

# SAFETY DATA SHEET

according to Regulation (EC) No. 1907/2006

Revision Date

25.03.2010

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

### Product Information

Catalogue No.: 102780  
Product name: Copper(II) sulfate pentahydrate very fine crystals  
Use of the Substance/Mixture: Reagent for analysis  
Company: Merck KGaA \* 64271 Darmstadt \* Germany \* Phone:+49 6151 72-0  
Emergency telephone: Please contact the regional Merck representation in your country.  
Responsible/issuing person: EQ-EPS \* e-mail: prodsafe@merck.de

## 2. Hazards identification

### GHS Classification

Acute toxicity, Category 4, Oral	H302: Harmful if swallowed.
Eye irritation, Category 2	H319: Causes serious eye irritation.
Skin irritation, Category 2	H315: Causes skin irritation.
Acute aquatic toxicity, Category 1	H400: Very toxic to aquatic life.
Chronic aquatic toxicity, Category 1	H410: Very toxic to aquatic life with long lasting effects.

### EC Classification

Xn; R22  
Xi; R36/38  
N; R50/53  
For the full text of the R-phrases mentioned in this Section, see Section 16.

## 3. Composition/information on ingredients

Formula	CuSO <sub>4</sub> * 5 H <sub>2</sub> O	CuO <sub>4</sub> S * 5 H <sub>2</sub> O (Hill)
CAS-No.	7758-99-8	
Index-No.	029-004-00-0	
EC-No.	231-847-6	
Molar mass	249,68 g/mol	

## 4. First aid measures

After inhalation: fresh air.  
After skin contact: wash off with plenty of water. Remove contaminated clothing.  
After eye contact: rinse out with plenty of water. Call in ophthalmologist.  
After swallowing: immediately make victim drink water (two glasses at the most). Consult a physician.

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## 5. Fire-fighting measures

### *Suitable extinguishing media*

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

### *Specific hazards during fire fighting*

Not combustible.  
Ambient fire may liberate hazardous vapours.  
Fire may cause evolution of:  
Sulphur oxides

### *Special protective equipment for fire-fighters*

Do not stay in dangerous zone without self-contained breathing apparatus. In order to avoid contact with skin, keep a safety distance and wear 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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## 6. Accidental release measures

### *Personal precautions*

Avoid substance contact. Avoid inhalation of dusts. Ensure adequate ventilation.

### *Environmental precautions*

Do not empty into drains.

### *Methods for cleaning up*

Take up dry. Forward for disposal. Clean up affected area. Avoid generation of dusts.

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## 7. Handling and storage

### **Handling**

#### *Advice on safe handling*

Observe label precautions.

### **Storage**

#### *Further information on storage conditions*

Tightly closed. Dry.

Without limitations.

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## 8. Exposure controls/personal protection

### **Personal protective equipment**

Protective clothing should be selected specifically for the working place, depending on concentration and quantity of the hazardous substances handled. The resistance of the protective clothing to chemicals should be ascertained with the respective supplier.

### *Respiratory protection*

required when dusts are generated.

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

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substances

*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 resultant 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 and supplied by us as well as to the purpose specified by us. 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)).

*Eye protection*

Safety glasses

*Protective measures*

Protective suit

*Hygiene measures*

Immediately change contaminated clothing. Apply skin- protective barrier cream. Wash hands and face after working with substance.

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## 9. Physical and chemical properties

Form	solid
Colour	blue
Odour	odourless
pH	3,5 - 4,5 at 50 g/l 20 °C
Viscosity, dynamic	no data available
Melting point	not applicable
Boiling point/boiling range	not applicable
Ignition temperature	not applicable
Flash point	does not flash
Oxidizing properties	no data available

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Flammability	no data available
Lower explosion limit	not applicable
Upper explosion limit	not applicable
Vapour pressure	no data available
Relative vapour density	no data available
Density	2,284 g/cm <sup>3</sup> at 20 °C
Solubility/qualitative	no data available
Water solubility	317 g/l at 20 °C
Partition coefficient: n- octanol/water	no data available
Evaporation rate	no data available

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## 10. Stability and reactivity

### *Conditions to avoid*

Heating (decomposition).

### *Materials to avoid*

Exothermic reaction with:

Strong oxidizing agents, hydroxylamine, magnesium, in powder form

### *Hazardous decomposition products*

in the event of fire: See chapter 5.

### *Thermal decomposition*

88 - 245 °C

Note: Elimination of water of crystallisation

340 - 650 °C

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## 11. Toxicological information

### *Acute oral toxicity*

LDLO human

Dose: 1.088 mg/kg  
(RTECS)

LD50 rat

Dose: 960 mg/kg  
(HSDB)

Symptoms: absorption, gastric pain, Vomiting, Diarrhoea

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*Acute inhalation toxicity*

Symptoms: May cause irritation of respiratory tract.

