

# MATERIAL SAFETY DATA SHEET

COPPER SULPHATE, SOLID

## 1. CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

Brenntag Canada Inc.  
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WHMIS#: 00060168  
Index: HCl0132/15B  
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Website: <http://www.brenntag.ca>

### EMERGENCY TELEPHONE NUMBER (For Emergencies Involving Chemical Spills or Releases)

1 855 273 6824

### PRODUCT IDENTIFICATION

Product Name: Copper Sulphate, Solid.  
Chemical Name: Sulfuric Acid, Copper (2++) salt (1:1).  
Synonyms: Copper Sulphate Industrial, Crystal, Mine Grade; Copper Sulfate Superfine; Copper Sulphate Pentahydrate; Blue Stone; Blue Copper; Blue Vitriole; Cupric Sulphate; Copper Sulphate Penta (Russian); Copper Sulphate Old Bridge.  
Chemical Family: Inorganic salt.  
Molecular Formula: Pentahydrate:  $\text{CuSO}_4 \cdot 5 \text{H}_2\text{O}$ ; Anhydrous:  $\text{CuSO}_4$ .  
Product Use: Feed supplement. Flotation agent. Agriculture. Electrical Batteries. Leather Industry.

### WHMIS Classification / Symbol:

D-1B: Toxic (acute effects)

D-2B: Toxic (skin sensitizer, skin & eye irritant)



READ THE ENTIRE MSDS FOR THE COMPLETE HAZARD EVALUATION OF THIS PRODUCT.

## 2. COMPOSITION, INFORMATION ON INGREDIENTS (Not Intended As Specifications)

<i>Ingredient</i>	<i>CAS#</i>	<i>ACGIH TLV (TWA)</i>	<i>% Concentration</i>
Copper Sulphate Pentahydrate	7758-99-8		95 - 100

## 3. HAZARDS IDENTIFICATION

**EMERGENCY OVERVIEW:** Toxic/Poisonous! May be fatal if inhaled, absorbed through skin, or swallowed. Causes severe eye irritation. Causes skin irritation. May cause skin sensitization or other allergic responses. Dust is irritating to respiratory tract. See "Other Health Effects" Section. Can decompose at high temperatures forming toxic gases. Sealed containers may rupture from the pressure of water vapours released from crystals by intense heat.

### POTENTIAL HEALTH EFFECTS

**Inhalation:** Brief contact with the dust causes irritation. Greater exposure causes severe burns. In the presence of moisture (perspiration, humidity, tears), the dust dissolves to form a corrosive solution which may cause burns. (3)  
In general, long-term exposure to high concentrations of dust may cause increased mucous flow in the nose and respiratory system airways. This condition usually disappears after exposure stops. (4)  
Ulceration of nasal septum may occur. (3)

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Skin Contact:	Brief contact causes irritation (itching, local redness or possible swelling). Prolonged, confined (especially under the finger nails, under rings or watch bands) or repeated exposure may cause skin irritation and possibly lead to (chemical) burns. Avoid handling when the skin is moist, wet or abraded. In the presence of moisture (perspiration, humidity, tears), the dust dissolves to form a solution which may cause burns. May cause skin sensitization or other allergic responses. May cause staining. (3)
Skin Absorption:	A single, prolonged skin exposure is not likely to result in the absorption of toxic amounts of the material.
Eye Contact:	This product causes corneal scarring and clouding. Glaucoma, cataracts and permanent blindness may occur.
Ingestion:	Toxic/Poisonous! Ingestion is not a likely route of exposure. This product causes severe burning and pain in the mouth, throat and abdomen. Vomiting, diarrhea and perforation of the esophagus and stomach lining may occur. May cause blood changes, paralysis, coma and death.
Other Health Effects:	<p>Corrosive effects on the skin and eyes may be delayed, and damage may occur without the sensation or onset of pain. Strict adherence to first aid measures following any exposure is essential.</p> <p>May cause staining, decreased skeletal growth, weight loss, anemia, liver damage, kidney damage, central nervous system (CNS) depression, metal fume fever and pneumoconiosis. Pneumoconiosis is the deposition of dust in the lungs and the tissue's reaction to its presence. When exposure to the dust is severe or prolonged, the lungs' defenses are overwhelmed. Liver damage is characterized by the loss of appetite, jaundice (yellowish skin colour), and occasional pain in the upper left-hand side of the abdomen. Signs and symptoms of kidney damage generally progress from oliguria, to blood in the urine, to total renal failure. CNS depression is characterized by headache, dizziness, drowsiness, nausea, vomiting and incoordination. Severe overexposures may lead to coma and possible death due to respiratory failure. Repeated inhalation of copper sulphate mists may induce a condition known as "vineyard's lung". Greenish tumours occur in the liver and lungs of afflicted individuals. The disease is asymptomatic until later stages. (4) Controversy exists as to the role exposure to dust has in the development of chronic bronchitis (inflammation of the air passages into the lungs). Other factors such as smoking and general air pollution are more important, but dust exposure may contribute. (4)</p> <p>Metal fume fever can be caused by inhalation of fumes formed in the air from welding or heating the metal. Symptoms of metal fume fever occur about 4 to 12 hours after exposure and usually last about 24 hours. Recovery is complete with no apparent permanent disability. The symptoms resemble the "flu" and include: sweating, shivering, headache, fever, chills, thirstiness, muscle aches, nausea, vomiting, weakness and tiredness. (6)</p> <p>A metallic or sweet taste in the mouth, dryness or irritation of the throat and coughing may occur at the time of exposure to the metal fumes. Some workers develop a short-term immunity so that repeated exposure to the fumes does not cause metal fume fever. This immunity is quickly lost after short absences from work (weekends or vacations). (6)</p>

