1. IDENTIFICATION OF THE MATERIAL AND SUPPLIER

Product Name	**COPPER SULPHATE PENTAHYDRATE**
Other Names	Blue Copperas; Blue Stone; Blue Vitriol; Cupric Sulphate
Uses	Agriculture (soil additive, pesticides, Bordeaux mixture), feed additive, germicides, textile mordant, leather industry, pigments, electric batteries, electroplated coatings, copper salts, reagent in analytical chemistry, medicine, wood preservative, preservation of pulp wood and ground pulp, process engraving and lithography, ore flotation, petroleum industry, synthetic rubber, steel manufacture, treatment of natural asphalts.
Chemical Family	No Data Available
Chemical Formula	$CuSO_4.5H_2O$
Chemical Name	Copper Sulphate Pentahydrate
Product Description	No Data Available

Contact Information	**Australia**	**Location**	**Telephone**	**Ask For**
	Rural Liquid Fertilisers Pty Ltd	61 Dowd Street Welshpool WA 6106	+61 1800 753 000	Technical Officer

2. HAZARDS IDENTIFICATION

ADG Code	Non-Dangerous Goods according to the criteria of the Australian Dangerous Goods Code (ADG Code).	
ASCC Hazardous Classification	Hazardous according to the criteria of ASCC [NOHSC:1008(2004)]	
Categories	N	Dangerous For The Environment
	Xn	Harmful
Risk Phrases	R22	Harmful if swallowed.
	R36/38	Irritating to eyes and skin.
	R50/53	Very toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment.
Safety Phrases	S2	Keep out of reach of children.
	S22	Do not breathe dust.
	S24/25	Avoid contact with skin and eyes.
	S26	In case of contact with eyes, rinse immediately with plenty of water and seek medical advice.
	S36/37/39	Wear suitable protective clothing, gloves and eye/face protection.
HSNO Hazard Classification	6.1D; 6.9A; 9.1B; 9.3C	
Poisons Schedule (Aust)	No Data Available	

3. COMPOSITION / INFORMATION ON INGREDIENTS

Ingredients

Chemical Entity	Formula	CAS Number	Proportion
Copper Sulphate Pentahydrate	No Data Available	7758-99-8	98.0 - 100.0 %

4. FIRST AID MEASURES

Description of necessary measures according to routes of exposure:

Swallowed	Rinse mouth with water. Give plenty of water to drink provided victim is conscious. Do NOT induce vomiting. Seek medical attention immediately.
Eyes	Immediately flush eyes with plenty of water for at least 15 minutes holding eyelids open. Seek medical attention as a sensible precaution.
Skin	Remove contaminated clothing. Wash affected area with plenty of water. If swelling, redness, blistering or irritation occurs, seek medical attention.
Inhaled	Remove victim from exposure to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Do NOT use mouth to mouth method. Induce artificial respiration with the aid of a pocket mask equipped with a one way valve or other proper respiratory medical device. Seek immediate medical attention.
Advice to Doctor	Treat symptomatically based on individual reactions of patient and judgement of doctor. 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	May cause skin sensitisation in certain individuals. Sulphur allergies may occur. Wilson's disease can be aggravated by excessive exposure. Symptoms include nausea, vomiting, epigastria pain, diarrhoea, dizziness, jaundice and general debility.

5. FIRE FIGHTING MEASURES

Flammability Conditions	Product is a non-flammable solid.
Extinguishing Media	In case of fire, appropriate extinguishing media include water fog or if unavailable fine water spray, foam, dry agent such as carbon dioxide or dry chemical powder. If stored with other combustible materials, use water, carbon dioxide or dry chemical. Use water to keep fire exposed containers cool.
Hazardous Products of Combustion	Non-combustible solid. Material does not burn nor will it support combustion. Decomposes on heating emitting toxic fumes, including those of oxides of copper, and oxides of sulfur. Sealed containers may rupture when heated due to release of water from crystals.
Personal Protective Equipment	Fire fighters should wear a positive-pressure self-contained air-supplied breathing apparatus and protective fire fighting clothing (includes fire fighting helmet, coat, trousers, boots and gloves). Clear fire area of all non- emergency personnel. Stay upwind. Keep out of low areas where gases or fumes can accumulate. Eliminate ignition sources. If water is used, it will solubalize the copper sulfate and care should be taken to keep such water out of streams or other water bodies. Move fire exposed containers from fire area if it can be done without risk.
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

Personnel involved in the clean up should wear full protective clothing. Evacuate all unnecessary personnel. Eliminate all sources of ignition. Increase ventilation. Avoid generating dust. Stop leak if safe to do so. Isolate the danger area. Do NOT let product reach drains or waterways. If product does enter a waterway, advise the Environmental Protection Authority or your local Waste Management. Slippery when spilt.

Clean Up Procedures

Contain and neutralise with bicarbonate of soda or limestone then sweep/shovel up spills with dust binding material or use an industrial vacuum cleaner. Transfer to a suitable, labelled chemical waste container and dispose of promptly as hazardous waste. Wash area down with excess water.

