

SAFETY DATA SHEET

1. IDENTIFICATION OF THE MATERIAL AND SUPPLIER

Product Name: Copper Sulphate

Other Identifier: Copper Sulphate Pentahydrate

Recommended Use: Water treatment

Supplier: Midland Chemicals
ABN: 91 622 018 986

Street Address: 18 Elliott Street
Midvale
Western Australia

Telephone Number: +61 08 9274 1992

Facsimile: +61 08 9250 1710

Emergency Telephone: 1 800 033 111 (ALL HOURS)

2. HAZARDS IDENTIFICATION

Road and Rail; Not classified as Dangerous Goods by the criteria of the Australian Dangerous Goods Code (ADG Code) for transport by Road and Rail; NON-DANGEROUS GOODS.

Globally Harmonised System

Hazard Classification

Hazardous according to the criteria of the Globally Harmonised System of Classification and Labelling of Chemicals (GHS)

Hazard Categories

Acute Toxicity (Oral) - Category 4
Serious Eye Damage/Irritation - Category 1

Pictogram



Name of pictogram

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Signal Word

Danger

Hazard Statements

H302 Harmful if swallowed

H318 Causes serious eye damage

Precautionary Statement

Prevention

P280 Wear eye protection/face protection

P270 Do not eat, drink or smoke when using this product.

Response

P305 + P351 + P338 + P310 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Immediately call a POISON CENTRE/doctor.

P391 Collect spillage.

P301 + P312 P330 IF SWALLOWED: Call a POISON CENTER or doctor/physician if you feel unwell.
Rinse mouth.

Disposal

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

Poisons Schedule: 6

3. COMPOSITION/INFORMATION ON INGREDIENTS

Components	CAS Number	Proportion
Copper Sulphate, pentahydrate	7758-99-8	>=98%

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4. FIRST AID MEASURES

For advice, contact a Poisons Information Centre (e.g. phone Australia 131 126; New Zealand 0800 764 766) or a doctor at once.

Ingestion:	IF SWALLOWED: Rinse mouth, then drink plenty of water. Do NOT induce vomiting. Call a Poison Centre or doctor/physician for advice. Never give anything by mouth to an unconscious person.
Eye Contact:	IF IN EYES: Immediately flush eyes with running water for several minutes, holding eyelids open and occasionally lifting the upper and lower lids. Remove contact lenses if present and easy to do. Continue rinsing for at least 15 minutes. Immediately call a Poison Centre or doctor/physician for advice - Obtain immediate medical care.
Skin Contact:	IF ON SKIN (or hair): Remove contaminated clothing and shoes immediately. Flush skin and hair with running water for several minutes; Wash with plenty of soap and water. If skin irritation occurs, get medical advice/attention. Wash contaminated clothing and shoes before reuse.
Inhalation:	IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing. If respiratory symptoms persist, get medical advice/attention. Apply resuscitation if victim is not breathing. Administer oxygen if breathing is difficult.
Medical attention and special treatment:	Treat symptomatically. Ensure that attending medical personnel are aware of the identity and nature of the product(s) involved, and take precautions to protect themselves. Administer Methylene Blue for methemoglobinemia, BAL, DMPS, EDTA and d-penicillamine. Jaundice and haemolysis can appear after 5-6 hours. Symptoms of liver failure can appear after 3-4 days.

5. FIRE FIGHTING MEASURES

General Measure	If safe to do so, move undamaged containers from fire area. Cool containers with water spray until well after fire is out.
Flammability Conditions	Non-combustible; Material does not burn.
Suitable Extinguishing Media:	If material is involved in a fire, use dry chemical, Carbon dioxide (CO ₂), foam or water spray for extinction. Use the most appropriate fire-extinguishing methods for the specific situation.
Fire and Explosion hazard	The substance decomposes on heating producing toxic and corrosive fumes.
Hazardous combustion products:	Fire or heat may produce irritating, toxic and/or corrosive fumes, including oxides of Copper, oxides of Sulfur.
Precautions for fire fighters and special protective equipment:	Contain runoff from fire control water - Runoff may pollute waterways. Dispose of contaminated fire extinguishing water and fire residues according to local regulations. Wear self-contained breathing apparatus (SCBA) in combination with normal firefighting clothing (full fire kit).