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## 4. FIRST AID MEASURES

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### FIRST AID PROCEDURES

Inhalation:	Move victim to fresh air. Give artificial respiration ONLY if breathing has stopped. Give cardiopulmonary resuscitation (CPR) if there is no breathing AND no pulse. Obtain medical attention IMMEDIATELY.
Skin Contact:	Flush skin with running water and wash affected areas thoroughly with soap and water. Start flushing while removing contaminated clothing. Obtain medical attention IMMEDIATELY.
Eye Contact:	Immediately flush eyes with running water for a minimum of 20 minutes. Hold eyelids open during flushing. Take care not to rinse contaminated water into the unaffected eye or onto the face. If irritation persists, repeat flushing. Obtain medical attention IMMEDIATELY.
Ingestion:	Do not attempt to give anything by mouth to an unconscious person. IMMEDIATELY contact local Poison Control Centre. If victim is alert and not convulsing, rinse mouth out and give 1 to 2 glasses of milk. Water may be used if milk is not available but it is not as effective. If spontaneous vomiting occurs, have victim lean forward with head down to avoid breathing in of vomitus, rinse mouth and administer more milk or water. IMMEDIATELY transport victim to an emergency facility.
Note to Physicians:	<p>Treat symptomatically. Due to the severely irritating or corrosive nature of the material, swallowing may lead to ulceration and inflammation of the upper alimentary tract with hemorrhage and fluid loss. Also, perforation of the esophagus or stomach may occur, leading to mediastinitis or peritonitis and the resultant complications.</p> <p>Medical conditions that may be aggravated by exposure to this product include neurological and cardiovascular disorders, diseases of the skin, eyes or respiratory tract, preexisting liver and kidney disorders.</p>

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## 5. FIRE-FIGHTING MEASURES

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<b>Flashpoint (°C)</b>	<b>Autolgnition Temperature (°C)</b>	<b>Flammability Limits in Air (%):</b>	
		<b>LEL</b>	<b>UEL</b>
Non-combustible (does not burn).	Not available.	Not available.	Not available.
Flammability Class (WHMIS):	Not regulated.		
Hazardous Combustion Products:	Thermal decomposition products are toxic and may include copper fumes and oxides of sulphur, copper and irritating gases.		
Unusual Fire or Explosion Hazards:	Minimize air borne spreading of dust. Sealed containers may rupture from the pressure of water vapours released from crystals by intense heat.  Copper Sulphate: Decomposes at 400 °C. At temperatures above 110 Degrees Celsius, Copper Sulphate will melt and flow. (3) If this material is dry heated above 600°C, sulphur dioxide is evolved. (3)		
Sensitivity to Mechanical Impact:	Not expected to be sensitive to mechanical impact.		
Rate of Burning:	Not available.		
Explosive Power:	Not available.		
Sensitivity to Static Discharge:	Not expected to be sensitive to static discharge.		
<b>EXTINGUISHING MEDIA</b>			
Fire Extinguishing Media:	Use media appropriate for surrounding fire and/or materials. Dry chemical, carbon dioxide or water spray. Foam. Do not direct a solid stream of foam into hot, burning pools. This may cause spattering and increase fire intensity.		
<b>FIRE FIGHTING INSTRUCTIONS</b>			
Instructions to the Fire Fighters:	Isolate materials that are not involved in the fire and protect personnel. Spilled material may cause floors and contact surfaces to become slippery. If water is used, it will solubilize the copper sulphate and care should be taken to prevent environmental release. (3)		
Fire Fighting Protective Equipment:	Use self-contained breathing apparatus and protective clothing.		

