GARDENA, CA
NEW BRUNSWICK, NJ

Material Safety Data Sheet

NFPA	HMIS	Personal Protective Equipment
	Health Hazard 2 Fire Hazard 0 Reactivity 0	 See Section 15.

Section 1. Chemical Product and Company Identification

Common Name/ Trade Name	**Cupric Sulfate, monohydrate**
Manufacturer	SPECTRUM LABORATORY PRODUCTS INC. 14422 S. SAN PEDRO STREET GARDENA, CA 90248
Commercial Name(s)	Not available.
Synonym	Copper (II) Sulfate, monohydrate; Copper Sulfate, monohydrate
Chemical Name	Cupric Sulfate, monohydrate
Chemical Family	Sulfate salt. [SO4](-2) (Salt.)
Chemical Formula	CuSO4.H2O
Supplier	SPECTRUM LABORATORY PRODUCTS INC. 14422 S. SAN PEDRO STREET GARDENA, CA 90248

Catalog Number(s).	C1358
CAS#	10257-54-2
RTECS	GL8850000
TSCA	TSCA 8(b) inventory: No products were found.
CI#	Not applicable.

IN CASE OF EMERGENCY
CHEMTREC (24hr) 800-424-9300

CALL (310) 516-8000

Section 2.Composition and Information on Ingredients

		Exposure Limits			
Name	**CAS #**	**TWA (mg/m^3)**	**STEL (mg/m^3)**	**CEIL (mg/m^3)**	**% by Weight**
1) Cupric Sulfate, monohydrate	10257-54-2	1			100

Toxicological Data on Ingredients

Cupric Sulfate, monohydrate
LD50: Not available.
LC50: Not available.

Section 3. Hazards Identification

Potential Acute Health Effects

Hazardous in case of skin contact (irritant), of eye contact (irritant), of ingestion, of inhalation.

Potential Chronic Health Effects

CARCINOGENIC EFFECTS: Not available.
MUTAGENIC EFFECTS: Not available.
TERATOGENIC EFFECTS: Not available.
DEVELOPMENTAL TOXICITY: Not available.
The substance may be toxic to kidneys, liver.
Repeated or prolonged exposure to the substance can produce target organs damage.

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Section 4. First Aid Measures

Eye Contact	Check for and remove any contact lenses. In case of contact, immediately flush eyes with plenty of water for at least 15 minutes. Cold water may be used. Get medical attention.
Skin Contact	In case of contact, immediately flush skin with plenty of water. Cover the irritated skin with an emollient. Remove contaminated clothing and shoes. Cold water may be used.Wash clothing before reuse. Thoroughly clean shoes before reuse. Get medical attention.
Serious Skin Contact	Wash with a disinfectant soap and cover the contaminated skin with an anti-bacterial cream. Seek immediate medical attention.
Inhalation	If inhaled, remove to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Get medical attention.
Serious Inhalation	Not available.
Ingestion	Do NOT induce vomiting unless directed to do so by medical personnel. Never give anything by mouth to an unconscious person. If large quantities of this material are swallowed, call a physician immediately. Loosen tight clothing such as a collar, tie, belt or waistband.
Serious Ingestion	Not available.

Section 5. Fire and Explosion Data

Flammability of the Product	Non-flammable.
Auto-Ignition Temperature	Not applicable.
Flash Points	Not applicable.
Flammable Limits	Not applicable.
Products of Combustion	Not available.
Fire Hazards in Presence of Various Substances	Not applicable.
Explosion Hazards in Presence of Various Substances	Risks of explosion of the product in presence of mechanical impact: Not available. Risks of explosion of the product in presence of static discharge: Not available.
Fire Fighting Media and Instructions	Not applicable.
Special Remarks on Fire Hazards	When heated to decomposition it emits toxic fumes. Solutions are acidic and can react with magnesium to evolve flammable hydrogen gas
Special Remarks on Explosion Hazards	Nitromethanes and copper salts spontaneously form explosive materials

Section 6. Accidental Release Measures

Small Spill	Use appropriate tools to put the spilled solid in a convenient waste disposal container. Finish cleaning by spreading water on the contaminated surface and dispose of according to local and regional authority requirements.
Large Spill	Use a shovel to put the material into a convenient waste disposal container. Be careful that the product is not present at a concentration level above TLV. Check TLV on the MSDS and with local authorities.

