

## Safety Data Sheet **COPPER (II) CHLORIDE Dihydrate**

SDS no. 9DLL0C53 • Version 1.0 • Date of issue: 2023-08-01

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### SECTION 1: Identification

#### GHS Product identifier

Product name COPPER (II) CHLORIDE Dihydrate

#### Recommended use of the chemical and restrictions on use

Algicide, electroplating baths, isomerisation and cracking catalyst, mordant in dyeing and printing fabrics, sympathetic ink, disinfectant, pyrotechnics, wood preservation, fungicides, metallurgy, preservation of pulpwood, deodorising and desulfurising petroleum distillates, photography, water purification, feed additive, acrylonitrile manufacturing and pigment for glass and ceramics and laboratory reagent.

#### Supplier's details

Name ChemSupply Australia Pty Ltd  
Address 38-50 Bedford Street  
5013 Gillman South Australia  
Australia

Telephone 08 8440 2000  
email [www.chemsupply.com.au](http://www.chemsupply.com.au)

#### Emergency phone number

CHEMCALL 1800 127 406 (Australia) / +64-4-917-9888 (International)

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### SECTION 2: Hazard identification

#### General hazard statement

Classified as dangerous goods according to the Australian Dangerous Goods Code (ADG).

Classified as Hazardous according to the Globally Harmonised System of classification and labelling of Chemicals (GHS) including Work, Health and Safety regulations, Australia.

#### Classification of the substance or mixture

##### GHS classification in accordance with: UN GHS revision 7

- Acute toxicity, dermal, Cat. 4
- Acute toxicity, oral, Cat. 4
- Hazardous to the aquatic environment, short-term (acute), Cat. 1
- Hazardous to the aquatic environment, long-term (chronic), Cat. 2
- Serious eye damage/eye irritation, Cat. 1
- Corrosive to metals, Cat. 1

**Safety Data Sheet**  
**COPPER (II) CHLORIDE Dihydrate**

SDS no. 9DLL0C53 • Version 1.0 • Date of issue: 2023-08-01

- Skin corrosion/irritation, Cat. 2

**GHS label elements, including precautionary statements**

**Pictograms**



**Signal word**

**Danger**

**Hazard statement(s)**

H290	May be corrosive to metals
H302	Harmful if swallowed
H312	Harmful in contact with skin
H315	Causes skin irritation
H318	Causes serious eye damage
H400	Very toxic to aquatic life
H411	Toxic to aquatic life with long lasting effects

**Precautionary statement(s)**

P270	Do not eat, drink or smoke when using this product.
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/physician if you feel unwell,
P302+P352	IF ON SKIN: Wash with plenty of water/soap
P305+P351+P338	IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
P310	Immediately call a POISON CENTER/doctor/physician
P332+P313	If skin irritation occurs: Get medical advice/attention.
P362+P364	Take off contaminated clothing and wash it before reuse.
P390	Absorb spillage to prevent material-damage.
P391	Collect spillage.
P406	Store in a corrosive resistant container with a resistant inner liner.
P501	Dispose of contents/container to an approved waste disposal facility

**SECTION 3: Composition/information on ingredients**

**Mixtures**

Molecular weight: 170.48

**Components**

Component	CAS no.	Concentration
<b>CUPRIC CHLORIDE DIHYDRATE</b>	<b>10125-13-0</b>	<b>100 % (weight)</b>
CLASSIFICATIONS: Hazardous to the aquatic environment, short-term (acute), Cat. 1; Acute toxicity, dermal, Cat. 4; Acute toxicity, oral, Cat. 4; Corrosive to metals, Cat. 1; Hazardous to the aquatic environment, long-term (chronic), Cat. 2; Serious eye damage/eye irritation, Cat. 1; Skin corrosion/irritation, Cat. 2. HAZARDS: H290 - May be corrosive to metals; H302 - Harmful if swallowed; H312 - Harmful in contact with skin; H315 - Causes skin irritation; H318 - Causes serious eye damage; H400 - Very toxic to aquatic life; H411 - Toxic to aquatic life with long lasting effects.		