*Acute dermal toxicity*

LD50 rat

Dose: > 2.000 mg/kg  
(RTECS)

*Skin irritation*

Causes skin irritation.

*Eye irritation*

Causes serious eye irritation.

Risk of corneal clouding. conjunctivitis

*Genotoxicity in vivo*

Mutagenicity (mammal cell test): micronucleus.

Result: negative

(National Toxicology Program)

*Genotoxicity in vitro*

Ames test

Salmonella typhimurium

Result: negative

(Lit.)

*Further information*

After absorption:

drop in blood pressure, tachycardia, collapse, acidosis

After a latency period:

death

Metal-fume fever after inhalation of large quantities.

Further data:

Handle in accordance with good industrial hygiene and safety practice.

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## 12. Ecological information

### Ecotoxicity

*Toxicity to fish*

LC50

Species: Oncorhynchus mykiss (rainbow trout)

Dose: 0,11 mg/l

Exposure time: 96 h

(anhydrous substance) (ECOTOX Database)

*Toxicity to daphnia and other aquatic invertebrates.*

EC50

Species: Daphnia magna (Water flea)

Dose: 0,02 mg/l

Exposure time: 48 h

(anhydrous substance) (ECOTOX Database)

*Additional ecological information*

Fungicide

Further information on ecology

Do not allow to enter waters, waste water, or soil!

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### 13. Disposal considerations

#### *Product*

Chemicals must be disposed of in compliance with the respective national regulations. Under [www.retrologistik.de](http://www.retrologistik.de) you will find country- and substance-specific information as well as contact partners.

#### *Packaging*

Merck product packaging must be disposed of in compliance with the country-specific regulations or must be passed to a packaging return system. Under [www.retrologistik.de](http://www.retrologistik.de) you will find special information on the respective national conditions as well as contact partners.

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### 14. Transport information

#### **ADR/RID**

UN 3077 ENVIRONMENTALLY HAZARDOUS SUBSTANCE, SOLID, N.O.S. (COPPER(II)-SULPHATE), 9, III

#### **IATA**

UN 3077 ENVIRONMENTALLY HAZARDOUS SUBSTANCE, SOLID, N.O.S. (COPPER(II)-SULPHATE), 9, III

#### **IMDG**

UN 3077 ENVIRONMENTALLY HAZARDOUS SUBSTANCE, SOLID, N.O.S. (COPPER(II)-SULPHATE), 9, III

**EmS** F-A S-F  
Segregation Group: 0007 Heavy Metals and their salts (incl. their organometallic compounds)

The transport regulations re cited according to international regulations and in the form applicable in Germany. Possible national deviations in other countries are not considered.

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### 15. Regulatory information

#### **GHS-Labeling**

#### *Hazard pictograms*



#### *Signal word*

Warning

#### *Hazard statements*

H302: Harmful if swallowed.  
H319: Causes serious eye irritation.  
H315: Causes skin irritation.  
H410: Very toxic to aquatic life with long lasting effects.

#### *Precautionary statements*

P273: Avoid release to the environment.  
P302 + P352: IF ON SKIN: Wash with plenty of soap and water.  
P305 + P351 + P338: IF IN EYES: Rinse cautiously with water for several minutes. Remove

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

**Reduced labelling (≤125 ml)**

*Hazard pictograms*



*Signal word*  
Warning

*Index-No.* 029-004-00-0

**Labelling according to EC Directives**

Symbol(s):	Xn N	Harmful Dangerous for the environment
R-phrases):	22-36/38-50/53	Harmful if swallowed. Irritating to eyes and skin. Very toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment.
S-phrases):	22-60-61	Do not breathe dust. This material and its container must be disposed of as hazardous waste. Avoid release to the environment. Refer to special instructions/ Safety data sheets.
EC-No.	231-847-6	EC Label

**Reduced labelling (≤125 ml)**

Symbol(s):	Xn N	Harmful Dangerous for the environment
R-phrases):	22	Harmful if swallowed.

**National legislation**

Storage class VCI:	10 - 13 Other liquids and solids
Major Accident Hazard Legislation:	96/82/EC Update: 2003 Dangerous for the environment 9a Quantity 1: 100 t Quantity 2: 200 t
Water contaminating class (Germany):	WGK 2 water endangering
Other regulations:	Take note of Dir 94/33/EC on the protection of young people at work. Take note of Dir 92/85/EEC on the safety and health at work of pregnant workers.

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**16. Other information**

**Full text of R-phrases referred to under sections 2 and 3**

R22	Harmful if swallowed.
R36/38	Irritating to eyes and skin.
R50/53	Very toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment.

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 characterizes the product with regard to the appropriate safety precautions. It does not represent a guarantee of the properties of the product.*