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Section 7. Handling and Storage

Precautions	Do not ingest. Do not breathe dust. Wear suitable protective clothing. In case of insufficient ventilation, wear suitable respiratory equipment. If ingested, seek medical advice immediately and show the container or the label. Avoid contact with skin and eyes. Keep away from incompatibles such as metals, alkalis.
Storage	Keep container tightly closed. Keep container in a cool, well-ventilated area.

Section 8. Exposure Controls/Personal Protection

Engineering Controls	Use process enclosures, local exhaust ventilation, or other engineering controls to keep airborne levels below recommended exposure limits. If user operations generate dust, fume or mist, use ventilation to keep exposure to airborne contaminants below the exposure limit.
Personal Protection	Splash goggles. Lab coat. Dust respirator. Be sure to use an approved/certified respirator or equivalent. Gloves.
Personal Protection in Case of a Large Spill	Splash goggles. Full suit. Dust respirator. Boots. Gloves. A self contained breathing apparatus should be used to avoid inhalation of the product. Suggested protective clothing might not be sufficient; consult a specialist BEFORE handling this product.
Exposure Limits	TWA: 1 (mg/m^3) from ACGIH (TLV) [United States] Inhalation TWA: 0.1 (mg/m^3) from OSHA (PEL) [United States] Inhalation TWA: 1 (mg/m^3) from NIOSH Inhalation Consult local authorities for acceptable exposure limits.

Section 9. Physical and Chemical Properties

Physical state and appearance	Solid. (Powdered solid)	**Odor**	Not available.
Molecular Weight	177.62 g/mole	**Taste**	Not available.
pH (1% soln/water)	Not available.	**Color**	Off-white.
Boiling Point	Not available.		
Melting Point	Not available.		
Critical Temperature	Not available.		
Specific Gravity	Not available.		
Vapor Pressure	Not applicable.		
Vapor Density	Not available.		
Volatility	Not available.		
Odor Threshold	Not available.		
Water/Oil Dist. Coeff.	Not available.		
Ionicity (in Water)	Not available.		
Dispersion Properties	See solubility in water.		
Solubility	Soluble in cold water, hot water.		

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Section 10. Stability and Reactivity Data

Stability	The product is stable.
Instability Temperature	Not available.
Conditions of Instability	Excess heat (high temperatures), incompatible materials, exposure to air
Incompatibility with various substances	Reactive with metals, alkalis.
Corrosivity	Highly corrosive in presence of steel.
Special Remarks on Reactivity	Solutions of hyprobromite are decomposed by powerful catalytic action of cupric ions, even as impurities. Incompatible with finely powdered metals, hydroxylamine, magnesium, acetylene, Sodium Hypobromite, and nitromethane. May react with acetylene to form dangerous acetylides. Can be corrosive to most ferrous based metals. Hygroscopic; keep container tightly closed.
Special Remarks on Corrosivity	Corrosive to finely powdered metals. Very corrosive to plain steel
Polymerization	Will not occur.

Section 11. Toxicological Information

Routes of Entry	Inhalation. Ingestion.
Toxicity to Animals	LD50: Not available. LC50: Not available.
Chronic Effects on Humans	May cause damage to the following organs: kidneys, liver.
Other Toxic Effects on Humans	Hazardous in case of skin contact (irritant), of ingestion, of inhalation.
Special Remarks on Toxicity to Animals	Not available.
Special Remarks on Chronic Effects on Humans	May affect genetic material based on animal data. May cause adverse reproductive effects and birth defects (teratogenic) based on animal test data. May cause cancer based on animal test data
Special Remarks on other Toxic Effects on Humans	Acute Potential Health Effects: Skin: Causes skin irritation. May cause skin burns. It may cause and itching allergic eczema. Eyes: Causes eye irritation. May cause eye burns. It may cause conjunctivitis, corneal discoloration, ulceration and turbidity of the cornea. Inhalation: Causes respiratory tract (nose, throat, lung) irritation with coughing and wheezing. May cause ulceration and perforation of the nasal septum if inhaled in excessive quantities. Burning copper sulfate may result in irritating and poisonous gases which may irritate the respiratory tract and lungs, and may cause fume metal fever which is characterized by flu-like symptoms such as fever, chills, muscle aches. Ingestion: Harmful if swallowed. May cause gastrointestinal tract irritation with nausea, vomiting, diarrhea, metallic taste, burning sensation in the stomach or epigastrum, abdominal pain, and possible gastrointestinal tract bleeding. May affect metabolism(metabolic acidosis), liver (liver damage, jaundice), blood (Methemoglobin, hemalytic anemia), urinary system (kidney damage, hematuria, hemoglobinuria, albuminuria), behavior/nervous systems (somnolence, tremor, psychosis, muscle weakness, coma), cardiovascular system (lowering of blood pressure, dysthrythmia). Oral mucosa, vomitus, stools, and saliva may be stained blue or green following ingestion. Aspiration pneumonia may develop following emesis and CNS depression. Chronic Potential Health Effects: Skin: Repeated or prolonged skin contact may cause thickening of the skin.

