

SAFETY DATA SHEET

COPPER SULPHATE PENTAHYDRATE

Section 1 - CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

STATEMENT OF HAZARDOUS NATURE

Considered a Hazardous Substance according to the criteria of the New Zealand Hazardous Substances New Organisms legislation. EPA Approval Code: HSR003126

SYNONYMS: Cu-O4.5.H2O, CuSO4.5H2O, CSP, "blue stone", "blue copperas", "copper sulfate sulphate", "cupric copper (II) sulphate pentahydrate (1:1:5)", "copper (2+) sulphate"

PROPER SHIPPING NAME: ENVIRONMENTALLY HAZARDOUS SUBSTANCE, SOLID N.O.S

CAS NUMBER: 7758-99-8

UN NUMBER: 3077

PRODUCT USE: Used as an agricultural fungicide, bactericide, algicide, herbicide; feed and fertiliser additive; in insecticide mixtures; in the manufacture of other copper salts; as mordant in textile dyeing; in tanning leather. Also used in preserving hides; in preparation of azo dyes; in preserving wood; in electroplating solutions; as battery electrolyte; in laundry and metal-marking inks; in petroleum refining; as floatation agent; in mordant baths for intensifying photographic negatives; in pyrotechnic compositions; in water-resistant adhesives for wood; in metal colouring and tinting baths; as reagent toner in photography and photoengraving.

SUPPLIER: Interchem Agencies Limited

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Section 2 - HAZARDS IDENTIFICATION

EMERGENCY OVERVIEW

HAZARD LABELLING

WARNING

See Section 14 for DG labeling



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EMERGENCY OVERVIEW

Hazard Classifications: 6.1D (oral), 6.3A, 6.4A, 6.5B, 6.9B, 9.1A, 9.3C

Harmful if swallowed

Causes skin irritation

Causes serious eye irritation

May cause an allergic skin reaction

May cause damage to organs (kidneys) through prolonged or repeated exposure

Very toxic to aquatic life

Harmful to terrestrial vertebrates

PRECAUTIONARY STATEMENTS**Prevention**

Wash thoroughly after handling.

Do not eat, drink or smoke when using this substance.

Wear protective gloves.

Wear eye/face protection.

Avoid breathing dusts or fumes.

Contaminated work clothing should not be allowed out of the work place.

Avoid release into the environment.

Response

IF SWALLOWED: Rinse Mouth. Call a POISON CENTRE or doctor/physician if you feel unwell.

IF ON SKIN: Wash with plenty of soap and water.

For specific treatment see section 4 of this SDS.

If skin irritation occurs, get medical advice/attention.

Take off contaminated clothing and wash before re-use.

IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses if present and easy to do so. Continue Rinsing.

If eye irritation persists: Get medical advice/attention.

Get medical advice/attention if you feel unwell.

Collect spillage.

Disposal

Dispose of contents and container in accordance with relevant legislation.

See section 13 of this SDS for more disposal options

Storage

Store away from incompatible materials.

Section 3 - COMPOSITION / INFORMATION ON INGREDIENTS

NAME	CAS RN	%	Hazardous
Copper sulfate, pentahydrate	7758-99-8	> 98	Yes

Section 4 - FIRST AID MEASURES**SWALLOWED**

IF SWALLOWED, REFER FOR MEDICAL ATTENTION, WHERE POSSIBLE, WITHOUT DELAY.

For advice, contact a Poison Centre or a doctor.

If the services of a medical officer or medical doctor are readily available, the patient should be placed in his/her care and a copy of the SDS should be provided. Further action will be the responsibility of the medical specialist.

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If medical attention is not available on the worksite or surroundings send the patient to a hospital together with a copy of the SDS.

EYE

If this product comes in contact with the eyes:

Immediately hold eyelids apart and flush the eye continuously with running water.

Ensure complete irrigation of the eye by keeping eyelids apart and away from eye and moving the eyelids by occasionally lifting the upper and lower lids.

