

1. PRODUCT AND COMPANY IDENTIFICATION

Product name	Cupric Sulfate Pentahydrate
CAS #	7758-99-8
Synonyms	Copper (II) Sulfate Pentahydrate (1:1:5); Blue vitriol; Sulfuric acid copper (2+) salt (1:1), Pentahydrate
Manufacturer	Sentury Reagents, Inc. 2515 Commerce Dr. Rock Hill, SC 29730
Telephone	803-327-6880
Fax	803-327-3872
Emergency Phone #	PERS: 800-633-8253
International #	011-801-629-0667
Account	10613

2. HAZARDS IDENTIFICATION

Emergency Overview

OSHA Hazardous: Target organ effect, toxic by ingestion, Irritant**Target Organs:** Liver, Kidney, Blood**GH3 Label elements, including precautionary statements**

Pictogram



Signal word Danger

GHS Classification:

Acute toxicity, Oral (Category 3)

Acute toxicity, Dermal (Category 5)

Skin irritation (Category 2)

Eye irritation (Category 2A)

Acute aquatic toxicity (Category 1)

GHS Label Elements, including precautionary statements:**Hazard Statements:**

H301	Toxic if swallowed
H313	May be harmful in contact with skin
H315	Causes skin irritation
H319	Causes serious eye irritation
H400	Very toxic to aquatic life

Precautionary Statements:

P305+P351+P338	IF IN EYES: Rinse cautiously with water for several minutes Remove contact lenses if present and easy to do so. Continue Rinsing.
P273	Avoid release to the environment
P301+P310	IF SWALLOWED: Immediately call a POISON CENTER or doctor/physician.

Potential Health Effects

Eyes	Causes eye irritation.
Inhalation	Harmful if inhaled. Causes respiratory tract irritation.
Skin	Harmful if absorbed through skin. Causes skin irritation.
Ingestion	Toxic if swallowed.

NFPA Ratings

Health	2
Flammability	0
Reactivity	0
Specific hazard	Not Available

HMIS RATINGS

Health	2
Fire	0
Reactivity	0
Personal	E

3. COMPOSITION/INFORMATION ON INGREDIENTS

Component	Weight %	CAS #	EINECS# / ELINCS#	Formula	Molecular Weight
Cupric Sulfate Pentahydrate	100	7758-99-8	231-847-6	CuSO ₄ +5H ₂ O	249.68 g/mol

4. FIRST AID MEASURES

Eyes	In case of eye contact, rinse with plenty of water and seek medical attention immediately.
Inhalation	Move casualty to fresh air and keep at rest. If breathing is difficult, give oxygen. If not breathing, give artificial respiration. Get medical attention immediately.
Skin	Immediately flush with plenty of water for at least 15 minutes while removing contaminated clothing and wash using soap. Get medical attention.
Ingestion	Do Not Induce Vomiting! Never give anything by mouth to an unconscious person. If conscious, wash out mouth with water. Get medical attention immediately.

5. FIRE-FIGHTING MEASURES

Suitable (and unsuitable) extinguishing media	Product is not flammable. Do not use water on product. Use appropriate media for adjacent fire. Use flooding quantities of water to cool containers.
Special protective equipment and precautions for firefighters	Wear self-contained, approved breathing apparatus and full protective clothing, including eye protection and boots.
Specific hazards arising from the chemical	Emits toxic fumes (sulfur oxides, copper oxides) under fire conditions. (See also Stability and Reactivity section).

6. ACCIDENTAL RELEASE MEASURES

Personal precautions, protective equipment and emergency procedures	See section 8 for recommendations on the use of personal protective equipment.
Environmental precautions	Do not disperse dust into the air during clean-up. Any release to the environment may require reporting to federal/national or local agencies.
Methods and materials for containment and cleaning up	Ventilate the release area. Do not disperse dust into the air during clean-up. Use appropriate tools to pick up any spill. Pick up and arrange disposal without creating dust. Sweep up and place in a suitable closed container for disposal. Dispose of all waste or cleanup materials in accordance with local regulations.

7. HANDLING AND STORAGE

Precautions for safe handling

See section 8 for recommendations on the use of personal protective equipment. Use with adequate ventilation. Wash thoroughly after using. Keep container closed when not in use.

Conditions for safe storage, including any incompatibilities

Store in a tightly closed container. Store in a dry, cool, and well ventilated area. Isolate from oxidizing materials. Keep away from incompatible materials (see section 10 for incompatibilities).

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Occupational Exposure Controls:

Component	Exposure Limits	Basis	Entity
Copper sulfate Pentahydrate	1 mg/m ³	REL	NIOSH

TWA: Time Weighted Average over 8 hours of work.

TLV: Threshold Limit Value over 8 hours of work.

REL: Recommended Exposure Limit

PEL: Permissible Exposure Limit

STEL: Short Term Exposure Limit during x minutes.

IDLH: Immediately Dangerous to Life or Health

WEEL: Workplace Environmental Exposure Levels

CEIL: Ceiling

Personal Protection

Eyes	Chemical safety glasses.
Inhalation	Provide local exhaust, preferably mechanical. If exposure levels are excessive, use an approved respirator.
Skin	Wear neoprene or nitrile gloves, protective clothing appropriate to the risk of exposure.
Other	Not Available

Other Recommendations

Provide eyewash stations, quick-drench showers and washing facilities accessible to areas of use and handling.