## 6. ACCIDENTAL RELEASE MEASURES

Information in this section is for responding to spills, leaks or releases in order to prevent or minimize the adverse effects on persons, property and the environment. There may be specific reporting requirements associated with spills, leaks or releases, which change from region to region.

**Containment and Clean-Up Procedures:** In all cases of leak or spill contact vendor at Emergency Number shown on the front page of this MSDS. Minimize air borne spreading of dust. Wear respirator, protective clothing and gloves. Avoid dry sweeping. Do not use compressed air to clean surfaces. Vacuuming or wet sweeping is preferred. Return all material possible to container for proper disposal. Do not allow to enter sewers or watercourses.

Any recovered product can be used for the usual purpose, depending on the extent and kind of contamination. Where a package (drum or bag) is damaged and / or leaking, repair it, or place it into an over-pack drum immediately so as to avoid or minimize material loss and contamination of surrounding environment. Replace damaged containers immediately to avoid loss of material and contamination of surrounding atmosphere.

Collect product for recovery or disposal. For release to land, or storm water runoff, contain discharge by constructing dikes or applying inert absorbent; for release to water, utilize damming and/or water diversion to minimize the spread of contamination. Ventilate enclosed spaces. Notify applicable government authority if release is reportable or could adversely affect the environment.

## 7. HANDLING AND STORAGE

### HANDLING

**Handling Practices:** Use normal "good" industrial hygiene and housekeeping practices. Containers exposed to heat may be under internal pressure. These should be cooled and carefully vented before opening. A face shield and apron should be worn. Sealed containers may rupture from the pressure of water vapours released from crystals by intense heat.

Ventilation Requirements: See Section 8, "Engineering Controls".  
 Other Precautions: Use only with adequate ventilation and avoid breathing dusts. Avoid contact with eyes, skin or clothing. Wash thoroughly with soap and water after handling. Wash contaminated clothing thoroughly before re-use. Do not store or transport with food or feed. Avoid accumulation and dispersion of dust.

**STORAGE**

Storage Temperature (°C): See below.  
 Ventilation Requirements: General exhaust is acceptable.  
 Storage Requirements: Store in a cool, dry and well-ventilated area. Keep away from heat, sparks and flames. Keep containers closed. Avoid moisture contamination. Prolonged storage may result in lumping or caking. Protect against physical damage. Protect from direct sunlight. Sealed containers may rupture from the pressure of water vapours released from crystals by intense heat.  
 Special Materials to be Used for Packaging or Containers: Materials of construction for storing the product include: rubber, plastics, 304, 347 or 316 stainless steel. Solutions are corrosive to most metals. Equipment for storage, handling or transport should NOT be made from the following material, or, where applicable, its alloys: aluminum, galvanized materials or nylon. Confirm suitability of any material before using.

**8. EXPOSURE CONTROLS / PERSONAL PROTECTION**

Recommendations listed in this section indicate the type of equipment, which will provide protection against overexposure to this product. Conditions of use, adequacy of engineering or other control measures, and actual exposures will dictate the need for specific protective devices at your workplace.

**ENGINEERING CONTROLS**

Engineering Controls: Ventilation should be corrosion proof. Make up air should be supplied to balance air that is removed by local or general exhaust ventilation. Ventilate low lying areas such as sumps or pits where dense dust may collect.