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Flash Point	Not applicable to an inorganic solid
Lower explosion limit	No Data Available
Upper Explosion Limit	No Data Available
Auto Ignition Temperature	No Data Available
Hazchem Code	No Data Available

6. ACCIDENTAL RELEASE MEASURES

Personal precautions: Use personal protective equipment as required (see SECTION 8).

Emergency procedures: Spill or leak area should be isolated immediately. Keep unauthorised personnel away. Keep upwind and to higher ground. Ensure adequate ventilation. Do not touch or walk through spilled material. Avoid dust formation. Avoid breathing dust and contact with eyes, skin and clothing.

Environmental Precautions: Spillages and decontamination runoff should be prevented from entering drains and watercourses. If environmental contamination has occurred advise local emergency services.

Methods and materials for Containment and clean up: Collect material and place it in suitable containers for later disposal (see SECTION 13); if appropriate, moisten first to prevent dusting. Stop leak if safe to do so – Prevent entry into waterways, drains or confined areas. Prevent dust cloud.

7. HANDLING AND STORAGE

This material must be stored, maintained and used in accordance with the relevant regulations.

Conditions for safe storage: Store in a cool, dry and well-ventilated place, out of direct sunlight. Keep container tightly closed when not in use - Protect against physical damage and check regularly for spills. Avoid exposure to air/moisture/humidity. Keep away from foodstuffs and incompatible materials (see SECTION 10). Keep only in the original or suitable, properly labelled container.

Precautions for safe handling: Safety showers and eyewash facilities should be provided within the immediate work area for emergency use. Ensure adequate ventilation. Handle in accordance with good industrial hygiene and safety practice. Avoid dust formation. Avoid breathing dust and contact with eyes, skin and clothing. Use personal protective clothing as required (see SECTION 8). Avoid release to the environment - Collect spillage (see SECTION 6).

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

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General:	No specific exposure standards are available for this product. For Copper, dusts and mists (as Cu): - Safe Work Australia Exposure Standards: TWA = 1 mg/m ³ . - New Zealand WES: TWA = 1 mg/m ³ . - ACGIH-TLV: TWA = 1 mg/m ³ .
Exposure Limits:	No Data Available
Biological Limits:	Predicted no-effect concentrations (PNECs): - Freshwater: 7.8 µg/l - Marine water: 5.2 µg/l - Freshwater sediment: 87 mg/kg dw. - Marine water sediment: 676 mg/kg dw. - Soil: 288 mg/kg dw. - STP: 230 µg/l
Engineering Controls	A system of local and/or general exhaust is recommended to keep employee exposures as low as possible. Local exhaust ventilation is generally preferred because it can control the emissions of the contaminant at its source, preventing dispersion of it into the general work area. Ensure ventilation is adequate and that air concentrations of components are controlled below Workplace Exposure Standards.
Personal Protective Equipment	- Respiratory protection: Wear respiratory protection in case of inadequate ventilation or if an inhalation risk exists.. - Eye/face protection: Wear appropriate eye protection to prevent eye contact. - Hand protection: Handle with gloves. - Skin/body protection: Wear appropriate personal protective clothing to avoid skin contact.
Eye and Face	Recommended: Chemical goggles; Face-shield for operations that cause spray mist.
Skin	Recommended: Impervious gloves
Respiratory	Recommended: Long- sleeved work clothes or overalls, safety shoes. Recommended: Dust mask/respirator, filter type P (refer to AS/NZS 1715 & 1716)
Work Hygienic practices	Do not eat, drink or smoke when using this product. Wash thoroughly after handling. Take off contaminated clothing and wash before reuse.

9. PHYSICAL AND CHEMICAL PROPERTIES

Physical state:	Solid Crystals/microcrystals
Colour:	Blue or Light Blue
Auto Ignition temperature:	No Data Available
Decomposition Temperature:	>=110°C
Evaporation Rate:	No Data Available
Flash Point:	Not applicable to an inorganic solid
Initial Boiling Point:	No Data Available

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Melting Point:	No Data Available
Freezing Point	No Data Available
Odour:	Odourless
Odour Threshold:	No Data Available
pH:	No Data Available
Density:	2.286 g/cm ³
Solubility:	22g/100ml water @ 25°C
Upper Flammability Limit	No Data Available
Lower Flammability Limit:	No Data Available
Explosive limits:	No Data Available
Vapour density:	No Data Available
Vapour pressure;	No Data Available
Viscosity:	No Data Available
Biopersistence:	No Data Available
Crystallinity:	No Data Available
Dustiness:	No Data Available
Particle size:	No Data Available
Properties That May Initiate or Contribute to Fire Intensity	Non-combustible; Material does not burn.
Reactions That Release Gases or Vapours	The substance decomposes on heating producing toxic and corrosive fumes, including oxides of Copper, oxides of Sulfur.
Release of Invisible Flammable Vapours and Gases	No information available.

