

Material Safety Data Sheet

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Infosafe No. 1CH2B Issue Date : May 2004 RE-ISSUED by CHEMSUPP

Product Name : **COPPER (II) SULFATE Pentahydrate**

1. IDENTIFICATION OF THE SUBSTANCE/PREPARATION AND COMPANY/UNDERTAKING

Product Name COPPER (II) SULFATE Pentahydrate
Product Use Used in agriculture as a soil additive, pesticide, fungicide, bactericide, algicide and herbicide, Bordeaux mixture, feed and fertiliser additive, germicide, textile mordant, tanning leather, preserving hides, pigments, dyes, electric batteries, electroplated coatings, medicine, wood and pulp preservative, engraving, lithography, ore flotation, steel manufacture, synthetic rubber, asphalt treatment, petroleum refining, copper salts, pyrotechnic compositions, antirusting compositions for radiator and heating systems, water-resistant adhesives for wood, analytical reagent and laboratory reagent.

Company Name CHEM-SUPPLY PTY LTD (ABN 19 008 264 211)

Address 50 Bedford Street GILLMAN
SA 5013 Australia

Telephone Number/Fax Tel: (08) 8440-2000 Fax: (08) 8440-2001

Other Names

<u>Name</u>	<u>Product Code</u>
COPPER (II) SULFATE Pentahydrate Fine Granular LR	CL068
COPPER (II) SULFATE Pentahydrate Fine Granular AR	CA068
Blue copperas	
Blue stone	
Blue vitriol	
Copper sulfate	
Cupric sulfate	
COPPER (II) SULFATE Pentahydrate Fine Granular TG	CT068
COPPER (II) SULFATE Pentahydrate Lump Form TG	CT069
COPPER (II) SULFATE Pentahydrate Fine Granular	CP068
Copper monosulfate pentahydrate	
Copper vitriol pentahydrate	

Other Information EMERGENCY CONTACT NUMBER: +61 08 8440 2000
Business hours: 8:30am to 5:00pm, Monday to Friday.

Chem-Supply Pty Ltd does not warrant that this product is suitable for any use or purpose. The user must ascertain the suitability of the product before use or application intended purpose. Preliminary testing of the product before use or application is recommended. Any reliance or purported reliance upon Chem-Supply Pty Ltd with respect to any skill or judgement or advice in relation to the suitability of this product of any purpose is disclaimed. Except to the extent prohibited at law, any condition implied by any statute as to the merchantable quality of this product or fitness for any purpose is hereby excluded. This product is not sold by description. Where the provisions of Part V, Division 2 of the Trade Practices Act apply, the liability of Chem-Supply Pty Ltd is limited to the replacement of supply of equivalent goods or payment of the cost of replacing the goods or acquiring equivalent goods.

2. COMPOSITION/INFORMATION ON INGREDIENTS

Chemical Solid

Characterization

Information on Composition May contain traces of sulfuric acid as an impurity.

Ingredients

<u>Name</u>	<u>CAS</u>	<u>Proportion</u>	<u>Hazard Symbol</u>	<u>Risk Phrase</u>
Copper (II) sulfate pentahydrate	7758-99-8	98-100 %		

3. HAZARDS IDENTIFICATION

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Product Name : **COPPER (II) SULFATE Pentahydrate**

Harmful if swallowed.
Irritating to eyes and skin.
Very toxic to aquatic organisms.
May cause long term adverse effects in the aquatic environment.

Sensitization of Product Repeated or prolonged exposure may cause sensitisation to copper sulfate and develop allergic contact dermatitis.

Teratogenicity EMBRYOTOXICITY: Animal studies indicate that a deficiency or excess of copper in the body can cause significant harm to developing embryos.

Medical Conditions Generally Aggravated by Exposure Persons with pre-existing skin disorders, impaired liver, kidney or pulmonary function, glucose 6-phosphate-dehydrogenase deficiency or Wilson's disease may be more susceptible to the effects of the material.

Other Information Copper salts may decrease the toxicity of molybdenum. Zinc salts may decrease the toxicity of copper salts.

4. FIRST AID MEASURES

Inhalation Remove victim to fresh air. Employ artificial respiration if indicated. Seek urgent medical assistance.

Ingestion Rinse mouth thoroughly with water immediately. Give plenty of water to drink. Do not induce vomiting. Seek immediate medical assistance.

Skin Wash affected areas with copious quantities of water immediately. Remove contaminated clothing and wash before re-use. Seek medical attention.

Eye Immediately irrigate with copious quantity of water for at least 15 minutes. Eyelids to be held open. Seek immediate medical assistance.

First Aid Facilities Maintain eyewash fountain and drench facilities in work area.

