



# COPPER SULPHATE

## SAFETY DATA SHEET

Revised – June 2017

### 1. IDENTIFICATION

Product Name: Copper Sulphate  
 Recommended Use: Fertiliser and/or Molluscicide

Supplier: Melpat International Pty Ltd  
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### 2. HAZARD(S) IDENTIFICATION

According to Regulation (EC) No. 1272 / 2008:

Acute Toxicity (Oral) : Harmful if swallowed  
 (category 4)

Skin Irritation : Causes skin irritation  
 (category 2)

Eye Irritation : Causes serious eye irritation  
 (category 2)

Aquatic Acute : Very toxic to aquatic life  
 (category 1)

Aquatic Chronic : Very toxic to aquatic life with long lasting effects.  
 (category 1)

Label Element: Signal Word : POISON

Pictograms:



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

### 3. COMPOSITION / INFORMATION ON INGREDIENTS

**Note:** This product contains a minimum of 98% w/w copper (II) sulphate equivalent to 25% w/w elemental copper (Cu). No additives are present in this substance.

Common Name	: Copper Sulphate Pentahydrate
CAS Name	: cupric sulphate
Molecular Formula	: $\text{CuH}_{10}\text{O}_9\text{S}$
Structural Formula	: $\text{CuSO}_4 \cdot 5\text{H}_2\text{O}$
Molecular Weight Range	: 249.68 g/mol
Concentration	: minimum 98%
CAS No	: 7758-99-8
UN No	: 3077
Class	: 9
EC Number	: 231-847-6

### 4. FIRST AID MEASURES

Ingestion	: DO NOT give anything by mouth to an unconscious person. Promptly drink large quantities of water. DO NOT induce vomiting. If vomiting occurs spontaneously, keep head below hips to prevent aspiration of liquid into the lungs. Seek medical attention immediately.
Skin Contact	: Provide safety showers. Remove contaminated clothes and shoes. Wash with lukewarm water and soap to remove all evidence of the chemical (approximately 15 minutes). Give medical attention. Launder contaminated clothing before reuse. Consult a doctor if some irritation persists.
Eye Contact	: Hold eyelids open and flush with lukewarm water for at least 20 minutes, until no evidence of the chemical remains. If wearing contact lenses, remove immediately. Seek medical attention immediately.
Inhalation	: Remove victim to fresh air. If breathing is difficult, give oxygen. Give artificial respiration if necessary. Seek medical attention if symptoms persist.
Important Symptoms and Effects (both acute and delayed)	: Symptoms of systemic copper poisoning may include: Capillary damage; headache; weak pulse; cold sweat and kidney and liver damage; central nervous system excitation followed by depression, jaundice, convulsions, paralysis, and coma.

Chronic copper poisoning is typified by hepatic cirrhosis, brain damage and demyelination, kidney defects, and copper disposition in the corneas exemplified by humans with Wilson’s disease.

There have also been reports of copper poisoning leading to hemolytic anemia and accelerates arteriosclerosis.

Advice to treating physician : Medical treatment should be symptomatic and supportively. Chelating agents should be prescribed as well as pain medication for pain relief if necessary.

**5. FIRE FIGHTING MEASURES**

Extinguishing media : Use dry chemical powder, carbon dioxide, foam – use extinguishing media that is suitable to the environment. Use water jets with caution in order to avoid product running into drains and water ways.

General hazard : Negligible fire and explosion hazard when exposed to heat or flame. Not expected to be sensitive to mechanical impact or static discharge.

Special hazards arising from the substance or mixture : Thermal decomposition products include highly toxic gases: carbon dioxide, carbon monoxide, sulphurous gasses.

Personal protection equipment for fire fighting : Use adequate protective clothes (including gloves) and self-contained, positive pressure breathing apparatus, approved specifically for confined areas.

Additional Information : In case of fire, prevent by any means possible spillage from entering drains or water ways.

