

COPPER NITRATE

CNI

CAUTIONARY RESPONSE INFORMATION			
Common Synonyms	Solid	Blue	Odorless
Cupric nitrate trihydrate Gerhardtite Keep people away. Avoid contact with solid and dust. Shut off ignition sources and call fire department. Notify local health and pollution control agencies. Protect water intakes.			
Fire			Not flammable. Will increase the intensity of a fire. Irritating gases may be produced when heated. Flood discharge area with water.
Exposure			CALL FOR MEDICAL AID. DUST Irritating to eyes, nose and throat. If inhaled will cause coughing or difficult breathing. If in eyes, hold eyelids open and flush with plenty of water. If breathing has stopped, give artificial respiration. If breathing is difficult, give oxygen. SOLID Will burn eyes. If swallowed will cause nausea, vomiting or loss of consciousness. Remove contaminated clothing and shoes. Flush affected area with plenty of water. IF IN EYES, hold eyelids open and flush with plenty of water. IF SWALLOWED and victim is CONSCIOUS, have victim drink water or milk and have victim induce vomiting. IF SWALLOWED and victim is UNCONSCIOUS OR HAVING CONVULSIONS, do nothing except keep victim warm.
Water Pollution			HARMFUL TO AQUATIC LIFE IN VERY LOW CONCENTRATIONS. May be dangerous if it enters water intakes. Notify local health and wildlife officials. Notify operators of nearby water intakes.

1. CORRECTIVE RESPONSE ACTIONS	2. CHEMICAL DESIGNATIONS
Dilute and disperse Stop discharge	2.1 CG Compatibility Group: Not listed. 2.2 Formula: Cu(NO ₃) ₂ ·3H ₂ O 2.3 IMO/UN Designation: Not listed 2.4 DOT ID No.: Not listed 2.5 CAS Registry No.: 3251-23-8 2.6 NAERG Guide No.: Not listed. 2.7 Standard Industrial Trade Classification: 52359
3. HEALTH HAZARDS	
3.1 Personal Protective Equipment: Dust mask; goggles or face shield; protective gloves	
3.2 Symptoms Following Exposure: Inhalation causes irritation of throat and lungs. Ingestion of large amounts causes violent vomiting and purging, intense pain, collapse, coma, convulsions, and paralysis. Solutions irritate eyes; contact with solid causes severe eye surface injury and skin irritation.	
3.3 Treatment of Exposure: INHALATION: move to fresh air. INGESTION: give large amounts of water; induce vomiting; get medical attention. EYES: flush with water for at least 15 min.; get medical attention if injury was caused by solid. SKIN: flush with water.	
3.4 TLV-TWA: Notice of intended change: 0.05 mg Cu/m ³ respirable particles	
3.5 TLV-STEL: Not listed.	
3.6 TLV-Ceiling: Not listed.	
3.7 Toxicity by Ingestion: Grade 2; LD ₅₀ = 0.5-5 g/kg	
3.8 Toxicity by Inhalation: Currently not available.	
3.9 Chronic Toxicity: Currently not available	
3.10 Vapor (Gas) Irritant Characteristics: Currently not available	
3.11 Liquor or Solid Characteristics: Currently not available	
3.12 Odor Threshold: Currently not available	
3.13 IDLH Value: 100 mg Cu/m ³ (dusts, mists, fumes)	
3.14 OSHA PEL-TWA: 0.1 mg/m ³ as copper	
3.15 OSHA PEL-STEL: Not listed.	
3.16 OSHA PEL-Ceiling: Not listed.	
3.17 EPA AEGL: Not listed	

