

According to Regulation (EC) No 1907/2006

According to Regulation (EC) No 2020/878

Copper (II) sulfate anhydrous

Version number: 2.0

Issued: 2024-04-03



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

1.1. Product identifier

Trade name

Copper (II) sulfate anhydrous

CAS number

7758-98-7

EC number

231-847-6

Index No.

029-004-00-0

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

Relevant identified uses

Research and development. Laboratory Chemicals. Manufacture of substances.

Not suitable for use in

Not suitable for human consumption or veterinary purposes.

1.3. Details of the supplier of the safety data sheet

Supplier

Molekula Group

Address

Molekula Ltd, Lingfield Way, Darlington,
DL1 4XX Darlington
United Kingdom

Telephone

+44 (0) 3302 000 333

Email

info@molekula.com

Web site

www.molekula.com

Contact person

Kevin Banks

Email

+44 (0) 7769276927

1.4. Emergency telephone number

Poison center/Additional emergency number

0344 892 0111 - National Poisons Information Service (Newcastle Centre)

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SECTION 2: Hazards identification

2.1. Classification of the substance or mixture

Classification according to Regulation (EC) No 1272/2008

Classification

Acute toxicity, oral, hazard category 4

Skin irritation, hazard category 2

Serious eye damage, hazard category 1

Hazardous to the aquatic environment — Acute hazard category 1

Hazardous to the aquatic environment — Chronic hazard category 1

Hazard statements

H302, H315, H318, H400, H410

2.2. Label elements

Labelling according to Regulation (EC) No 1272/2008

Hazard pictograms



Signal word

Danger

Hazard statements

H302 Harmful if swallowed.

H315 Causes skin irritation.

H318 Causes serious eye damage.

H410 Very toxic to aquatic life with long lasting effects.

Precautionary statements

P264 Wash skin thoroughly after handling.

P273 Avoid release to the environment.

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

P301 + P312 IF SWALLOWED: Call a POISON CENTER/doctor if you feel unwell.

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

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

P333 +P313 If skin irritation or rash occurs: Get medical advice/attention.

P337 + P313 If eye irritation persists: Get medical advice/attention.

P391 Collect spillage.

P405 Store locked up.

2.3. Other hazards

No data available

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SECTION 3: Composition/information on ingredients

3.1. Substances

| Chemical name | CAS No. EC No. REACH No. Index No. | Concentration | Classification | H-phrase M factor acute M factor chronic | Note |
|-----------------|--|---------------|--|---|------|
| copper sulphate | 7758-98-7 231-847-6 01-2119520566-40 029-004-00-0 | 100% | Acute Tox. 4 - oral, Skin Irrit. 2, Eye Dam. 1, Aquatic Acute 1, Aquatic Chronic 1 | H302, H315, H318, H400, H410 M-acut=10 M-chro=1 | - |

Molecular weight

159.61

Substance additional information

For the complete text of H- / EUH-statements mentioned in this section, see section 16.

SECTION 4: First aid measures

4.1. Description of first aid measures

Get medical attention if any discomfort continues. Show this Safety Data Sheet (SDS) to medical personnel.

Inhalation

IF INHALED: Remove person to fresh air and keep comfortable for breathing. In case of persistent throat irritation or coughing: Seek medical attention and bring these instructions.

Skin contact

IF ON SKIN: Wash with plenty of water. Continue to rinse for at least 15 minutes and seek medical attention. Get medical advice/attention if you feel unwell.

Eye contact

Remove contact lenses if present. Rinse eyes with water. Continue to rinse for at least 15 minutes and seek medical attention.

Ingestion

IF SWALLOWED: Rinse mouth. Do NOT induce vomiting. Get medical advice/attention if you feel unwell.

Information for doctors

First aiders/ medical personnel need to protect themselves.

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

The severity of the symptoms described will vary dependant of the concentration and the length of exposure.

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Inhalation

Single exposure may cause the following adverse effects: Upper respiratory irritation.

Skin contact

Single exposure may cause the following adverse effects: May cause skin irritation/eczema.

Eye contact

Single exposure may cause the following adverse effects: May cause temporary blindness and severe eye damage.

Ingestion

Single exposure may cause the following adverse effects: Nausea, vomiting.

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

Treat symptomatically. No special treatment requirement.

SECTION 5: Firefighting measures

5.1. Extinguishing media

Suitable extinguishing media

In case of fire: Use foam, carbon dioxide, dry powder or water fog to extinguish.

Unsuitable extinguishing media

No specific fire fighting procedure given.

5.2. Special hazards arising from the substance or mixture

Specific hazards: None.

Thermal decomposition or combustion may liberate carbon oxides and other toxic gases or vapours.

Sulphurous gases (SO_x). Oxides of: Copper.

