Material Safety Data Sheet

Material Name: Copper Oxide or Cupric Oxide

ID: C1-118

* * * Section 1 - Chemical Product and Company Identification * * *

Chemical Name: Copper Oxide or Cupric Oxide
Product Use: For Commercial Use, Not To Be Used As A Pesticide
Synonyms: Copper (II) Oxide, Black Copper Oxide, Cupric Oxide

Supplier Information

Chem One Ltd.
14140 Westfair East Drive
Houston, Texas 77041-1104

Phone: (713) 896-9966
Fax: (713) 896-7540
Emergency # (800) 424-9300 or (703) 527-3887

General Comments

NOTE: Emergency telephone numbers are to be used only in the event of chemical emergencies involving a spill, leak, fire, exposure, or accident involving chemicals. All non-emergency questions should be directed to customer service.

* * * Section 2 - Composition / Information on Ingredients * * *

CAS #	Component	Percent
1317-38-0	Copper Oxide or Cupric Oxide	> 99

Component Related Regulatory Information

This product may be regulated, have exposure limits or other information identified as the following: Copper (7440-50-8) and inorganic compounds, as Cu, Copper (7440-50-8) dusts and mists, as Cu and Copper fume, Cu.

Component Information/Information on Non-Hazardous Components

This product is considered hazardous under 29 CFR 1910.1200 (Hazard Communication).

* * * Section 3 - Hazards Identification * * *

Emergency Overview

Copper Oxide is an odorless, black crystalline powder. The primary health hazard associated with this product is the potential for irritation of the eyes, skin, nose and other tissues which come in contact with dusts or particulates of this product. This product is not flammable or reactive. Thermal decomposition of this product produces irritating vapors and toxic gases. Emergency responders should wear proper personal protective equipment for the releases to which they are responding.

Hazard Statements

HARMFUL OR FATAL IF SWALLOWED. Can cause irritation of eyes, skin, and respiratory tract. Avoid contact with eyes and skin. Avoid breathing dusts. Wash thoroughly after handling. Keep container closed. Use with adequate ventilation. Keep from contact with clothing and other combustible materials. Solutions of this material may be flammable.

Potential Health Effects: Eyes

Exposure to particulates or solution of this product may cause redness and pain. Prolonged contact may cause conjunctivitis, and corneal abnormalities.

Potential Health Effects: Skin

This product can cause irritation of the skin with pain, itching and redness. Prolonged exposure may cause dermatitis, eczema and skin discoloration. Dermal exposure has not been associated with systemic toxicity but copper may induce allergic responses in sensitive individuals.

Potential Health Effects: Ingestion

Harmful or fatal if swallowed. May cause gastrointestinal irritation with symptoms such as nausea, vomiting, and diarrhea. Copper Oxide is less toxic than more soluble copper salts, such as copper sulfates. Except for occasional acute incidents of copper poisoning, few effects are noted in normal human populations. Effects of single exposure following suicidal or accidental oral exposure have been reported as metallic taste, epigastric pain, headache, nausea, dizziness, vomiting and diarrhea, tachycardia, respiratory difficulty, hemolytic anemia, hematuria, massive gastrointestinal bleeding, liver and kidney failure, and death. In cases of fatal ingestion, death is preceded by gastric hemorrhage, tachycardia, hypotension, hemolytic crisis, convulsions and paralysis.

Potential Health Effects: Inhalation

May irritate the nose, throat and respiratory tract. Symptoms can include sore throat, coughing and shortness of breath. In severe cases, ulceration and perforation of the nasal septum can occur. If this material is heated, inhalation of fumes may lead to development of metal fume fever. This is a flu-like illness with symptoms of metallic taste, fever and chills, aches, chest tightness and cough. Repeated inhalation exposure can cause shrinking of the lining of the inner nose.

* * * Section 3 - Hazards Identification (Continued) * * *

Potential Health Effects: Other Health Effects

Persons with hereditary Wilson's Disease have an abnormally high level of copper in their system. Individuals with this disease exposed to this product may accumulate very high levels of copper may suffer liver pathology, which can be fatal. Episodes of intravascular hemolysis have been observed.