Continue flushing until advised to stop by the Poison Centre or a doctor, or for at least 15 minutes. Transport to hospital or doctor without delay.

SKIN

If skin or hair contact occurs:

Flush skin and hair with running water (and soap if available).

Seek medical attention in event of irritation or allergic reaction.

INHALED

If fumes or combustion products are inhaled remove from contaminated area.

Lay patient down. Keep warm and rested.

Apply artificial respiration if not breathing, preferably with a demand valve resuscitator, bag-valve mask device, or pocket mask as trained. Perform CPR if necessary.

Transport to hospital, or doctor.

NOTES TO PHYSICIAN

For copper intoxication:

Unless extensive vomiting has occurred empty the stomach by lavage with water, milk, sodium bicarbonate solution or a 0.1% solution of potassium ferrocyanide (the resulting copper ferrocyanide is insoluble).

- Maintain electrolyte and fluid balances.

Section 5 - FIRE FIGHTING MEASURES

EXTINGUISHING MEDIA

Water spray or fog.

Foam.

Dry chemical powder.

Carbon dioxide.

FIRE FIGHTING

Alert Fire Brigade and tell them location and nature of hazard.

Wear breathing apparatus plus protective gloves for fire only.

Prevent, by any means available, spillage from entering drains or water courses.

Use fire fighting procedures suitable for surrounding area.

DO NOT approach containers suspected to be hot.

Cool fire exposed containers with water spray from a protected location.

If safe to do so, remove containers from path of fire.

Equipment should be thoroughly decontaminated after use.

FIRE/EXPLOSION HAZARD

Non combustible.

Not considered a significant fire risk, however containers may burn.

Decomposition may produce toxic fumes of: sulfur oxides (SOx), metal oxides.

FIRE INCOMPATIBILITY

None known.

Personal Protective Equipment

Breathing apparatus.
Gas tight chemical resistant suit.
Limit exposure duration to 1 BA set/30 mins.

Hazchem Code**27****Section 6 - ACCIDENTAL RELEASE MEASURES****MINOR SPILLS**

Environmental hazard - contain spillage.
Clean up all spills immediately.
Avoid contact with skin and eyes.
Control personal contact by using protective equipment.
Use dry clean up procedures and avoid generating dust.
Place in a suitable labelled container for waste disposal.

MAJOR SPILLS

Personnel involved in the cleanup should wear full protective clothing.
Evacuate all unnecessary personnel. Eliminate all sources of ignition.
Increase ventilation. Avoid generating dust.
If necessary, wet down with water and dike for later disposal.
Stop leak if safe to do so.
Do NOT let product reach drains or waterways. If product does enter a waterway, advise EPA or your local Waste Authority.
Collect in a labelled chemical waste container and seal for disposal.
Wash spill area with plenty of water after removal of contaminant.

EMERGENCY RESPONSE PLANNING GUIDELINES (ERPG)

- The maximum airborne concentration below which it is believed that nearly all individuals could be exposed for up to one hour WITHOUT experiencing or developing life-threatening health effects is:
Copper Sulphate Pentahydrate: 40 mg/m³
- Irreversible or other serious effects or symptoms which could impair an individual's ability to take protective action is:
Copper Sulphate Pentahydrate: 6 mg/m³
- Other than mild, transient adverse effects without perceiving a clearly defined odor is:
Copper Sulphate Pentahydrate: 2.5 mg/m³
- The threshold concentration below which most people experience no appreciable risk of health effects:
Copper Sulphate Pentahydrate: 2.5 mg/m³

Personal Protective Equipment advice is contained in Section 8 of the SDS

Section 7 - HANDLING AND STORAGE**PROCEDURE FOR HANDLING**

Use good occupational work practice.
Wear protective clothing when risk of exposure occurs.
Avoid generating and breathing dust. Avoid contact with skin and eyes.
Avoid contact with incompatible materials.
When handling, DO NOT eat, drink or smoke.
Keep containers securely sealed when not in use.
Always wash hands with soap and water after handling.
Work clothes should be laundered separately. Launder contaminated clothing before re-use.