5.3. Advice for firefighters

Special protective equipment for fire-fighters

Evacuate area. Avoid breathing gas, fume, vapours or spray. Cool containers exposed to heat with water spray and remove container, if no risk is involved.

SECTION 6: Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures

Avoid breathing dust/fume/gas/mist/vapours/spray. Provide adequate ventilation. Avoid contact with skin and eyes. For personal protection, see section 8.

6.2. Environmental precautions

Avoid discharge into drains, water courses or onto the ground.

6.3. Methods and material for containment and cleaning up

Collect spillage with shovel, broom or the like and reuse, if possible. Dispose of large amounts of spillage/waste according to agreement with local authorities.

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6.4. Reference to other sections

For personal protection, see section 8. For waste disposal, see section 13.

SECTION 7: Handling and storage

7.1. Precautions for safe handling

Preventive handling precautions

For precautions see section 2.2. Wear protective clothing, gloves, eye and face protection. Avoid contact with skin and eyes. Do not breathe dust/fume/gas/mist/vapours/spray. Avoid ingestion and inhalation.

General hygiene

Observe good chemical hygiene practices. Keep away from food, drink and animal feeding stuffs. Do not eat, drink or smoke when using this product. Remove contaminated clothing and launder thoroughly before re-use. Wash skin thoroughly after handling.

7.2. Conditions for safe storage, including any incompatibilities

Store at ambient temperature. Store in a dry place. Store in a closed container.

Air sensitive. Hygroscopic. Handle and store contents under inert gas.

7.3. Specific end use(s)

No specific usage precautions noted.

SECTION 8: Exposure controls/personal protection

8.1. Control parameters

National occupational exposure limits

| Ingredient | CAS No. EC No. | Exposure limit ppm / mg/m ³ | Short-term exposure limit ppm / mg/m ³ | Source | Remark | Year |
|-----------------------------|-------------------|---|---|--------|--------------|------|
| copper sulphate penthydrate | 7758-99-8 | - | - | - | UK. EH40 WEL | - |
| | 231-847-6 | - | 2 | | | |

DNEL/DMEL

| Product/Substance name (CAS No./EC No.) | Type | Exposure | Value | Population | Effects |
|--|------|-----------------------------|------------------|------------|----------|
| copper sulphate penthydrate (7758-99-8/231-847-6) | DNEL | Chronic (long term) Oral | 0.4 mg/kg bw/day | Workers | Systemic |

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8.2. Exposure controls

Personal Protective Equipment Symbols



Eye / face protection

Wear eye protection.

Hand protection

Wear protective gloves.

Recommended gloves: Nitrile.

Glove Thickness: 0.11mm

Breakthrough time: 8 hours

Always inspect gloves before use. If signs of wear and tear are noticed then the gloves should be replaced.

No specific hygiene procedures noted, but good personal hygiene practices are always advisable, especially when working with chemicals. Wash contaminated skin thoroughly after handling.

Other skin protection

Wash skin thoroughly after handling.

Respiratory protection

Provide adequate ventilation. If ventilation is insufficient, suitable respiratory protection must be provided.

Environmental exposure controls

Avoid discharge into drains.

SECTION 9: Physical and chemical properties

9.1. Information on basic physical and chemical properties

Physical state

Crystalline powder.

Colour

Light blue.

Odour

No data available

Melting point / freezing point

No data available

Boiling point or initial boiling point and boiling range

No data available

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Flammability

No data available

Lower and upper explosion limit

No data available

Flash point

No data available

Auto-ignition temperature

No data available

Decomposition temperature

No data available

pH

3.5 - 4.5

Method

50g/l, (20°C)

Kinematic viscosity

No data available

Solubility

Soluble in water.

Method

22g/ 100ml (25°C)

Partition coefficient n-octanol/water

No data available

Vapour pressure

No data available

Density and/or relative density

3.603 g/cm³

Relative vapour density

No data available

Particle characteristics

No data available

9.2. Other information

No data available

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SECTION 10: Stability and reactivity

10.1. Reactivity

No data available

10.2. Chemical stability

Stable under the prescribed storage conditions.

10.3. Possibility of hazardous reactions

Exothermic reaction with:
 hydroxylamine
 Magnesium.
 Strong oxidising agents.

10.4. Conditions to avoid

Water, moisture.

10.5. Incompatible materials

hydroxylamine Magnesium. Strong oxidising agents. Water.

10.6. Hazardous decomposition products

See section 5.