Advice to Doctor Consult Poisons Information Centre.

Other Information If poisoning occurs, contact a Doctor or Poisons Information Centre. Phone 13 1126 from anywhere in Australia.

5. FIRE FIGHTING MEASURES

Specific Methods Small fire: Use dry chemical, CO₂, water spray or foam.
Large fire: Use water spray, fog or foam.
If safe to do so, move undamaged containers from the fire area. Cool containers with flooding quantities of water until well after the fire is out.

Specific Hazards Material does not burn. Fire or heat may produce irritating, poisonous and/or corrosive gases. Containers may explode when heated. Runoff may pollute waterways.

Hazardous Combustion Products Oxides of sulfur, oxides of copper and copper fume.

Precautions in connection with Fire Wear SCBA and structural firefighter's uniform.

6. ACCIDENTAL RELEASE MEASURES

Spills & Disposal Do NOT touch or walk through this product. Stop leak if safe to do so. Prevent entry into waterways, drains, confined areas. Water spray may be used to knock down or divert vapour clouds. Prevent dust cloud. Avoid inhalation of asbestos dust.
SEEK EXPERT ADVICE ON HANDLING AND DISPOSAL.

7. HANDLING AND STORAGE

Corrosiveness Solutions are corrosive to mild steel.

Handling Avoid generating dust and mist.

Storage Store in a cool, dry place. Store in well ventilated area. Keep containers closed at all times.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

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Other Exposure Information	A time weighted average (TWA) has been established for Copper, dusts and mists (as Cu) (Worksafe Aust) of 1 mg/m ³ and for Copper (fume) (Worksafe Aust) of 0.2 mg/m ³ . The exposure value at the TWA is the average airborne concentration of a particular substance when calculated over a normal 8 hour working day for a 5 day working week.
Respiratory Protection	Where ventilation is not adequate, respiratory protection may be required. Avoid breathing dust, vapours or mists. Respiratory protection should comply with AS 1716 - Respiratory Protective Devices and be selected in accordance with AS 1715 - Selection, Use and Maintenance of Respiratory Protective Devices. Filter capacity and respirator type depends on exposure levels. In event of emergency or planned entry into unknown concentrations a positive pressure, full-facepiece SCBA should be used. If respiratory protection is required, institute a complete respiratory protection program including selection, fit testing, training, maintenance and inspection.
Eye Protection	The use of a face shield, chemical goggles or safety glasses with side shield protection as appropriate. Must comply with Australian Standards AS 1337 and be selected and used in accordance with AS 1336.
Hand Protection	Hand protection should comply with AS 2161, Occupational protective gloves - Selection, use and maintenance.
Body Protection	Clean clothing or protective clothing should be worn, preferably with an apron. Clothing for protection against chemicals should comply with AS 3765 Clothing for Protection Against Hazardous Chemicals.
Eng. Controls	In industrial situations maintain the concentrations values below the TWA. This may be achieved by process modification, use of local exhaust ventilation, capturing substances at the source, or other methods.
Hygiene Measures	Always wash hands before smoking, eating or using the toilet. Wash contaminated clothing and other protective equipment before storing or re-using.

9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance	Blue granules or light blue powder.
Melting Point	Loses 2H ₂ O @ 30 °C; loses a further 2H ₂ O @ 110 °C; becomes anhydrous by 250 °C; decomposes @ 560 °C (anhydrous).
Solubility in Water	317 g/L @ 20 °C
Solubility in Organic Solvents	Soluble in methanol and glycerol. Slightly soluble in alcohol.
Specific Gravity (H₂O=1)	2.29
pH Value	3.5 - 4.5 (50 g/L, H ₂ O, 20 °C)
Flammability	Non combustible material.
Molecular Weight	249.68
Other Information	Dielectricity constant: 7.8 (17-22 °C) Taste: Nauseous metallic taste

10. STABILITY AND REACTIVITY

Stability	Stable. Slowly efflorescent in air.
Hazardous Polymerization	Will not occur.
Materials to Avoid	Acetylene gas; finely powdered metals, eg. magnesium metal; sodium hypobromite solutions; plain steel; galvanised pipes; strong reducing agents; hydroxylamine.
Hazardous Reaction	Copper salts may react with acetylene to form explosive acetylides.