**SECTION 4: First-aid measures**

**Description of necessary first-aid measures**

General advice	First Aid Facilities: Maintain eyewash fountain and drench facilities in work area.
If inhaled	If inhaled, remove from contaminated area to fresh air immediately. Apply artificial respiration if not breathing. If breathing is difficult, give oxygen. Consult a physician.
In case of skin contact	Immediately remove contaminated clothing and wash affected area with water for at least 15 minutes. Ensure contaminated clothing is washed before re-use. Seek immediate medical advice /attention depending on the severity.
In case of eye contact	If contact with the eye(s) occurs, wash with copious amounts of water for approximately 15 minutes holding eyelid(s) open. Take care not to rinse contaminated water into the non-affected eye. Seek immediate medical assistance.
If swallowed	Rinse mouth thoroughly with water immediately, repeat until all traces of product have been removed. DO NOT INDUCE VOMITING. Seek immediate medical advice.

**Most important symptoms/effects, acute and delayed**

The most important known symptoms and effects are described in the labelling (see section 2.2) and/or in section 11

**Indication of immediate medical attention and special treatment needed, if necessary**

For advice in an emergency, contact a Poisons Information Centre (Phone Australia 131 126) or a doctor at once.

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**SECTION 5: Fire-fighting measures**

**Suitable extinguishing media**

Use fire extinguishing media appropriate for surrounding environment. Use water spray, dry chemical, carbon dioxide, or appropriate foam.

**Specific hazards arising from the chemical**

Irritating, toxic and corrosive fumes and vapours, including hydrogen chloride gas, copper fumes, chlorinated compounds, oxides of copper and chlorine, possibly also free, or ionic chlorine, Cl<sup>-</sup>. Contact with acids or acid fumes may release highly toxic hydrogen chloride fumes.

**Special protective actions for fire-fighters**

Wear SCBA and chemical splash suit. Fully-encapsulating, gas-tight suits should be worn for maximum protection.

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**SECTION 6: Accidental release measures**

**Personal precautions, protective equipment and emergency procedures**

Avoid inhalation, contact with skin, eyes and clothing. Evacuate the area of all non-essential personnel.  
Wear protective clothing specified for normal operations (see Section 8)

**Environmental precautions**

Prevent contamination of soil and water.

**Methods and materials for containment and cleaning up**

Sweep up (avoid generating dust) and using clean non-sparking tools transfer to a clean, suitable, clearly labelled container for disposal in accordance with local regulations.

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**SECTION 7: Handling and storage**

**Precautions for safe handling**

## Safety Data Sheet

### COPPER (II) CHLORIDE Dihydrate

SDS no. 9DLL0C53 • Version 1.0 • Date of issue: 2023-08-01

Avoid ingestion and inhalation of dust. Avoid contact with eyes, skin, and clothing. Avoid prolonged or repeated exposure. Minimize dust generation and accumulation. Keep containers tightly sealed when not in use. Ensure good ventilation at the workplace. In case of insufficient ventilation, wear suitable respiratory equipment. If ingested, seek medical advice immediately and show the container or the label. Wear appropriate protective equipment. Keep away from incompatibles such as oxidizing agents, metals, acids. Keep container dry.

#### Conditions for safe storage, including any incompatibilities

Store in a suitable, labelled, tightly closed containers, in a cool, dry, well-ventilated area, away from incompatible substances. Containers of this material may be hazardous when empty since they retain product residues (dust, solids); observe all warnings and precautions listed for the product.

Corrosive to aluminium. May corrode metals in the presence of moisture.

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## SECTION 8: Exposure controls/personal protection

#### Appropriate engineering controls

Use ventilation adequate to keep exposures (airborne levels of dust, fume, vapor, gas, etc.) below recommended exposure limits. If the engineering controls are not sufficient to maintain concentrations of vapours/mists below the exposure standards, suitable respiratory protection must be worn.

#### Individual protection measures, such as personal protective equipment (PPE)

##### Eye/face 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.

##### Skin protection

Clean impervious clothing should be worn. Clothing for protection against chemicals should comply with AS 3765 Clothing for Protection Against Hazardous Chemicals.

Hand Protection: Ensure hand protection complies with AS 2161, Occupational protective gloves - Selection, use and maintenance.

##### Body protection

Suitable protective workwear, e.g. cotton overalls buttoned at neck and wrist is recommended. Chemical resistant apron is recommended where large quantities are handled.

