12-2000

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
Synonyms: Copper (II) Oxide, Black Copper Oxide, Cupric Oxide
Manufacturer Information

Chem One Corporation (Importer of record)
8017 Pinemont Drive, Suite 100
Houston, Texas 77040-6519

Phone: (713) 896-9966
Fax: (713) 896-7540
Emergency # 1-800-424-9300

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.

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.

Potential Health Effects: Ingestion

Harmful or fatal if swallowed. May cause gastrointestinal irritation with symptoms such as nausea, vomiting, and diarrhea.

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.

HMIS Ratings: Health: 2 **Fire:** 0 **Reactivity:** 1 **Personal Protective Equipment:** E = chemical goggles, impervious gloves, dust respirator

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. If breathing has stopped, apply artificial respiration. Get immediate medical attention.

First Aid: Notes to Physician

Provide general supportive measures and treat symptomatically.

* * * 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. When involved in a fire, this material may decompose and produce irritating vapors, acrid smoke and toxic gases.

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:** 1 **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 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

All employees who handle this material should be trained to handle it safely. Open containers slowly on a stable surface. Containers of this product must be properly labeled. Empty containers may contain residual amounts of this product; therefore, empty containers should be handled with care. Store containers in a cool, dry location, away from direct sunlight, sources of intense heat, or where freezing is possible. Store away from incompatible materials (see Section 10, Stability and Reactivity). Keep container tightly closed when not in use. Inspect all incoming containers before storage to ensure containers are properly labeled and not damaged. Keep this material away from food, drink and animal feed. Do not store this material in open or unlabeled containers. Limit quantity of material stored

* * * 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 and mists)
0.2 mg/m^3 TWA (fume)

OSHA: 1 mg/m^3 TWA (dusts and mists)
0.1 mg/m^3 TWA (fume)

NIOSH: 1 mg/m^3 TWA (dusts and mists)
0.1 mg/m^3 TWA (fume)

DFG MAKs 1 mg/m^3 TWA Peak, 30 minutes, average value
0.1 mg/m^3 TWA (fume) Peak, 30 minutes, average value

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.

PERSONAL PROTECTIVE EQUIPMENT

Personal Protective Equipment: Eyes/Face

Wear safety glasses (or goggles).

Personal Protective Equipment: Skin

Wear impervious gloves, boots and coveralls to avoid skin contact.

Personal Protective Equipment: Respiratory

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 is 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.

Chemical Stability: Conditions to Avoid

Avoid high temperatures and incompatible materials.

Incompatibility

This material is incompatible with aluminum, boron, cesium acetylene carbide, hydrazine, magnesium, phospham, potassium, rubidium acetylene carbide, sodium, titanium, and zirconium. Forms explosive acetylides with acetylene in caustic solutions. Exposure to moist air at > 212 deg F can result in spontaneous combustion.

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.

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.

B: Component Analysis - LD50/LC50

No information available.

B: Component Analysis - TDLo/LDLo

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

Intratracheal-Rat LDLo: 278 mg/kg

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)

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

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.

* * * 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

COPPER (II) OXIDE:

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 data 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: Not applicable.
Hazard Class: Not applicable
UN/NA #: Not applicable
Packing Group: Not applicable
Required Label(s): Not applicable
RQ Quantity: Not applicable
Additional Shipping Information
Not applicable.

United Parcel Service Shipping Information

Shipping Name: Not applicable
Hazard Class: Not applicable
UN/NA #: Not applicable
Packing Group: Not applicable
Ground Shipment Maximum Quantity: Not applicable
Required Label (s) Ground Shipments: Not applicable
Air Shipment Maximum Quantity: Not applicable
Required Label (s) Air Shipments: Not applicable

International Transportation Regulations

Canadian Transport Canada Classification: Copper Oxide is not considered as dangerous goods.
I.M.O. Classification: Copper Oxide is not considered as dangerous goods by the I.M.O.

* * * Section 15 - Regulatory Information * * *

US Federal Regulations

A: General Product Information

Copper Oxide is listed as a Priority 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.

State Regulations

A: General Product Information

California Proposition 65

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

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

Section15RegulatoryInformation(Continued)

OtherRegulations

A:GeneralProductInformation

Nootherinformationavailable.

B:ComponentAnalysisInventory

Component	CAS#	TSCA	DSL	EINECS
CopperOxide	1317380	Yes	Yes	Yes

C:ComponentAnalysisWHMISIDL

Thefollowingcomponentsareidentifiedunder theCanadianHazardousProductsActIngredientDisclosureList:

Component	CAS#	MinimumConcentration
CopperOxide	1317380	1percent

ANSILABELING(Z129.1): WARNING!MAYBEHARMFULORFATALIFSWALLOWEDORINHALED.CAUSESSKIN ANDEYEIRRITATION.Keepfromcontactwithclothing.Donottasteorswallow.Donotgetonskinorineyes.Avoidbreathin g dustsorparticulates.Keepcontainerclosed.Useonlywithadequateventilation.Washthoroughlyafterhandling.Weargloves ,goggles, faceshields,suitablebodyprotection,andNIOSH/MSHAapprovedrespiratoryprotection,asappropriate. **FIRSTAID:** Incaseof contact,immediatelyflushskinoreyeswithplentyofwaterforatleast15minuteswhileremovingcontaminatedclothingands hoes.If inhaled,removetofreshair.Ifingested,donotinducevomiting.Getmedicalattention. **INCASEOFFIRE:** Usewaterfog,dry chemical,CO_2,or"alcohol"foam. **INCASEOFSPILL:** Absorbspillwithinertmaterial.Placeresidueinsuitablecontainer.Consult MaterialSafetyDataSheetforadditionalinformation.

Section16OtherInformation

OtherInformation

ChemOneCorp.("ChemOne")shallnotberesponsiblefortheuseofanyinformation,product,method,orapparatusherein presented("Information"),andyoumustmakeyourowndeterminationastoitssuitabilityandcompletenessforyourown use,fortheprotectionoftheenvironment,andforhealthandsafetypurposes.Youassumetheentireriskofrelyingonthis Information.InnoeventshallChemOneberesponsiblefordamagesofanynaturewhatsoeverresultingfromtheuseofthis productorproducts,orrelianceuponthisInformation.ByprovidingthisInformation,ChemOneneithercannorintendsto controlthemethodormannerbywhichyouuse,handle,store,ortransportChemOneproducts.Ifanymaterialsare mentionedthatarenotChemOneproducts,appropriateindustrialhygieneandothersafetyprecautionsrecommendedby theirmanufacturersshouldbeobserved.ChemOnemakesnorepresentationsorwarranties,eitherexpressorimpliedof merchantability,fitnessforaparticularpurposeorofanyothernatureregardingthisinformation,andnothinghereinwaives anyofChemOne'sconditionsofsale.Thisinformationcouldincludetechnicalinaccuraciesortypographicalerrors.Chem Onemaymakeimprovementsand/orchangesintheproduct(s)and/ortheprogram(s)describedinthisinformationatany time.Ifyouhaveanyquestions,pleasecontactusatTel.7138969966orEmailusatSafety@chemone.com.

Key/Legend

EPA=EnvironmentalProtectionAgency;TSCA=ToxicSubstanceControlAct;ACGIH=AmericanConferenceof GovernmentalIndustrialHygienists;IARC=InternationalAgencyforResearchonCancer;NIOSH=NationalInstitutefor OccupationalSafetyandHealth;NTP=NationalToxicologyProgram;OSHA=OccupationalSafetyandHealth Administration

Contact: Mr. ClareL.Welker **ContactPhone:** (713)8969966

ThisistheendofMSDS#C1118