HMIS Ratings: Health Hazard: 2* **Fire Hazard:** 0 **Physical Hazard:** 0

Hazard Scale: 0 = Minimal 1 = Slight 2* = Moderate 3 = Serious 4 = Severe * = Chronic hazard

* * * Section 4 - First Aid Measures * * *

First Aid: Eyes

In case of contact with eyes, rinse immediately with plenty of water for at least 20 minutes. Seek immediate medical attention.

First Aid: Skin

Remove all contaminated clothing. For skin contact, wash thoroughly with soap and water for at least 20 minutes. Seek immediate medical attention if irritation develops or persists.

First Aid: Ingestion

DO NOT INDUCE VOMITING. Have victim rinse mouth thoroughly with water, if conscious. Never give anything by mouth to a victim who is unconscious or having convulsions. Contact a physician or poison control center immediately.

First Aid: Inhalation

Remove source of contamination or move victim to fresh air. Apply artificial respiration if victim is not breathing. Do not use mouth-to-mouth method if victim ingested or inhaled the substance; induce artificial respiration with the aid of a pocket mask equipped with a one-way valve or other proper respiratory medical device. Administer oxygen if breathing is difficult. Get immediate medical attention.

First Aid: Notes to Physician

Provide general supportive measures and treat symptomatically. Basic Treatment: Establish a patent airway. Suction if necessary. Watch for signs of respiratory insufficiency and assist ventilations if necessary. Administer oxygen by non-rebreather mask at 10 to 15 L/minutes. Monitor for shock and treat if necessary. For eye contamination, flush eyes immediately with water. Irrigate each eye continuously with normal saline during transport. Do not use emetics. For ingestion, rinse mouth and administer 5 mL/kg up to 200 mL of water for dilution if the patient can swallow, has a strong gag reflex, and does not drool. Administer activated charcoal. Advanced Treatment: Consider orotracheal or nasotracheal intubation for airway control in the patient who is unconscious. Start an IV with lactated Ringer's SRP: "To keep open", minimal flow rate. Watch for signs of fluid overload. For hypotension with signs of hypovolemia, administer fluid cautiously. Consider vasopressors if hypotensive with a normal fluid volume. Watch for signs of fluid overload. Use proparacaine, hydrochloride to assist eye irrigation.

* * * Section 5 - Fire Fighting Measures * * *

Flash Point: Not flammable
Method Used: Not applicable
Upper Flammable Limit (UEL): Not applicable
Lower Flammable Limit (LEL): Not applicable
Auto Ignition: Not applicable
Flammability Classification: Not applicable
Rate of Burning: Not applicable

General Fire Hazards

Copper Oxide is not combustible and does not contribute to the intensity of a fire. Exposure to moist air at > 212 deg F may result in spontaneous combustion. Concentrated solutions of Copper Oxide may be flammable. When involved in a fire, this material may decompose and produce irritating vapors, acrid smoke and toxic gases. Copper Oxide decomposes at 1026 deg C.

Hazardous Combustion Products

Copper fumes.

Extinguishing Media

Use methods for surrounding fire.

Fire Fighting Equipment/Instructions

Firefighters should wear full protective clothing including self-contained breathing apparatus. If possible control runoff from fire control or dilution water to prevent environmental contamination.

NFPA Ratings: Health: 2 **Fire:** 0 **Reactivity:** 0 **Other:**

Hazard Scale: 0 = Minimal 1 = Slight 2 = Moderate 3 = Serious 4 = Severe

* * * Section 6 - Accidental Release Measures * * *

Containment Procedures

Stop the flow of material, if this is can be done without risk. Contain the discharged material. If sweeping of a contaminated area is necessary use a dust suppressant agent, which does not react with product.

Clean-Up Procedures

Small releases can be cleaned-up in gloves, goggles and suitable body protection. In case of a large spill (in which excessive dusts can be generated), clear the affected area, protect people, and respond with trained personnel. Prevent spill rinsate from contamination of storm drains, sewers, soil or groundwater. Place all spill residues in an appropriate container and seal. Thoroughly wash the area after a spill or leak clean-up.

Evacuation Procedures

Evacuate the area promptly and keep upwind of the spilled material. Isolate the spill area to prevent people from entering. Keep materials, which can burn away from spilled material. In case of large spills, follow all facility emergency response procedures.

Special Procedures

Remove soiled clothing and launder before reuse. Avoid all skin contact with the spilled material. Have emergency equipment readily available.

