

Safety Data Sheet

according to UK REACH Regulation

Kupfer(II)-sulfat-Pentahydrat-Lösung 187,5 g/l

Revision date: 18.04.2023

Product code: 33710

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

1.1. Product identifier

Kupfer(II)-sulfat-Pentahydrat-Lösung 187,5 g/l

UFI: 85C0-1384-800J-M071

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

Use of the substance/mixture

Laboratory chemicals

Industrial uses: Uses of substances as such or in preparations at industrial sites

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

Uses advised against

Do not use for private purposes (household).

1.3. Details of the supplier of the safety data sheet

Company name:	AnalytiChem GmbH	
Street:	Stempelstraße 6	
Place:	D-47167 Duisburg	
Telephone:	0203/5194-0	Telefax: 0203/5194-290
e-mail:	info@analytichem.de	
Contact person:	Abteilung Produktsicherheit	Telephone: 0203/5194-107/117
e-mail:	produktsicherheit@analytichem.de	
Internet:	www.analytichem.de	
Responsible Department:	Abteilung Produktsicherheit	

1.4. Emergency telephone number:

For Hazardous Materials [or Dangerous Goods] Incidents Spill, Leak, Fire, Exposure, or Accident Call CHEMTREC Day or Night Within USA and Canada: 1-800-424-9300 Outside USA and Canada: +1 703-741-5970 (collect calls accepted)

Further Information

inapplicable, this product is a mixture REACH registration number see section 3

SECTION 2: Hazards identification

2.1. Classification of the substance or mixture

GB CLP Regulation

Met. Corr. 1; H290
Skin Irrit. 2; H315
Eye Dam. 1; H318
Aquatic Acute 1; H400
Aquatic Chronic 1; H410

Full text of hazard statements: see SECTION 16.

2.2. Label elements

GB CLP Regulation

Hazard components for labelling

copper sulphate pentahydrate
Hydrochloric acid

Signal word: Danger

Pictograms:



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Hazard statements

H290	May be corrosive to metals.
H315	Causes skin irritation.
H318	Causes serious eye damage.
H410	Very toxic to aquatic life with long lasting effects.

Precautionary statements

P273	Avoid release to the environment.
P280	Wear protective gloves/protective clothing/eye protection/face protection/hearing 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.
P310	Immediately call a POISON CENTER/doctor.
P391	Collect spillage.

2.3. Other hazards

No data available

SECTION 3: Composition/information on ingredients

3.2. Mixtures

Chemical characterization

Mixtures in aqueous solution

Hazardous components

CAS No	Chemical name			Quantity
	EC No	Index No	REACH No	
	Classification (GB CLP Regulation)			
7758-99-8	copper sulphate pentahydrate			15 - < 20 %
	231-847-6	029-023-00-4	01-2119520566-40	
	Acute Tox. 4, Skin Irrit. 2, Eye Dam. 1, Aquatic Acute 1, Aquatic Chronic 1; H302 H315 H318 H400 H410			
7647-01-0	Hydrochloric acid			1 - < 5 %
	231-595-7	017-002-01-X	01-2119484862-27	
	Skin Corr. 1B, STOT SE 3; H314 H335			

Full text of H and EUH statements: see section 16.

Specific Conc. Limits, M-factors and ATE

CAS No	EC No	Chemical name	Quantity
		Specific Conc. Limits, M-factors and ATE	
7758-99-8	231-847-6	copper sulphate pentahydrate	15 - < 20 %
		dermal: LD50 = > 2000 mg/kg; oral: ATE 481 mg/kg Aquatic Acute 1; H400: M=10 Aquatic Chronic 1; H410: M=1	
7647-01-0	231-595-7	Hydrochloric acid	1 - < 5 %
		Skin Corr. 1B; H314: >= 25 - 100 Skin Irrit. 2; H315: >= 10 - < 25 Eye Irrit. 2; H319: >= 10 - < 25 STOT SE 3; H335: >= 10 - 100	

Further Information

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).

SECTION 4: First aid measures

4.1. Description of first aid measures

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General information

No data available

After inhalation

Provide fresh air.

Call a doctor if you feel unwell.

After contact with skin

Wash immediately with: Water

Take off immediately all contaminated clothing and wash it before reuse.

In case of skin irritation, consult a physician.

