SDS

Safety Data Sheet

1. IDENTIFICATION

Product Identifier: **Cupric Sulfate, Pentahydrate**

Product Code(s): C1000, C1032, CSC1000

Synonyms: Copper (II) Sulfate, Pentahydrate; Copper Vitriol; Blue Vitriol

Recommended Use: For manufacturing, industrial, and laboratory use only. Use as a catalyst or as a laboratory reagent.

Uses Advised Against: Not for food, drug, or household use.

Supplier: Rocky Mountain Reagents, Inc.
4621 Technology Drive, Golden, CO 80403
Phone: (303) 762-0800 Fax: (303) 762-1240

Emergency Phone Number: (800) 255-3924 (VelocityEHS)

2. HAZARDS IDENTIFICATION

Hazard Classifications:

Acute Toxicity – Oral:	Category 3
Skin Corrosion/Irritation:	Category 2
Eye Damage/Irritation:	Category 2A

Signal Word: DANGER

Hazard Statements:
Toxic if swallowed.
Causes skin irritation.
Causes serious eye irritation.

Pictograms:

Precautionary Statements:

Prevention:
Wash hands and exposed skin thoroughly after handling.
Do not eat, drink, or smoke while using this product.
Wear protective gloves, protective clothing, eye protection, and face protection.

Response: If swallowed: Immediately call a poison center or doctor. Rinse mouth.

If on skin: Wash with plenty of water. If skin irritation occurs: Get medical attention. Take off contaminated clothing and wash it before reuse.
If in eyes: Rinse cautiously with water for several minutes. Remove contact lenses if present and easy to do. Continue rinsing. If eye irritation persists: Get medical attention.

Storage: Store locked up.

Disposal: Dispose of contents and container in accordance with local, regional, national, and international regulations.

Hazards Not Otherwise Classified: Very toxic to aquatic life with long lasting effects.
May cause skin or respiratory sensitization.

Toxicity Statement: Not applicable.

3. COMPOSITION AND INFORMATION ON INGREDIENTS

Component	Common Name / Synonyms	CAS#	Chemical Formula	% by Weight
Cupric Sulfate, Pentahydrate	Copper (II) Sulfate, Pentahydrate	7758-99-8	$CuSO_4 \cdot 5H_2O$	98.0 – 102.0

Trade Secret Statement: Not applicable.

4. FIRST AID MEASURES

First Aid Procedures:

Inhalation: Move to fresh air. If breathing is difficult, give oxygen. If not breathing, give artificial respiration. Call a physician if symptoms occur.

Ingestion: Rinse mouth. Do not induce vomiting unless directed to do so by medical personnel. If vomiting occurs, keep head low so that vomit does not enter lungs. Never give anything by mouth to an unconscious person. Call a physician or poison control center immediately.

Skin Contact: Wash skin with plenty of water for at least 15 minutes. Remove contaminated clothing and shoes. Wash clothing before reuse. Call a physician if symptoms occur.

Eye Contact: Check for and remove contact lenses, if present and easy to do. Immediately flush eyes with gentle but large stream of water for at least 15 minutes, lifting lower and upper eyelids occasionally. Get medical attention if irritation persists.

General Advice: Poison information centers in each state can provide additional assistance for scheduled poisons. Ensure that those providing first aid and medical personnel are aware of the material(s) involved and take precautions to protect themselves.

Symptoms and Effects: May cause irritation if swallowed, inhaled, or exposed to the skin or eyes. May cause coughing, nausea, vomiting, headache, dizziness, weakness, tingling.

Immediate Medical Care/ Special Treatment: Treat symptomatically.

5. FIREFIGHTING MEASURES

Suitable Extinguishing Media: Water spray, dry powder, alcohol resistant foam, carbon dioxide.

Unsuitable Extinguishing Media: Do not use a solid (straight) water stream as it may scatter and spread fire.

