

1. Identification

Product identifier	Copper Sulfate Pentahydrate
Other means of identification	
CAS number	7758-99-8
Synonyms	Copper Sulfate Crystals, Blue Copper, Blue Stone, Blue Vitriol, Copper (II) sulfate, Cupric Sulfate, Copper Sulfate Fine 200, Fine 230 Fine 100, Fine 30, 20, 25, Small, Medium, Large, FCC IV, and Very High Purity
Recommended use	Specific applications are listed on the label for the product.
Recommended restrictions	Uses other than the recommended use.
Manufacturer/Importer/Supplier/Distributor information	
Manufacturer	Chem One Ltd.
Address	14140 Westfair East Drive Houston, Texas 77041-1104
Phone	(713) 896-9966
Fax	(713) 896-7540
Emergency telephone number	(800) 424-9300 or +1-(703) 527-3887

2. Hazard(s) identification

Hazards for the product as sold		
Physical hazards	Not classified.	
Hazards for the product as sold		
Health hazards	Acute toxicity, oral	Category 4
	Serious eye damage/eye irritation	Category 1
Hazards for the product as sold		
Environmental hazards	Hazardous to the aquatic environment, acute hazard	Category 1
	Hazardous to the aquatic environment, long-term hazard	Category 1
Hazards for the product as sold		
OSHA defined hazards	Not classified.	

Label elements



Signal word	Danger
Hazard statement	Harmful if swallowed. Causes serious eye damage. Very toxic to aquatic life with long lasting effects.
Precautionary statement	
Prevention	Wash thoroughly after handling. Do not eat, drink or smoke when using this product. Avoid release to the environment. Wear eye protection/face protection.
Response	If swallowed: Call a poison center/doctor if you feel unwell. Rinse mouth. If in eyes: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Immediately call a poison center/doctor. Collect spillage.
Storage	Not assigned.

Disposal	Dispose of contents/container in accordance with local/regional/national/international regulations.
Hazard(s) not otherwise classified (HNOC)	No additional hazards are known to be associated with the expected conditions of use at the time of publication. This document does not address hazards that may arise from uses not reasonably anticipated by the manufacturer.
Supplemental information	None.

3. Composition/information on ingredients

Substances

Chemical name	Common name and synonyms	CAS number	%
Copper(II) sulfate, pentahydrate		7758-99-8	> 99

Composition comments All concentrations are in percent by weight.

4. First-aid measures

Inhalation	Move to fresh air. Call a physician if symptoms develop or persist.
Skin contact	Wash off with soap and water. Get medical attention if irritation develops and persists.
Eye contact	Do not rub eyes. Immediately flush eyes with plenty of water for at least 15 minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Get medical attention immediately.
Ingestion	Rinse mouth. If vomiting occurs, keep head low so that stomach content doesn't get into the lungs. Get medical advice/attention if you feel unwell.
Most important symptoms/effects, acute and delayed	Causes serious eye damage. Symptoms may include stinging, tearing, redness, swelling, and blurred vision. Permanent eye damage including blindness could result. Dust may irritate skin and the respiratory system.
Indication of immediate medical attention and special treatment needed	Provide general supportive measures and treat symptomatically. Keep victim warm. Keep victim under observation. Symptoms may be delayed.
General information	Ensure that medical personnel are aware of the material(s) involved, and take precautions to protect themselves. Show this safety data sheet to the doctor in attendance.

5. Fire-fighting measures

Suitable extinguishing media	Water fog. Foam. Dry chemical powder. Carbon dioxide (CO2).
Unsuitable extinguishing media	Do not use water jet as an extinguisher, as this will spread the fire.
Specific hazards arising from the chemical	During fire, gases hazardous to health may be formed such as: Carbon oxides. Sulfur oxides. Copper fumes.
Special protective equipment and precautions for firefighters	Self-contained breathing apparatus and full protective clothing must be worn in case of fire.
Fire fighting equipment/instructions	In case of fire and/or explosion do not breathe fumes. Move containers from fire area if you can do so without risk. Water runoff can cause environmental damage.
Specific methods	Use standard firefighting procedures and consider the hazards of other involved materials.
General fire hazards	Will burn if involved in a fire.

6. Accidental release measures

Personal precautions, protective equipment and emergency procedures	Keep unnecessary personnel away. Keep people away from and upwind of spill/leak. Avoid inhalation of dust. Wear appropriate protective equipment and clothing during clean-up. Do not touch damaged containers or spilled material unless wearing appropriate protective clothing. Ensure adequate ventilation. Local authorities should be advised if significant spillages cannot be contained. For personal protection, see section 8 of the SDS.
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Methods and materials for containment and cleaning up

Avoid dispersal of dust in the air (i.e., clearing dust surfaces with compressed air). Prevent product from entering drains. Stop the flow of material, if this is without risk.