After contact with eyes

In case of contact with eyes flush immediately with plenty of flowing water for 10 to 15 minutes holding eyelids apart and consult an ophthalmologist.

Remove contact lenses, if present and easy to do. Continue rinsing.

After ingestion

Rinse mouth immediately and drink plenty of water.

Call a physician immediately.

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

Irritant — skin irritation and eye damage

Cough

Dyspnoea

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

No data available

SECTION 5: Firefighting measures

5.1. Extinguishing media

Suitable extinguishing media

Co-ordinate fire-fighting measures to the fire surroundings.

Unsuitable extinguishing media

no restriction

5.2. Special hazards arising from the substance or mixture

Non-combustible liquids

Hazardous combustion products

In case of fire may be liberated:

Hydrochloric gas

Metal oxide smoke, toxic

5.3. Advice for firefighters

Wear a self-contained breathing apparatus and chemical protective clothing. Full protection suit.

Avoid contact with skin, eyes and clothes.

Additional information

Collect contaminated fire extinguishing water separately. Do not allow entering drains or surface water.

Use water spray jet to protect personnel and to cool endangered containers.

SECTION 6: Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures

General advice

Corrosive to metals.

For non-emergency personnel

Provide adequate ventilation.

Use personal protection equipment.

Avoid contact with skin, eyes and clothes.

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Remove persons to safety.
Emergency procedures
Consult an expert
Do not breathe dust/fume/gas/mist/vapours/spray.

For emergency responders

Precautionary statements For emergency responders : Personal protection equipment: see section 8

6.2. Environmental precautions

Do not allow to enter into surface water or drains.

6.3. Methods and material for containment and cleaning up

For containment

Cover drains.
Prevent spread over a wide area (e.g. by containment or oil barriers).
Collect in closed and suitable containers for disposal.
Absorb with liquid-binding material (sand, diatomaceous earth, acid- or universal binding agents).

For cleaning up

Clean contaminated articles and floor according to the environmental legislation.

Other information

Provide adequate ventilation.
Do not breathe dust/fume/gas/mist/vapours/spray.
Wear breathing apparatus if exposed to vapours/dusts/aerosols.

6.4. Reference to other sections

Safe handling: see section 7
Personal protection equipment: see section 8
Disposal: see section 13

SECTION 7: Handling and storage

7.1. Precautions for safe handling

Advice on safe handling

If handled uncovered, arrangements with local exhaust ventilation have to be used.
Read label before use.
Handle and open container with care.
When using do not eat, drink, smoke, sniff.
Keep container tightly closed.
Use personal protection equipment.
Provide adequate ventilation.
Do not breathe vapour/aerosol.
Avoid contact with skin, eyes and clothes.

Advice on protection against fire and explosion

Usual measures for fire prevention.

Advice on general occupational hygiene

Remove contaminated, saturated clothing immediately. Draw up and observe skin protection programme.
Wash hands and face before breaks and after work and take a shower if necessary. When using do not eat or drink.

Further information on handling

Draw up and observe skin protection programme.
Wash hands and face before breaks and after work and take a shower if necessary.
Take off immediately all contaminated clothing and wash it before reuse.

7.2. Conditions for safe storage, including any incompatibilities

Requirements for storage rooms and vessels

Keep container tightly closed.
Provide adequate ventilation as well as local exhaustion at critical locations.

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Keep in a cool place.

Hints on joint storage

national regulations

Further information on storage conditions

Unsuitable container/equipment material: Metal

7.3. Specific end use(s)

Laboratory chemicals

SECTION 8: Exposure controls/personal protection

8.1. Control parameters

Exposure limits (EH40)

CAS No	Substance	ppm	mg/m ³	fibres/ml	Category	Origin
7647-01-0	Hydrogen chloride (gas and aerosol mists)	1	2		TWA (8 h)	WEL
		5	8		STEL (15 min)	WEL

DNEL/DMEL values

CAS No	Substance	Exposure route	Effect	Value
7647-01-0	Hydrochloric acid			
Worker DNEL, long-term		inhalation	local	8 mg/m ³
Worker DNEL, acute		inhalation	local	15 mg/m ³
Consumer DNEL, long-term		inhalation	local	8 mg/m ³
Consumer DNEL, acute		inhalation	local	15 mg/m ³

PNEC values

CAS No	Substance	Value
Environmental compartment		
7758-99-8	copper sulphate pentahydrate	
Freshwater		0,0078 mg/l
Marine water		0,0052 mg/l
Freshwater sediment		87 mg/kg
Marine sediment		676 mg/kg
Micro-organisms in sewage treatment plants (STP)		0,23 mg/l
Soil		65 mg/kg

8.2. Exposure controls

Appropriate engineering controls

Technical measures and the application of suitable work processes have priority over personal protection equipment.