Hazardous Combustion Products:	Cupric oxides, sulfur oxides.
Specific Hazards:	Excessive thermal conditions may cause decomposition and yield hazardous combustion products listed above.
Special Protective Equipment/ Precautions for Firefighters:	As in any fire, wear MSHA/NIOSH-approved (or equivalent), self-contained, positive-pressure or pressure-demand breathing apparatus and full protective gear.

6. ACCIDENTAL RELEASE MEASURES

Personal Precautions and Protective Equipment:	Ventilate area of leak or spill. Isolate hazard area and keep unnecessary and unprotected personnel away from the area of the leak or spill. Keep upwind. Wear appropriate personal protective equipment (see Section 8). Avoid contact with eyes, skin, and clothing.
Emergency Procedures:	In case of chemical emergency, or if unsure how to address an accidental release, consult a professional (see Section 1).
Methods for Containment:	Prevent entry into waterways, sewer, basements, or confined areas. Avoid generation of product dust. Product should not be released to the environment. Contain and recover crystal when possible.
Methods for Cleanup:	Sweep up or collect spill and place in a non-combustible container for reclamation or disposal. Do not flush to sewer. Clean contaminated surface thoroughly. Residues from spills can be diluted with water. Never return spills in original containers for reuse. Clean up in accordance with all applicable regulations.

7. HANDLING AND STORAGE

Handling:	Wear personal protective equipment (see Section 8). Provide sufficient air exchange and/or exhaust in work rooms. Avoid contact with skin, eyes, and clothing. Avoid generation of dust. Do not breathe product dust. Avoid exposure to moisture. Do not ingest. When using, do not eat, drink, or smoke. Keep away from incompatible materials (see Section 10). Handle in accordance with good industrial hygiene and safety practice. Wash thoroughly after handling. Containers of this material may be hazardous when empty, as they retain product residues. Observe all warnings and precautions listed for this product.
Storage:	Store in a cool, dry, ventilated area. Store away from heat and incompatible materials (see Section 10). Store in original container. Keep containers tightly closed and upright. Keep away from food, drink, and animal foodstuffs. Keep out of the reach of children. Comply with all national, state, and local codes pertaining to the storage, handling, dispensing, and disposal of this product.

8. EXPOSURE CONTROLS AND PERSONAL PROTECTION

Exposure Limits: Copper: ACGIH (TLV): 1 mg/m^3

Engineering Controls: Ensure adequate ventilation. 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.

Personal Protective Measures:

Eye/Face Protection: Wear safety glasses with side shields or safety goggles. Maintain approved eye wash station and accessible rinse facilities in work area.

Skin Protection:	Wear appropriate chemical resistant clothing (with long sleeves) and appropriate chemical resistant gloves.
Respiratory Protection:	An air-purifying, NIOSH-approved respirator with an organic vapor cartridge or canister may be permissible under certain circumstances where airborne concentrations are expected to exceed exposure limits. Use a positive-pressure, air-supplied respirator if there is any potential for an uncontrolled release, if exposure levels are unknown, or if any other circumstances exist where air-purifying respirators may not provide adequate protection.
Specific Requirements for Personal Protective Equipment:	Ensure that glove material is compatible with this product. This information is available from glove manufacturers.

9. PHYSICAL AND CHEMICAL PROPERTIES

Unless otherwise indicated, all properties are given at 25 °C and standard pressure.

Appearance:	Blue, opaque, crystalline solid.
Odor:	Odorless.
Odor Threshold:	No information found.
Formula Weight:	249.68
pH:	3.5 – 4.5 (5% w/v solution at 20 °C)
Melting/Freezing Point:	110 °C
Boiling Point/Range:	No information found.
Decomposition Temperature:	No information found.
Flash Point:	Not applicable.
Auto-ignition Temperature:	Not applicable.
Flammability:	Not flammable.
Flammability/Explosive Limits:	Not applicable.
Solubility:	317 g/L in water at 20 °C. Soluble in alcohols.
Vapor Pressure:	7.3 mmHg at 25 °C
Vapor Density:	No information found.
Specific Gravity:	2.285 (Water = 1)
Evaporation Rate:	No information found.
Viscosity:	No information found.
Partition Coefficient (n-octanol/water):	No information found.