11. TOXICOLOGICAL INFORMATION

Toxicology Information	Oral LD50 (rat): 960 mg/kg. Subcutaneous LD50 (rat): 43 mg/kg.
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Product Name : **COPPER (II) SULFATE Pentahydrate**

Inhalation	Irritating to the respiratory tract. Symptoms may include coughing, sore throat and shortness of breath. May result in ulceration and perforation of respiratory tract. Ulceration of the nasal septum is possible, due to trace sulfuric acid impurities. When heated, this compound may give off copper fume, which can cause symptoms similar to the common cold, including chills and stuffiness of the head.
Ingestion	Toxic by ingestion. Symptoms may include repeated vomiting. May cause burning pain in the mouth, throat, esophagus and stomach, diarrhea, nausea, abdominal pain and ulceration of the gastrointestinal tract. If vomiting does not occur immediately, systemic copper poisoning may occur. Symptoms may include capillary damage, headache, cold sweat, weak pulse, kidney and liver damage, central nervous excitation followed by depression, jaundice, convulsions, blood effects, paralysis and coma. Death may occur from shock or renal failure.
Skin	Irritating to skin. May cause redness and itching.
Eye	Particles may cause irritation, local inflammation, tissue destruction, corneal opacity and adhesion of the eyelid to the eye. Traces of sulfuric acid impurity may contribute to these effects.
Chronic Effects	Chronic ingestion may cause liver, brain, muscle and kidney disfunction. Prolonged or repeated skin exposure may cause dermatitis. Prolonged or repeated exposure to dusts of copper salts may cause discoloration of the skin or hair, blood and liver damage, ulceration and perforation of the nasal septum, runny nose, metallic taste, and atrophic changes and irritation of the mucous membranes.

12. ECOLOGICAL INFORMATION

Information on Ecological Effects	Severe marine pollutant - IMDG Code. Very toxic to aquatic life. 96-hour LC50 (fish): <1 mg/L (Cu). 96-hour LC50 (algae): <1 mg/L (Cu).
Short Summary of Assessment of Environmental Impact	When released into the soil, this material is not expected to biodegrade and may leach into ground water. When released into the water, this material is not expected to biodegrade or evaporate significantly. This material is expected to bioaccumulate significantly.
Environ. Protection	Contain spillage.

13. DISPOSAL CONSIDERATIONS

14. TRANSPORT INFORMATION

	Dangerous goods of Class 9 (Miscellaneous Dangerous Goods) are incompatible in a placard load with any of the following: Class 1, Class 5, if the Class 9 dangerous goods are fire risk substances.
U.N. Number	3077
Proper Shipping Name	ENVIRONMENTALLY HAZARDOUS SUBSTANCE, SOLID, N.O.S.
DG Class	9
Hazchem Code	2X
Packaging Method	3.8.9
Packing Group	III
IERG Number	47

15. REGULATORY INFORMATION

Risk Phrase	R22 Harmful if swallowed. R36/38 Irritating to eyes and skin. R50 Very toxic to aquatic organisms. R53 May cause long term adverse effects in the aquatic environment.
Safety Phrase	S22 Do not breathe dust. 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.
Poisons Schedule	S6

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Hazard Category Harmful, Irritant

16. OTHER INFORMATION

Contact Person/Point Paul McCarthy Ph. (08) 8440 2000 **DISCLAIMER STATEMENT:**
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Empirical Formula & Structural Formula CuSO₄.5H₂O

References

Commonwealth Department of Health and Aged Care, 'Standard for the Uniform Scheduling of Drugs and Poisons No. 18', Commonwealth of Australia, Canberra 2002.
Lewis, Richard J. Sr. 'Hawley's Condensed Chemical Dictionary 13th. Ed.', Rev., John Wiley & Sons, Inc., NY, 1997.
National Road Transport Commission, 'Australian Dangerous Goods Code 6th. Ed.', AGPS, Canberra, 1998.
South Australia Government, 'Approved Code of Practice for the Labelling of Workplace Substances', 1995.
Standards Australia, 'SAA/SNZ HB76:1997 Dangerous Goods - Initial Emergency Response Guide', Standards Australia/Standards New Zealand, 1997.
Worksafe Australia, 'Approved Criteria for Classifying Hazardous Substances [NOHSC:1008(1999)]', AusInfo, Canberra 1999.
Worksafe Australia, 'List of Designated Hazardous Substances [NOHSC:10005(1999)]', AusInfo, Canberra 1999.
Worksafe Australia, 'National Code of Practice for the Labelling of Workplace Substances [NOHSC:2012(1994)]', AGPS, Canberra 1994.
Worksafe Australia, 'National Exposure Standards for Atmospheric Contaminants in the Occupational Environment [NOHSC:1003(1995)]', AusInfo, Canberra 1995.

User Codes

<u>User Field Title</u>	<u>User Code</u>
Risk Phrases	22-36/38-50/53
Safety phrases	22-60-61
First Aid Phrases	A,G3,E2,S1
CAS No.	7758-99-8
...End Of MSDS...	