Atmosphere should be regularly checked against established exposure standards to ensure safe working conditions are maintained.

SUITABLE CONTAINER

Original packaging.

DO NOT use aluminium or galvanised containers.

Polyethylene or polypropylene container.

Check all containers are clearly labelled and free from leaks.

The UN Packaging specification number as well as the UN packaging logo is to be printed on the bags.

STORAGE INCOMPATIBILITY

Avoid strong bases.

Metals and their oxides or salts may react violently with chlorine trifluoride. Chlorine trifluoride is a hypergolic oxidiser. It ignites on contact (without external source of heat or ignition) with recognised fuels - contact with these materials, following an ambient or slightly elevated temperature, is often violent and may produce ignition. The state of subdivision may affect the results.

Avoid storage with powdered metals, magnesium, alkalis and hydroxylamine.

Copper dust or mist may react with acetylene to form shock-sensitive copper acetylides. Reacts violently with hydroxylamine.

The solution reacts with magnesium to produce hydrogen (H₂).

STORAGE REQUIREMENTS

Store in original containers.

Keep containers securely sealed.

Store away from incompatible materials and foodstuff containers.

No smoking, naked lights or ignition sources.

Store in a cool, dry, well-ventilated area.

This product has a UN classification of 3077 and a Dangerous Goods Class 9 and must be labelled accordingly.

Section 8 - EXPOSURE CONTROLS/PERSONAL PROTECTION

EXPOSURE CONTROLS

Source	Material	TWA ppm	TWA mg/m ³	STEL ppm	STEL mg/m ³	Peak ppm	Peak mg/m ³	TWA F/CC
New Zealand Workplace Exposure Standards (WES 2013)	Copper fume		0.2					
	Dusts & mists as Cu			1				

PERSONAL PROTECTION EQUIPMENT (PPE)

The local concentration of material, quantity and conditions of use determine the type of personal protective equipment required.

ENGINEERING CONTROLS

Local exhaust ventilation is usually required. If risk of overexposure exists, wear approved respirator. Correct fit is essential to obtain adequate protection. Supplied-air type respirator may be required in special circumstances.

PERSONAL RESPIRATORS (NIOSH Approved):

For conditions of use where exposure to dust or mist is apparent and engineering controls are not feasible, a particulate respirator (NIOSH type N95 or better filters) may be worn. If oil particles (e.g. lubricants, cutting fluids, glycerine, etc.) are present, use a NIOSH type R or P filter. For emergencies or instances where the exposure levels are not known, use a full-face positive-pressure, air-supplied respirator.

WARNING: Air-purifying respirators do not protect workers in oxygen-deficient atmospheres.

For more information see Australian/New Zealand Standard, AS/NZS 1715:2009 and AS/NZS 1716:2003

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(<http://igs.nigc.ir/IGS/OTHER/NZS-1715.PDF>;
[http://www.saiglobal.com/PDFTemp/Previews/OSH/as/as1000/1700/1716-2003\(+A1\).pdf](http://www.saiglobal.com/PDFTemp/Previews/OSH/as/as1000/1700/1716-2003(+A1).pdf)).

VENTILATION SYSTEM:

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. Please refer to the ACGIH document, *Industrial Ventilation, A Manual of Recommended Practices*, most recent edition, for details.

SKIN PROTECTION:

Wear impervious protective clothing, including boots, gloves, lab coat, apron or coveralls, as appropriate, to prevent skin contact. Refer to AS/NZS 2161.1:2000 Occupational Protective Gloves - Selection, use and maintenance. Dispose of contaminated gloves after use.

EYE PROTECTION:

Use approved chemical safety goggles and/or a full face shield where splashing is possible. Refer to Eye protectors for industrial applications:
<http://www.saiglobal.com/PDFTemp/Previews/OSH/as/as1000/1300/1337.pdf>. Maintain eye wash fountain in work area. Refer to Personal eye protection. Part 1: Eye and face protectors for occupational applications. Australian/New Zealand Standard: AS/NZS 1337.1:2010.