**PERSONAL PROTECTIVE EQUIPMENT (PPE)**

Eye Protection: Safety glasses with side shields are recommended as minimal eye protection. Use chemical safety goggles when there is potential for eye contact. Contact lenses should not be worn when working with this material.  
 Skin Protection: Gloves and protective clothing made from cotton, canvas, rubber or plastic, neoprene, nitrile rubber, PVC should be impervious under conditions of use. Prior to use, user should confirm impermeability. Discard contaminated gloves.  
 Respiratory Protection: No specific guidelines available. A NIOSH/MSHA-approved air-purifying respirator equipped with dust, mist, fume cartridges for concentrations up to 2 mg/m<sup>3</sup> As For Copper Fume to 10 mg/m<sup>3</sup> As For Copper Mist or Dust. An air-supplied respirator if concentrations are higher or unknown.  
 If respiratory protection is necessary, use only equipment authorized in the Canadian CSA Standard Z94.4-93. (3)  
 Other Personal Protective Equipment: Wear an impermeable apron and boots. Locate safety shower and eyewash station close to chemical handling area. Take all precautions to avoid personal contact.

**EXPOSURE GUIDELINES**

SUBSTANCE	ACGIH TLV (STEL)	OSHA PEL		NIOSH REL	
		(TWA)	(STEL)	(TWA)	(STEL)
Copper - Fume	0.1 mg/m <sup>3</sup>	0.1 mg/m <sup>3</sup>	---	0.1 mg/m <sup>3</sup>	---
Copper - Dusts and mists, as Cu	—	1 mg/m <sup>3</sup>	---	1 mg/m <sup>3</sup>	---

**9. PHYSICAL AND CHEMICAL PROPERTIES (Not intended as Specifications)**

Physical State: Solid.  
 Appearance: Bright, blue crystals or bluish, white powder, slowly efflorescing in air.  
 Odour: Odourless.  
 Odour Threshold (ppm): Not available.  
 Boiling Range (°C): 150 (Pentahydrate). (3)  
 Melting/Freezing Point (°C): 110 (Tetrahydrate). (3)  
 Vapour Pressure (mm Hg at 20° C): Not applicable.

Vapour Density (Air = 1.0):	Not applicable.
Relative Density (g/cc):	2.26 - 2.28. (3)
Bulk Density:	Not available.
Viscosity:	Not applicable.
Evaporation Rate (Butyl Acetate = 1.0):	Not applicable.
Solubility:	Soluble in water. 22.37 % @ 0°C; 117.95 % @ 100°C. Soluble in Methanol, Glycerol. Slightly soluble in Ethyl Alcohol. (3)
% Volatile by Volume:	Not available.
pH:	4.0 (5% solution) (3)
Coefficient of Water/Oil Distribution:	Not available.
Volatile Organic Compounds (VOC):	Not available.
Flashpoint (°C):	Non-combustible (does not burn).

## 10. STABILITY AND REACTIVITY

### CHEMICAL STABILITY

Under Normal Conditions:	Stable. Hygroscopic.
Under Fire Conditions:	Not flammable. Decomposes at 560 °C. (3)
Hazardous Polymerization:	Will not occur.
Conditions to Avoid:	High temperatures, sparks, open flames and all other sources of ignition. Minimize air borne spreading of dust. Clean up immediately to eliminate slipping hazard. Slight efflorescence in air. Loses water at temperatures above 30 °C.  Above 400°C, the material decomposes to produce cupric oxide and sulphur dioxide. (3)
Materials to Avoid:	Strong oxidizers. Lewis or mineral acids. Hydroxylamine. Acetylene. Chlorine. Fluorine. Reducing agents. Galvanized Materials.. Zinc. Magnesium. Iron. Nylon. Avoid moisture contamination. Material becomes acidic when dissolved in water. Solutions are corrosive to most metals.  Contact with hydroxylamine will ignite hydroxylamine. (3)  Contact with magnesium metal may generate dangerous levels of hydrogen gas. (3)  Violent reactions with bromates, chlorates, hydrogen peroxide, sodium peroxide hydrazoic acid, sulphuric acid and combination of hydrogen, sulphur and air. (3)
Decomposition or Combustion Products:	Thermal decomposition products are toxic and may include copper fumes and oxides of sulphur, copper and irritating gases.  Decomposition: None at normal production temperatures and pressure. If dry heated above 600°C, toxic sulfur may evolve. (3)

## 11. TOXICOLOGICAL INFORMATION

### TOXICOLOGICAL DATA:

SUBSTANCE	LD50 (Oral, Rat)	LD50 (Dermal, Rabbit)	LC50 (Inhalation, Rat, 4h)
Copper Sulphate Pentahydrate	300 - 482 mg/kg (1,3)	---	---
Carcinogenicity Data:	The ingredient(s) of this product is (are) not classed as carcinogenic by ACGIH, IARC, OSHA or NTP.		
Reproductive Data:	Reproductivity tests in animals have been negative or inconclusive.		
Mutagenicity Data:	Mutagenicity tests have been negative or inconclusive. See "Other Studies Relevant to Material".		
Teratogenicity Data:	No adverse teratogenic effects are anticipated.		
Respiratory / Skin Sensitization Data:	Copper Sulphate may cause skin sensitization or other allergic responses. Sensitization is the process whereby a biological change occurs in the individual because of previous exposure to a substance and, as a result, the individual reacts more strongly when subsequently exposed to the substance. Once sensitized, an individual can react to extremely low airborne levels, even below the TLV, or to skin contact.		

