

1. IDENTIFICATION

Product Name	Copper Sulphate Pentahydrate
Other Names	No Data Available
Uses	Industrial, professional, consumer uses; Absorbents; Ceramics; Coatings and inks; Cosmetics; Electroplating and galvanic; Fertiliser; Glass; Laboratory chemicals; Lubricants and greases; Leather dyes; Mineral flotation; Raw material for non-ferrous smelting; Non-metal surface treatment; Pigments; Processing aids; Putties, fillers, construction chemicals; Polishes and waxes; Photochemicals; Raw material for production of other compounds and fine chemicals; Rubber and plastic; Washing and cleaning products; Catalyst; Textile dyes; Adhesives; Water treatment.
Chemical Family	No Data Available
Chemical Formula	CuSO ₄ .5H ₂ O
Chemical Name	Copper sulphate, pentahydrate
Product Description	No Data Available

Contact Details of the Supplier of this Safety Data Sheet

Organisation	Location	Telephone
Redox Ltd	2 Swettenham Road Minto NSW 2566 Australia	+61-2-97333000
Redox Ltd	11 Mayo Road Wiri Auckland 2104 New Zealand	+64-9-2506222
Redox Inc.	3960 Paramount Boulevard Suite 107 Lakewood CA 90712 USA	+1-424-675-3200
Redox Chemicals Sdn Bhd	Level 2, No. 8, Jalan Sapir 33/7 Seksyen 33, Shah Alam Premier Industrial Park 40400 Shah Alam Sengalor, Malaysia	+60-3-5614-2111

Emergency Contact Details

For emergencies only; DO NOT contact these companies for general product advice.

Organisation	Location	Telephone
Chemcall	New Zealand	0800-243622 +64-4-9179888
National Poisons Centre	New Zealand	0800-764766

2. HAZARD IDENTIFICATION

Poisons Schedule (Aust) Schedule 6

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
Skin Corrosion/Irritation - Category 2



Serious Eye Damage/Irritation - Category 2A
 Acute Hazard To The Aquatic Environment - Category 1
 Long-term Hazard To The Aquatic Environment - Category 1

Pictograms



Signal Word

Warning

Hazard Statements

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

Precautionary Statements

Prevention	<p>P273 Avoid release to the environment. P270 Do not eat, drink or smoke when using this product. P280 Wear protective gloves/eye protection/face protection.</p>
Response	<p>P391 Collect spillage. P301 + P312 IF SWALLOWED: Call a POISON CENTER or doctor if you feel unwell. P330 Rinse mouth. P302 + P352 IF ON SKIN: Wash with plenty of water/... P337 + P313 If eye irritation persists: Get medical advice/attention. P332 + P313 If skin irritation occurs: Get medical advice/attention. P362 Take off contaminated clothing. P305 + P351 + P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.</p>
Disposal	<p>P501 Dispose of contents/container in accordance with local / regional / national / international regulations.</p>

Environmental Protection Authority (New Zealand)

Hazardous Substances and New Organisms Amendment Act 2015

HSNO Classifications

Health Hazards	<p>6.1D Substances that are acutely toxic - Harmful 6.3A Substances that are irritating to the skin 6.4A Substances that are irritating to the eye 6.5B Substances that are contact sensitisers 6.9B Substances that are harmful to human target organs or systems</p>
Environmental Hazards	<p>9.1A Substances that are very ecotoxic in the aquatic environment 9.3C Substances that are harmful to terrestrial vertebrates</p>

3. COMPOSITION/INFORMATION ON INGREDIENTS

Ingredients

Chemical Entity	Formula	CAS Number	Proportion
Copper sulphate, pentahydrate	CuSO4.5H2O	7758-99-8	<=100 %