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10. STABILITY AND REACTIVITY

General Information The solution in water is a weak acid. Attacks many metals in the presence of water.

Chemical stability: Stable under normal conditions of use.

Conditions to avoid: Avoid dust formation. Avoid exposure to air.

Incompatible materials: Incompatible/reactive with strong bases, hydroxylamine, magnesium, steel, (finely powdered) metals, sulfuric acid, caustics, ammonia, aliphatic amines, alkanolamines, amides, alkylene oxides, epichlorohydrin, organic anhydrides, isocyanates, vinyl acetate

Hazardous decomposition products: The substance decomposes on heating producing toxic and corrosive fumes, including oxides of Copper, oxides of Sulfur.

Hazardous Polymerisation: Will not occur.

11. TOXICOLOGICAL INFORMATION

No adverse health effects expected if the product is handled in accordance with this Safety Data Sheet and the product label. Symptoms or effects that may arise if the product is mishandled and overexposure occurs are:

- General Information:**
- Acute toxicity: Harmful if swallowed; Corrosive on ingestion with abdominal pain, burning sensation, diarrhoea, nausea, vomiting, shock or collapse.
 - - Skin corrosion/irritation: May cause skin irritation, redness, pain. Non-irritating (Rabbit) [OECD Guideline 404].
 - - Eye damage/irritation: Causes serious eye damage, pain, redness, blurred vision. Serious irritation/irreversible eye damage (Rabbit) [OECD Guideline 405].
 - - Respiratory/skin sensitisation: Non-sensitising (Guinea pig) [OECD Guideline 406].
 - - Germ cell mutagenicity: Negative, in-vivo: Non-programmed DNA synthesis, male rats (Copper sulphate) [OECD Guideline 486]. Negative, in-vitro: Bacterial reverse mutation assay (Copper sulphate) [OECD Guideline 471].
 - - Carcinogenicity: Not listed as carcinogenic according to IARC.
 - - Reproductive toxicity: Data are conclusive but not sufficient to classify.
 - - STOT (single exposure): Inhalation of dusts/aerosols may be irritating to the respiratory tract, with cough, sore throat. Ingestion may cause effects on the blood, kidneys and liver, resulting in hemolytic anemia, kidney impairment, liver impairment.
 - - STOT (repeated exposure): Lungs may be affected by repeated or prolonged exposure to the aerosol. The substance may have effects on the liver when ingested. - Aspiration toxicity: No information

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available.

Acute : Ingestion:	Acute Toxicity (Oral): - LD50, Rat (male/female): 482 mg/kg bw [OECD Guideline 401].
Skin contact:	Acute toxicity (Dermal): - LD50, Rat (male/female): >2,000 mg/kg [OECD Guideline 402].
Reproduction:	Reproductive toxicity (Oral): - NOAEL, Rat: >1,500 ppm [OECD Guideline 416].
Carcinogen Category	None

12. ECOLOGICAL INFORMATION

Ecotoxicity	Very toxic to aquatic life with long lasting effects.
Persistence and degradability	High persistence in water/soil; High persistence in air.
Bioaccumulative potential	Low bioaccumulative potential (LogKOW: -2.2002).
Mobility	Low mobility in soil (KOC: 6.124).
Environmental Fate	Avoid release to the environment - Prevent entry into soils, drains and waterways.

13. DISPOSAL CONSIDERATIONS

Disposal methods:	Dispose of in accordance with all local, state and federal regulations. All empty packaging should be disposed of in accordance with Local, State, and Federal Regulations or recycled/reconditioned at an approved facility. Or refilled at Big Bubble in Midvale.
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14. TRANSPORT INFORMATION

Road and Rail Transport	Not classified as Dangerous Goods by the criteria of the Australian Dangerous Goods Code (ADG Code) for transport by Road and Rail in packagings that do not incorporate a receptacle exceeding 500kg(L) or IBCs; NON-DANGEROUS GOODS.
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UN number: UN#3077: Not regulated as DG when transported by road or rail in packagings that do not incorporate a receptacle exceeding 500 kg(L) or IBCs.