Section 9 - PHYSICAL AND CHEMICAL PROPERTIES**APPEARANCE**

Blue, odourless, crystals or powder; soluble in water. Unpleasant metallic taste.

PHYSICAL PROPERTIES

Loses water of hydration by efflorescing slowly in air, or rapidly on heating; loses 4H₂O at 110 C and 5H₂O at 150 C. Anhydrous above 250 C. Will melt and flow on losing water of hydration. Soluble in methanol but insoluble in alcohol. Solubility in water @ 0 C: 31.6 g/100 cc. @ 100 C: 203.3 g/100 cc. pH (0.2 M aqueous solution): 4.0 mildly acid.

Property	Value
Molecular Weight:	249.7
Melting Range (°C):	110 C(loses H ₂ O)
Solubility in water (g/L):	Miscible
pH (1% solution):	4 @ 0.2 Molar
Volatile Component (%vol):	None
Relative Vapor Density(air=1):	Not available
Lower Explosive Limit (%):	Not applicable
Autoignition Temp (°C):	Not applicable
State:	Divided Solid
Boiling Range (°C):	Not applicable.
Specific Gravity (water=1):	2.29 @ 15 C
pH (as supplied):	Not applicable
Evaporation Rate:	Not applicable
Flash Point (°C):	Not applicable
Upper Explosive Limit (%):	Not applicable
Decomposition Temp (°C):	Not available
Viscosity:	Not available

Section 10 - CHEMICAL STABILITY AND REACTIVITY**Chemical Stability**

Product is stable under normal conditions of use, storage and temperature.

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Conditions to Avoid

Avoid excessive heat, direct sunlight, static discharges, moisture, temperature extremes.

Incompatible Materials

Incompatible with strong bases.

Metals and their oxides or salts may react violently with chlorine trifluoride. Chlorine trifluoride is a hypergolic oxidiser.

Avoid storage with powdered metals, magnesium, alkalis and hydroxylamine.

Copper dust or mist may react with acetylene to form shock-sensitive copper acetylides. Reacts violently with hydroxylamine.

The solution reacts with magnesium to produce hydrogen (H₂).

Hazardous Decomposition

Decomposition may produce toxic fumes of: sulfur oxides (SO_x), metal oxides.

Hazardous Reactions

Hazardous polymerization will not occur.

Section 11 - TOXICOLOGICAL INFORMATION**ACUTE HEALTH EFFECTS****SWALLOWED**

Accidental ingestion of the material may be harmful; animal experiments indicate that ingestion of less than 150 gram may be fatal or may produce serious damage to the health of the individual. Sulfates are not well absorbed orally, but can cause diarrhoea.

EYE

May cause transient discomfort characterised by tearing or conjunctival redness (as with windburn). Slight abrasive damage may also result. The material may produce foreign body irritation in certain individuals. Copper salts, in contact with the eye, may produce inflammation of the conjunctiva, or even ulceration and cloudiness of the cornea.

SKIN

Skin contact is not thought to produce harmful health effects (as classified under EC Directives using animal models). Systemic harm, however, has been identified following exposure of animals by at least one other route and the material may still produce health damage following entry through wounds, lesions or abrasions. Good hygiene practice requires that exposure be kept to a minimum and that suitable gloves be used in an occupational setting.

Exposure to copper, by skin, has come from its use in pigments, ointments, ornaments, jewellery, dental amalgams and IUDs (intra-uterine devices), and in killing fungi and algae. Although copper is used in the treatment of water in swimming pools and reservoirs, there are no reports of toxicity from these applications.

INHALED

Inhalation of dusts, generated by the material during the course of normal handling, may be damaging to the health of the individual.

Inhalation of dusts, or fumes, especially for prolonged periods, may produce respiratory discomfort and occasionally, distress.

