

# Safety Data Sheet

Revision date: 21.07.2022

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

### 1.1 Product identifier

Trade name/designation:	Copper (II) sulphate pentahydrate PURIFIED
Product No.:	23172
CAS No.:	7758-99-8
Other means of identification:	Cupric sulphate pentahydrate

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

Relevant identified uses:	General chemical reagent
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### 1.3 Details of the supplier of the safety data sheet

*Singapore*

#### **VWR Singapore Pte Ltd.**

Street	18 Gul Drive
Postal code/City	Singapore 629468
Telephone	+65 6505 0760
Telefax	+65 6264 3780
E-mail (competent person)	SDS@avantorsciences.com

### 1.4 Emergency phone number

Telephone	+65 (0) 6505 0760 (office hours: 8 am-5 pm)
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## SECTION 2: Hazard identification

### 2.1 Classification of the substance or mixture

Hazard classes and hazard categories	Hazard statements
Acute toxicity, category 4, oral	H302
Serious eye damage, category 1	H318
Hazardous to the aquatic environment, acute, category 1	H400
Hazardous to the aquatic environment, chronic, category 1	H410

### 2.2 Label elements

#### 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	
P280	Wear protective gloves/protective clothing/eye protection/face protection.
P264	Wash ... thoroughly after handling.
P273	Avoid release to the environment.
P270	Do not eat, drink or smoke when using this product.
P301+P312	IF SWALLOWED: Call a POISON CENTER/doctor/.../if you feel unwell.
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.
P501	Dispose of contents/container to ...

### 2.3 Other hazards

This substance does not meet the PBT/vPvB criteria of REACH, Annex XIII.

## SECTION 3: Composition / information on ingredients

### 3.1 Substances

Substance name	Copper (II) sulphate pentahydrate
Molecular formula	$\text{CuSO}_4 \cdot 5\text{H}_2\text{O}$
Molecular weight	249.69 g/mol
CAS No.	7758-99-8

## SECTION 4: First aid measures

### 4.1 Description of first aid measures

#### General information

IF exposed: Immediately call a POISON CENTRE/doctor. If unconscious but breathing normally, place in recovery position and seek medical advice. Never give anything by mouth to an unconscious person or a person with cramps. Change contaminated, saturated clothing. Do not leave affected person unattended.

#### After inhalation

Immediately call a POISON CENTRE/doctor. Remove casualty to fresh air and keep warm and at rest. If breathing is irregular or stopped, administer artificial respiration.

#### In case of skin contact

After contact with skin, wash immediately with plenty of water and soap. Remove contaminated, saturated clothing immediately. In case of skin reactions, consult a physician.

#### After eye contact:

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

#### In case of ingestion

Immediately call a POISON CENTRE/doctor. Do NOT induce vomiting. Rinse mouth thoroughly with water. Give nothing to eat or drink.

#### Self-protection of the first aider

First aider: Pay attention to self-protection!

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

no data available

### 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

The product itself does not burn.

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

**Extinguishing media which must not be used for safety reasons**

no restriction

## 5.2 Special hazards arising from the substance or mixture

In case of fire may be liberated:

Sulphur oxides

## 5.3 Advice for firefighters

DO NOT fight fire when fire reaches explosives.

Special protective equipment for firefighters

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

### Additional information

Do not allow run-off from fire-fighting to enter drains or water courses.

Do not inhale explosion and combustion gases.

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

In case of fire: Evacuate area.

## SECTION 6: Accidental release measures

### 6.1 Personal precautions, protective equipment and emergency procedures

Avoid dust formation.

### 6.2 Environmental precautions

Do not allow to enter into surface water or drains.

### 6.3 Methods and material for containment and cleaning up

Spilled product must never be returned to the original container for recycling. Clean contaminated articles and floor according to the environmental legislation. Collect in closed and suitable containers for disposal.

### 6.4 Additional information

Clear spills immediately.

## SECTION 7: Handling and storage

### 7.1 Precautions for safe handling

Avoid:

Inhalation

Avoid contact with eyes and skin.

Use extractor hood (laboratory).

If handled uncovered, arrangements with local exhaust ventilation have to be used.

If local exhaust ventilation is not possible or not sufficient, the entire working area must be ventilated by technical means.

Protect from moisture.

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

Recommended storage temperature: 15-25°C

Storage class: 10-13

Keep container tightly closed and in a well-ventilated place.

### 7.3 Specific end use(s)

Apart from the uses mentioned in section 1.2 no other specific uses are stipulated.

## SECTION 8: Exposure controls/personal protection

### 8.1 Control parameters

Does not contain substances above concentration limits fixing an occupational exposure limit.

