



SAFETY DATA SHEET

93.0%

COPPER SULPHATE

SECTION 1: IDENTIFICATION OF THE SUBSTANCE/MIXTURE AND OF THE COMPANY/UNDERTAKING

1.1. PRODUCT IDENTIFIER

Product name: Copper Sulphate
Product No.: COP
CAS-No.: 7758-99-8
EC No.: 231-847-6
REACH No.: 01-2119520566-40
Synonym: Cupric sulphate, Sulphuric acid, Copper salt, Blue vitriol, Bluestone, Sulfate de cuivre, Kupfersulfat Pentahydrat
Chemical Formula: $\text{CuSO}_4 \cdot 5\text{H}_2\text{O}$

1.2. RELEVANT IDENTIFIED USES OF THE SUBSTANCE OR MIXTURE AND USES ADVISED AGAINST

Recommended use: In agriculture as a soil additive, pesticide, feed additive;
As a germicide;
Leather and textile mordant;
As a pigment;
In electroplating and electro refining of copper;
In medicine;
As a wood and pulp preservative;
Engraving and lithography;
In mining ore treatment;
In steel and rubber processing.

1.3. DETAILS OF THE SUPPLIER OF THE SAFETY DATA SHEET

HD Chemicals LTD
UNIT 9 Scott Business Park
PL2 2PB Plymouth UK

Contact Person responsible for SDS: Mr Peter Konefal, e-mail: contact@hdchemicals.co.uk

SECTION 2: HAZARDS IDENTIFICATION

2.1. CLASSIFICATION OF THE SUBSTANCE OR MIXTURE

Classification 67/548/EEC:

Xn; R22

Xi; R36, R38

N; R50-R53

Classification – EC 1272/2008:

Acute Oral Toxicity; Category 4 (H302)

Skin Corrosion/irritation; Category 2 (H315)

Serious Eye Damage/Irritation; Category 2A (H319)

Aquatic Chronic; Category 1 (H410)

2.2. LABEL ELEMENTS

**SIGNAL WORDS**

Danger

RISK PHRASES

R22	Harmful if swallowed
R36	Irritating to eyes
R38	Irritating to skin
R50	Very toxic to aquatic organisms
R51	Toxic to aquatic organisms
R52	Harmful to aquatic organisms
R53	May cause long-term adverse effects in the aquatic environment

**HAZARD PHRASES**

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

PROTECTION PHRASES

P273	Avoid release to the environment
P305+P351+P338	IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing
P501	Dispose of contents/container to comply with local, state and federal regulations

SAFETY PHRASES

S22	Do not breathe dust
S26	In case of contact with eyes, rinse immediately with plenty of water and seek medical advice
S60	This material and its container must be disposed of as hazardous waste
S61	Avoid release to the environment. Refer to special instructions/safety data sheet

SECTION 3: COMPOSITION/INFORMATION ON INGREDIENTS

67/548/EEC/1999/45/EC

Composition information – main constituents

Substance name	Mol. Formula	REACH	Typical conc. (%w/w)	EINECS No.	CAS-No.	Classification
Copper Sulphate	CuSO ₄ 5H ₂ O	01- 2119520566- 40	93.0%	231-847-6	7758-99-8	Xn; R22, Xi; R36, R38, N; R50-R53



EC 1272/2008

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SECTION 4: FIRST AID MEASURES**4.1. DESCRIPTION OF FIRST AID MEASURES**

First-aid measures general: If symptoms persist, call a physician.

Inhalation: Move affected person to fresh air and keep warm and at rest in a position comfortable for breathing. If breathing stops, provide artificial respiration. Get medical attention if any discomfort continues.

Ingestion: DO NOT INDUCE VOMITING. Rinse mouth thoroughly with water. Place unconscious person on the side in the recovery position and ensure breathing can take place. Get medical attention if any discomfort continues.

Skin contact: Take off contaminated clothes and wash with soap and plenty of water all the contaminated parts of the body. In case of irritation seek medical advice.

Eye contact: Rinse immediately with plenty of water for 15 minutes holding the eyelids open. Seek medical attention.

4.2. MOST IMPORTANT SYMPTOMS AND EFFECTS, BOTH ACUTE AND DELAYED

Inhalation: Breathing in dust may result in respiratory irritation. Cough.

Ingestion: Swallowing can result in nausea, vomiting and diarrhea.

Skin contact: Causes slight to moderate irritation. Localised redness.

Eye contact: Risk of serious damage to eyes. Risk of blindness.

4.3. INDICATION OF ANY IMMEDIATE MEDICAL ATTENTION AND SPECIAL TREATMENT NEEDED

Treat symptomatically.



SECTION 5: FIREFIGHTING MEASURES

5.1. EXTINGUISHING MEDIA

Suitable extinguishing media: The product is no flammable. Use extinguishing measures that are appropriate to local circumstances and the surrounding environment. Water spray, carbon dioxide (CO₂), dry chemical, alcohol-resistant foam.

Unsuitable extinguishing media: Do not use water jet.