SECTION 11: Toxicological information

11.1. Information on hazard classes as defined in Regulation (EC) No 1272/2008

Acute toxicity

| Product / Substance name CAS / EC no. | Dose descriptor | Value / Dose | Test animals | Remarks |
|--|-------------------------------|--------------|--------------|--|
| copper sulphate penthydrate 7758-99-8 / 231-847-6 | Acute Toxicity (Oral LD50): | 481mg/kg | Rat | (anhydrous substance) (External MSDS) |
| copper sulphate penthydrate 7758-99-8 / 231-847-6 | Acute Toxicity (Dermal LD50): | > 2,000mg/kg | Rat | (anhydrous substance) (External MSDS) |

Skin corrosion/irritation

| Product / Substance name CAS / EC no. | Result |
|--|------------------------------|
| copper sulphate penthydrate 7758-99-8 / 231-847-6 | Causes mild skin irritation. |

Serious eye damage/irritation

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| Product / Substance name CAS / EC no. | Result | Species | Method / Guideline |
|--|----------------------------|---------|--------------------|
| copper sulphate penthydrate 7758-99-8 / 231-847-6 | Causes serious eye damage. | Rabbit | (External MSDS) |

Respiratory or skin sensitisation

| Product / Substance name CAS / EC no. | Result | Species | Method / Guideline |
|--|-----------|------------|--------------------|
| copper sulphate penthydrate 7758-99-8 / 231-847-6 | Negative. | Guinea Pig | (External MSDS) |

Aspiration hazard

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

11.2. Information on other hazards

No data available

SECTION 12: Ecological information

12.1. Toxicity

Acute fish toxicity

| Product / Substance name CAS / EC no. | Measurement type | Value / Result | Duration of exposure | Species |
|--|------------------|----------------|----------------------|---|
| copper sulphate penthydrate 7758-99-8 / 231-847-6 | LC50 | 0.032mg/l | 96 hours | Onchorhynchus mykiss (Rainbow trout) |

Acute crustacean toxicity

| Product / Substance name CAS / EC no. | Measurement type | Value / Result | Duration of exposure | Species |
|--|------------------|----------------|----------------------|---------------|
| copper sulphate penthydrate 7758-99-8 / 231-847-6 | EC50 | 0.092mg/l | hours 48 | Daphnia magna |

12.2. Persistence and degradability

No data available

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12.3. Bioaccumulative potential

No data available

12.4. Mobility in soil

No data available

12.5. Results of PBT and vPvB assessment

No data available

12.6. Endocrine disrupting properties

This product does not contain any known or suspected endocrine disruptors.

12.7. Other adverse effects

No data available

SECTION 13: Disposal considerations

13.1. Waste treatment methods

Disposal considerations

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

SECTION 14: Transport information

14.1. UN number

3077

14.2. UN proper shipping name

ADR / RID / ADN proper shipping name

ENVIRONMENTALLY HAZARDOUS SUBSTANCE, SOLID, N.O.S. (Copper (II) sulfate pentahydrate)

IMDG proper shipping name

ENVIRONMENTALLY HAZARDOUS SUBSTANCE, SOLID, N.O.S. (Copper (II) sulfate pentahydrate)

IATA proper shipping name

Environmentally hazardous substance, solid, n.o.s. (Copper (II) sulfate pentahydrate)

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14.3. Transport hazard class(es)

Label

ADR/RID/ADN



9 Environmental hazard

IMDG



9

IATA



9 Environmental hazard

ADR / RID Class

9

ADR / RID Classification code

M7

ADR / RID hazard identification number

90

IMDG Class

9

IATA Class

9

ADN Class

9

ADN Class Code

M7

14.4. Packing group

ADR / RID / ADN: III

IMDG: III

IATA: III

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14.5. Environmental hazards

Environmental hazards

ADR/RID/ADN: Hazardous for the environment

14.6. Special precautions for user

Special precautions for user

Tunnel restriction code: -

Transport category: 3

IMDG EmS

F-A, S-F

14.7. Maritime transport in bulk according to IMO instruments

IBC Instruction: IBC08

SECTION 15: Regulatory information

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

EU regulations

This material safety data sheet complies with the requirements of Regulation (EC) No. 1907/2006.

This material safety data sheet complies with the requirements of Regulation (EU) 2020/878.

National regulations

No data available

15.2. Chemical safety assessment

No data available

SECTION 16: Other information

Phrase meaning

Acute Tox. 4 - oral - Acute toxicity, oral, hazard category 4

Skin Irrit. 2 - Skin irritation, hazard category 2

Eye Dam. 1 - Serious eye damage, hazard category 1

Aquatic Acute 1 - Hazardous to the aquatic environment — Acute hazard category 1

Aquatic Chronic 1 - Hazardous to the aquatic environment — Chronic hazard category 1

H302 Harmful if swallowed.

H315 Causes skin irritation.

H318 Causes serious eye damage.

H400 Very toxic to aquatic life.

H410 Very toxic to aquatic life with long lasting effects.