* * * Section 7 - Handling and Storage * * *

Handling Procedures

Do not breathe dust. Avoid all contact with skin and eyes. Use this product only with adequate ventilation. Wash thoroughly after handling.

Storage Procedures

Keep container tightly closed when not in use. Store containers in a cool, dry location, away from direct sunlight, sources of intense heat, or where freezing is possible. Material should be stored in secondary containers or in a diked area, as appropriate. Store containers away from incompatible chemicals (see Section 10, Stability and Reactivity). Storage areas should be made of fire-resistant materials. Post warning and "NO SMOKING" signs in storage and use areas, as appropriate. Use corrosion-resistant structural materials, lighting, and ventilation systems in the storage area. Floors should be sealed to prevent absorption of this material. Have appropriate extinguishing equipment in the storage area (i.e., sprinkler system, portable fire extinguishers). Empty containers may contain residual particulates; therefore, empty containers should be handled with care. Do not cut, grind, weld, or drill near this container. Never store food, feed, or drinking water in containers that held this product. Keep this material away from food, drink and animal feed. Inspect all incoming containers before storage, to ensure containers are properly labeled and not damaged. Do not store this material in open or unlabeled containers. Limit quantity of material stored. Store in suitable containers that are corrosion-resistant.

* * * Section 8 - Exposure Controls / Personal Protection * * *

Exposure Guidelines

A: General Product Information

Follow the applicable exposure limits.

B: Component Exposure Limits

The exposure limits given are for Copper & inorganic Compounds, as Cu (7440-50-8), Copper fume as Cu or Copper dusts and mists, as Cu.

ACGIH:	1 mg/m^3 TWA (dusts & mists)
	0.2 mg/m^3 TWA (fume)
OSHA:	1 mg/m^3 TWA (dusts & mists)
	0.1 mg/m^3 TWA (fume)
NIOSH:	1 mg/m^3 TWA (dusts & mists)
	0.1 mg/m^3 TWA (fume)
DFG MAKs	1 mg/m^3 TWA Peak, 30 minutes, average value (copper and inorganic copper compounds)
	0.1 mg/m^3 TWA Peak, 30 minutes, average value (fume)

Engineering Controls

Use mechanical ventilation such as dilution and local exhaust. Use a corrosion-resistant ventilation system and exhaust directly to the outside. Supply ample air replacement. Provide dust collectors with explosion vents.

* * * Section 8 - Exposure Controls / Personal Protection (Continued) * * *

PERSONAL PROTECTIVE EQUIPMENT

The following information on appropriate Personal Protective Equipment is provided to assist employers in complying with OSHA regulations found in 29 CFR Subpart I (beginning at 1910.132). Please reference applicable regulations and standards for relevant details.

Personal Protective Equipment: Eyes/Face

Wear safety glasses with side shields (or goggles) and a face shield, if this material is made into solution. If necessary, refer to U.S. OSHA 29 CFR 1910.133.

Personal Protective Equipment: Skin

Wear impervious gloves, boots and coveralls to avoid skin contact. If necessary, refer to U.S. OSHA 29 CFR 1910.138.

Personal Protective Equipment: Respiratory

If respiratory protection is needed, use only protection authorized in the U.S. Federal OSHA Standard (29 CFR 1910.134), applicable U.S. State regulations. Oxygen levels below 19.5% are considered IDLH by OSHA. In such atmospheres, use of a full-facepiece pressure/demand SCBA or a full facepiece, supplied air respirator with auxiliary self-contained air supply is required under OSHA's Respiratory Protection Standard (1910.134-1998). If airborne concentrations are above the applicable exposure limits, use NIOSH-approved respiratory protection. If airborne concentrations are above the applicable exposure limits, use NIOSH-approved respiratory protection. The following NIOSH Guidelines for Copper dust and mists (as Cu) are presented for further information.