Proper shipping name; Copper sulphate, pentahydrate

DG Class No Data Available

Packing group No Data Available

Environmental hazards for transport purposes No Data Available

Special Precaution for user No Data Available

Hazchem No Data Available

Marine Transport Classified as Dangerous Goods by the criteria of the International Maritime Dangerous Goods Code (IMDG Code) for transport by sea; DANGEROUS GOODS.

UN number: 3077

Proper shipping name; Copper sulphate, pentahydrate

DG Class 9 Miscellaneous Dangerous Goods and Articles

Packing group III

EMS F-A, S-F

Marine Pollutant Yes

Hazchem 2Z

Air Transport Classified as Dangerous Goods by the criteria of the International Air Transport Association (IATA) Dangerous Goods Regulations for transport by air; DANGEROUS GOODS

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UN number:	3077
Proper shipping name;	Copper sulphate, pentahydrate
DG Class	9 Miscellaneous Dangerous Goods and Articles
Packing group	III
Hazchem	2Z
National Transport Commission (Australia)	Australian Code for the Transport of Dangerous Goods by Road & Rail (ADG Code)
Dangerous Goods Classification	NOT Dangerous Goods according to the criteria of the Australian Code for the Transport of Dangerous Goods by Road & Rail (ADG Code)

15. REGULATORY INFORMATION

General Information	No Data Available
Poisons Schedule (Aust)	Schedule 6
National/Regional Inventories	Australia (AICS): Listed

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16. OTHER INFORMATION

Revision date: 28/05/2020

Reason for issue: Update SDS

Key/Legend:

< Less Than

> Greater Than

AICS Australian Inventory of Chemical Substances

atm Atmosphere

CAS Chemical Abstracts Service (Registry Number)

cm² Square Centimetres

CO₂ Carbon Dioxide

COD Chemical Oxygen Demand

deg C (°C) Degrees Celcius

g Grams

g/cm³ Grams per Cubic Centimetre

g/l Grams per Litre

HSNO Hazardous Substance and New Organism

IDLH Immediately Dangerous to Life and Health

immiscible Liquids are insoluable in each other.

inHg Inch of Mercury

inH₂O Inch of Water

K Kelvin

kg Kilogram

kg/m³ Kilograms per Cubic Metre

LC₅₀ LC stands for lethal concentration. LC₅₀ is the concentration of a material in air which causes the death of 50% (one half) of a group of test animals. The material is inhaled over a set period of time, usually 1 or 4 hours.

LD₅₀ LD stands for Lethal Dose. LD₅₀ is the amount of a material, given all at once, which causes the death of 50% (one half) of a group of test animals.

ltr or **L** Litre

m³ Cubic Metre

mbar Millibar

mg Milligram

mg/24H Milligrams per 24 Hours

mg/kg Milligrams per Kilogram

mg/m³ Milligrams per Cubic Metre

Misc or **Miscible** Liquids form one homogeneous liquid phase regardless of the amount of either component present.

mm Millimetre **mmH₂O** Millimetres of Water

mPa.s Millipascals per Second

N/A Not Applicable

NIOSH National Institute for Occupational Safety and Health

NOHSC National Occupational Health and Safety Commission

OECD Organisation for Economic Co-operation and Development

PEL Permissible Exposure Limit

Pa Pascal

ppb Parts per Billion

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ppm Parts per Million
ppm/2h Parts per Million per 2 Hours
ppm/6h Parts per Million per 6 Hours
psi Pounds per Square Inch
R Rankine
RCP Reciprocal Calculation Procedure
STEL Short Term Exposure Limit
TLV Threshold Limit Value Tonne
TWA Time Weighted Average
ug/24H Micrograms per 24 Hours
UN United Nations
wt Weight

This material safety data sheet has been prepared by Midland Chemicals

This MSDS summarises to our best knowledge at the date of issue, the chemical health and safety hazards of the material and general guidance on how to safely handle the material in the workplace. Since Midland Chemicals cannot anticipate or control the conditions under which the product may be used, each user must, prior to usage, assess and control the risks arising from its use of the material. If clarification or further information is needed, the user should contact Midland Chemicals at the contact details on page 1.

Midland Chemical's responsibility for the material as sold is subject to the terms and conditions of sale, a copy of which is available upon request.