

**SECTION 1: Identification of the substance/mixture and of the company/undertaking****1.1 Product identifier**

**Trade name** **Copper(II) sulfate**  
**Stock number:** A13986  
**CAS Number:** 7758-98-7  
**EC number:** 231-847-6  
**Index number:** 029-004-00-0

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

**Identified use:** SU24 Scientific research and development

**1.3 Details of the supplier of the safety data sheet****Manufacturer/Supplier:**

Alfa Aesar GmbH & Co.KG  
A Johnson Matthey Company  
Zeppelinstr. 7b  
76185 Karlsruhe / Germany  
Tel: +49 (0) 721 84007 280  
Fax: +49 (0) 721 84007 300  
Email: tech@alfa.com  
www.alfa.com

**Informing department:**

Product safety Tel + +049 (0) 7275 988687-0

**1.4 Emergency telephone number:**

Carechem 24: +44 (0) 1235 239 670 (Multi-language emergency number)

Poison Information Center Mainz

www.giftinfo.uni-mainz.de Telephone: +49(0)6131/19240

**SECTION 2: Hazards identification****2.1 Classification of the substance or mixture**

**Classification according to Regulation (EC) No 1272/2008**



GHS09 environment

Aquatic Acute 1 H400 Very toxic to aquatic life.

Aquatic Chronic 1 H410 Very toxic to aquatic life with long lasting effects.



GHS07

Acute Tox. 4 H302 Harmful if swallowed.

Skin Irrit. 2 H315 Causes skin irritation.

Eye Irrit. 2 H319 Causes serious eye irritation.

**Classification according to Directive 67/548/EEC or Directive 1999/45/EC**

Xn; Harmful

R22: Harmful if swallowed.

Xi; Irritant

R36/38: Irritating to eyes and skin.

N; Dangerous for the environment

R50/53: Very toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment.

**Information concerning particular hazards**

**for human and environment:**

Not applicable

**Other hazards that do not result in**

**classification**

No information known.

**2.2 Label elements**

**Labelling according to Regulation (EC) No 1272/2008**

**Hazard pictograms**

**Signal word**

**Hazard statements**

The substance is classified and labelled according to the CLP regulation.

GHS07, GHS09

Warning

H302 Harmful if swallowed.

H315 Causes skin irritation.

H319 Causes serious eye irritation.

H410 Very toxic to aquatic life with long lasting effects.

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

P302+P352 IF ON SKIN: Wash with plenty of soap and water.

P321 Specific treatment (see on this label).

P362 Take off contaminated clothing and wash before reuse.

P501 Dispose of contents/container in accordance with local/regional/national/international regulations.

**Precautionary statements****2.3 Other hazards**

**Results of PBT and vPvB assessment**

**PBT:**

Not applicable.

**vPvB:**

Not applicable.

**SECTION 3: Composition/information on ingredients****3.1 Substances**

**CAS# Designation:** 7758-98-7 Copper(II) sulfate

**Identification number(s):**

231-847-6

**EC number:**

029-004-00-0

**Index number:**

**SECTION 4: First aid measures****4.1 Description of first aid measures**

**After inhalation**

Supply fresh air. If required, provide artificial respiration. Keep patient warm. Consult doctor if symptoms persist.

Seek immediate medical advice.

Instantly wash with water and soap and rinse thoroughly.

Seek immediate medical advice.

Rinse opened eye for several minutes under running water. Then consult doctor.

Seek medical treatment.

**After skin contact**

**After eye contact**

**After swallowing**

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

No further relevant information available.

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

No further relevant information available.