Up to 5 mg/m^3: Dust and mist respirator.
Up to 10 mg/m^3: Any dust and mist respirator except single-use and quarter mask respirators or any SAR.
Up to 25 mg/m^3: SAR operated in a continuous-flow mode or powered air-purifying respirator with a dust and mist filter(s).
Up to 50 mg/m^3: Air purifying, full-facepiece respirator with high-efficiency particulate filter(s), any powered air-purifying respirator with tight-fitting facepiece and high-efficiency particulate filter(s) or full-facepiece SCBA, or full-facepiece SAR.
Up to 100 mg/ m^3: Positive pressure, full-facepiece SAR.
Emergency or Planned Entry into Unknown Concentrations or IDLH Conditions: Positive pressure, full-facepiece SCBA, or positive pressure, full-facepiece SAR with an auxiliary positive pressure SCBA.
Escape: Full-facepiece respirator with high-efficiency particulate filter(s), or escape-type SCBA.
NOTE: The IDLH concentration for Copper dusts and mists (as Cu) is 100 mg/m^3.

Personal Protective Equipment: General

Have an eyewash fountain and safety shower available in the work area

* * * Section 9 - Physical & Chemical Properties * * *

Physical Properties: Additional Information

The data provided in this section are to be used for product safety handling purposes. Please refer to Product Data Sheets, Certificates of Conformity or Certificates of Analysis for chemical and physical data for determinations of quality and for formulation purposes.

Appearance:	Black crystalline powder	**Odor:**	Odorless
Physical State:	Solid	**pH:**	Not available
Vapor Pressure:	Not applicable	**Vapor Density:**	Not applicable
Boiling Point:	Not applicable	**Melting Point:**	1326 deg C (2418 deg F @ 760 mm Hg)
Solubility (H2O):	< 0.1%	**Specific Gravity:**	6.4 (H2O = 1)
Freezing Point:	Not available	**Particle Size:**	200 mesh (98%)
Softening Point:	Not available	**Bulk Density:**	Not available
Molecular Weight:	79.55	**Chemical Formula:**	CuO

* * * Section 10 - Chemical Stability & Reactivity Information * * *

Chemical Stability

Copper Oxide is stable in solid form at standard temperature.

Chemical Stability: Conditions to Avoid

Avoid high temperatures and incompatible materials.

* * * Section 10 - Chemical Stability & Reactivity Information (Continued) * * *

Incompatibility

Forms explosive acetylides with acetylene in caustic solutions. Exposure to moist air at > 212 deg F may result in spontaneous combustion. Explodes when heated with powdered aluminum; anilinium perchlorate, hydrogen, magnesium, or phthalic anhydride. Boron reacts violently with cupric oxide after warming, melting glass tubing. Titanium reacts violently with cupric oxide when heated. Hydrazine reacts vigorously with cupric oxide. Cesium acetylene carbide explodes on contact with cupric oxide at 350 deg C. The reduction of heated cupric oxide by admixed magnesium is accompanied by incandescence and an explosion. Cupric oxide is reduced when heated with sodium. The reaction proceeds with vivid incandescence. Cupric oxide is reduced to metallic copper when heated with potassium at temp below its melting point. This reaction proceeds with vivid incandescence. Other incompatibilities include: dirubidium acetylides, hydrogen, hydrogen sulfide, metals, phospham, phthalic anhydride, acetylene, and zirconium. An attempted thermite reaction with aluminum powder and copper(II) oxide caused a violent explosion. Mixtures of phthalic anhydride and anhydrous Cupric Oxide have exploded violently on heating. Interaction with hydroxylamine or hydrazine is vigorous. A pelleted mixture containing barium acetate, copper(II) oxide and yttrium oxide, was heated in a furnace, and a small explosion occurred during the early stages, 'from formation of pyrolysis products'. Copper oxide and manganese dioxide react at 359 deg C incandescently. Solutions of sodium hypobromite are decomposed by powerful catalytic action of cupric ions, even as impurities.

Hazardous Decomposition

Copper fumes.

Hazardous Polymerization

Will not occur.

* * * Section 11 - Toxicological Information * * *

Acute and Chronic Toxicity

A: General Product Information

May be harmful or fatal if swallowed. Product is an eye and skin irritant and may cause skin discoloration. Product is a respiratory tract irritant, and inhalation may cause nose irritation, sore throat, coughing, and chest tightness and possibly, ulceration and perforation of the nasal septum. Except for occasional acute incidents of copper poisoning, few effects are noted in normal human populations. Effects of single exposure following suicidal or accidental oral exposure have been reported as metallic taste, epigastric pain, headache, nausea, dizziness, vomiting and diarrhea, tachycardia, respiratory difficulty, hemolytic anemia, hematuria, massive gastrointestinal bleeding, liver and kidney failure, and death. Metal fume fever from inhalation of high concentrations in the air in occupational settings have been reported.