##### Respiratory protection

If engineering controls are not effective in controlling airborne exposure then an approved respirator with a replaceable vapor/ mist filter should be used. Refer to relevant regulations for further information concerning respiratory protective requirements. Reference should be made to Australian Standards AS/ NZS 1715, Selection, Use and Maintenance of Respiratory Protective Devices; and AS/NZS 1716, Respiratory Protective Devices, in order to make any necessary changes for individual circumstances.

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## SECTION 9: Physical and chemical properties

#### Basic physical and chemical properties

Physical state	Solid
Appearance	Green to blue powder or orthorhombic, bipyramidal crystals; deliquescent in moist air, efflorescent in dry air.
Color	No data available.
Odor	Odourless; slight odour of hydrochloric acid.
Odor threshold	No data available.

## Safety Data Sheet

### COPPER (II) CHLORIDE Dihydrate

SDS no. 9DLL0C53 • Version 1.0 • Date of issue: 2023-08-01

Melting point/freezing point	100 °C (decomposition).
Boiling point or initial boiling point and boiling range	Decomposes.
Flammability	No data available.
Lower and upper explosion limit/flammability limit	No data available.
Flash point	No data available.
Explosive properties	Not considered to be an explosion hazard. Slightly explosive in presence of heat. Containers may explode when heated. When mixed with potassium or sodium, it produces a strong explosion on impact.
Auto-ignition temperature	No data available.
Decomposition temperature	> 100 °C; loses water from 70-200 °C. Anhydrous substance decomposes to cuprous chloride at 993 °C.
Oxidizing properties	No data available.
pH	3.0 to 3.8 (5% solution). The aqueous solution is acid to litmus.
Kinematic viscosity	No data available.
Solubility	Solubility in Water: Freely soluble in water (770 g/l @ 20 °C; 1150 g/l @ 20 °C). Solubility in Organic Solvents: Freely soluble in methanol, ethanol; moderately soluble in acetone, ethyl acetate; slightly soluble in ether.
Partition coefficient n-octanol/water (log value)	No data available.
Vapor pressure	No data available.
Evaporation rate	No data available.
Density and/or relative density	Specific Gravity: 2.54.
Relative vapor density	>1; 5.9.
Particle characteristics	No data available.

#### Supplemental information regarding physical hazard classes

No data available.

#### Further safety characteristics (supplemental)

Other Information: Bulk Density: approx. 1070 kg/m<sup>3</sup>.

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## SECTION 10: Stability and reactivity

### Reactivity

Stable under normal conditions of storage and handling.

### Chemical stability

Stable under ordinary conditions of use and storage. Hygroscopic.

### Possibility of hazardous reactions

When mixed with potassium or sodium, it produces a strong explosion on impact. Reacts violently with powders of base metals, magnesium, and hydroxylamine. Reactive with oxidizing agents. Contact with acetylene may cause formation of copper acetylides that are shock-sensitive. Evolves highly toxic hydrogen chloride fumes on contact with acids or acid fumes. Solutions of sodium hypobromite are decomposed by powerful catalytic action of cupric ions, even as impurities. Copper(II) salts are readily reduced and therefore should be considered reactive with reducing agents, strong acids, alkali metals and finely powdered metals.

### Conditions to avoid

Dust generation, excess heat, exposure to moist air/moisture or water and incompatible materials.

### Incompatible materials

Alkali metals (potassium or sodium), acetylene, acids or acid fumes, water/moisture/moist air, various metals in the presence of moisture,

finely powdered metals, aluminium, magnesium, hydrazine, nitromethane, oxidizing agents, reducing agents, hydroxylamine, solutions of sodium hypobromite.

**Hazardous decomposition products**

Irritating, toxic and corrosive fumes and vapours, including hydrogen chloride gas, copper fumes, chlorinated compounds, oxides of copper and chlorine, possibly also free, or ionic chlorine, Cl<sup>-</sup>. Contact with acids or acid fumes may release highly toxic hydrogen chloride fumes. Contact with metals may evolve flammable hydrogen gas.

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**SECTION 11: Toxicological information**

**Information on toxicological effects**

**Acute toxicity**

Acute Toxicity - Oral: LD50 (rat): 340 mg/kg (anhydrous substance).