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Section 12. Ecological Information

Ecotoxicity	Ecotoxicity in water (LC50): 0.1 ppm 48 hours [Goldfish]. 0.1 mg/l 96 hours [Rainbow Trout]. 2.5 mg/l 96 hours [Rainbow Trout].
BOD5 and COD	Not available.
Products of Biodegradation	Possibly hazardous short term degradation products are not likely. However, long term degradation products may arise.
Toxicity of the Products of Biodegradation	The products of degradation are less toxic than the product itself.
Special Remarks on the Products of Biodegradation	If released to soil, copper sulfate may leach to groundwater, be partly oxidized, or bind to humic materials, clay, or hydrous of iron and manganese. In water, it will bind to carbonates as well as humic materials, clay and hydrous oxides of iron and manganese. Copper is accumulated by plants and animals, but it does not appear to biomagnify from plants to animals. This lack of biomagnification appears common with heavy metals. In air, copper aerosols (in general) have a residence time of 2 to 10 days in an unpolluted atmosphere and 0.1 to >4 in a polluted, urban areas.

Section 13. Disposal Considerations

Waste Disposal	Copper dusts or mist or copper compounds may be disposed of in Group III sealed containers in a secure sanitary landfill. Copper containing soluble wastes can be concentrated through the use of ion exchange, reverse osmosis, or evaporators to the point where copper can be electrolytically removed and sent to a reclaiming firm. If recovery is not feasible, the copper can be precipitated through the use of caustics and the sludge depositied in a chemical waste landfill. Be sure to consult with authorities (waste regulators). Waste must be disposed of in accordance with federal, state and local environmental control regulations.

Section 14. Transport Information

DOT Classification	CLASS 9: Miscellaneous hazardous material.
Identification	: Environmentally hazardous substance, n.o.s. (Cupric Sulfate) UNNA: 3077 PG: III
Special Provisions for Transport	additional markings "Marine Pollutant" - required for bulk shipments. The words "Marine Pollutant" must be entered on the shipping paper in association iwth the basic DOT description for bulk shipments.
DOT (Pictograms)	

Section 15. Other Regulatory Information and Pictograms

Federal and State Regulations	SARA 313 toxic chemical notification and release reporting: Copper compounds CERCLA: Hazardous substances.: Cupric Sulfate, monohydrate: 10 lbs. (4.536 kg)	
California Proposition 65 Warnings	California prop. 65: This product contains the following ingredients for which the State of California has found to cause cancer which would require a warning under the statute: No products were found. California prop. 65: This product contains the following ingredients for which the State of California has found to cause birth defects which would require a warning under the statute: No products were found.	
Other Regulations	OSHA: Hazardous by definition of Hazard Communication Standard (29 CFR 1910.1200).	
Other Classifications	**WHMIS (Canada)**	CLASS D-2B: Material causing other toxic effects (TOXIC).
	DSCL (EEC)	R22- Harmful if swallowed. R36/38- Irritating to eyes and skin. R50/53- Very toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment. S22- Do not breathe dust. S60- This material and its container must be disposed of as hazardous waste. S61- Avoid release to the environment. Refer to special instructions/Safety data sheets.

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HMIS (U.S.A.)

Health Hazard	2
Fire Hazard	0
Reactivity	0
Personal Protection	E

National Fire Protection Association (U.S.A.)

Health

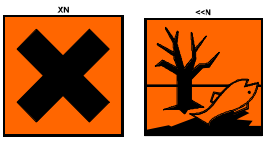
Flammability

Reactivity

Specific hazard

WHMIS (Canada) (Pictograms)

DSCL (Europe) (Pictograms)



TDG (Canada) (Pictograms)

ADR (Europe) (Pictograms)

Protective Equipment

Gloves.

Lab coat.

Dust respirator. Be sure to use an approved/certified respirator or equivalent.

Splash goggles.

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Section 16. Other Information

MSDS Code	C4658
References	-The Sigma-Aldrich Library of Chemical Safety Data, Edition II. -Hawley, G.G.. The Condensed Chemical Dictionary, 11e ed., New York N.Y., Van Nostrand Reinold, 1987.
Other Special Considerations	Not available.

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CALL (310) 516-8000

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