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**SECTION 5: Firefighting measures**

<b>5.1 Extinguishing media</b>	Use fire fighting measures that suit the environment.
<b>Suitable extinguishing agents</b>	
<b>5.2 Special hazards arising from the substance or mixture</b>	If this product is involved in a fire, the following can be released: Sulphur oxides (SOx)
<b>5.3 Advice for firefighters</b>	Wear self-contained breathing apparatus. Wear full protective suit.
<b>Protective equipment:</b>	

**SECTION 6: Accidental release measures**

<b>6.1 Personal precautions, protective equipment and emergency procedures</b>	Wear protective equipment. Keep unprotected persons away. Ensure adequate ventilation
<b>6.2 Environmental precautions:</b>	Do not allow material to be released to the environment without proper governmental permits. Do not allow product to reach sewage system or water bodies. Do not allow to enter the ground/soil.
<b>6.3 Methods and material for containment and cleaning up:</b>	Dispose of contaminated material as waste according to item 13.
<b>Prevention of secondary hazards:</b>	No special measures required.
<b>6.4 Reference to other sections</b>	See Section 7 for information on safe handling See section 8 for information on personal protection equipment. See Section 13 for information on disposal.

**SECTION 7: Handling and storage**

<b>7.1 Precautions for safe handling</b>	Keep containers tightly sealed. Store in cool, dry place in tightly closed containers. Ensure good ventilation/exhaustion at the workplace. Prevent formation of dust.
<b>Information about protection against explosions and fires:</b>	The product is not flammable
<b>7.2 Conditions for safe storage, including any incompatibilities</b>	No special requirements.  Store away from water.  This product is hygroscopic. Store under dry inert gas. Keep container tightly sealed. Store in cool, dry conditions in well sealed containers. Protect from humidity and keep away from water. No further relevant information available.
<b>Storage</b>	
<b>Requirements to be met by storerooms and containers:</b>	
<b>Information about storage in one common storage facility:</b>	
<b>Further information about storage conditions:</b>	
<b>7.3 Specific end use(s)</b>	

**SECTION 8: Exposure controls/personal protection**

<b>Additional information about design of technical systems:</b>	Properly operating chemical fume hood designed for hazardous chemicals and having an average face velocity of at least 100 feet per minute.
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**8.1 Control parameters****Components with critical values that require monitoring at the workplace:****7758-98-7 Copper(II) sulfate (100,0%)**

MAK (Germany)	0,1E mg/m <sup>3</sup>
MAK (TRGS 900) (Germany)	1 E mg/m <sup>3</sup> 25; (DFG)

**Additional information:** No data**8.2 Exposure controls**

<b>Personal protective equipment</b>	The usual precautionary measures should be adhered to in handling the chemicals. Keep away from foodstuffs, beverages and food. Instantly remove any soiled and impregnated garments. Wash hands during breaks and at the end of the work. Avoid contact with the eyes and skin. Maintain an ergonomically appropriate working environment.
<b>General protective and hygienic measures</b>	
<b>Breathing equipment:</b>	Use breathing protection with high concentrations.
<b>Protection of hands:</b>	Check protective gloves prior to each use for their proper condition. The selection of the suitable gloves does not only depend on the material, but also on further marks of quality and varies from manufacturer to manufacturer.
<b>Material of gloves</b>	Impervious gloves
<b>Penetration time of glove material</b>	Not determined
<b>Eye protection:</b>	Safety glasses Face protection
<b>Body protection:</b>	Protective work clothing.

**SECTION 9: Physical and chemical properties****9.1 Information on basic physical and chemical properties****General Information****Appearance:**

<b>Form:</b>	Powder
<b>Colour:</b>	Light grey
<b>Smell:</b>	Odourless
<b>Odour threshold:</b>	Not determined.
<b>pH-value:</b>	Not applicable.