Chronic: Long term skin overexposure to this product may lead to dermatitis and eczema. Prolonged or repeated eye contact may cause conjunctivitis and possibly corneal abnormalities. Chronic overexposure to this product may cause liver and kidney damage, brain damage and blood abnormalities. convulsions and paralysis. Long-term exposure in rats and mice showed no overt signs of toxicity other than a dose-related reduction in growth after ingestion. The effects included inflammation of the liver and degeneration of kidney tubule epithelium. Some testicular degeneration and reduced neonatal body and organ weights were seen in rats and fetotoxic effects and malformations were seen at high dose levels. Neuro-chemical changes have been reported after oral administration. A limited number of immuno-toxicity studies showed humoral and cell-mediated immune function impairment in mice after oral intakes in drinking-water. Copper is an essential element and adverse health effects in humans are related to deficiency as well as excess. Copper deficiency is associated with anemia, neutropenia and bone abnormalities but clinically evident deficiency is relatively infrequent in humans. Gastrointestinal effects have also resulted from single and repeated ingestion of drinking-water containing high copper concentrations, and liver failure has been reported following chronic ingestion of copper. Dermal exposure has not been associated with systemic toxicity but copper may induce allergic responses in sensitive individuals.

B: Component Analysis - LD50/LC50

Copper Oxide (CAS # 1317-38-0):

LD_{50} (Oral-Rat) 470 mg/kg; LD_{50} (Intraperitoneal-Mouse) 273 mg/kg; LD_{50} (Intratracheal-Rat) 250 mg/kg

B: Component Analysis - TDLo/LDLo

Copper Oxide (CAS # 1317-38-0):

LDLo (Intratracheal-Rat) 278 mg/kg; TDLo (Intraperitoneal-Mouse) 45.4 mg/kg: Behavioral: excitement; Sense Organs and Special Senses (Eye): conjunctive irritation; Lungs, Thorax, or Respiration: cough

* * * Section 11 - - Toxicological Information (Continued) * * *

Carcinogenicity

A: General Product Information

No information available.

B: Component Carcinogenicity

Copper dusts and mists, as Cu (7440-50-8)

EPA: EPA-D (Not Classifiable as to Human Carcinogenicity - inadequate human and animal evidence of carcinogenicity or no data available)

Epidemiology

No information available.

Neurotoxicity

Has not been identified.

Mutagenicity

No information available.

Teratogenicity

There are no reports of teratogenicity in humans. Animal studies indicate that a deficiency or excess of copper in the body can cause significant harm to developing embryos. The net absorption of copper is limited and toxic levels are unlikely from industrial exposure.

Other Toxicological Information

Individuals with Wilson's disease are unable to metabolize copper. Thus, persons with pre-existing Wilson's disease may be more susceptible to the effects of overexposure to this product. Persons with pre-existing skin disorders, impaired liver, kidney or pulmonary function may also be more susceptible to the effects of this product.

* * * Section 12 - Ecological Information * * *

Ecotoxicity

A: General Product Information

Harmful to aquatic life in very low concentrations. Copper Oxide is toxic to fish and marine organisms when applied to streams, rivers, ponds or lakes.

B: Ecotoxicity

No information available.

Environmental Fate

Persistence: In soil, acidic conditions promote solubility of copper compounds and increase the concentration of ionic copper and so change the microorganism and other animal populations, depending on their various tolerance levels for copper. In the aquatic environment, some copper compounds may be metabolized, however, there is not any evidence that biotransformation processes have a significant bearing on the aquatic fate of these compounds. In water, as in soil, copper compounds will also bind to carbonates, clays, humic materials and hydrous oxides of iron and manganese. In the atmosphere, copper compounds (as aerosols) are estimated to have a residence time of 2-10 days in an unpolluted atmosphere and 0.1 to less than 4 days in polluted, urban areas.

Bioaccumulation: Copper compounds are accumulated by plants and animals, but do not appear to biomagnify from plants to animals.

* * * Section 13 - Disposal Considerations * * *

US EPA Waste Number & Descriptions

A: General Product Information

As shipped, this product is not considered a hazardous waste.