4. FIRST AID MEASURES

Description of necessary measures according to routes of exposure

Swallowed	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	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 flushing until advised to stop by a Poisons Information Centre or a doctor, or for at least 15 minutes. Immediately call a Poison Centre or doctor/physician for advice.
Skin	IF ON SKIN (or hair): Remove contaminated clothing and shoes immediately. Wash skin and hair with plenty of soap and running water. If skin irritation occurs, get medical advice/attention. Wash contaminated clothing and shoes before reuse.
Inhaled	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.
Advice to Doctor	Treat symptomatically. Keep victim calm and warm - Obtain immediate medical care. Ensure that attending medical personnel are aware of the identity and nature of the product(s) involved, and take precautions to protect themselves. Probable mucosal damage may contraindicate the use of gastric lavage. Measures against circulatory shock, respiratory depression and convulsions may be needed.
Medical Conditions Aggravated by Exposure	Wilson's disease can be aggravated by excessive exposure.

5. FIRE FIGHTING MEASURES

General Measures	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 nor support combustion.
Extinguishing Media	If material is involved in a fire, use dry chemical, Carbon dioxide (CO ₂), foam or water spray for extinction.
Fire and Explosion Hazard	The substance decomposes on heating, producing toxic fumes. Sealed containers may rupture when heated due to release of water from crystals.
Hazardous Products of Combustion	Fire or heat may produce irritating, toxic and/or corrosive fumes, including oxides of Copper, oxides of Sulfur.
Special Fire Fighting Instructions	Contain runoff from fire control water or dilution water - Runoff may pollute waterways.
Personal Protective Equipment	Wear self-contained breathing apparatus (SCBA) and chemical splash suit. SCBA and structural firefighter's uniform may provide limited protection.
Flash Point	No Data Available
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

General Response Procedure	Ensure adequate ventilation. Do not touch or walk through spilled material - Slippery when spilt. Avoid accidents, clean up immediately. Avoid generating dust. Avoid breathing dust and contact with eyes, skin and clothing.
Clean Up Procedures	Recover dry if possible. Collect material (sweep up, shovel) and keep in suitable, properly labelled containers for disposal (see SECTION 13). Place damaged containers in plastic bags and seal with tape.
Containment	Stop leak if safe to do so - Prevent entry into waterways, drains or confined areas. Prevent dust cloud.
Decontamination	If product is in a confined solution, react with soda ash to form an insoluble Copper carbonate solid that can be scooped up.
Environmental Precautionary Measures	Spillages and decontamination runoff should be prevented from entering drains and watercourses.
Evacuation Criteria	Spill or leak area should be isolated immediately. Keep unauthorised personnel away. Keep upwind and to higher



ground.

Personal Precautionary Measures

Use personal protective equipment as required (see SECTION 8). Large spill: Wear SCBA and chemical splash suit.

7. HANDLING AND STORAGE

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 generating dust. Avoid breathing dust or mists and contact with eyes, skin and clothing. Do not ingest. Use personal protective clothing as required (see SECTION 8). Avoid release to the environment - Collect spillage (see SECTION 6).

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 heat and sources of ignition - No smoking. Keep away from foodstuffs and incompatible materials (see SECTION 10).

Container

Keep only in the original or suitable, properly labelled container.

8. EXPOSURE CONTROLS / PERSONAL PROTECTION

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/m³.
 - New Zealand Workplace Exposure Standard: TWA = 1 mg/m³.
 - NIOSH REL/OSHA PEL: TWA = 1 mg/m³.

Exposure Limits

No Data Available

Biological Limits

No information available.

Engineering Measures

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.

Personal Protection Equipment

- Respiratory protection: In case of inadequate ventilation, wear respiratory protection. Recommended: Dust mask/particulate filter respirator (refer to AS/NZS 1715 & 1716).
 - Eye/face protection: Wear appropriate eye protection to prevent eye contact. Recommended: Use safety glasses with side shields or goggles; Face-shield for operations that cause spray mist.
 - Hand protection: Handle with gloves. Recommended: Impervious gloves.
 - Skin/body protection: Wear appropriate personal protective clothing to avoid skin contact. Recommended: Long-sleeved work clothes or overalls, safety shoes.

Special Hazards Precautions

No information available.