5.2. SPECIAL HAZARDS ARISING FROM THE SUBSTANCE OR MIXTURE

Thermal decomposition can lead to release of irritating gases and vapours. Do not allow run-off from fire-fighting to enter drains or water courses.

5.3. ADVICE FOR FIRE-FIGHTERS

Wear positive-pressure self-contained breathing apparatus (SCBA) and appropriate protective clothing. Firefighter's clothing conforming to European standard EN469 (including helmets, protective boots and gloves) will provide a basic level of protection.

SECTION 6: ACCIDENTAL RELEASE MEASURES

6.1. PERSONAL PRECAUTIONS, PROTECTIVE EQUIPMENT AND EMERGENCY PROCEDURES

Protect adequately all the body parts. The air passages must be protected (suitable filter mask) if the material is in microcrystals form (higher probability that the product forms dust). Keep away unauthorized people, children and animals.

6.2. ENVIRONMENTAL PRECAUTIONS

Use sand or soil to contain the loss of product. Avoid the possibility that significant quantities of product can enter water courses or sewer; if this should happen advise immediately the local competent authority.

6.3. METHODS AND MATERIAL FOR CONTAINMENT AND CLEANING UP

Ensure adequate ventilation. This product can pose a threat to the environment. Collect powder using special dust vacuum cleaner with particle filter or carefully sweep into suitable waste disposal containers and seal securely. Label the containers containing waste and contaminated materials and remove from the area as soon as possible.



SECTION 7: HANDLING AND STORAGE

7.1. PRECAUTIONS FOR SAFE HANDLING

Wear personal protective equipment/face protection. Ensure adequate ventilation of the working area. Avoid dust formation. Do not get in eyes, on skin, or on clothing. Avoid ingestion and inhalation. Do not eat, drink and smoke during use. After use keep the packaging well closed.

For precautions see section 2.2.

7.2. CONDITIONS FOR SAFE STORAGE, INCLUDING ANY INCOMPATIBILITIES

Keep in sealed containers away from humidity and sunlight. Store the product in a well ventilated warehouse away from flammable product. Keep out of the reach of children, animal and unauthorized people. Keep away from food, drink and feeding stuff.

7.3. SPECIFIC END USE(S)

See section 1.2.

SECTION 8: EXPOSURE CONTROLS/PERSONAL PROTECTION

8.1. CONTROL PARAMETERS/EXPOSURE GUIDELINES

Occupational Exposure Limit Values (Copper Sulphate):

CAS NO	Exposure limit	Value	Name of Agent
7758-99-8	TWA – 8 Hrs	1 mg/m ³	dust
7758-99-8	STEL – 15 Min	2 mg/m ³	dust

Engineering controls:

Ensure that eyewash stations and safety showers are close to the workstation location. Ensure adequate ventilation, especially in confined areas. Wherever possible, engineering control measures such as the isolation or enclosure of the process, the introduction of process or equipment changes to minimise release or contact, and the use of properly designed ventilation systems, should be adopted to control hazardous materials at source.



EYE PROTECTION



FACE SHIELD



RESPIRATOR



PROTECTION WEAR



HAND PROTECTION

- Protective equipment:** Use protective goggles (European standard - EN 166), gloves (European standard - EN 374) and long sleeved clothing.
- Respiratory equipment:** Respiratory protection may be required if excessive airborne contamination occurs. Large Spillages: Wear a full facepiece respirator fitted with the following cartridge: Particulate filter, type P3. Full face mask respirators with replaceable filter cartridges should comply with European Standard EN 136.
- Skin and body protection:** Wear suitable protective clothing as protection against splashing or contamination. Wear suitable gloves. Chemical protection gloves are suitable, which are tested according to EN 374.
- Eye/Face protection:** The following protection should be worn: Dust-resistant, chemical splash goggles. Personal protective equipment for eye and face protection should comply with European Standard EN 166.

SECTION 9: PHYSICAL AND CHEMICAL PROPERTIES

9.1. INFORMATION ON BASIC PHYSICAL AND CHEMICAL PROPERTIES

Appearance:	Crystals
Colour:	Blue
Odour:	Odourless
Initial boiling point (°C):	No data available
Melting point (°C):	110°C
Freezing point:	No data available
Relative density:	2.286 g/cm ³



Specific gravity / density:	Not available
Vapour density:	Not available
Vapour pressure:	Not available
Flash point (°C):	Not available
Molecular mass:	249.69 g/mol
Auto-ignition temperature:	Not applicable
Oxidizing properties:	Not available
Decomposition temperature:	Not available
Molecular formula:	$\text{CuSO}_4 \cdot 5\text{H}_2\text{O}$

SECTION 10: STABILITY AND REACTIVITY

10.1. REACTIVITY

This material is not reactive under normal ambient conditions.

10.2. CHEMICAL STABILITY

Copper Sulphate is stable under normal temperature conditions and under recommended usage and storage.

10.3. POSSIBILITY OF HAZARDOUS REACTIONS

The material is acidic when dissolved in water and can react with magnesium to form hydrogen gas.

10.4. CONDITIONS TO AVOID

Avoid heat, dust generation. Keep away from foodstuffs.