Synergistic Materials:	<p>Copper may modify the course of tumorigenesis of well established carcinogens, such as azo dyes. (4)</p> <p>Avoid coexposure of manganese sulphate in conjunction with vibrations, X-rays, carbon monoxide, silicone dioxide, fluorine, copper and lead. Combined exposure of these substances with manganese sulphate increases toxic effects. (6)</p>
Other Studies Relevant to Material:	<p>No systemic chronic health effects are reported in the industrial setting. Chronic local effects of the upper respiratory tract, nasal perforation, greenish discoloration of hair, skin and teeth and eye irritations are some of the reported effects. Chronic overexposure to the product may produce these signs and symptoms: gingival irritation, cough and skin lesions. (3) Metal fume fever has been reported at concentrations of 0.1 mg/m<sup>3</sup> Copper. Studies in British Copper refining operations indicate that no ill effects occur at Copper fume concentrations below 0.4 mg/m<sup>3</sup>. Since the vapourization point of Copper is high (2,595 Deg. Celsius), it is rare that these fumes are encountered in industry. Finely divided Copper dust is more commonly encountered.</p> <p>Copper is a required nutrient and concentrations in the body are usually kept in balance. Wilson's disease, a hereditary Copper storage illness, has not been reported as a result of chronic industrial exposure to copper. Symptoms of the disease include kidney and liver disorders and discolouration of the skin and eyes. (4)</p> <p>Workers exposed to Copper dust experienced diarrhea, vomiting, tiredness and head stiffness. Ingestion of small doses caused vomiting, weakness, abdominal cramps, headache, nausea and dizziness. Large doses caused vomiting, intravascular hemolysis, methemoglobinemia, hematuria, glycosuria, acute hemolytic anemia and high serum Copper levels. (4)</p> <p>Several studies dealing with the effects of chronic oral administration of Copper compounds to animals have been reported. Toxic effects caused by excess Copper ingestion include necrosis of the liver and kidney, decreased skeletal growth, jaundice, hemoglobinuria, decreased weight gain, erosion of the gastrointestinal tract, increased Copper levels in the liver and anemia. (4)</p> <p>Copper may cause a skin allergy. (4)</p> <p>Several gene mutation assays have been conducted with different Copper compounds. These assays indicate that there may be evidence of somatic cell mutagenicity for Copper. (4)</p> <p>Several studies dealing with reproductive / developmental effects of Copper compounds suggest that Copper may be a reproductive / developmental toxicant. (4)</p>

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## 12. ECOLOGICAL INFORMATION

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Ecotoxicity:	<p>Copper Sulphate Pentahydrate:</p> <p>24-hour LC50 (Daphnia magna) = 600 ppb. (3) 24-hour LC50 (Blue crab) = 6.9 mg/L (3) 48-hour LC50 (Pink shrimp) = 17 mg/L (3)</p> <p>Highly toxic to aquatic life. Material becomes acidic when dissolved in water which will harm the life forms in the environment. Toxicity is primarily associated with pH.</p> <p>This material is expected to be very toxic to aquatic life. The LC50/96-hour values for fish are less than 1 mg/L. The LC50/72-hour values for algae are less than 1 mg/L. (3)</p>
Environmental Fate:	<p>Not readily biodegradable. May cause long-term adverse effects in the aquatic environment. Product has an unaesthetic appearance and can be a nuisance. Can be dangerous if allowed to enter drinking water intakes. Do not contaminate domestic or irrigation water supplies, lakes, streams, ponds, or rivers.</p> <p>When released into water, this material is not expected to biodegrade. When released into water, this material is not expected to evaporate significantly. This material is expected to significantly bioaccumulate. This material has an experimentally determined bioconcentration factor (BCF) of greater than 100. (3)</p> <p>When released into the soil, this material is not expected to biodegrade. When released into the soil, this material may leach into groundwater. (3)</p> <p>In soil, copper can be particularly toxic to invertebrates and phytotoxic to plants at elevated concentrations with soil properties being regulating factors.</p>