4. FIRE HAZARDS	7. SHIPPING INFORMATION										
4.1 Flash Point: Not flammable	7.1 Grades of Purity: Pure, 100%; Technical; Reagent. May also be shipped as anhydrous grade.										
4.2 Flammability Limits in Air: Not flammable	7.2 Storage Temperature: Ambient										
4.3 Fire Extinguishing Agents: Not pertinent	7.3 Inert Atmosphere: No requirement										
4.4 Fire Extinguishing Agents Not to Be Used: Not pertinent	7.4 Venting: Open										
4.5 Special Hazards of Combustion Products: Toxic and irritating oxides of nitrogen may form in fire.	7.5 IMO Pollution Category: Currently not available										
4.6 Behavior in Fire: Can increase intensity of fire if in contact with combustible material.	7.6 Ship Type: Currently not available										
4.7 Auto Ignition Temperature: Not pertinent	7.7 Barge Hull Type: Currently not available										
4.8 Electrical Hazards: Not pertinent											
4.9 Burning Rate: Not pertinent											
4.10 Adiabatic Flame Temperature: Currently not available											
4.11 Stoichiometric Air to Fuel Ratio: Not Pertinent											
4.12 Flame Temperature: Currently not available											
4.13 Combustion Molar Ratio (Reactant to Product): Not Pertinent											
4.14 Minimum Oxygen Concentration for Combustion (MOCC): Not listed											
5. CHEMICAL REACTIVITY	8. HAZARD CLASSIFICATIONS										
5.1 Reactivity with Water: No reaction	8.1 49 CFR Category: Not listed										
5.2 Reactivity with Common Materials: Mixtures with wood, paper, and other combustibles may catch fire.	8.2 49 CFR Class: Not pertinent										
5.3 Stability During Transport: Stable	8.3 49 CFR Package Group: Not listed.										
5.4 Neutralizing Agents for Acids and Caustics: Not pertinent	8.4 Marine Pollutant: No										
5.5 Polymerization: Not pertinent	8.5 NFPA Hazard Classification:										
5.6 Inhibitor of Polymerization: Not pertinent	<table border="1"> <thead> <tr> <th>Category</th> <th>Classification</th> </tr> </thead> <tbody> <tr> <td>Health Hazard (Blue).....</td> <td>0 1</td> </tr> <tr> <td>Flammability (Red).....</td> <td>0 0</td> </tr> <tr> <td>Instability (Yellow).....</td> <td>0 0</td> </tr> <tr> <td>Special (White).....</td> <td>OX OX</td> </tr> </tbody> </table>	Category	Classification	Health Hazard (Blue).....	0 1	Flammability (Red).....	0 0	Instability (Yellow).....	0 0	Special (White).....	OX OX
Category	Classification										
Health Hazard (Blue).....	0 1										
Flammability (Red).....	0 0										
Instability (Yellow).....	0 0										
Special (White).....	OX OX										
* First column refers to non-fire situation.											
8.6 EPA Reportable Quantity: 100 pounds											
8.7 EPA Pollution Category: B											
8.8 RCRA Waste Number: Not listed											
8.9 EPA FWPCA List: Yes											
9. PHYSICAL & CHEMICAL PROPERTIES											
9.1 Physical State at 15° C and 1 atm: Solid											
9.2 Molecular Weight: 241.60											
9.3 Boiling Point at 1 atm: Not pertinent (decomposes)											
9.4 Freezing Point: 238.1°F = 114.5°C = 387.7°K											
9.5 Critical Temperature: Not pertinent											
9.6 Critical Pressure: Not pertinent											
9.7 Specific Gravity: 2.32 at 20°C (solid)											
9.8 Liquid Surface Tension: Not pertinent											
9.9 Liquid Water Interfacial Tension: Not pertinent											
9.10 Vapor (Gas) Specific Gravity: Not pertinent											
9.11 Ratio of Specific Heats of Vapor (Gas): Not pertinent											
9.12 Latent Heat of Vaporization: Not pertinent											
9.13 Heat of Combustion: Not pertinent											
9.14 Heat of Decomposition: Not pertinent											
9.15 Heat of Solution: Not pertinent											
9.16 Heat of Polymerization: Not pertinent											
9.17 Heat of Fusion: Currently not available											
9.18 Limiting Value: Currently not available											
9.19 Reid Vapor Pressure: Currently not available											

NOTES

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9.20 SATURATED LIQUID DENSITY		9.21 LIQUID HEAT CAPACITY		9.22 LIQUID THERMAL CONDUCTIVITY		9.23 LIQUID VISCOSITY	
Temperature (degrees F)	Pounds per cubic foot	Temperature (degrees F)	British thermal unit per pound-F	Temperature (degrees F)	British thermal unit inch per hour-square foot-F	Temperature (degrees F)	Centipoise
	NOT PERTINENT		NOT PERTINENT		NOT PERTINENT		NOT PERTINENT

9.24 SOLUBILITY IN WATER		9.25 SATURATED VAPOR PRESSURE		9.26 SATURATED VAPOR DENSITY		9.27 IDEAL GAS HEAT CAPACITY	
Temperature (degrees F)	Pounds per 100 pounds of water	Temperature (degrees F)	Pounds per square inch	Temperature (degrees F)	Pounds per cubic foot	Temperature (degrees F)	British thermal unit per pound-F
34	85.330		NOT		NOT		NOT
36	87.660						
38	90.000						
40	92.330						
42	94.660						
44	97.000		PERTINENT		PERTINENT		PERTINENT
46	99.330						
48	101.700						
50	104.000						
52	106.299		NOT		NOT		NOT
54	108.700						
56	111.000						
58	113.299		NOT		NOT		NOT
60	115.700						
62	118.000						
64	120.299						
66	122.700						
68	125.000						
70	127.299						
72	129.699						
74	132.000						
76	134.299						
78	136.699						
80	139.000						
82	141.299						
84	143.699						