10.5. INCOMPATIBLE MATERIALS

Incompatible with finely powdered metals, steel, nitromethane, hydrazine, hydroxyl amine and magnesium.

10.6. HAZARDOUS DECOMPOSITION

Decomposition takes place from temperatures above 110 °C. Oxides of copper. Oxides of sulfur.



SECTION 11: TOXICOLOGICAL INFORMATION

11.1. INFORMATION ON TOXICOLOGICAL EFFECTS

TOXIC DOSE LD50 Oral – Rat – 300 mg/kg
LD50 Dermal – Rat – > 2 mg/kg

Inhalation: Breathing in dust may result in respiratory irritation. Cough.
Ingestion: Swallowing can result in nausea, vomiting and diarrhea.
Skin contact: Causes slight to moderate irritation. Localised redness.
Eye contact: Risk of serious damage to eyes. Risk of blindness.

SECTION 12: ECOLOGICAL INFORMATION

12.1. TOXICITY

Aquatic Toxicity:

Toxicity to fish: LC50: 0.032 mg/l, 96h (Rainbow trout)
Toxicity to aquatic: EC50: 0.24 mg/l, 48h (Water flea)
EC50: 0.18 mg/l, 48h (Daphnia magna)

12.2. PERSISTENCE AND DEGRADABILITY

The copper ions resulting from the degradation of this product cannot be degraded.

12.3. BIOACCUMULATIVE POTENTIAL

May have some potential to bioaccumulate.

12.4. MOBILITY

The product is water soluble, and may spread in water systems Will likely be mobile in the environment due to its water solubility. Highly mobile in soils.

12.5. RESULTS OF PBT AND VPVB ASSESSMENT

No data available.



12.6. OTHER ADVERSE EFFECTS

No data available.

SECTION 13: DISPOSAL CONSIDERATIONS

Waste disposal recommendations: Disposal of copper sulphate should be in accordance with local and national legislation. Processing, use or contamination of this product may change the waste management options. Should not be released into the environment. Dispose of container and unused contents in accordance with applicable member state and local requirements. Waste is classified as hazardous. Dispose of in accordance with the European Directives on waste and hazardous waste. Dispose of in accordance with local regulations.

Uncleaned packaging: Disposal must be made according to official regulations.

SECTION 14: TRANSPORT INFORMATION

IMDG

UN number	3077
UN proper shipping name	Environmentally hazardous substance, solid, n.o.s.
Transport hazard class(es)	9
Packing group	III

ADR/RID

UN number	3077
UN proper shipping name	Environmentally hazardous substance, solid, n.o.s.
Transport hazard class(es)	9
Packing group	III

IATA

UN number	3077
UN proper shipping name	Environmentally hazardous substance, solid, n.o.s.
Transport hazard class(es)	9
Packing group	III



SECTION 15: REGULATORY INFORMATION

15.1. SAFETY, HEALTH AND ENVIRONMENTAL REGULATIONS/LEGISLATION SPECIFIC FOR THE SUBSTANCE OR MIXTURE

EU legislation:

Regulation (EC) No 1907/2006 of the European Parliament and of the Council of 18 December 2006 concerning the Registration, Evaluation, Authorisation and Restriction of Chemicals (REACH) (as amended).

Regulation (EC) No 1272/2008 of the European Parliament and of the Council of 16 December 2008 on classification, labelling and packaging of substances and mixtures (as amended).

Commission Regulation (EU) 2016/1179 amending, for the purposes of its adaptation to technical and scientific progress, Regulation (EC) No 1272/2008 of the European Parliament and of the Council on classification, labelling and packaging of substances and mixtures.

15.2 CHEMICAL SAFETY ASSESSMENT

Chemical safety Assessment has been carried out for this substance.

SECTION 16: OTHER INFORMATION

General information

The information contained in this safety data sheet is provided in accordance with the requirements of the regulations. The product should not be used for purposes other than those shown in section 1 without first referring to the supplier and obtaining written handling instruction. As the specific conditions of use of the product are outside the suppliers control, the user is responsible for ensuring that the requirements of relevant legislation are complied with.

Revision Comments

This information is provided in a revised format to that previously produced.

Revision Date: 01/10/2018

Revision: 01

Safety Data Sheet Status Approved.

Date printed 01/10/2018

Signature Initials P.K.



DISCLAIMER:

If this product is re-distributed and re-formulated for sale, details of its hazards and recommended methods for safe handling must be passed to customers. Customers are urged to ensure that the product is entirely suitable for their own purpose. It is the customer's responsibility to ensure that a suitable and sufficient assessment of the risks created by a work activity using this product is undertaken before this product is used.

NOTE:

The information contained in this Safety Data Sheet does not constitute the users own assessment of workplace risk as required by other Health & Safety Legislation (e.g. the Health and Safety at Work Act,1974;the control of Substances Hazardous to Health Regulations,1988). The data given here is based on current knowledge and experience. The purpose of this data sheet is to describe the products in terms of their safety requirements. The data does not signify any warranty with regard to the product's properties.