Ingestion: Harmful if swallowed. Ingestion of sufficient concentrations may cause irritation and possible burning pain of mucous membranes in the mouth, pharynx, oesophagus, and gastrointestinal tract, with metallic taste, salivation, headache, nausea, haemorrhagic gastritis, abdominal pain, bloody diarrhoea and vomiting. The vomitus is characteristically greenish-blue. 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 (anuria, oliguria, haematuria, acute kidney tubular necrosis, jaundice, hepatomegaly), central nervous excitation followed by depression, jaundice, somnolence, convulsions, blood effects (haemolysis, anaemia), paralysis and coma. Death may occur from shock or renal failure. Rarely methaemoglobinemia has been reported.

Inhalation: May be harmful if inhaled. Inhalation of mists or vapours causes irritation of mucous membranes of the respiratory tract (nose, throat, lungs), symptoms may include sore throat, coughing, wheezing, dyspnoea, and shortness of breath. May result in harmful corrosive effects including lesions, ulceration and perforation of the nasal septum and respiratory tract, delayed pulmonary oedema, pneumonitis and emphysema. When heated this compound may give off copper fume, which can cause <qt>fume metal fever</qt> with symptoms similar to the common cold, including chills and stiffness of the head.

// ----- From the Suggestion report (16/08/2023, 11:30 AM) ----- //  
The ATE (dermal) of the mixture is: 1100 mg/kg bw

// ----- From the Suggestion report (16/08/2023, 11:30 AM) ----- //  
The ATE (oral) of the mixture is: 500 mg/kg bw

**Skin corrosion/irritation**

Causes skin irritation, possibly severe, resulting in redness, itching, burning pain, dermatitis, and possible systemic toxicity. May cause skin burns. May be harmful if absorbed through the skin. May cause skin sensitization, an allergic reaction, which becomes evident upon re-exposure to this material.

**Serious eye damage/irritation**

Causes severe damage with symptoms of redness, inflammation, stinging, pain, blurred vision, discolouration, and possible eye damage (permanent corneal opacification, chemical conjunctivitis, ulceration) leading to irreversible eye injury.

**Respiratory or skin sensitization**

No data available.

**Germ cell mutagenicity**

May affect genetic material. Mutagenic for bacteria and/or yeast.

Copper (II) chloride (1:2): DNA damage system-mammal (species unspecified): lym 2 mmol/L (<qt>Dangerous Properties of Industrial Materials</qt>, 7th Ed., by N. Irving Sax and Richard J. Lewis).

**Carcinogenicity**

**Safety Data Sheet**  
**COPPER (II) CHLORIDE Dihydrate**

SDS no. 9DLL0C53 • Version 1.0 • Date of issue: 2023-08-01

No data available.

**Reproductive toxicity**

No data available.

**Summary of evaluation of the CMR properties**

No data available.

**Specific target organ toxicity (STOT) - single exposure**

No data available.

**Specific target organ toxicity (STOT) - repeated exposure**

No data available.

**Aspiration hazard**

No data available.

**Additional information**

Chronic Effects: Prolonged or repeated skin exposure may cause defatting leading to dermatitis. Prolonged or repeated exposure to dusts of copper salts may cause discolouration 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. Effects may be delayed. Individuals with Wilson's disease are unable to metabolize copper. Thus, copper accumulates in various tissues and may result in liver, kidney and brain damage. Chronic copper poisoning is typified by hepatic cirrhosis, brain damage and demyelination, kidney defects, and copper deposition in the cornea as exemplified by humans with Wilson's disease. It has also been reported that copper poisoning has lead to hemolytic anemia and accelerates arteriosclerosis. Symptoms of systemic copper poisoning may include: capillary damage, headache, cold sweat, weak pulse, and kidney and liver damage, central nervous system excitation followed by depression, jaundice, convulsions, paralysis, and coma. Death may occur from shock or renal failure. Depending on the intensity and duration of exposure, effects may vary from mild irritation to severe destruction of tissue.

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**CUPRIC CHLORIDE DIHYDRATE: ROUTE OF EXPOSURE**

Skin Contact: Causes skin irritation.

Skin Absorption: May be harmful if absorbed through the skin.

Eye Contact: Causes eye irritation.

Inhalation: Material is irritating to mucous membranes and upper respiratory tract. May be harmful if inhaled.