### 8.2 Exposure controls

#### 8.2.1 Appropriate engineering controls

no data available

#### 8.2.2 Personal protection equipment

no data available

##### *Eye/face protection*

no data available

Recommendation: no data available

##### *Skin protection*

no data available

##### By short-term hand contact

Suitable material:	NBR (Nitrile rubber)
Thickness of the glove material:	0,12 mm
Breakthrough time::	> 480 min
Recommended glove articles:	VWR 112-0998

##### By long-term hand contact

Suitable material:	NBR (Nitrile rubber)
Thickness of the glove material:	0,38 mm
Breakthrough time::	> 480 min
Recommended glove articles:	VWR 112-3717 / 112-1381

##### *Respiratory protection*

no data available

Suitable respiratory protection apparatus:	no data available
Recommendation:	no data available
Suitable material:	no data available
Recommendation:	no data available

##### *Additional information*

no data available

#### 8.2.3 Environmental exposure controls

no data available

## SECTION 9: Physical and chemical properties

### 9.1 Information on basic physical and chemical properties

(a) Appearance	
Physical state:	solid
Colour:	blue
(b) Odour:	no data available
(c) Odour threshold:	no data available

#### Safety relevant basic data

(d) pH:	3.5-4.5 (50 g/l; H <sub>2</sub> O; 20 °C)
(e) Melting point/freezing point:	110 °C
(f) Initial boiling point and boiling range:	150 °C (1013 mmHg)
(g) Flash point:	no data available
(h) Evaporation rate:	no data available
(i) Flammability (solid, gas):	not applicable
(j) Flammability or explosive limits	
Lower explosion limit:	no data available
Upper explosion limit:	no data available
(k) Vapour pressure:	no data available
(l) Vapour density:	no data available
(m) Density:	2.284 g/cm <sup>3</sup> (20 °C)
(n) Solubility(ies)	
Water solubility:	317 g/l (20 °C)
(o) Partition coefficient: n-octanol/water:	no data available
(p) Auto-ignition temperature:	no data available
(q) Decomposition temperature:	110 °C (1013 hPa)
(r) Viscosity	
Kinematic viscosity:	no data available
Dynamic viscosity:	no data available
(s) Explosive properties:	not applicable
(t) Oxidising properties:	not applicable
(u) Particle characteristics:	not applicable - no nanoform/not combustible

### 9.2 Other information

Bulk density:	no data available
Refraction index:	no data available
Dissociation constant:	no data available
Surface tension:	no data available
Henry's Law Constant:	no data available

## SECTION 10: Stability and reactivity

### 10.1 Reactivity

no data available

## 10.2 Chemical stability

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

## 10.3 Possibility of hazardous reactions

no data available

## 10.4 Conditions to avoid

no data available

## 10.5 Incompatible materials

no data available

## 10.6 Hazardous decomposition products

no data available

## 10.7 Additional information

no data available

# SECTION 11: Toxicological information

## 11.1 Information on toxicological effects

### Acute effects

*Acute oral toxicity:*

LD50: > 960 mg/kg - Rat - (HSDB)

LDLo: > 1088 mg/kg - Human - (RTECS)

*Acute dermal toxicity:*

LD50: < 2000 mg/kg - Rat - (RTECS)

*Acute inhalation toxicity:*

no data available

### Irritant and corrosive effects

*Primary irritation to the skin:*

not applicable

*Irritation to eyes:*

Causes serious eye damage.

*Irritation to respiratory tract:*

not applicable

**Respiratory or skin sensitisation**

In case of skin contact: not sensitising

After inhalation: not sensitising

**STOT-single exposure**

not applicable

**STOT-repeated exposure**

not applicable

**CMR effects (carcinogenicity, mutagenicity and toxicity for reproduction)****Carcinogenicity**

No indication of human carcinogenicity.

**Germ cell mutagenicity**

No indications of human germ cell mutagenicity exist.

**Reproductive toxicity**

No indications of human reproductive toxicity exist.

**Aspiration hazard**

not applicable

**Other adverse effects**

no data available

**Additional information**

no data available

## SECTION 12: Ecological information

### 12.1 Ecotoxicity

**Fish toxicity:**

LC50: 0.31 mg/l (96 h)

**Daphnia toxicity:**

LC50: 0.07 mg/l (48 h)

EC50: 0.06 mg/l (48 h)

**Algae toxicity:**

EC50: 0.07 mg/l (72 h)

**Bacteria toxicity:**

no data available

### 12.2 Persistence and degradability

no data available

### 12.3 Bioaccumulative potential

Partition coefficient: n-octanol/water: no data available



#### 12.4 Mobility in soil:

no data available

#### 12.5 Results of PBT/vPvB assessment

not applicable

#### 12.6 Other adverse effects

no data available

### SECTION 13: Disposal considerations

#### 13.1 Waste treatment methods

##### Appropriate disposal / Product

Dispose according to local legislation. Consult the appropriate local waste disposal expert about waste disposal.