**Change in condition**

<b>Melting point/Melting range:</b>	>560 °C (dec)
<b>Boiling point/Boiling range:</b>	Not determined
<b>Sublimation temperature / start:</b>	Not determined
<b>Inflammability (solid, gaseous)</b>	Not determined.
<b>Ignition temperature:</b>	Not determined
<b>Decomposition temperature:</b>	Not determined

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<b>Self-inflammability:</b>	Not determined.
<b>Critical values for explosion:</b>	
Lower:	Not determined
Upper:	Not determined
<b>Steam pressure:</b>	Not applicable.
<b>Density at 20 °C</b>	3,6 g/cm <sup>3</sup>
<b>Relative density</b>	Not determined.
<b>Vapour density</b>	Not applicable.
<b>Evaporation rate</b>	Not applicable.
<b>Solubility in / Miscibility with</b>	
Water at 20 °C:	203 g/l
<b>Partition coefficient (n-octanol/water):</b>	Not determined.
<b>Viscosity:</b>	
dynamic:	Not applicable.
kinematic:	Not applicable.
<b>9.2 Other information</b>	No further relevant information available.

**SECTION 10: Stability and reactivity**

<b>10.1 Reactivity</b>	No information known.
<b>10.2 Chemical stability</b>	Stable under recommended storage conditions.
<b>Thermal decomposition / conditions to be avoided:</b>	No decomposition if used and stored according to specifications.
<b>10.3 Possibility of hazardous reactions</b>	No dangerous reactions known
<b>10.5 Incompatible materials:</b>	Water/moisture
<b>10.6 Hazardous decomposition products:</b>	Sulphur oxides (SO <sub>x</sub> )

**SECTION 11: Toxicological information**

<b>11.1 Information on toxicological effects</b>	
<b>Acute toxicity:</b>	Harmful if swallowed. The Registry of Toxic Effects of Chemical Substances (RTECS) contains acute toxicity data for components in this product.

**LD/LC50 values that are relevant for classification:**

Oral | LD50 | 300 mg/kg (rat)

<b>Skin irritation or corrosion:</b>	Causes skin irritation.
<b>Eye irritation or corrosion:</b>	Causes serious eye irritation.
<b>Sensitization:</b>	No sensitizing effect known.
<b>Germ cell mutagenicity:</b>	The Registry of Toxic Effects of Chemical Substances (RTECS) contains mutation data for components in this product.
<b>Carcinogenicity:</b>	The Registry of Toxic Effects of Chemical Substances (RTECS) contains tumorigenic and/or carcinogenic and/or neoplastic data for this product.
<b>Reproductive toxicity:</b>	The Registry of Toxic Effects of Chemical Substances (RTECS) contains reproductive data for components in this product.
<b>Specific target organ system toxicity - repeated exposure:</b>	No effects known.
<b>Specific target organ system toxicity - single exposure:</b>	No effects known.
<b>Aspiration hazard:</b>	No effects known.
<b>Experience with humans:</b>	The Registry of Toxic Effects of Chemical Substances (RTECS) contains multiple dose toxicity data for components in this product.
<b>Additional toxicological information:</b>	To the best of our knowledge the acute and chronic toxicity of this substance is not fully known. No classification data on carcinogenic properties of this material is available from the EPA, IARC, NTP, OSHA or ACGIH.

**SECTION 12: Ecological information**

<b>12.1 Toxicity</b>	
<b>Aquatic toxicity:</b>	No further relevant information available.
<b>12.2 Persistence and degradability</b>	No further relevant information available.
<b>12.3 Bioaccumulative potential</b>	No further relevant information available.
<b>12.4 Mobility in soil</b>	No further relevant information available.
<b>Ecotoxicological effects:</b>	
<b>Remark:</b>	Very toxic for fish
<b>Additional ecological information:</b>	
<b>General notes:</b>	Do not allow product to reach ground water, water bodies or sewage system. Do not allow material to be released to the environment without proper governmental permits. Water hazard class 2 (Assessment by list): hazardous for water. Danger to drinking water if even small quantities leak into soil. Also poisonous for fish and plankton in water bodies. May cause long lasting harmful effects to aquatic life. Avoid transfer into the environment. Very toxic for aquatic organisms
<b>12.5 Results of PBT and vPvB assessment</b>	
<b>PBT:</b>	Not applicable.
<b>vPvB:</b>	Not applicable.
<b>12.6 Other adverse effects</b>	No further relevant information available.