Work Hygienic Practices

Do not eat, drink or smoke when using this product. Always wash hands before smoking, eating, drinking or using the toilet. Wash contaminated clothing and other protective equipment before storage or re-use. Discard clothing and other absorbent materials that have been drenched or heavily contaminated with product concentrate. Do not reuse them. Keep and wash PPE separately from other laundry.

9. PHYSICAL AND CHEMICAL PROPERTIES

Physical State

Solid

Appearance

Crystals or powder

Odour

Odourless

Colour

Blue

pH

No Data Available

Vapour Pressure

No Data Available

Relative Vapour Density

No Data Available

Boiling Point

No Data Available

Melting Point

No Data Available

Freezing Point

No Data Available



Solubility	Soluble in water (22% at 25°C); Soluble in methanol, glycerol - Slightly soluble in ethanol
Specific Gravity	2.284
Flash Point	No Data Available
Auto Ignition Temp	No Data Available
Evaporation Rate	No Data Available
Bulk Density	No Data Available
Corrosion Rate	No Data Available
Decomposition Temperature	150 °C
Density	No Data Available
Specific Heat	No Data Available
Molecular Weight	No Data Available
Net Propellant Weight	No Data Available
Octanol Water Coefficient	No Data Available
Particle Size	No Data Available
Partition Coefficient	No Data Available
Saturated Vapour Concentration	No Data Available
Vapour Temperature	No Data Available
Viscosity	No Data Available
Volatile Percent	No Data Available
VOC Volume	No Data Available
Additional Characteristics	No information available.
Potential for Dust Explosion	No information available.
Fast or Intensely Burning Characteristics	No information available.
Flame Propagation or Burning Rate of Solid Materials	No information available.
Non-Flammables That Could Contribute Unusual Hazards to a Fire	No information 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 irritating, toxic and/or corrosive fumes, including oxides of Copper, oxides of Sulfur.
Release of Invisible Flammable Vapours and Gases	Contact with magnesium can generate dangerous levels of hydrogen gas.

10. STABILITY AND REACTIVITY

General Information	Solutions are mildly corrosive to steel. Contact with magnesium can generate dangerous levels of hydrogen gas.
Chemical Stability	Stable under normal conditions of use.
Conditions to Avoid	Avoid generating dust. Avoid exposure to air/moisture/humidity.
Materials to Avoid	Incompatible/reactive with nitromethane, aluminium and finely powdered metals, steel, hydrazine, hydroxylamine, magnesium.
Hazardous Decomposition Products	The substance decomposes on heating, producing irritating, toxic and/or corrosive fumes, including oxides of Copper, oxides of Sulfur.
Hazardous Polymerisation	Will not occur.

11. TOXICOLOGICAL INFORMATION

General Information	- Acute toxicity: Harmful if swallowed; may cause nausea, vomiting, diarrhoea and gastrointestinal irritation.
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- Skin corrosion/irritation: Causes skin irritation.
- Eye damage/irritation: Causes serious eye irritation.
- Respiratory/skin sensitisation: May cause skin sensitisation in sensitive individuals.
- Germ cell mutagenicity: No information available.
- Carcinogenicity: Not listed as carcinogenic according to IARC.
- Reproductive toxicity: No information available.
- STOT (single exposure): Inhalation of dust can result in irritation of nasal mucous membranes, sometimes of the pharynx and on occasion, ulceration with perforation of the nasal septum. Breathing in fumes from heating may produce symptoms of "metal fume fever", characterised by influenza type symptoms, occurring a few hours after exposure and lasting up to 48 hours. Symptoms may include chills, fever, headache, tightness of the chest, coughing, weakness, dryness of nose and mouth, muscular pain, nausea and vomiting.
- STOT (repeated exposure): No information available.
- Aspiration toxicity: No information available.

Acute

Ingestion Acute toxicity (Oral):
- LD50, Rat: >472.5 mg/kg [Supplier's SDS].

Carcinogen Category None

12. ECOLOGICAL INFORMATION

Ecotoxicity No information available.

Persistence/Degradability No information available.

Mobility No information available.