Large Spills: Wet down with water and dike for later disposal. Shovel the material into waste container. Following product recovery, flush area with water.

Small Spills: Sweep up or vacuum up spillage and collect in suitable container for disposal. Clean surface thoroughly to remove residual contamination.

Never return spills to original containers for re-use. For waste disposal, see section 13 of the SDS.

Environmental precautions

Avoid release to the environment. Inform appropriate managerial or supervisory personnel of all environmental releases. Prevent further leakage or spillage if safe to do so. Avoid discharge into drains, water courses or onto the ground.

7. Handling and storage**Precautions for safe handling**

Minimize dust generation and accumulation. Do not get this material in contact with eyes. Do not taste or swallow. Avoid breathing dust. Avoid prolonged exposure. When using, do not eat, drink or smoke. Wear appropriate personal protective equipment. Wash hands thoroughly after handling. Avoid release to the environment. Observe good industrial hygiene practices.

Conditions for safe storage, including any incompatibilities

Keep containers tightly closed in a dry, cool and well-ventilated place. Store away from incompatible materials (see Section 10 of the SDS).

8. Exposure controls/personal protection**Occupational exposure limits****US. OSHA Table Z-3 Permissible Exposure Limits (PEL) for Mineral Dusts (29 CFR 1910.1000)**

Contains	Type	Value	Form
Dust	TWA	5 mg/m3	Respirable fraction.
		15 mg/m3	Total dust.
		50 mppcf	Total dust.
		15 mppcf	Respirable fraction.

US. ACGIH Threshold Limit Values (TLV)

Material	Type	Value	Form
Dust (CAS 7758-99-8)	TWA	1 mg/m3	Dust and mist.
		0.2 mg/m3	Fume.
Contains	Type	Value	Form
Dust	TWA	3 mg/m3	Respirable particles.
		10 mg/m3	Inhalable particles.

US. NIOSH: Pocket Guide to Chemical Hazards

Material	Type	Value	Form
Copper(II) sulfate, pentahydrate (CAS 7758-99-8)	TWA	1 mg/m3	Dust and mist.
		0.1 mg/m3	Fume.

Biological limit values

No biological exposure limits noted for the ingredient(s).

Appropriate engineering controls

Good general ventilation should be used. Ventilation rates should be matched to conditions. If applicable, use process enclosures, local exhaust ventilation, or other engineering controls to maintain airborne levels below recommended exposure limits. If exposure limits have not been established, maintain airborne levels to an acceptable level. Provide eyewash station.

Individual protection measures, such as personal protective equipment**Eye/face protection**

Wear safety glasses with side shields (or goggles) and a face shield.

Skin protection**Hand protection**

Wear appropriate chemical resistant gloves. Suitable gloves can be recommended by the glove supplier.

Skin protection	
Other	Wear suitable protective clothing.
Respiratory protection	If engineering controls do not maintain airborne concentrations below recommended exposure limits (where applicable) or to an acceptable level (in countries where exposure limits have not been established), an approved respirator must be worn. Wear respirator with dust filter. In the United States of America, if respirators are used, a program should be instituted to assure compliance with OSHA 29 CFR 1910.134.
Thermal hazards	Wear appropriate thermal protective clothing, when necessary.
General hygiene considerations	When using, do not eat, drink or smoke. Always observe good personal hygiene measures, such as washing after handling the material and before eating, drinking, and/or smoking. Routinely wash work clothing and protective equipment to remove contaminants.

9. Physical and chemical properties

Physical state	Solid.
Form	Powder or crystals.
Color	Blue.
Odor	Odorless.
Melting point/freezing point	302 °F (150 °C)
Boiling point or initial boiling point and boiling range	Not available.
Flammability	Will burn if involved in a fire.
Upper/lower flammability or explosive limits	
Explosive limit - lower (%)	Not available.
Explosive limit - upper (%)	Not available.
Flash point	Not available.
Auto-ignition temperature	Not available.
Decomposition temperature	1040 °F (560 °C)
pH	3.7 - 4.4
pH concentration	10 %
Kinematic viscosity	Not applicable.
Solubility	
Solubility (water)	31.6 g/100 cc (68 °F (20 °C))
Partition coefficient (n-octanol/water)	Not applicable, material is inorganic.
Vapor pressure	Not available.
Vapor pressure temp.	Not available.
Density and/or relative density	
Density	2.28 g/cm ³
Relative density	2.28
Relative density temperature	Not available.
Vapor density	Not applicable.
Particle characteristics	Not available.
Other information	
Explosive properties	Not explosive.
Molecular formula	Cu.H2-O4-S.5H2-O
Molecular weight	249.68
Oxidizing properties	Not oxidizing.