Hazardous Material Information

<b>HEALTH</b>	<b>2</b>	
<b>FLAMMABILITY</b>	<b>0</b>	
<b>REACTIVITY</b>	<b>0</b>	
<b>PROTECTIVE EQUIPMENT</b>	<b>E</b>	

Hazard Ratings:

- 4 = severe
- 3 = serious
- 2 = moderate
- 1 = slight
- 0 = minimal
- E = Safety glasses, gloves, dust respirator

## 6. MEASURES TO CONTROL SPILLS AND LEAKS

Personal Precautions, Protective Equipment and Emergency Procedures	<p>: For non-emergency personnel:</p> <ul style="list-style-type: none"> <li>• Evacuate the area</li> <li>• Use self-contained breathing apparatus and protective clothing and gloves to prevent inhalation and contact with eyes and skin.</li> <li>• Ensure area is well ventilated. Avoid making dust.</li> <li>• By any means possible prevent spillage from entering drains or water ways.</li> </ul> <p>For emergency responders:</p> <ul style="list-style-type: none"> <li>• Use self-contained breathing apparatus and protective clothing and gloves to prevent contact with eyes and skin.</li> <li>• Ensure area is well ventilated. Avoid making dust.</li> <li>• By any means possible prevent spillage from entering drains or water ways.</li> </ul>				
Environmental Precautions	<p>: Pollution may occur by runoff from fire control or dilution water. Avoid the material from entering drains or water ways. Toxic to aquatic ecosystems.</p>				
Methods and Materials for containment and cleaning up	<p>: Spills on the Ground</p> <table border="0" style="width: 100%;"> <tr> <td style="vertical-align: top;">Small Spills</td> <td style="vertical-align: top;"> <ul style="list-style-type: none"> <li>- Isolate area and prevent people from entering.</li> <li>- Avoid making dust.</li> <li>- Mop and wipe away.</li> <li>- Place material in a clean, dry container and seal for subsequent disposal.</li> <li>- Properly dispose of material according to local regulations.</li> </ul> </td> </tr> <tr> <td style="vertical-align: top;">Large Spills</td> <td style="vertical-align: top;"> <ul style="list-style-type: none"> <li>- Isolate area and prevent people from entering.</li> <li>- Avoid making dust.</li> <li>- Scoop up the material.</li> <li>- Place material in clean, dry containers and seal for subsequent disposal.</li> <li>- Properly dispose of material according to local regulations.</li> </ul> </td> </tr> </table> <p>: Spills on the Water</p> <p>Isolate spill area. Recover the material as soon as possible – material is soluble in water. Deposit into a suitable container and dispose of according to local regulations. DO NOT drink the contaminate water. High concentrations of copper in water are toxic to aquatic ecosystems.</p>	Small Spills	<ul style="list-style-type: none"> <li>- Isolate area and prevent people from entering.</li> <li>- Avoid making dust.</li> <li>- Mop and wipe away.</li> <li>- Place material in a clean, dry container and seal for subsequent disposal.</li> <li>- Properly dispose of material according to local regulations.</li> </ul>	Large Spills	<ul style="list-style-type: none"> <li>- Isolate area and prevent people from entering.</li> <li>- Avoid making dust.</li> <li>- Scoop up the material.</li> <li>- Place material in clean, dry containers and seal for subsequent disposal.</li> <li>- Properly dispose of material according to local regulations.</li> </ul>
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**7. HANDLING & STORAGE**

General Information	: Average shelf life under proper storage conditions is at least 2 years.
Precautions	: Avoid dust generation. Work in a well ventilated area. Provide suction extractors if dust is formed. Avoid eye and skin contact. Avoid breathing in dust. Use safety goggles, protective clothing, gloves and dust respirator (covering nose and mouth). Keep product sealed and dry. DO NOT handle with incompatible substances (refer item 10 herein) DO NOT eat, drink or smoke near the product. Remove contaminate clothing and protective equipment before entering eating areas. Wash hands thoroughly before eating or drinking.
Conditions for safe storage	: Do not store in metal containers. May be corrosive to metal after a long period of storage. Keep product sealed and dry. Do not store in an unlabeled container. DO NOT store with incompatible substances (refer item 10 herein) Store in a cool, clean, dry and well ventilated area – out of direct sunlight. Protect from rain and excessive heat. Do not store near feed, food or within reach of children. Room temperature is directly related to the product forming lumps.