**SECTION 13: Disposal considerations**

<b>13.1 Waste treatment methods</b>	
<b>Recommendation</b>	Hand over to disposers of hazardous waste. Must be specially treated under adherence to official regulations. Consult state, local or national regulations for proper disposal.
<b>Uncleaned packagings:</b>	
<b>Recommendation:</b>	Disposal must be made according to official regulations.

**SECTION 14: Transport information**

<b>UN-Number</b>	
<b>ADR, IMDG, IATA</b>	UN3288
<b>14.2 UN proper shipping name</b>	
<b>ADR</b>	3288 TOXIC SOLID, INORGANIC, N.O.S. (Copper(II) sulfate)
<b>IMDG</b>	TOXIC SOLID, INORGANIC, N.O.S. (Copper(II) sulfate), MARINE POLLUTANT
<b>IATA</b>	TOXIC SOLID, INORGANIC, N.O.S. (Copper(II) sulfate)

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DE/E

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**14.3 Transport hazard class(es)**

ADR  
Class  
IMDG

6.1 (T5) Toxic substances.



Class  
Label  
IATA

6.1 Toxic substances.  
6.1



Class  
Label

6.1 Toxic substances.  
6.1

Packing group  
ADR, IMDG, IATA

III

14.5 Environmental hazards:  
Marine pollutant:

Environmentally hazardous substance, solid; Marine Pollutant  
Yes (PP)  
Symbol (fish and tree)

14.6 Special precautions for user  
Kemler Number:

Warning: Toxic substances.  
60

14.7 Transport in bulk according to Annex II of MARPOL73/78 and the IBC  
Code

Not applicable.

Transport/Additional information:

ADR  
Excepted quantities (EQ):  
Limited quantities (LQ)  
Transport category  
Tunnel restriction code

E1  
5 kg  
2  
E

UN "Model Regulation":

UN3288, TOXIC SOLID, INORGANIC, N.O.S. (Copper(II) sulfate), 6.1, III

**SECTION 15: Regulatory information**

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

Australian Inventory of Chemical  
Substances

Substance is listed.

Standard for the Uniform Scheduling of Drugs and Poisons

7758-98-7 Copper(II) sulfate

S5, S6

National regulations

Information about limitation of use:

Employment restrictions concerning young persons must be observed.  
For use only by technically qualified individuals.  
Not applicable

Classification according to VbF:

Technical instructions (air):

Class	Share in %
III	100,0

Water hazard class:

Water hazard class 2 (Assessment by list): hazardous for water.

Other regulations, limitations and prohibitive regulations

ELINCS (European List of Notified Chemical  
Substances)

Substance is not listed.

Substances of very high concern (SVHC)

according to REACH, Article 57

Substance is not listed.

REACH - Pre-registered substances

Substance is listed.

15.2 Chemical safety assessment:

A Chemical Safety Assessment has not been carried out.

**SECTION 16: Other information**

Employers should use this information only as a supplement to other information gathered by them, and should make independent judgement of suitability of this information to ensure proper use and protect the health and safety of employees. This information is furnished without warranty, and any use of the product not in conformance with this Material Safety Data Sheet, or in combination with any other product or process, is the responsibility of the user.

Department issuing data specification sheet: Health, Safety and Environmental Department.

Abbreviations and acronyms:

RID: Règlement international concernant le transport des marchandises dangereuses par chemin de fer (Regulations Concerning the International Transport of Dangerous Goods by Rail)  
ICAO: International Civil Aviation Organization  
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  
PP: Severe Marine Pollutant  
GHS: Globally Harmonized System of Classification and Labelling of Chemicals  
EINECS: European Inventory of Existing Commercial Chemical Substances  
CAS: Chemical Abstracts Service (division of the American Chemical Society)  
VbF: Verordnung über brennbare Flüssigkeiten, Österreich (Ordinance on the storage of combustible liquids, Austria)  
LC50: Lethal concentration, 50 percent  
LD50: Lethal dose, 50 percent