10. Stability and reactivity

Reactivity	The product is stable and non-reactive under normal conditions of use, storage and transport.
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Chemical stability	Material is stable under normal conditions. The substance is hygroscopic and will absorb water by contact with the moisture in the air.
Possibility of hazardous reactions	No dangerous reaction known under conditions of normal use.
Conditions to avoid	Avoid temperatures exceeding the decomposition temperature. Exposure to air. Contact with incompatible materials. Minimize dust generation and accumulation.
Incompatible materials	Strong oxidizing agents. Hydroxylamine. Aluminum. Steel. Iron. Magnesium. Strong bases. Alkalines. Phosphates. Acetylene. Hydrazine. Zirconium. Nitromethane. Reducing agents.
Hazardous decomposition products	No hazardous decomposition products are known. In the event of fire: See Section 5.

11. Toxicological information

Information on likely routes of exposure

Inhalation	Dust may irritate respiratory system.
Skin contact	Dust or powder may irritate the skin.
Eye contact	Causes serious eye damage.
Ingestion	Harmful if swallowed.

Symptoms related to the physical, chemical and toxicological characteristics	Causes serious eye damage. Symptoms may include stinging, tearing, redness, swelling, and blurred vision. Permanent eye damage including blindness could result. Dust may irritate skin and the respiratory system.
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Information on toxicological effects

Acute toxicity	Harmful if swallowed.
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Product	Species	Test Results
Copper(II) sulfate, pentahydrate (CAS 7758-99-8)		
Acute		
Dermal		
LD50	Rat	> 2000 mg/kg
Oral		
LD50	Rat	481 mg/kg

Skin corrosion/irritation	Prolonged skin contact may cause temporary irritation.
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Serious eye damage/eye irritation	Causes serious eye damage.
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Respiratory or skin sensitization

Respiratory sensitization	Not a respiratory sensitizer.
Skin sensitization	This product is not expected to cause skin sensitization.

Germ cell mutagenicity	No data available to indicate product or any components present at greater than 0.1% are mutagenic or genotoxic.
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Carcinogenicity	Not classifiable as to carcinogenicity to humans.
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IARC Monographs. Overall Evaluation of Carcinogenicity

Not listed.

NTP Report on Carcinogens

Not listed.

OSHA Specifically Regulated Substances (29 CFR 1910.1001-1053)

Not listed.

Reproductive toxicity	This product is not expected to cause reproductive or developmental effects.
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Specific target organ toxicity - single exposure	Not classified.
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Specific target organ toxicity - repeated exposure	Not classified.
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Aspiration hazard	Not an aspiration hazard.
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Chronic effects	Prolonged inhalation may be harmful.
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12. Ecological information

Ecotoxicity Very toxic to aquatic life with long lasting effects.

Product		Species	Test Results
Copper(II) sulfate, pentahydrate (CAS 7758-99-8)			
Aquatic			
<i>Acute</i>			
Algae	ErC50	Pseudokirchneriella subcapitata	> 0.01 - 0.1 mg/l, 72 Hours
Crustacea	EC50	Daphnia magna	> 0.01 - 0.1 mg/l, 48 Hours
Fish	LC50	Fathead minnow (Pimephales promelas)	> 0.01 - 0.1 mg/l, 96 Hours
Other	EC50	Activated sludge	7 mg/l
<i>Chronic</i>			
Algae	NOEC	Chlamydomonas reinhardtii	> 0.01 - 0.1 mg/l, 72 Hours
Crustacea	NOEC	Ceriodaphnia dubia	> 0.01 - 0.1 mg/l, 7 d
Fish	NOEC	Oncorhynchus mykiss	> 0.01 - 0.1 mg/l, 32 d

Persistence and degradability Not relevant for inorganic substances.

Bioaccumulative potential No data available.

Mobility in soil This product is water soluble and may disperse in soil.

Other adverse effects No data available.

13. Disposal considerations

Disposal instructions	Collect and reclaim or dispose in sealed containers at licensed waste disposal site. Do not allow this material to drain into sewers/water supplies. Do not contaminate ponds, waterways or ditches with chemical or used container. Dispose of contents/container in accordance with local/regional/national/international regulations.
Local disposal regulations	Dispose in accordance with all applicable regulations.
Hazardous waste code	The waste code should be assigned in discussion between the user, the producer and the waste disposal company.
Waste from residues / unused products	Dispose of in accordance with local regulations. Empty containers or liners may retain some product residues. This material and its container must be disposed of in a safe manner.
Contaminated packaging	Since emptied containers may retain product residue, follow label warnings even after container is emptied. Empty containers should be taken to an approved waste handling site for recycling or disposal.

14. Transport information

DOT

UN number	UN3077
UN proper shipping name	Environmentally hazardous substance, solid, n.o.s. (cupric sulfate)
Transport hazard class(es)	
Class	9
Subsidiary hazard	-
Label(s)	9
Packing group	III
Environmental hazards	
Marine pollutant	Yes
Special precautions for user	Read safety instructions, SDS and emergency procedures before handling.
Special provisions	8, 146, 335, A112, B54, B120, IB8, IP3, N20, T1, TP33
Packaging exceptions	155
Packaging non bulk	213
Packaging bulk	240

For a single package less than the RQ of 10lb (4.54 kg), the RQ designation should not be used.