7. HANDLING AND STORAGE

Handling

Ensure an eye bath and safety shower are available and ready for use. Observe good personal hygiene practices and recommended procedures. Wash thoroughly after handling. Take precautionary measures against dust generation and accumulation, and static discharges by bonding and grounding equipment. Wash outside of gloves before removing. Keep away from galvanised pipe, aluminium and nylon. Avoid contact with eyes, skin and clothing. Do NOT inhale product dust/fumes.

Storage

Store in a cool, dry, well-ventilated area. Keep containers tightly sealed when not in use. Inspect regularly for deficiencies such as damage or leaks. Protect from physical damage. Store away from incompatible materials as listed in section 10. Protect from direct sunlight, moisture and static charges. Store away from foodstuffs. Keep away from galavnised pipe, aluminium and nylon. This product has a UN classification of 3077 and a Dangerous Goods Class 9 (Miscellaneous) according to The Australian Code for the Transport of Dangerous Goods by Road and Rail.

NOTE: This product is subject to special provision AU01 according to The ADG7.

SP No. AU01 Environmentally Hazardous Substances meeting the descriptions of UN 3077 or UN 3082 are not subject to this Code when transported by road or rail in; (a) packagings; (b) IBCs; or (c) any other receptacle not exceeding 500 kg(L).

Container

Packaging must comply with requirements of Hazardous Substances (Packaging) Regulations 2001. Store in original packaging as approved by manufacturer.

8. EXPOSURE CONTROLS / PROTECTION

General

No exposure standard has been established for this product by the Australian Safety and Compensation Council (ASCC). However, the exposure standard for constituents: Copper Dusts and Mists (as Cu) : 8hr TWA = 1mg/m3 Copper (fume) : 8hr TWA = 0.2mg/m^3

NOTE: 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. These exposure standards are guides to be used in the control of occupational health hazards. All atmospheric contamination should be kept to as low a level as is workable. These exposure standards should not be used as fine dividing lines between safe and dangerous concentrations of chemicals. They are not a measure of relative toxicity.

Exposure Limits

No Data Available

Biological Limits

No information available on biological limit values for this product.

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.

9. PHYSICAL AND CHEMICAL PROPERTIES

Physical State	Solid
Appearance	Granules, Crystals, Powder
Odour	Odourless
Colour	Transparent Blue
pH	No Data Available
Vapour Pressure	No Data Available
Relative Vapour Density	No Data Available
Boiling/Melting Point	150 °C
Solubility	117.95% (100'C) °C
Freezing Point	110 °C
Specific Gravity	2.284 (15.6'C)
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	No Data Available
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 Data Available
Potential for Dust Explosion	No Data Available
Fast or Intensely Burning Characteristics	No Data Available
Flame Propagation or Burning Rate of Solid Materials	No Data Available
Non-Flammables That Could Contribute Unusual Hazards to a Fire	No Data Available
Properties That May Initiate or Contribute to Fire Intensity	No Data Available
Reactions That Release Gases or Vapours	No Data Available
Release of Invisible Flammable Vapours and Gases	No Data Available

10. STABILITY AND REACTIVITY

Chemical Stability	Product is stable under normal conditions of use, storage and temperature.
Conditions to Avoid	Avoid excessive heat, direct sunlight, static discharges, generating dust, moisture, foodstuffs, and high temperatures.
Materials to Avoid	Incompatible with strong oxidizing agents, finely powdered metals, hydrazine, hydroxylamine, magnesium, nitromethane, steel, air, aluminium powder, acetylene gas, strong bases, strong reducing agents and sources of ignition. Solutions are mildly corrosive to steel. Store solutions in plastic or rubber or 304, 347 or 316 stainless steel. Iron and moisture should be avoided. Incompatible with aluminium powder, acetylene gas, hydroxylamine, magnesium and moisture. Contact with magnesium can create dangerous levels of hydrogen gas. With exposure to air, it will oxidise and turn whitish.
Hazardous Decomposition Products	Hazardous decomposition products may include oxides of copper and oxides of sulphur. If heated to above 600'C, toxic sulfur may evolve.
Hazardous Polymerisation	Hazardous Polymerisation will not occur. Contact with magnesium can generate dangerous levels of hydrogen gas. With exposure to air it will oxidise and turn whitish.