9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance (physical state, color, etc.)	Blue crystals, granular or powder
Odor	Odorless
Odor threshold	Not Available
pH	4.0(0.2M solution) @ 21C (70F)
Melting point/freezing point	110°C (230°F)
Initial boiling point and boiling range	Not Available
Flash point	Not Available
Evaporation rate	Not Available
Flammability (solid, gas)	Not Flammable
Upper/lower flammability or explosive limit	Not Explosive
Vapor pressure	Not Available
Vapor density	Not Available
Relative density	Not Available
Solubility (ies)	Soluble
Partition coefficient: n-octanol/water	Not Available
Auto-ignition temperature	Not Available
Decomposition temperature	Not Available

10. STABILITY AND REACTIVITY

Chemical Stability	Stable
Possibility of Hazardous Reactions	Will not occur.
Conditions to Avoid	Moisture
Incompatible Materials	Powered metals, anhydrous copper (II) sulfate, reacts violently with: hydroxylamine, magnesium.
Hazardous Decomposition Products	Sulfur oxides, copper oxides.

11. TOXICOLOGICAL INFORMATION Acute toxicity

Acute Toxicity

Skin	LD50 Dermal – rat - > 2000 mg/kg
Eyes	Not Available
Respiratory	Not Available
Ingestion	LD50 Oral – rat – 300 mg/kg

Carcinogenicity

IARC	No components of this product present at levels greater than or equal to 0.1% is identified as probable, possible or confirmed human carcinogen by IARC.
ACGIH	No components of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by ACGIH.
NTP	No components of this product present at levels greater than or equal to 0.1% is identified as a known or anticipated carcinogen by NTP.
OSHA	No components of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by OSHA.

Signs & Symptoms of Exposure

Eyes	May cause eye irritation. Symptoms include eye burns, pain, watering eyes
Inhalation	Causes irritation to the respiratory tract. Symptoms may include coughing, shortness of breath, burning, choking, coughing, wheezing, laryngitis, shortness of breath, headache or nausea.
Skin	Contact causes redness, irritation, itching and pain. Prolonged or repeated skin exposure may cause dermatitis
Ingestion	Repeated ingestion of small amounts may cause weakness, confusion, central nervous system effects, nausea and skin eruptions.

Chronic Toxicity	Not Available
Teratogenicity	Not Available
Mutagenicity	Not Available
Embryotoxicity	Not Available
Specific Target Organ Toxicity	Not Available

12. ECOLOGICAL INFORMATION

Ecotoxicity

Aquatic Vertebrate	Not Available
Aquatic Invertebrate	EC50 – Daphnia magna (water flea) – 0.024 mg/l – 48 hours
Terrestrial	Not Available
Persistence and Degradability	Not Available
Bioaccumulative Potential	Not Available
Mobility in Soil	Not Available
PBT and vPvB Assessment	Not Available

Other Adverse Effects

Very toxic to all aquatic organisms

13. DISPOSAL CONSIDERATIONS

- Waste Residues** Users should review their operations in terms of the applicable federal/national or local regulations and consult with appropriate regulatory agencies if necessary before disposing of waste product container.
- Product Containers** Users should review their operations in terms of the applicable federal/national or local regulations and consult with appropriate regulatory agencies if necessary before disposing of waste product container.

The information offered in section 13 is for the product as shipped. Use and/or alterations to the product may significantly change the characteristics of the material and alter the waste classification and proper disposal methods.

14. TRANSPORT INFORMATION

US DOT	UN3077, Environmentally hazardous substances, solid, n.o.s. (Cupric Sulfate Pentahydrate), 9, pg III
TDG	UN3077, ENVIRONMENTALLY HAZARDOUS SUBSTANCES, SOLID, N.O.S. (Cupric Sulfate Pentahydrate), 9, pg III
IMDG	UN3077, ENVIRONMENTALLY HAZARDOUS SUBSTANCES, SOLID, N.O.S. (Cupric Sulfate), 9, pg III
Marine Pollutant	Yes.
IATA/ICAO	UN3077, Environmentally hazardous substances, solid, n.o.s. (Cupric Sulfate Pentahydrate), 9, pg III

15. REGULATORY INFORMATION

- TSCA Inventory Status All ingredients are listed on the TSCA inventory.
- DSCL (EEC) All ingredients are listed on the DSCL inventory.
- California Proposition 65 Not Listed
- SARA 302 Listed: Cupric Sulfate
- SARA 304 Listed: Cupric Sulfate
- SARA 311 Cupric Sulfate
- SARA 312 Cupric Sulfate
- SARA 313 Listed: Cupric Sulfate
- WHMIS Canada Class D-2B: Toxic Material

16. OTHER INFORMATION

Further information

The above information is believed to be correct but does not purport to be all inclusive and shall be used only as a guide. The information in this document is based on the present state of our knowledge and is applicable to the product with regard to appropriate safety precautions. It does not represent any guarantee of the properties of the product. Sentury Reagents, Inc., shall not be held liable for any damage resulting from handling or from contact with the above product.