

CuSO₄·5H₂O
CAS No 7758-99-8

MATERIAL SAFETY DATA SHEET
SDS/MSDS

Common Name **COPPER SULFATE**

Manufacturer

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This document is prepared pursuant to the OSHA Hazard Communication Standard (29 CFR 1910.1200).

SECTION I. MATERIAL IDENTIFICATION

Common Name Copper Sulfate
Synonyms Blue Vitrol, Bluestone, Cupric Sulfate
Molecular Formula CuSO₄ • 5H₂O
EPA Reg. Number 46923-4
CAS Number 7758-99-8
SIC Number 28199 C 29

SECTION II. PHYSICAL DATA

Physical State Blue crystals or powder
Boiling Point -5 H₂O @ 150° F
Melting Point -4 H₂O @ 110° F
Specific Gravity 2.284
Solubility in H₂O 22.37% @ 0° C
117.95% @ 100° C
Solubility in other solvents Soluble in methanol, glycerol and slightly soluble in ethanol
Appearance Blue crystals or powder
Odor Odorless

MSDS - Copper Sulfate

SECTION III. FIRE AND EXPLOSION DATA

Flash Point	Not applicable
Flammable Limits	Not flammable. If heated above 400° C it can decompose to emit toxic fumes of oxide and sulfur.
Extinguishing Media	Copper Sulfate does not burn nor will it support combustion. If stored with other combustible products use water, CO ₂ or dry chemical.
Special Fire Fighting Instructions	If dry heated above 600° C, SO ₂ is evolved. If water is used it will solubilize the Copper Sulfate and care should be taken to keep such water out of streams or other water bodies.
Fire and Explosion Hazards	None

SECTION IV. REACTIVITY DATA

Stability	Stable
Conditions to Avoid	Product is highly soluble, but does not react with water.
Incompatibility	None known when product remains dry. Product readily dissolves in water. Solutions are mildly corrosive to steel. Store solutions in plastic or rubber or 304, 316 or 316L stainless steel. Iron and moisture should be avoided. Store in a dry area. With exposure to air it will oxidize and turn whitish.
Hazardous Decomposition Products	None at normal production temperatures and pressures. If dry heated above 600° C toxic sulfur may evolve.
Polymerization	Will not occur.

SECTION V. HEALTH AND HAZARD INFORMATION

Swallowing	Toxic orally in accordance with FHSLA regulations. Acute oral LD50 (male rats) = 472 mg/kg.
Skin	Non-toxic. Skin irritation index is zero in accordance with FHSLA regulations.
Eyes	Corrosive in accordance with FHSLA regulations. Eye irritation score: 24 hours = 41.67; 48 hours = corrosive
Inhalation	Inhalation of dust may cause irritation to the upper respiratory tract.
Carcinogenicity	None as per NTP, OSHA, and IARC.

This product contains Copper Sulfate subject to the reporting requirements of Section 13 of the Emergency Planning and Community-right-to-Know-Act of 1986 (40 CFR 372).

MSDS - Copper Sulfate

SECTION VI. FIRST AID PROCEDURES

Swallowing	Give large amounts of milk or water. Induce vomiting. Call Poison Control Center or a physician.
Skin	Wash thoroughly with soap and water. Remove and wash contaminated clothing before reuse.
Eyes	Immediately flush eyes with plenty of water for 15 minutes. Hold eyelids apart during irrigation. Call a physician.
Inhalation	Remove person to fresh air and call a physician.
Carcinogenicity	None

SECTION VII. HANDLING PRECAUTIONS

Personal Protective Equipment	Chemical safety goggles. Rubber gloves and rubber apron may be worn.
Ventilation	TWA = 1 mg/l for Copper Sulfate. When TWA exceeds this limit in the workplace, provide appropriate ventilation. Wear an approved respirator for dusts or mists: MSHA/NIOSH approved number prefix TC-21C, or a NIOSH approved respirator with any R, P or HE filter.

Alternatively, provide respiratory protection equipment in accordance with Paragraph 1910.134 of Title 29 of the Code of Federal Regulations.

SECTION VIII. ENVIRONMENTAL AND DISPOSAL INFORMATION

Aquatic Toxicity	LC50, 24 hours, Daphnia magna equals 0.182 mg/l. Rainbow Trout equals 0.17 mg/l. Blue Gill equals 1.5 mg/l. All values are expressed as Copper Sulfate Pentahydrate. Test water was soft.
Spills and Leaks	Comply with Federal, State and local regulations on reporting spills. Do not wash away crystals or powder. Recover dry if possible. If product is in a confined solution, react with soda ash to form an insoluble Copper Carbonate solid that can be scooped up.
Waste Disposal	Do not reuse container. Comply with Federal, State and local regulations. Sweep up crystals, powder or insoluble Copper Carbonate and dispose of in an approved landfill.
Environmental Effects	May be dangerous if it enters the public water systems. Follow local regulation. Toxic to fish and plants. Fish toxicity critical concentration is 235 mg/l and plant toxicity is 25 mg/l.

SECTION IX. SPECIAL PRECAUTIONS

Storage	Store in a dry place.
Other Precautions	None other than those stated in the MSDS or on the package.

SECTION XI. REGULATORY INFORMATION

NOTICE: The information herein is presented in good faith and believed to be accurate. However, no warranty, expressed or implied, is given. Regulatory requirements are subject to change and may differ from one location to another. It is the buyer's responsibility to ensure that its activities comply with Federal, State and local laws.

U.S. REGULATIONS: SARA 313 Information. This product contain the following substance subject to the reporting requirements of Section 313 of Title III of the Superfund Amendments and Reauthorization Act of 1986 and 40 CFR Part 372: **COPPER COMPOUND** 63.3%.

SARA HAZARD CATEGORY: This product has been reviewed according to the EPA "Hazard Categories" promulgated under Sections 311 and 312 of the Superfund Amendments and Reauthorization Act of 1986 (SARA Title III) and is considered, under applicable definitions, to meet the following category: **AN IMMEDIATE HEALTH HAZARD.**

SECTION XII. SHIPPING INFORMATION

DOT Shipping Name: RQ, Environmentally Hazardous Substance, Solid, N.O.S., (CUPRIC SULFATE), 9, UN3077, PGIII, Marine Pollutant, ERG 171.