Ingestion: Harmful if swallowed.

**TARGET ORGAN(S) OR SYSTEM(S)**

Liver. Kidneys. Lungs. Nerves.

**SIGNS AND SYMPTOMS OF EXPOSURE**

To the best of our knowledge, the chemical, physical, and toxicological properties have not been thoroughly investigated. Chronic copper poisoning is typified by hepatic cirrhosis, brain damage and demyelination, kidney defects, and copper deposition in the cornea as exemplified by humans with Wilson's disease. It has also been reported that copper poisoning has lead to hemolytic anemia and accelerates arteriosclerosis. Symptoms of systemic copper poisoning may include: capillary damage, headache, cold sweat, weak pulse, and kidney and liver damage, central nervous system excitation followed by depression, jaundice, convulsions, paralysis, and coma. Death may occur from shock or renal failure. Depending on the intensity and duration of exposure, effects may vary from mild irritation to severe

destruction of tissue.

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## **SECTION 12: Ecological information**

### **Toxicity**

Quantitative data on the ecological effect of this product are not available. Highly toxic for aquatic organisms. May cause long-term adverse effects in the aquatic environment.

### **Persistence and degradability**

Methods for the determination of biodegradability are not applicable to inorganic substances.

### **Bioaccumulative potential**

No data available.

### **Mobility in soil**

No data available.

### **Results of PBT and vPvB assessment**

No data available.

### **Endocrine disrupting properties**

No data available.

### **Other adverse effects**

Do not allow to enter waters, waste water, or soil!

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## **SECTION 13: Disposal considerations**

### **Disposal methods**

### **Product disposal**

Waste material must be disposed of in accordance with the national and local regulations. Leave chemicals in original containers.

### **Other disposal recommendations**

Do not discharge this material into waterways, drains and sewers.

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## **SECTION 14: Transport information**

### **ADG (Road and Rail)**

UN Number: 2802

Class: 8

Packing Group: III

Proper Shipping Name: COPPER CHLORIDE

Environmental Hazards: Highly toxic for aquatic organisms. May cause long term adverse effects in the aquatic environment.

### **Hazchem emergency action code (EAC)**

2Z

### **IMDG**

UN Number: 2802

Class: 8



**Safety Data Sheet**  
**COPPER (II) CHLORIDE Dihydrate**

SDS no. 9DLL0C53 • Version 1.0 • Date of issue: 2023-08-01

Packing Group: III  
EMS Number:  
Proper Shipping Name: COPPER CHLORIDE

**IATA**

UN Number: 2802  
Class: 8  
Packing Group: III  
Proper Shipping Name: COPPER CHLORIDE

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**SECTION 15: Regulatory information**

**Safety, health and environmental regulations specific for the product in question**

**Australia SUSMP**

Poison Schedule: S6

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**SECTION 16: Other information**

**Further information/disclaimer**

ChemSupply Australia 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 ChemSupply Australia 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 ChemSupply Australia 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.

**Preparation information**

All information provided in this data sheet or by our technical representatives is compiled from the best knowledge available to us. However, since data, safety standards and government regulations are subject to change and the conditions of handling and use, or misuse, are beyond our control, we make no warranty either expressed or implied, with respect to the completeness or accuracy to the information contained herein. ChemSupply Australia Pty Ltd accepts no responsibility whatsoever for its accuracy or for any results that may be obtained by customers from using the data and disclaims all liability for reliance on information provided in this data sheet or by our technical representatives.

Standard for the Uniform Scheduling of Medicines and Poisons, Commonwealth of Australia

National Road Transport Commission, 'Australian Code for the Transport of Dangerous Goods by Road and Rail 7th. Ed.'

Safe Work Australia, 'National Code of Practice for the Preparation of Safety Data Sheets for Hazardous Chemicals', July 2020.

Safe Work Australia, 'National Guide for Classifying Hazardous Chemicals', July 2020.

Safe Work Australia, Workplace Exposure Standards for Airborne Contaminants, December 2019

Safe Work Australia, Hazardous Chemical Information System (HCIS), [hcis.safeworkaustralia.gov.au](http://hcis.safeworkaustralia.gov.au)

IATA, Dangerous Goods Regulations (DGR)

IMO, International Maritime Dangerous Goods Code (IMDG)