B: Component Waste Numbers

No EPA Waste Numbers are applicable for this product's components.

Disposal Instructions

All wastes must be handled in accordance with local, state and federal regulations or with regulations of Canada and its Provinces. This product, if unaltered by use, may be disposed of by treatment at a permitted facility or as advised by your local hazardous waste regulatory authority.

* * * Section 14 - Transportation Information * * *

NOTE: The shipping classification information in this section (Section 14) is meant as a guide to the overall classification of the product. However, transportation classifications may be subject to change with changes in package size. Consult shipper requirements under I.M.O., I.C.A.O. (I.A.T.A.) and 49 CFR to assure regulatory compliance.

US DOT Information

Shipping Name: Non-regulated.
Hazard Class: Not Applicable
UN/NA #: Not Applicable
Packing Group: Not Applicable
Required Label(s): None
Additional Info.: None.

50th Edition International Air Transport Association (IATA):

For Shipments by Air transport: This information applies to air shipments both within the U.S. and for shipments originating in the U.S., but being shipped to a different country.

UN/NA #: UN 3077
Proper Shipping Name: Environmentally Hazardous Substance, solid, n.o.s. (Copper Oxide)
Hazard Class: 9 (Miscellaneous Dangerous Goods)
Packing Group: III
Passenger & Cargo Aircraft Packing Instruction: 911
Passenger & Cargo Aircraft Maximum Net Quantity: 400 kg
Limited Quantity Packing Instruction (Passenger & Cargo Aircraft): Y911
Limited Quantity Maximum Net Quantity (Passenger & Cargo Aircraft): 30 kg G
Cargo Aircraft Only Packing Instruction: 911
Cargo Aircraft Only Maximum Net Quantity: 400 kg
Excepted Quantities: E1
Special Provisions: A97, A158
ERG Code: 9L

Limited Quantity Shipments: Shipments for air must be marked with the Proper Shipping Name Environmentally Hazardous Substance, solid, n.o.s. (Copper Oxide) and shall be marked with the UN Number (3077) preceded by the letters "UN", placed within a diamond. The width of the line forming the diamond shall be at least 2 mm; the number shall be at least 6 mm high. The total weight of each outer packaging cannot exceed 30 kg.

Excepted Quantities: The maximum quantity of this material per inner receptacle is limited to 30 g per receptacle and the aggregate quantity of this material per completed package does not exceed 1kg. The inner receptacles must be securely packed in an intermediate packaging with cushioning material to prevent movement in the inner receptacles and packed in a strong outer box with a gross mass not to exceed 29kg. The completed package must meet a drop test. The requirements are found in 2.7.6.1. The package must not be opened or otherwise altered until it is no longer in commerce. For air transportation no shipping paper is required. The package must be legibly marked with the following marking:

NOTE: The "*" must be replaced by the primary hazard class, or when assigned, the division of each of the hazardous materials contained in the package. The "**" must be replaced by the name of the shipper or consignee if not shown elsewhere on the package. The symbol shall be not less than 100 mm x 100 mm and must be durable and clearly visible.

International Maritime Organization (I.M.O.) Classification

Copper Oxide is not regulated under I.M.O.

* * * Section 15 - Regulatory Information * * *

US Federal Regulations

A: General Product Information

As a "Copper Compound", Copper Oxide (CAS # 1317-38-0) is listed as a Priority and Toxic Pollutant under the Clean Water Act.

B: Component Analysis

This material contains one or more of the following chemicals required to be identified under SARA Section 302 (40 CFR 355 Appendix A), SARA Section 313 (40 CFR 372.65) and/or CERCLA (40 CFR 302.4).

Copper Compounds (7440-50-8)

SARA 313: final RQ = 5000 pounds (2270 kg) Note: No reporting of releases of this substance is required if the diameter of the pieces of the solid metal released is equal to or greater than 0.004 inches.

C: Sara 311/312 Tier II Hazard Ratings:

Component	CAS #	Fire Hazard	Reactivity Hazard	Pressure Hazard	Immediate Health Hazard	Chronic Health Hazard
Copper Oxide	1317-38-0	No	No	No	Yes	Yes

State Regulations

A: General Product Information

California Proposition 65

Copper Oxide is not on the California Proposition 65 chemical lists.