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**8. EXPOSURE CONTROL / PERSONAL PROTECTION**

CONTROL PARAMETERS	: Prevent accumulation of dust in the air. Control enclosed spaces with adequate ventilation. Prevent exceeding the: TLV (Threshold Limit Value): 1mg/m <sub>3</sub> for copper dusts and mists as Cu; and PEL (Permissible Exposure Limit): 1mg/m <sub>3</sub> for copper dusts and mists as Cu.
EXPOSURE CONTROLS:	
Appropriate Engineering Controls	: Use local ventilation if dust is a problem, to maintain air levels below the recommended exposure limit.
Personal Protective Equipment	: <u>Eye / Face Protection:</u> Wear splash-proof / dust resistant safety goggles. Use equipment for eye protection that is tested and approved under appropriate government standards.  <u>Skin Protection:</u> Wear impervious clothing to prevent repeated or prolonged skin contact with this product.

Hand Protection:

Wear PVC gloves.  
 Dispose of contaminated gloves after use.  
 Avoid skin contact with this product.  
 Wash and dry hands.

Respiratory Protection:

Wear approved dust and mist respirator.

Other Recommendations:

After handling this product, always wash hands before eating, drinking, smoking or using the toilet.  
 Wash contaminated clothing and other protective equipment before storing and re-using.

**9. PHYSICAL & CHEMICAL PROPERTIES**

Appearance and colour	: Solid blue crystals or light blue powder
Odour	: Odourless
pH (water suspension 5%)	: 3.5 to 4.5
Melting point	: Decomposition before melting point
Initial boiling point	: Decomposes without boiling at 110°C
Flammability	: not flammable. Wholly inorganic salts are not combustible or flammable.
Vapour pressure	: as this substance is an inorganic salt it has negligible vapour pressure at environmentally relevant temperatures.
Vapour density	: negligible at environmentally relevant temperatures.
Relative density	: ~ 2.286 g / cm <sup>3</sup>
Water solubility	: very soluble in water
Solubility	: 22g/100g water at 25°C
Insolubility:	: Insoluble in ethanol and practically insoluble in most other organic solvents.
Auto ignition temperature	: Not applicable
Decomposition temperature	: 110°C
Oxidising properties	: no oxidising properties. Considered inert under the conditions of oxidation.
Dehydration	: Pentahydrate loses two water molecules of hydration by 30°C, two more by 110°C and becomes anhydrous by 250°C

**10. STABILITY & REACTIVITY**

Reactivity	: Not considered reactive under normal temperatures and pressures.
Chemical Stability	: Stable under normal temperatures and pressures. Not a self-heating substance. Product does not ignite when it comes in contact with water nor evolve gases.
Possibility of hazardous reactions	: No dangerous reactions.
Conditions to avoid	: Excessive heat, direct sunlight, high moisture / humid conditions, dust generation, incompatible materials / products.
Incompatible Materials	: Acids, aluminum powders, caustic or ammonia solutions, acetylene, hydrogen peroxide, bromates, chlorates, finely powdered metals, steel, nitromethane, hydrazine, sodium hypobromite.  Reacts violently with hydroxylamine, magnesium.
Hazardous Decomposition Products	: Decomposes in case of fire, giving off highly toxic gases. Carbon dioxide. Carbon monoxide. Sulphurous gasses. Cupric Oxide. Contact with magnesium metal can generate dangerous levels of hydrogen gas. Aluminum will evolve less hydrogen gas upon contact.