Environmental Fate Very toxic to aquatic life with long lasting effects - Avoid release to the environment.

Bioaccumulation Potential No information available.

Environmental Impact No Data Available

13. DISPOSAL CONSIDERATIONS

General Information Recycle product/packaging wherever possible or dispose of in an authorised landfill and in accordance with local/regional/national regulations.

Special Precautions for Land Fill Do not reuse container.

14. TRANSPORT INFORMATION

Land Transport (New Zealand)

NZS5433

Proper Shipping Name ENVIRONMENTALLY HAZARDOUS SUBSTANCE, SOLID, N.O.S. (Copper sulphate, pentahydrate)

Class 9 Miscellaneous Dangerous Goods and Articles

Subsidiary Risk(s) No Data Available

EPG 47 Low To Moderate Hazard Substances

UN Number 3077

Hazchem 2Z

Pack Group III

Special Provision No Data Available



Sea Transport

IMDG Code

Proper Shipping Name	ENVIRONMENTALLY HAZARDOUS SUBSTANCE, SOLID, N.O.S. (Copper sulphate, pentahydrate)
Class	9 Miscellaneous Dangerous Goods and Articles
Subsidiary Risk(s)	No Data Available
UN Number	3077
Hazchem	2Z
Pack Group	III
Special Provision	No Data Available
EMS	F-A, S-F
Marine Pollutant	Yes

Air Transport

IATA DGR

Proper Shipping Name	ENVIRONMENTALLY HAZARDOUS SUBSTANCE, SOLID, N.O.S. (Copper sulphate, pentahydrate)
Class	9 Miscellaneous Dangerous Goods and Articles
Subsidiary Risk(s)	No Data Available
UN Number	3077
Hazchem	2Z
Pack Group	III
Special Provision	No Data Available

15. REGULATORY INFORMATION

General Information	COPPER SULFATE
Poisons Schedule (Aust)	Schedule 6

Environmental Protection Authority (New Zealand)
 Hazardous Substances and New Organisms Amendment Act 2015

Approval Code	HSR003126
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National/Regional Inventories

Australia (AICS)	Listed
Canada (DSL)	Not Determined
Canada (NDSL)	Not Determined
China (IECSC)	Not Determined
Europe (EINECS)	Listed
Europe (REACH)	Listed
Japan (ENCS/METI)	Not Determined
Korea (KECI)	Not Determined
Malaysia (EHS Register)	Not Determined



New Zealand (NZIoC)	Listed
Philippines (PICCS)	Not Determined
Switzerland (Giftliste 1)	Not Determined
Switzerland (Inventory of Notified Substances)	Not Determined
Taiwan (NCSR)	Not Determined
USA (TSCA)	Not Determined

16. OTHER INFORMATION

Related Product Codes	COPSUL0200, COPSUL0300, COPSUL0400, COPSUL0401, COPSUL0402, COPSUL0500, COPSUL0510, COPSUL0512, COPSUL0513, COPSUL0514, COPSUL0515, COPSUL0520, COPSUL1000, COPSUL1101, COPSUL1200, COPSUL1201, COPSUL1202, COPSUL1210, COPSUL1211, COPSUL1220, COPSUL1302, COPSUL1400, COPSUL1401, COPSUL1402, COPSUL1410, COPSUL1420, COPSUL1501, COPSUL1700, COPSUL2100, COPSUL3000, COPSUL3400, COPSUL4500, COPSUL5400, COPSUL7603, COPSUL8000, COPSUL9501
Revision	1
Revision Date	28 Oct 2020
Reason for Issue	update sds
Key/Legend	<p>< 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 EPA (New Zealand) Environmental Protection Authority of New Zealand deg F (°F) Degrees Farenheit 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 lb Pound 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 Heath and Safety Commission</p>



OECD Organisation for Economic Co-operation and Development
Oz Ounce
PEL Permissible Exposure Limit
Pa Pascal
ppb Parts per Billion
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
tne Tonne
TWA Time Weighted Average
ug/24H Micrograms per 24 Hours
UN United Nations
wt Weight

