic invertebrates (Chronic toxicity)

semi-static test NOEC Daphnia magna (Water flea): 0,143 mg/l; 21 d

Analytical monitoring: yes

OECD Test Guideline 211

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

Additional ecological information

Hazard for drinking water supplies.

Discharge into the environment must be avoided.

SECTION 13. Disposal considerations

Waste treatment methods

See www.retrologistik.com for processes regarding the return of chemicals and containers, or contact us there if you have further questions.

SECTION 14. Transport information

Land transport (ADR/RID)

14.1 UN number	UN 2331
14.2 Proper shipping name	ZINC CHLORIDE, ANHYDROUS
14.3 Class	8
14.4 Packing group	III
14.5 Environmentally hazardous	yes
14.6 Special precautions for user	yes
Tunnel restriction code	E

Inland waterway transport (ADN)

Not relevant

Air transport (IATA)

14.1 UN number	UN 2331
14.2 Proper shipping name	ZINC CHLORIDE, ANHYDROUS
14.3 Class	8
14.4 Packing group	III
14.5 Environmentally hazardous	yes
14.6 Special precautions for user	no

Sea transport (IMDG)

14.1 UN number	UN 2331
14.2 Proper shipping name	ZINC CHLORIDE, ANHYDROUS
14.3 Class	8
14.4 Packing group	III
14.5 Environmentally hazardous	yes
14.6 Special precautions for user	yes
EmS	F-A S-B

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

Not relevant

SECTION 15. Regulatory information

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

EU regulations

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 ≥ 0.1 % (w/w).

National legislation

Storage class 8B

15.2 Chemical safety assessment

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

SECTION 16. Other information

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

H302	Harmful if swallowed.
H314	Causes severe skin burns and 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.

H314 Causes severe skin burns and eye damage.
H410 Very toxic to aquatic life with long lasting effects.

Precautionary statements
Prevention
P273 Avoid release to the environment.
P280 Wear protective gloves/ protective clothing/ eye protection/ face protection.
Response
P301 + P330 + P331 IF SWALLOWED: Rinse mouth. Do NOT induce vomiting.
P305 + P351 + P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
P308 + P310 IF exposed or concerned: immediately call a POISON CENTER or doctor/ physician.

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.

Regional representation

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

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.

EXPOSURE SCENARIO 1 (Industrial use)

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
SU9	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

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 %

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

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 %

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

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 %

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

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)

Remarks	Non-dispersive use, Non-direct handling

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

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

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	

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

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).

EXPOSURE SCENARIO 2 (Professional use)

1. Professional use Reagent for analysis)

Sectors of end-use

SU 22 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

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 m3/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.

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 %

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 %

2.3 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

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	

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

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).