10. STABILITY AND REACTIVITY

Reactivity Data:	No information found.
Chemical Stability:	Stable under normal conditions. Hygroscopic.
Conditions to Avoid:	Excessive heat, moisture, incompatible materials.
Incompatible Materials:	Oxidizers, metals, strong acids, strong bases.

Hazardous Decomposition Products: Cupric oxides, sulfur oxides.

Possibility of Hazardous Reactions: May react vigorously or violently with the incompatible materials listed above. Excessive thermal conditions may yield hazardous decomposition products.

Hazardous Polymerization: Will not occur.

11. TOXICOLOGICAL INFORMATION

Routes of Exposure: Inhalation, ingestion, skin contact, eye contact.

Acute Effects: May be harmful if swallowed, inhaled, or exposed to the skin or eyes. May cause skin discoloration.

Chronic Effects: Prolonged or repeated exposure may cause liver effects, kidney effects, and allergic reaction.

Toxicological Data:

LD_{50} Oral, Rat:	300 mg/kg
LD_{50} Dermal, Rabbit:	> 2000 mg/kg

Symptoms of Exposure: Irritation, headache, nausea, vomiting, dizziness, coughing, abdominal pain, diarrhea, metal fume fever.

Carcinogenic Effects: This product is not considered to cause cancer by IARC, ACGIH, NTP, or OSHA.

12. ECOLOGICAL INFORMATION

Ecotoxicological Data:

LC_{50} Rainbow Trout (Oncorhynchus mykiss):	3200 mg/L 120 h
EC_{50} Water Flea (Daphnia magna):	0.024 mg/L 48 h

Persistence and Degradability: May bioaccumulate and may not be readily biodegradable.

Environmental Effects: Toxic to all aquatic life. Avoid exposure to the environment.

13. DISPOSAL INFORMATION

Disposal Instructions: Dispose of this material and its container to an approved waste collection point. Minimize exposure to product waste (see Section 8). Do not dispose unused waste down drains or into sewers. All wastes must be handled in accordance with local, state, and federal regulations.

Contaminated Packaging: Because emptied containers may retain product residue, follow label warnings even after container is emptied. Offer rinsed packaging material to local recycling facilities.

Waste Codes: No information found.

14. TRANSPORT INFORMATION

DOT:

UN Number: UN3077

Proper Shipping Name: Environmentally hazardous substances, solid, n.o.s. (Copper sulfate)

Hazard Class: 9

Packing Group: III

ERG Number: 171

Environmental Hazard Regulations: Marine pollutant.

Other Transport Precautions: No information found.

15. REGULATORY INFORMATION

U.S. Federal Regulations:

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

TSCA Inventory: All components of this product are on the U.S. TSCA Inventory.

U.S. EPCRA (SARA Title III):

Section 302: No information found.

Sections 311/312:

Hazard Category	List (Yes/No)
Section 311 – Hazardous Chemical	Yes
Immediate Hazard	Yes
Delayed Hazard	Yes
Fire Hazard	No
Pressure Hazard	No
Reactivity Hazard	No

Section 313: No information found.

CERCLA Reportable Quantities: Copper Sulfate, Anhydrous: 10 lb

International Inventories:

Country or Region	Inventory Name	On Inventory (Yes/No)*
Australia	Australian Inventory of Chemical Substances (AICS)	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
Philippines	Philippine Inventory of Chemicals and Chemical Substances (PICCS)	Yes

*A "Yes" indicates that the listed components of this product comply with the inventory requirements administered by the governing country or region.

16. OTHER INFORMATION

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