CHRONIC HEALTH EFFECTS

Long term exposure to high dust concentrations may cause changes in lung function i.e. pneumoconiosis; caused by particles less than 0.5 micron penetrating and remaining in the lung. Prime symptom is breathlessness; lung shadows show on X-ray.

Substance accumulation, in the human body, may occur and may cause some concern following repeated or long-term occupational exposure.

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Copper has fairly low toxicity. Some rare hereditary conditions (Wilson disease or hepatolenticular degeneration) can lead to accumulation of copper on exposure, causing irreversible damage to a variety of organs (liver, kidney, CNS, bone, vision) and lead to death. There may be anaemia and cirrhosis of the liver.

TOXICITY AND IRRITATION

TOXICITY

SPECIES: Rat

ENDPOINT: LD50

VALUE: 960c mg/kg Smyth et al. (1969)

REFERENCE SOURCE: Copper (EHC 200, 1998) <http://www.inchem.org/documents/ehc/ehc/ehc200.htm> [INCHEM]

IRRITATION

6.3A REMARK: Copper sulfate is a strong irritant to skin and mucous membranes, including nasal, respiratory tract and eyes.

REFERENCE SOURCE: [Rumack BH: POISINDEX(R) Information System. Micromedex, Inc., Englewood, CO, 2002; CCIS Volume 112, edition exp May, 2002. Hall AH & Rumack BH (Eds):TOMES(R) Information System. Micromedex, Inc., Englewood, CO, 2002; CCIS Volume 112, edition exp May, 2002.] ** PEER REVIEWED** [HSDB]

6.4A SPECIES: RESULT: Strong irritant.

REFERENCE SOURCE: (Sax, N.I. and R.J. Lewis Sr., Eds. Hawleys Condensed Chemical Dictionary. 11th Ed. Van Nostrand Reinhold. New York. 1987. p. 313. Lengua, Robert E. The Sigma-Aldrich Library of Chemical Safety Data. Edition 1. Sigma-Aldrich Corporation. Milwaukee, WI. 1985. p. 489, #C.) [NTP]

6.5A REMARK: Prolonged or repeated exposure to copper salts can cause irritation, producing itching and redness of the skin. Some may become sensitized to copper sulphate and develop allergic contact dermatitis.

REFERENCE SOURCE: (International Programme on Chemical Safety - Poisons Information Monograph (Group Monograph) G002) [INCHEM]

6.9B EndPoint: NOAEL

Primary Organ: Renal toxicity (Kidney)

For rats in the 13-week study, the no-observed-adverse-effect level (NOAEL) for evidence of histologic injury to the kidney was 1000 ppm for males and 500 ppm for females, while the NOAEL for liver inflammation was 1000 ppm for males and 2000 ppm for females. Hyperplasia with hyperkeratosis of the epithelium on the limiting ridge separating the forestomach from the glandular stomach was also seen in rats of each sex, and the NOAEL for this change was 1000 ppm cupric sulfate in the feed. Additionally, clinical pathology alterations noted in the 13-week study, along with histologic changes in bone marrow noted in the 2-week feed study, were indicative of a microcytic anemia with a compensatory bone marrow response. Mice appeared to be much more resistant to the toxic effects of cupric sulfate than rats. The primary target tissue in mice was the epithelium of the limiting ridge of the forestomach. The NOAEL for the hyperplasia and hyperkeratosis seen at this site in mice was 2000 ppm cupric sulfate in the feed. (Authors: NTP working group Source: TA:National Toxicology Program Toxicity Report Series PG:94 p YR:1993 IP: VI:29) [NTP] [TOXLINE]

[<http://www.epa.govt.nz/search-databases/Pages/ccid-details.aspx?SubstanceID=2981>]

Section 12 - ECOLOGICAL INFORMATION

ECOTOXICITY

SPECIES: *Oncorhynchus mykiss* Rainbow trout, donaldson trout

TYPE OF EXPOSURE: Static

DURATION: 96 hr

ENDPOINT: LC50

VALUE: 0.032 ppm (= 0.032 mg/l)