IATA

UN number	UN3077
UN proper shipping name	Environmentally hazardous substance, solid, n.o.s. (cupric sulfate)

Transport hazard class(es)

Class 9
Subsidiary hazard -
Packing group III
Environmental hazards Yes
ERG Code 9L

Special precautions for user Read safety instructions, SDS and emergency procedures before handling.

IMDG

UN number UN3077
UN proper shipping name ENVIRONMENTALLY HAZARDOUS SUBSTANCE, SOLID, N.O.S. (cupric sulfate)
Transport hazard class(es)
Class 9
Subsidiary hazard -
Packing group III
Environmental hazards
Marine pollutant Yes
EmS F-A, S-F
Special precautions for user Read safety instructions, SDS and emergency procedures before handling.

Transport in bulk according to Not applicable.

IMO instruments**15. Regulatory information**

US federal regulations This product is a "Hazardous Chemical" as defined by the OSHA Hazard Communication Standard, 29 CFR 1910.1200.

Toxic Substances Control Act (TSCA) This substance is on the TSCA 8(b) inventory and is designated "active".

TSCA Section 12(b) Export Notification (40 CFR 707, Subpt. D)

Not regulated.

CERCLA Hazardous Substance List (40 CFR 302.4)

Copper(II) sulfate, pentahydrate (CAS 7758-99-8)

SARA 304 Emergency release notification

Not regulated.

OSHA Specifically Regulated Substances (29 CFR 1910.1001-1053)

Not listed.

Superfund Amendments and Reauthorization Act of 1986 (SARA)**SARA 302 Extremely hazardous substance**

Not listed.

SARA 311/312 Hazardous chemical Yes

Classified hazard categories Acute toxicity (any route of exposure)
Serious eye damage or eye irritation

SARA 313 (TRI reporting)

Chemical name	CAS number	% by wt.
Copper(II) sulfate, pentahydrate	7758-99-8	> 99

Other federal regulations**Clean Air Act (CAA) Section 112 Hazardous Air Pollutants (HAPs) List**

Not regulated.

Clean Air Act (CAA) Section 112(r) Accidental Release Prevention (40 CFR 68.130)

Not regulated.

Clean Water Act (CWA) Section 112(r) (40 CFR 68.130) Hazardous substance
Priority pollutant
Toxic pollutant

Safe Drinking Water Act (SDWA) Listed.

**Food and Drug
Administration (FDA)**

Total food additive
Direct food additive
GRAS food additive

US state regulations

US. Massachusetts RTK - Substance List

Copper(II) sulfate, pentahydrate (CAS 7758-99-8)

US. New Jersey Worker and Community Right-to-Know Act

Copper(II) sulfate, pentahydrate (CAS 7758-99-8)

US. Pennsylvania Worker and Community Right-to-Know Law

Copper(II) sulfate, pentahydrate (CAS 7758-99-8)

US. Rhode Island RTK

California Proposition 65

California Safe Drinking Water and Toxic Enforcement Act of 1986 (Proposition 65): This material is not known to contain any chemicals currently listed as carcinogens or reproductive toxins. For more information go to www.P65Warnings.ca.gov.

International Inventories

Country(s) or region	Inventory name	On inventory (yes/no)*
Australia	Australian Inventory of Industrial Chemicals (AICIS)	Yes
Canada	Domestic Substances List (DSL)	Yes
Canada	Non-Domestic Substances List (NDSL)	No
China	Inventory of Existing Chemical Substances in China (IECSC)	Yes
Europe	European Inventory of Existing Commercial Chemical Substances (EINECS)	Yes
Europe	European List of Notified Chemical Substances (ELINCS)	No
Japan	Inventory of Existing and New Chemical Substances (ENCS)	Yes
Korea	Existing Chemicals List (ECL)	Yes
New Zealand	New Zealand Inventory	Yes
Philippines	Philippine Inventory of Chemicals and Chemical Substances (PICCS)	Yes
Taiwan	Taiwan Chemical Substance Inventory (TCSI)	Yes
United States & Puerto Rico	Toxic Substances Control Act (TSCA) Inventory	Yes

*A "Yes" indicates that all components of this product comply with the inventory requirements administered by the governing country(s)
A "No" indicates that one or more components of the product are not listed or exempt from listing on the inventory administered by the governing country(s).

16. Other information, including date of preparation or last revision

Issue date 24-September-2025

Revision date -

Version # 01

HMIS® ratings Health: 3
Flammability: 0
Physical hazard: 0

NFPA ratings



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