If handled uncovered, arrangements with local exhaust ventilation have to be used. Do not breathe gas/fumes/vapour/spray.

Individual protection measures, such as personal protective equipment

Eye/face protection

Suitable eye protection:

Face protection shield
goggles.

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Hand protection

When handling with chemical substances, protective gloves must be worn with the CE-label including the four control digits. The quality of the protective gloves resistant to chemicals must be chosen as a function of the specific working place concentration and quantity of hazardous substances. For special purposes, it is recommended to check the resistance to chemicals of the protective gloves mentioned above together with the supplier of these gloves.

Suitable examples are gloves of KCL GmbH, D-36124 Eichenzell, e-mail: vertrieb@kcl.de with the following specification (test according to EN 374):

By long-term hand contact

Recommended glove articles: KCL 741 Dermatril® L
Recommended material: NBR (Nitrile rubber) 0,11 mm
Wearing time with permanent contact: > 480 min

By short-term hand contact

Recommended glove articles: KCL 741 Dermatril® L
Recommended material: NBR (Nitrile rubber) 0,11 mm
Wearing time with occasional contact (splashes): > 480 min

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).

Skin protection

Wear suitable protective clothing.
Protective clothing acid-resistant

Respiratory protection

Respiratory protection necessary at: aerosol or mist formation

Environmental exposure controls

Do not allow to enter into surface water or drains.

SECTION 9: Physical and chemical properties

9.1. Information on basic physical and chemical properties

Physical state:	Liquid	
Colour:	blue	
Odour:	odourless	
Odour threshold:	No data available	
Melting point/freezing point:		No data available
Boiling point or initial boiling point and boiling range:		No data available
Flammability:		not applicable not applicable
Lower explosion limits:		No data available
Upper explosion limits:		No data available
Flash point:		X
Auto-ignition temperature:		No data available
Decomposition temperature:		No data available
pH-Value:		1,07
Viscosity / kinematic:		No data available
Water solubility:		easily soluble

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Solubility in other solvents

not determined

Partition coefficient n-octanol/water:

No data available

Vapour pressure:

No data available

Vapour pressure:

No data available

Density:

1,1184 g/cm³

Bulk density:

No data available

Relative vapour density:

No data available

9.2. Other information

Information with regard to physical hazard classes

Explosive properties

No data available

Self-ignition temperature

Solid:

not applicable

Gas:

not applicable

Oxidizing properties

No data available

Other safety characteristics

Evaporation rate:

No data available

Solvent separation test:

No data available

Solvent content:

0

Solid content:

0

Sublimation point:

No data available

Softening point:

No data available

Pour point:

No data available

No data available:

Viscosity / dynamic:

No data available

Flow time:

No data available

Further Information

Corrosive to metals

SECTION 10: Stability and reactivity

10.1. Reactivity

Corrosive to metals.

10.2. Chemical stability

The product is stable under storage at normal ambient temperatures.

10.3. Possibility of hazardous reactions

Exothermic reaction with: Amines, permanganates, e.g. potassium permanganate, aldehydes

Ignition hazard: Carbide, Fluorine

Possibility of hazardous reactions: Aluminium, Formaldehyde, Metal, Alkali (lye)

Danger of explosion: Alkali metals, Sulphuric acid, concentrated

10.4. Conditions to avoid

Heat

10.5. Incompatible materials

Keep away from: Metal.

The product develops hydrogen in an aqueous solution in contact with metals.

10.6. Hazardous decomposition products

In case of fire may be liberated:

SECTION 5: Firefighting measures

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Further information

No data available

SECTION 11: Toxicological information

11.1. Information on hazard classes as defined in GB CLP Regulation

Toxicokinetics, metabolism and distribution

There are no data available on the mixture itself.

Acute toxicity

Based on available data, the classification criteria are not met.