REFERENCE SOURCE: Ref No: 344. Office of Pesticide Programs (1995) Environmental Effects Database (EEDB) Environmental Fate and Effects Division, U.S.EPA, Washington, D.C. [ECOTOX]

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Biocumulative: ND

Not rapidly degradable: ND

SPECIES: *Daphnia magna* Water flea

TYPE OF EXPOSURE: Static

DURATION: 48 hr

ENDPOINT: EC50

VALUE: 0.18 ppm (= 0.18 mg/l)

REFERENCE SOURCE: Ref No: 344, Office of Pesticide Programs (1995). Environmental Effects Database (EEDB). Environmental Fate and Effects Division, U.S.EPA, Washington, D.C. [ECOTOX]

SPECIES: Green algae, *Selenastrum capricornutum*

TYPE OF EXPOSURE: Static

DURATION: 5 day

ENDPOINT: EC50

VALUE: 0.0031 ppm (= 0.0031 mg/l)

REFERENCE SOURCE: [USEPA Pesticide toxicity db]

SPECIES: Rat

ENDPOINT: LD50

VALUE: 960 mg/kg Smyth et al. (1969)

REFERENCE SOURCE: Copper (EHC 200, 1998) <http://www.inchem.org/documents/ehc/ehc/ehc200.htm> [INCHEM]

[<http://www.epa.govt.nz/search-databases/Pages/ccid-details.aspx?SubstanceID=2981>]

Section 13 - DISPOSAL CONSIDERATIONS

Product

The product may be treated so that it is no longer hazardous by a means other than dilution. This includes incineration at an approved site or burial in a landfill in such a manner that it will not cause a fire or explosion or will not lead to any adverse health effects to any person.

Treatment in a biological wastewater treatment system with prior approval and arrangement is also permissible providing that the substance is rendered non-hazardous and does not pose any adverse effects to human health or the environment. Alternatively consult an approved Waste Management company for disposal options.

Packaging

Packaging should be rendered incapable of containing any material.

Bury at an authorised landfill.

Alternatively consult an approved Waste Management company for disposal options.

Containers may be recycled if they have been treated to remove residual traces of this substance or if any residual traces have been treated to render them non-hazardous.

Observe all label safeguards until containers are cleaned and destroyed.

Where possible retain label warnings and SDS and observe all notices pertaining to the product.

For further information on disposal and specific advice on controls required for materials used in New Zealand consult <http://www.epa.govt.nz/search-databases/Pages/controls-search.aspx>

Section 14 - TRANSPORT INFORMATION



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Labels Required: MISCELLANEOUS

HAZCHEM: 2Z

UNDG:

Dangerous Goods Class: 9

Subrisk: None

UN Number: 3077

Packing Group: III

Shipping Name: ENVIRONMENTALLY HAZARDOUS SUBSTANCE, SOLID, N.O.S.

Air Transport IATA:

ICAO/IATA Class: 9

ICAO/IATA Subrisk: None

UN/ID Number: 3077

Packing Group: III

ERG Code: 9L

Shipping Name: Environmentally hazardous substance, solid, n.o.s. *

Maritime Transport IMDG:

IMDG Class: 9

IMDG Subrisk: None

UN Number: 3077

Packing Group: III

EMS Number: F-A,S-F

Marine Pollutant: Yes

Shipping Name: ENVIRONMENTALLY HAZARDOUS SUBSTANCE, SOLID, N.O.S.

Section 15 - REGULATORY INFORMATION

REGULATIONS

ERMA Approval Code: HSR003126

Hazard Classifications: 6.1D (oral), 6.3A, 6.4A, 6.5B, 6.9B, 9.1A, 9.3C

TRANSFER NOTICE: 28 June 2006

Hazardous Substances (Dangerous Goods and Scheduled Toxic Substances) Transfer Notice 2006, *New Zealand Gazette*, 26 June 2006 - Issue No.72

Approved Handler regulations only apply when the chemical is used in a wide dispersive manner.
Site test certification and tracking regulations do not apply.