Waste code product: 160507

##### Appropriate disposal / Package

Dispose according to local legislation. Handle contaminated packages in the same way as the substance itself.

##### Additional information

no data available

### SECTION 14: Transport information

#### Land transport (ADR/RID)

14.1	UN-No.:	3077
14.2	Proper Shipping Name:	ENVIRONMENTALLY HAZARDOUS SUBSTANCE, SOLID, N.O.S. (COPPER SULPHATE PENTAHYDRATE)
14.3	Class(es):	9
	Classification code:	M7
	Hazard label(s):	9
14.4	Packing group:	III
14.5	Environmental hazards:	Dangerous for the environment
14.6	Special precautions for user:	
	Hazard identification number (Kemler No.):	90
	tunnel restriction code:	-

#### Sea transport (IMDG)

14.1	UN-No.:	3077
14.2	Proper Shipping Name:	ENVIRONMENTALLY HAZARDOUS SUBSTANCE, SOLID, N.O.S. (COPPER SULPHATE PENTAHYDRATE)
14.3	Class(es):	9
	Classification code:	
	Hazard label(s):	9

14.4	Packing group:	III
14.5	Environmental hazards:	Dangerous for the environment
	Marine pollutant:	Yes (PP)
14.6	Special precautions for user:	
	Segregation group:	-
	EmS-No.	F-A S-F
14.7	Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code	
	not relevant	

#### Air transport (ICAO-TI / IATA-DGR)

14.1	UN-No.:	3077
14.2	Proper Shipping Name:	ENVIRONMENTALLY HAZARDOUS SUBSTANCE, SOLID, N.O.S. (COPPER SULPHATE PENTAHYDRATE)
14.3	Class(es):	9
	Classification code:	
	Hazard label(s):	9+ENV
14.4	Packing group:	III
14.5	Special precautions for user:	

## SECTION 15: Regulatory information

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

#### National regulations

- Workplace Safety and Health Act
- Workplace Safety and Health (Permissible Exposure Levels of Toxic Substances) Order
- Environmental Protection and Management Act (EPMA) - Second Schedule, Part 1, Control of Hazardous Substances
- Maritime and Port Authority of Singapore (MPA) - Dangerous Goods, Petroleum and Explosives Regulations

## SECTION 16: Other information

#### Abbreviations and acronyms

ACGIH - American Conference of Governmental Industrial Hygienists  
ADR - European Agreement concerning the International Carriage of Dangerous Goods by Road  
AGS - Committee on Hazardous Substances (Ausschuss für Gefahrstoffe)  
CLP - Regulation on Classification, Labelling and Packaging of Substances and Mixtures  
DFG - German Research Foundation (Deutsche Forschungsgemeinschaft)  
DNEL - Derived No Effect Level  
Gestis - Information system on hazardous substances of the German Social Accident Insurance (Gefahrstoffinformationssystem der Deutschen Gesetzlichen Unfallversicherung)  
IATA-DGR - International Air Transport Association-Dangerous Goods Regulations  
ICAO-TI - International Civil Aviation Organization-Technical Instructions  
IMDG - International Maritime Code for Dangerous Goods  
KOSHA - Korea Occupational Safety and Health Agency  
LTV - Long Term Value  
NIOSH - National Institute for Occupational Safety and Health  
OSHA - Occupational Safety & Health Administration  
PBT - Persistent, Bioaccumulative and Toxic  
PNEC - Predicted No Effect Concentration  
RID - Regulation concerning the International Carriage of Dangerous Goods by Rail  
STV - Short Term Value  
SVHC - Substances of Very High Concern  
vPvB - very Persistent, very Bioaccumulative

#### Key literature references and sources for data

This Safety Data Sheet has been prepared based on information available for public as TOXNET information, European Chemicals Agency (ECHA) substance dossier, papers from international cancer research institutes (IARC Monographs), U.S. National Toxicology Program data, U.S. Agency for Toxic Substances and Disease Control (ATSDR), PubChem websites and SDS from our raw material manufacturers.

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**Additional information**

## Indication of changes

Section 7.1: Introduction of general occupation hygienic measures  
Section 8: Update of NOEL data  
Section 9: Introduction of particle characteristics  
Section 16: Introduction of safety training advice  
Section 16: Introduction of key literature references and sources of data

If you need an explanation of the change, contact the supplier (SDS@avantorsciences.com).

*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 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.*