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## 13. DISPOSAL CONSIDERATIONS

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Deactivating Chemicals:	Neutralize carefully with soda ash or sodium bicarbonate to a pH of 6 to 9. Neutralization is expected to be exothermic. Effervescence may result. Confirm pH using pH paper. Flush spill area with water.
Waste Disposal Methods:	This information applies to the material as manufactured. Reevaluation of the product may be required by the user at the time of disposal since the product uses, transformations, mixtures and processes may influence waste classification. Dispose of waste material at an approved (hazardous) waste treatment/disposal facility in accordance with applicable local, provincial and federal regulations. Do not dispose of waste with normal garbage, or to sewer systems.
Safe Handling of Residues:	See "Waste Disposal Methods".
Disposal of Packaging:	Empty containers retain product residue and can be dangerous. Treat package in the same manner as the product. Dispose of waste material at an approved landfill site in accordance with applicable local, provincial and federal regulations.

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## 14. TRANSPORTATION INFORMATION

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### CANADIAN TDG ACT SHIPPING DESCRIPTION:

This product is not regulated by TDG.

Label(s): Not applicable. Placard: Not applicable.

ERAP Index: ----- Exemptions: None known.

NOT REGULATED FOR DOMESTIC TRANSPORT ON LAND.

FOR MARINE TRANSPORT, REGULATED AS: ENVIRONMENTALLY HAZARDOUS SUBSTANCE, SOLID, NOS (COPPER SULPHATE), CLASS 9, UN3077, PG III.

### US DOT CLASSIFICATION (49CFR 172.101, 172.102):

UN3077, ENVIRONMENTALLY HAZARDOUS SUBSTANCE, SOLID, N.O.S. (Cupric Sulphate), Class 9, PG III.

Label(s): Miscellaneous Hazardous Materials. Placard: Miscellaneous Hazardous Materials.

CERCLA-RQ: 10 lb / 4.54 kg Exemptions: None known.

Marine Pollutant: Copper Sulphate.

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## 15. REGULATORY INFORMATION

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### CANADA

CEPA - NSNR: This material is included on the DSL under the CEPA.

CEPA - NPRI: Copper (and its compounds).

Controlled Products Regulations Classification (WHMIS):

D-1B: Toxic (acute effects)

D-2B: Toxic (skin sensitizer, skin & eye irritant)

### USA

Environmental Protection Act: This material is included on the TSCA Inventory.

OSHA HCS (29CFR 1910.1200): Toxic, Skin Sensitizer, Skin and Eye Irritant.

NFPA: 2 Health, 0 Fire, 0 Reactivity (3)

HMIS: 2 Health, 0 Fire, 0 Reactivity (3)

### INTERNATIONAL

Not available.

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## 16. OTHER INFORMATION

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### REFERENCES

1. RTECS-Registry of Toxic Effects of Chemical Substances, Canadian Centre for Occupational Health and Safety RTECS database.
2. Clayton, G.D. and Clayton, F.E., Eds., Patty's Industrial Hygiene and Toxicology, 3rd ed., Vol. IIA,B,C, John Wiley and Sons, New York, 1981.
3. Supplier's Material Safety Data Sheet(s).

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4. CHEMINFO chemical profile, Canadian Centre for Occupational Health and Safety, Hamilton, Ontario, Canada.
  5. Guide to Occupational Exposure Values, 2011, American Conference of Governmental Industrial Hygienists, Cincinnati, 2011.
  6. Regulatory Affairs Group, Brenntag Canada Inc.
  7. The British Columbia Drug and Poison Information Centre, Poison Managements Manual, Canadian Pharmaceutical Association, Ottawa, 1981.
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The information contained herein is offered only as a guide to the handling of this specific material and has been prepared in good faith by technically knowledgeable personnel. It is not intended to be all-inclusive and the manner and conditions of use and handling may involve other and additional considerations. No warranty of any kind is given or implied and Brenntag Canada Inc. will not be liable for any damages, losses, injuries or consequential damages which may result from the use of or reliance on any information contained herein. This Material Safety Data Sheet is valid for three years.

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To obtain revised copies of this or other Material Safety Data Sheets, contact your nearest Brenntag Canada Regional office.

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