CONTROLS APPLYING TO THIS SUBSTANCE ARE:

- Hazardous Substances (Classes 6,8 and 9 Controls) Regulations 2001
 - T1 (R11-27), T2 (R29, 30), T4 (R7), T5 (R8), T7 (R10), E1* (R32-45), E2 (R46-48), E5 (R5.2, 6), E6 (R7), E7 (R9)
- Hazardous Substances (Packaging) Regulations 2001
 - P1 (R5,6,7(1),8), P3 (R9), P13* (R19), P15 (R21), Schedule 3
- Hazardous Substances (Disposal) Regulations 2001
 - D4 (R8), D5 (R9), D6 (R10), D7 (R11, 12), D8 (13,14)
- Hazardous Substances (Emergency Management) Regulations 2001
 - EM1 (R6,7,9-11), EM6 (R8e), EM7 (R8f), EM8 (R12-16, 18-20), EM11 (R25-34), EM13 (R42)
- Hazardous Substances (Identification) Regulations 2001
 - I1 (R6,7,32-35,36.1-36.7), I3 (R9), I8 (R14), I9 (R18), I11 (R20), I16 (R25), I17 (R26), I18 (R27), I19 (R29-31), I20 (R36.8), I21 (R37-39, 47-50), I23 (R41), I28 (R46), I29 (51,52), I30 (R53)
- Hazardous Substances (Personnel Qualifications) Regulations 2001
 - AH1* (R4-6) applies if the substance is used in a wide dispersive manner.
- Hazardous Substances (Tank Wagon and Transportable Containers) Regulations 2001
 - R4-43
- Controls added under section 77A
 - No person may use this substance as a pesticide, or veterinary medicine; however, this substance may be used in the formulation of a pesticide or veterinary medicine.

Copper sulfate, pentahydrate (CAS: 7758-99-8) is found on the following regulatory lists;

New Zealand Inventory of Chemicals (NZIoc)

Australian Inventory of Chemical Substances (AICS)

International Council of Chemical Associations (ICCA) - High Production Volume List

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New Zealand Transferred List of Single Component Substances
New Zealand Workplace Exposure Standards (WES)
OECD Representative List of High Production Volume (HPV) Chemicals
Specific advice on controls required for this material when used in New Zealand can be found at
<http://www.epa.govt.nz/search-databases/Pages/controls-details.aspx?SubstanceID=2981&AppID=3287>

Section 16 - OTHER INFORMATION

NEW ZEALAND POISON CENTRE 0800 POISON (0800 764 766)
NZ EMERGENCY SERVICES: 111

Interpretation and Abbreviations

Controls applying to a substance:

- * denotes that changes have been made to these controls, further information on these changes is located in the transfer notice for that substance,
- (R) abbreviation for the term Regulation of the Hazardous Substances regulations

TWA - The time-weighted average airborne concentration over an eight-hour working day, for a five-day working week over an entire working life.

STEL - Short term exposure limit.

PEL - Permissible exposure limit.

IARC - International Agency for Research on Cancer

NTP - National Toxicology Program

ACGIH - American Conference of Governmental Industrial Hygienists

AICS - Australian Inventory of Chemical Substances

ENCS - Japanese Existing and New Chemical substances

ISHL - Japanese Industrial Safety and Health Law List of Chemicals

China IECSC - Inventory of Existing Chemical Substances Produced or Imported in China

EINECS - European Inventory of Existing Commercial Chemical Substances

TSCA - US Toxic Substances Control Act Existing Chemicals

NZIoC - New Zealand Inventory of Chemicals

OECD HPV - The Organisation for Economic Co-operation and Development High Product Volume Chemicals

DSL - Canadian Domestic Substances List

Prop 65 - California Proposition 65 List of Chemicals

LOEL - Lowest Observed Effect Level

NOEC - No Observed Effect Concentration

Sources of key data used to compile the datasheet:

Manufacturer's Safety Data Sheet

EPA User Guide: Assigning a Product to a HSNO Approval Revised August 2013

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