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**11. TOXICOLOGICAL INFORMATION**INFORMATION ON TOXICOLOGICAL EFFECTS:

Acute Toxicity	: LD <sub>50</sub> oral (rats): 482 mg/kg b.w. LD <sub>50</sub> dermal (rats): >2,000 mg/kg b.w. LC <sub>50</sub> inhalation (rats): Not Classified.
Skin irritation	: Yes
Serious eye irritation	: Yes
Skin sensitization	: Not classified
Respiratory sensitization	: Not classified
Germ cell mutagenicity	: Not known
Carcinogenicity	: Not known
Teratogenicity	: Not known
STOT – Single Exposure	: Not classified
STOT – Repeated Exposure	: Not classified

**12. ECOLOGICAL INFORMATION**TOXICITY:

Acute: Category 1  
 Chronic: Category 1

Based on the "Joint Chemical Safety Report" for the REACH, the conclusions are as follows:

- Conclusions on Acute classification for the environment: Classified in the aquatic Acute; Category 1. An M factor of 10 is applied.
- Conclusions on Chronic classification for the environment: Classified in the aquatic Chronic; Category 1.

PERSISTENCE AND DEGRADABILITY:

Stability, Abiotic Degradation : stable

Degradability : not biodegradable

BIO-ACCUMULATIVE POTENTIAL:

Not bio accumulative

MOBILITY IN SOIL:

The degree of mobility of copper in the environment depends on the pH of ambient soils and waters. The higher the acidity, the more soluble copper salts are and, therefore more mobile. The distance that it can travel in the soil is limited by its strong absorption to many types of surfaces. Partitioning copper into air is negligible due to the low vapor pressure of copper salts.

**13. CONSIDERATIONS ON FINAL DISPOSAL**

Product disposal : Disposal of this product should at all times comply with the requirements of environmental protection and waste disposal legislation and any regional and local authority requirements. Generation of waste should be avoided or minimised where possible.

Avoid dispersal of spilled material.

Avoid contact with soil, waterways, drains and sewers. Disposal of copper waste into waterways is not allowed.

Avoid excessive heat and incompatible materials: strong oxidising agents, mercury containing compounds, thiram, DNOC, lime sulphur and dithiocarbamates.



Disposal of contaminated containers / packaging : DO NOT dispose of undiluted chemicals on site. Puncture or and deliver empty packaging for appropriate disposal to an approved waste management facility. If an approved waste management facility is not available, bury the empty packaging 500mm below the surface in a disposal pit specifically marked and set up for this purpose clear of waterways, desirable vegetation and tree roots, in compliance with relevant Local, State or Territory government regulations. DO NOT burn empty containers or product.

#### 14. TRANSPORT INFORMATION

UN No : UN3077

UN proper shipping name : ENVIRONMENTALLY HAZARDOUS SUBSTANCE, SOLID, N.O.S. (84% dicopper chloride tryhydroxide), 9, UN3077, III.

Classification Code : M7

Class : 9

Packaging Group : III

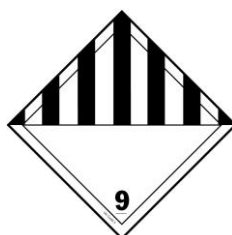
Hazard No. : 90

Transport Category : 3

Tunnel restriction code : E

Secondary risk : Marine Pollutant

PLACARDS



#### 15. REGULATORY INFORMATION

APVMA Approval No. : 65532/58563

Worksafe Australia Criteria : Classified as Hazardous.  
Dangerous for the environment. HARMFUL

Marking on Label : Poison  
Keep out of reach of children  
READ SAFETY DIRECTIONS BEFORE OPENING OR USING THIS PRODUCT

**16. OTHER INFORMATION**

The information contained in this MSDS is provided in good faith and is believed to be correct at the date hereof. However, it is expected that individuals receiving the information will exercise their independent judgement in determining its appropriateness for a particular purpose. Melpat International Pty Ltd makes no representation as to the accuracy or comprehensiveness of the information. To the full extent allowed by law, Melpat International Pty Ltd excludes all liability whatsoever - whether with respect to negligence or otherwise, for any loss or damage arising from or connection with the supply or use of the information in this MSDS.

**June 2017**