MATERIAL SAFETY DATA SHEET

Hazardous according to criteria of Worksafe Australia

Date of Issue : Jan 2001

1. IDENTIFICATION

General

Product Name : COPPER SULPHATE PENTAHYDRATE

Other Names : CUPRIC SULPHATE ; BLUE VITRIOL ; BLUE STONE BLUE COPPERAS

UN No. : N/A

Dangerous Goods Class : None Allocated

Subsidiary Risk : None Allocated

Hazchem Code : N/A

Pack Group : 0

EPG : N/A

Poisons Schedule : 6

Uses :

Agriculture (soil additive, pesticides, Bordeaux misture), 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. The anhydrous salt is used as a dehydrating agent.

1.1 Physical Description / Properties

Appearance : Clear, blue crstalline granules or or powder

Formula : CuSO4.5H2O

Boiling Point : 150 deg C

Melting Point : 110 deg C

Vapour Pressure : N/A

Specific Gravity : 2.28 (water = 1)

Flash Point : N/A

pH : 4 (0.2M soln)

Solubility in water : 100 g/l (25 deg C)

Flammability Limits (as percentage volume in air)

Lower Explosion Limit : N/A

Upper Explosion Limit : N/A

1.2 Other Properties

Soluble in water and methanol. Slighlty soluble in alcohol and glycerol and methanol.

1.3 Ingredients

Chemical Entity	CAS No.	Proportions (%)
COPPER SULPHATE PENTAHYDRATE	[7758-99-8]	> 96
WATER	[7732-18-5]	< 0.1

SULPHURIC ACID (FREE)	[7664-93-9]	< 0.2

2. HEALTH HAZARD INFORMATION

2.1 Health Effects - Acute

Swallowed

Metallic taste in mouth. Burning sensation in throat and vomiting are typical effects. more severe poisoning causes irritation in digestive tract with abdominal pain, nausea, vomiting, ulceration and diarrhoea. May cause haemorrhaging of the digestive tract. Can be fatal.

Eye

May cause eye irritation and local inflammation, tissue destruction, corneal opacity and adhesion of the eyelid to the eye. May also cause conjunctivitis and ulcerations. Traces of sulphuric acid impurity may contribute to these effects.

Skin

May cause skin irritations and discolouration of the skin.

Inhaled

Dusts and mists (copper solutions) can cause irritation of the nasal passages and throat. Ulceration and perforation of the nasal septum is possible if inhaled in excessive quantities. These effects may be due to traces of sulphuric acid impurities.

2.2 Health Effects - Chronic

Repeated exposure to the dust or fumes can damage the liver and/or lungs. It can also cause copper to deposit in the skin and hair, leaving a green colour. Metallic taste may also occur in the mouth. Repeated exposure can cause shrinking of the lining of the inner nose, with a watery discharge, or thickening of the skin. Exposure may also casue skin allergy or dermititis. If allergy deveops, even low future exposures may trigger a rash. Very irritating substances may affect the lungs. It is not known whether copper sulphate causes lung damage. Prolonged or repeated eye contact may cause conjunctivitis. This substance has adverse reproductive and foetal effects in

animals. Copper is an essential element and its level in the body is strictly controlled. Under most conditions, excess copper is excreted in the urine and faeces.

2.3 First Aid

Swallowed

Induce vomiting. If victim is conscious and alert, give 2 - 4 cupfuls of milk or water. Rinse mouth with water. Seek medical advise immediately.

Eye

Flush eyes with plenty of water for at least 15 minutes, occasionally lifting the upper and lower lids. Seek medical attention immediately.

Skin

Remove contaminated clothng immediately. Completely decontaminate clothing, shoes and leather goods before re-use or discard. Wash affected skin with plenty of soap and water for at least 15 minutes. Seek medical attention if irritation persists.

Inhaled

Remove from exposure to fresh air immediately. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Seek medical attention.

First Aid Facilities

Ensure an eye bath and safety shower are available and ready for use.

2.5 Advice to Doctor

Treat symptomatically based on judgement of doctor and individual reactions of patient. Penicillamine may be of value as a chelating agent.

2.6 Toxicity Data

Oral LD50 = 300 mg/kg (Rat) ; 60 mg/kg (Dog) Oral LDLo = 1088 mg/kg (Human) ; 60 mg/kg (Dog) Dermal LD50 = not available Inhalation LC50 = not available Not listed as a carcinogen by ACGIH, IARC, NIOSH, NTP or OSHA.

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3. PRECAUTIONS FOR USE

3.1 Exposure Standards

Worksafe Australia recommends the following exposure limits : Copper, dusts and mists (as Cu) : TWA = 1 mg/m3 Copper (fume) : TWA = 0.2 mg/m3

3.2 Engineering Controls

Ensure adequate general or local exhaust ventilation to keep airborne concentrations below the permissable exposure limits.

3.3 Personal Protection

Respiratory - always wear a NIOSH-approved respirator. Eyes - wear appropriate protective eyeglasses and/or eye/face protection. Skin - wear natural rubber gloves, apron and/or other protective clothing to minimise exposure. Wash hands and face thoroughly after handling, and before eating, drinking, smoking or using toilet facilities.

3.4 Flammability

Material is non-flammable under conditions of use.

SAFE HANDLING INFORMATION

4.1 Storage / Transport

Store in a cool, dry area away from direct sunlight and heat in original containers. Minimise dust generation and accumulation. Store away from structual steel.

4.2 Packaging / Labelling

UN No. N/A

Class None Allocated

Sub Risk None Allocated

Hazchem Code N/A

Pack Group 0

EPG No. N/A

Shipping Name COPPER SULPHATE PENTAHYDRATE

Hazard HARMFUL

Risk Phrases

R22 Harmful if swallowed.

R36/38 Irritating to eyes and skin.

Safety Phrases

S2 Keep out of the reach of children.

S22 Do not breathe dust.

4.3 Spills and Disposal

Spills

Avoid generating dusts.

Vacuum or sweep up material, place into suitable labelled containers and hold for waste disposal. Wash spill residues away with copious quantities of water. Dispose in accordance to environmental regulations.

Disposal

Dispose of in accordance with all Local, State and Federal regulations at an approved waste disposal facility.

4.4 FIRE AND EXPLOSION HAZARD

Fire / Explosion

Material is stable under normal conditions of storage and use. Avoid high temperatures and incompatible materials. Incompatible with acetylene gas, aluminium powder, hydroxylamine, magnesium and moist air. Hazardous decomposition products include oxides of sulphur and oxides of copper. Hazardous polymerisation has not been reported.

Extinguishing Media

Use equipment/media appropriate to surrounding fire conditions. Fire-fighters should wear full protective clothing including self-contained breathing apparatus. Closed containers exposed to heat may explode. When heated to decomposition toxic fumes of sulfur dioxide are produced.

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5 OTHER INFORMATION

Other Information

No data available

5.1 Contact Points

Organisation	Location	Telephone	Ask For
Redox Chemicals Pty Ltd	Wetherill Park NSW	02-97255155	Technical Officer

Poisons Information Centre	Westmead	131129	
		1800-251525	