11. TOXICOLOGICAL INFORMATION

General Information	No LD50 data avilable for the product. However, for the anhydrous form: Oral LD50 Rat : 300mg/Kg Oral LD50 Mouse : 369mg/Kg Oral LD50 Rat : >472.5mg/Kg Skin LD50 Rabbit: >8000mg/Kg Eye Irritation : Corrosive, irreversible eye damage. Skin Irritation : No skin irritation. IPR LD50 Mouse : 30mg/Kg
Eye Irritant	Irritating to eyes. Can cause severe eye irritation and may result in irreversible eye damage.
Ingestion	Harmful if swallowed. Swallowing may result in nausea, vomiting, diarrhoea, gastrointestinal irritation and abdominal pain. Product contains elemental copper.Ingestion may cause acute copper toxicity, gastritis pain or abdominal pain.
Inhalation	Inhalation of dust can result in irritation of the nasal mucous membranes and sometimes of the pharynx, on occasion ulceration with perforation of the nasal septum. Breathing in fumes from heating may produce symptoms of "metal fume fever". This condition is characterised by influenza type symptoms occuring a few hours after exposure and lasting up to 48 hours.
Skin Irritant	Symptoms may include chills, fever, headache, tightness of the chest, coughing, weakness, dryness of the nose and mouth, muscular pain, nausea and vomiting. Dust may ulcerate the nose and throat. Irritating to skin. May cause irritation or burns on wet skin. Repeated exposure may cause allergic dermatitis. May cause skin sensitisation in certain individuals. Exposure to copper dust causes discolouration of the skin. Prolonged exposure may cause eczema. May be harmful if absorbed through the skin.
Carcinogen Category	0

12. ECOLOGICAL INFORMATION

Ecotoxicity	Toxic to aquatic organisms. May cause long term adverse effects in the aquatic environment. Fish toxicity critical concentration is 235mg/L and plant toxicity is 25mg/L. Product is a Marine Pollutant.
Persistence/Degradability	No information available on persistence/degradability for this product.
Mobility	No information available on mobility for this product. Soluble in water.
Environmental Fate	Do NOT let product reach waterways, drains and sewers.
Bioaccumulation Potential	No information available on bioaccumulation for this product.
Environmental Impact	No Data Available

13. DISPOSAL CONSIDERATIONS

General Information	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.
Special Precautions for Land Fill	Contact a specialist disposal company or the local waste regulator for advice. This should be done in accordance with 'The Hazardous Waste Act'. If product is in a confined solution, react with soda ash to form an insoluble Coper Carbinate Solid that can be scooped up. Dispose of in an approved land- fill.

14. TRANSPORT INFORMATION

ADG Code	Non-Dangerous Goods according to the criteria of the Australian Dangerous Goods Code (ADG Code).
Air	
IATA	
Proper Shipping Name	ENVIRONMENTALLY HAZARDOUS SUBSTANCE, SOLID, N.O.S.
Class	9 Misclllaneous Dangerous Goods and Articles
Subsidiary Risk(s)	No Data Available
UN Number	3077
Hazchem	2Z
Pack Group	III
Special Provision	No Data Available
Land	
Australia: ADG Code	
Proper Shipping Name	COPPER SULPHATE PENTAHYDRATE
Class	No Data Available
Subsidiary Risk(s)	No Data Available
EPG	47 Low To Moderate Hazard Substances
UN Number	No Data Available
Hazchem	No Data Available
Pack Group	No Data Available
Special Provision	SPAU01

New Zealand: NZS5433	
Proper Shipping Name	ENVIRONMENTALLY HAZARDOUS SUBSTANCE, SOLID, N.O.S.
Class	9 Miscllaneous 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	
IMDG	
Proper Shipping Name	ENVIRONMENTALLY HAZARDOUS SUBSTANCE, SOLID, N.O.S. (COPPER SULPHATE)
Class	9 Miscllaneous Dangerous Goods and Articles
Subsidiary Risk(s)	No Data Available
UN Number	3077
Hazchem	2Z
Pack Group	III
Special Provision	No Data Available
EMS	FA,SF
Marine Pollutant	Yes

15. REGULATORY INFORMATION

General Information	No Data Available
EPA (New Zealand)	**Hazardous Substances and New Organisms Act (HSNO)**
	Approval Code: HSR003126
Poisons Schedule (Aust)	6
AICS Name	SULFURIC ACID, COPPER(2+) SALT (1:1), PENTAHYDRATE

16. OTHER INFORMATION

Key/Legend

<	Less Than
>	Greater Than
AICS	Australian Inventory of Chemical Substances
atm	Atmosphere
CAS	Chemical Abstracts Service (Registry Number)
cm^2	Square Centimetres
CO_2	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/cm^3	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
inH_2O	Inch of Water
K	Kelvin
kg	Kilogram
kg/m^3	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
m^3	Cubic Metre
mbar	Millibar
mg	Milligram
mg/24H	Milligrams per 24 Hours
mg/kg	Milligrams per Kilogram
mg/m^3	Milligrams per Cubic Metre
Misc or Miscible	Liquids form one homogeneous liquid phase regardless of the amount of either component present.
mm	Millimetre
mmH_2O	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
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
torr	Millimetre of Mercury
TWA	Time Weighted Average
ug/24H	Micrograms per 24 Hours
UN	United Nations
wt	Weight

Disclaimer

This document has been prepared by Rural Liquid Fertilisers (RLF), and is believed to represent the current state of knowledge as to the appropriate safety and handling precautions for the product at the time of issue.

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Revision: 1
SDS Date: 05 October 2017
End of SDS