Pulmonary oedema

Mucous membrane irritation in the mouth, throat, esophagus and gastrointestinal tract.

CAS No	Chemical name				
	Exposure route	Dose	Species	Source	Method
7758-99-8	copper sulphate pentahydrate				
	oral	ATE 481 mg/kg			
	dermal	LD50 > 2000 mg/kg	Rat	Study report (1993)	OECD Guideline 402

Irritation and corrosivity

Causes skin irritation.

Causes serious eye damage.

Sensitising effects

Based on available data, the classification criteria are not met.

Carcinogenic/mutagenic/toxic effects for reproduction

Based on available data, the classification criteria are not met.

STOT-single exposure

Based on available data, the classification criteria are not met.

STOT-repeated exposure

Based on available data, the classification criteria are not met.

Aspiration hazard

Based on available data, the classification criteria are not met.

Specific effects in experiment on an animal

There are no data available on the mixture itself.

Additional information on tests

There are no data available on the mixture itself.

Practical experience

There are no data available on the mixture itself.

11.2. Information on other hazards

Other information

There are no data available on the mixture itself.

Further information

Irritant — skin irritation and eye damage

Cough

Dyspnoea

SECTION 12: Ecological information

12.1. Toxicity

There are no data available on the mixture itself.

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CAS No	Chemical name					
	Aquatic toxicity	Dose	[h] [d]	Species	Source	Method
7758-99-8	copper sulphate pentahydrate					
	Acute fish toxicity	LC50 mg/l	0,193	96 h	Pimephales promelas	Study report (1996) measurements were conducted by standard
	Acute algae toxicity	ErC50 mg/l	0,152	72 h	Pseudokirchneriella subcapitata	Publication (2005) OECD Guideline 201
	Acute crustacea toxicity	EC50 mg/l	0,007	48 h	Daphnia magna	Study report (1978) - Test were conducted on Daphnia magna t
	Fish toxicity	NOEC mg/l	0,123	12 d	Atherinops affinis	Mar. Environ. Res. 31: 17-35 (1991) Three tests are reported, designed to de
	Algae toxicity	NOEC mg/l	0,0102	19 d	other aquatic plant: giant kelp Macrocystis pyrife	Mar. Ecol. Prog. Ser. 68: 147 - 156 (199) Tests were conducted to determine the ef
	Crustacea toxicity	NOEC mg/l	0,033	14 d	Penaeus mergulensis and Penaeus monodon	Bull. Environ. Contain. Toxicol. (1995) The effects of dissolved copper on the g
7647-01-0	Hydrochloric acid					
	Acute fish toxicity	LC50	862 mg/l	96 h	Leuciscus idus	

12.2. Persistence and degradability

There are no data available on the mixture itself.

12.3. Bioaccumulative potential

There are no data available on the mixture itself.

BCF

CAS No	Chemical name	BCF	Species	Source
7758-99-8	copper sulphate pentahydrate	0,02 - 20	Crangon crangon	Symp. Biologica. Hun

12.4. Mobility in soil

There are no data available on the mixture itself.

12.5. Results of PBT and vPvB assessment

The substances in the mixture do not meet the PBT/vPvB criteria according to UK REACH.

The substance in the mixture does not meet the PBT/vPvB criteria according to REACH, annex XIII.

12.6. Endocrine disrupting properties

This product does not contain a substance that has endocrine disrupting properties with respect to non-target organisms as no components meets the criteria.

12.7. Other adverse effects

Discharge into the environment must be avoided.

Harmful effect due to pH shift.

Forms corrosive mixtures with water even if diluted.

Further information

Do not empty into drains.

SECTION 13: Disposal considerations

13.1. Waste treatment methods

Disposal recommendations

Waste disposal according to directive 2008/98/EC, covering waste and dangerous waste.

Send to a physico-chemical treatment facility under observation of official regulations.

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Do not empty into drains.

Contaminated packaging

Handle contaminated packages in the same way as the substance itself.

The allocation of waste identity numbers/waste descriptions must be carried out according to the EEC, specific to the industry and process.