State Regulations (continued)

B: Component Analysis - State

The following components appear on one or more of the following state hazardous substance lists:

Component	CAS #	CA	FL	MA	MN	NJ	PA
Copper	7440-50-8	Yes	No	Yes	No	Yes	Yes
Copper, fume, dust and mists		No	Yes	No	Yes	No	Yes

Other Regulations

A: General Product Information

No other information available.

B: Component Analysis - Inventory

Component	CAS #	TSCA	DSL	EINECS
Copper Oxide	1317-38-0	Yes	Yes	Yes

C: Component Analysis - WHMIS IDL

The following components are identified under the Canadian Hazardous Products Act Ingredient Disclosure List:

Component	CAS #	Minimum Concentration
Copper Oxide	1317-38-0	1 percent

ANSI LABELING (Z129.1): **WARNING!** CAUSES SKIN, EYE AND RESPIRATORY TRACT IRRITATION OR BURNS. HARMFUL IF SWALLOWED, ABSORBED THROUGH SKIN (SOLUTIONS), OR INHALED. EFFECTS MAY BE DELAYED. MAY CAUSE SKIN SENSITIZATION IN SUSCEPTIBLE INDIVIDUALS. Do not taste or swallow. Do not get on skin or in eyes. Avoid breathing dusts or particulates. Keep container closed. Use only with adequate ventilation. Wash thoroughly after handling. Wear gloves, goggles, faceshields, suitable body protection, and NIOSH-approved respiratory protection, as appropriate. **FIRST-AID:** In case of contact, immediately flush skin or eyes with plenty of water for at least 15 minutes while removing contaminated clothing and shoes. If inhaled, remove to fresh air. If ingested, do not induce vomiting. Get medical attention. **IN CASE OF FIRE:** Use water fog, dry chemical, CO_2, or "alcohol" foam. **IN CASE OF SPILL:** Absorb spill with inert material or neutralizing agent for acids. Place residue in suitable container. Consult Material Safety Data Sheet for additional information.

* * * Section 16 - Other Information * * *

Other Information

Chem One Ltd. ("Chem One") shall not be responsible for the use of any information, product, method, or apparatus herein presented ("Information"), and you must make your own determination as to its suitability and completeness for your own use, for the protection of the environment, and for health and safety purposes. You assume the entire risk of relying on this Information. In no event shall Chem One be responsible for damages of any nature whatsoever resulting from the use of this product or products, or reliance upon this Information. By providing this Information, Chem One neither can nor intends to control the method or manner by which you use, handle, store, or transport Chem One products. If any materials are mentioned that are not Chem One products, appropriate industrial hygiene and other safety precautions recommended by their manufacturers should be observed. Chem One makes no representations or warranties, either express or implied of merchantability, fitness for a particular purpose or of any other nature regarding this information, and nothing herein waives any of Chem One's conditions of sale. This information could include technical inaccuracies or typographical errors. Chem One may make improvements and/or changes in the product (s) and/or the program (s) described in this information at any time. If you have any questions, please contact us at Tel. 713-896-9966 or E-mail us at Safety@chemone.com.

Key/Legend

EPA = Environmental Protection Agency; TSCA = Toxic Substance Control Act; ACGIH = American Conference of Governmental Industrial Hygienists; IARC = International Agency for Research on Cancer; NIOSH = National Institute for Occupational Safety and Health; NTP = National Toxicology Program; OSHA = Occupational Safety and Health Administration

Contact: Sue Palmer-Koleman, PhD **Contact Phone:** (713) 896-9966

Revision log

08/04/00 2:44 PM SEP Changed company name, Sect 1 and 16, from Corporation to Ltd.
07/24/01 4:20 PM CLJ Add Shipments by Air information to Section 14, Changed contact to Sue, non-800 Chemtrec Num.
08/12/03 8:00 AM HDF Overall review of MSDS. Up-date of HMIS categories. Up-date of exposure limits for copper compounds. Up-date of incompatibility information. Up-date of Section 8 and Section 14.
06/22/05 4:59pm SEP update IATA section 14
10/17/07 4:05 PM SEP Update IATA Section 14
10/10/08 3:44 PM DLY Changed Chem One Physical Address, Section 1
11/23/2010 4:21 PM SEP Update IATA

This is the end of MSDS # Cl-118