SECTION 14: Transport information

Land transport (ADR/RID)

14.1. UN number or ID number:	UN 3264
14.2. UN proper shipping name:	CORROSIVE LIQUID, ACIDIC, INORGANIC, N.O.S. (Hydrochloric acid)
14.3. Transport hazard class(es):	8
14.4. Packing group:	III
Hazard label:	8
Classification code:	C1
Special Provisions:	274
Limited quantity:	5 L
Excepted quantity:	E1
Transport category:	3
Hazard No:	80
Tunnel restriction code:	E

Inland waterways transport (ADN)

14.1. UN number or ID number:	UN 3264
14.2. UN proper shipping name:	CORROSIVE LIQUID, ACIDIC, INORGANIC, N.O.S. (Hydrochloric acid)
14.3. Transport hazard class(es):	8
14.4. Packing group:	III
Hazard label:	8
Classification code:	C1
Special Provisions:	274
Limited quantity:	5 L
Excepted quantity:	E1

Marine transport (IMDG)

14.1. UN number or ID number:	UN 3264
14.2. UN proper shipping name:	CORROSIVE LIQUID, ACIDIC, INORGANIC, N.O.S. (Hydrochloric acid, copper sulphate pentahydrate)
14.3. Transport hazard class(es):	8
14.4. Packing group:	III
Hazard label:	8
Special Provisions:	223, 274
Limited quantity:	5 L
Excepted quantity:	E1
EmS:	F-A, S-B

Air transport (ICAO-TI/IATA-DGR)

14.1. UN number or ID number:	UN 3264
14.2. UN proper shipping name:	CORROSIVE LIQUID, ACIDIC, INORGANIC, N.O.S. (Hydrochloric acid)
14.3. Transport hazard class(es):	8
14.4. Packing group:	III
Hazard label:	8
Special Provisions:	A3 A803
Limited quantity Passenger:	1 L
Passenger LQ:	Y841
Excepted quantity:	E1
IATA-packing instructions - Passenger:	852
IATA-max. quantity - Passenger:	5 L

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IATA-packing instructions - Cargo: 856
IATA-max. quantity - Cargo: 60 L

14.5. Environmental hazards

ENVIRONMENTALLY HAZARDOUS: Yes
Danger releasing substance: copper sulphate pentahydrate

SECTION 15: Regulatory information

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

EU regulatory information

Restrictions on use (REACH, annex XVII):

Entry 3, Entry 75

Information according to 2012/18/EU (SEVESO III): E1 Hazardous to the Aquatic Environment

National regulatory information

Employment restrictions: Observe restrictions to employment for juveniles according to the 'juvenile work protection guideline' (94/33/EC).

Water hazard class (D): 3 - highly hazardous to water

SECTION 16: Other information

Abbreviations and acronyms

ADR: Accord européen sur le transport des marchandises dangereuses par Route (European Agreement concerning the International Carriage of Dangerous Goods by Road)
IMDG: International Maritime Code for Dangerous Goods
IATA: International Air Transport Association
GHS: Globally Harmonized System of Classification and Labelling of Chemicals
EINECS: European Inventory of Existing Commercial Chemical Substances
ELINCS: European List of Notified Chemical Substances
CAS: Chemical Abstracts Service
LC50: Lethal concentration, 50%
LD50: Lethal dose, 50%

Classification for mixtures and used evaluation method according to GB CLP Regulation

Classification	Classification procedure
Met. Corr. 1; H290	On basis of test data
Skin Irrit. 2; H315	Calculation method
Eye Dam. 1; H318	Calculation method
Aquatic Acute 1; H400	Calculation method
Aquatic Chronic 1; H410	Calculation method

Relevant H and EUH statements (number and full text)

H290 May be corrosive to metals.
H302 Harmful if swallowed.
H314 Causes severe skin burns and eye damage.
H315 Causes skin irritation.
H318 Causes serious eye damage.
H335 May cause respiratory irritation.
H400 Very toxic to aquatic life.
H410 Very toxic to aquatic life with long lasting effects.

Further Information

The above information describes exclusively the safety requirements of the product and is based on our present-day knowledge. The information is intended to give you advice about the safe handling of the product

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named in this safety data sheet, for storage, processing, transport and disposal. The information cannot be transferred to other products. In the case of mixing the product with other products or in the case of processing, the information on this safety data sheet is not necessarily valid for the new made-up material.

(The data for the hazardous ingredients were taken respectively from the last version of the sub-contractor's safety data sheet.)