

CUPRIC OXIDE**PRODUCT IDENTIFICATION****Chemical Name and Synonyms:**

Cupric oxide; copper (II)oxide, paramelaconite

Chemical Family:

Inorganic metal oxide/copper compounds

Chemical Formula:

CuO

Product Use:

Laboratory reagent

Manufacturer's Name and Address:

Caledon Laboratories Ltd.

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HAZARDOUS INGREDIENTS OF MATERIALS

Ingredients	%	TLV Units	CAS No.
Cupric oxide	~99	0.1 mg/m ³	1317-38-0
<i>(as Cu, dust, mist, fume)</i>			

PHYSICAL DATA**Physical State:**

Solid

Odour and Appearance:

Fine, black or brown odourless powder

Odour Threshold (ppm):

Not applicable

Vapour Pressure (mm Hg):

Not applicable

Vapour Density (Air = 1):

Not available

Evaporation Rate:

Not applicable

Boiling Point (degrees C):

Not available

Melting Point (degrees C):

1326°C

pH:

7 (50g/L aqueous solution)

Specific Gravity:

6.32 @ 14°C

Coefficient of Water/Oil distribution:

Not applicable

SHIPPING DESCRIPTION**UN:**

Not regulated

T.D.G. Class:

Not regulated

Pkg. Group:

Not regulated

REACTIVITY DATA**Chemical Stability:**

Stable under normal conditions of use and storage.

Incompatibility with other substances:

May react violently or explosively with aluminum, boron, CsHC₂, hydrazine, potassium, sodium, magnesium, hydrogen sulphide, titanium, zirconium, cesium or rubidium acetylene

carbides, hydrogen, dirubidium acetylide, phthalic anhydride, lead oxide. Forms acetylides with acetylene, sodium hypobromite, nitromethane

Reactivity:

Avoid incompatible materials, generation of dust.

Hazardous Decomposition Products:

Cuprous oxide, toxic metal fumes

FIRE AND EXPLOSION DATA**Flammability:**

Not combustible. Spontaneous combustion can occur in large amounts exposed to moist air, above 100°C. Reactions with some incompatibles may be explosive.

Extinguishing Media:

Use an extinguisher appropriate to the surrounding material that is burning. Move containers from fire area if it can be done without risk. Fight fire from upwind from a safe distance. Firefighters must wear protective equipment (positive pressure full facepiece self-contained breathing apparatus) and clothing sufficient to prevent inhalation of fumes and contact with skin and eyes.

Flash Point (Method Used):

Not applicable

Autoignition Temperature:

Not applicable

Upper Flammable Limit (% by volume):

Not applicable

Lower Flammable Limit (% by volume):

Not applicable

Hazardous Combustion Products:

Cuprous oxide, toxic metal fumes

Sensitivity to Impact:

None identified

Sensitivity to Static discharge:

None identified

TOXICOLOGICAL PROPERTIES AND HEALTH DATA**Toxicological Data:****LD₅₀:**

(oral, rat) 470 mg/kg

LC₅₀:

Not available

Effects of Acute Exposure to Product:**Inhaled:**

Harmful. Dust irritates mucous membranes. May cause metal fume fever, symptoms resemble influenza and occur several hours after exposure. Symptoms include chills, lassitude, fatigue, headache, low back pain, muscle ache, chest tightness and dry cough. Symptoms are reversible and subside after 6 to 12 hours. There is no long-term illness resulting from metal fume fever. Severe overexposure may cause ulceration and even perforation of respiratory tract.

In contact with skin:

Dust or solutions may cause irritation, with itching, redness, and pain, depending on concentration and duration of exposure. Risk of absorption is slight.

In contact with eyes:

Dust or solutions may cause irritation, with tearing, redness, and pain, depending on concentration and duration of exposure. May cause ulceration of the conjunctiva and cornea and impaired vision.

Ingested:

Toxic. May cause violent vomiting and diarrhea with intense

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abdominal pain and even collapse. Systemic copper poisoning may result from ingestion, with capillary damage, headache, cold sweat, weak pulse, kidney and liver damage, central nervous excitation followed by depression, jaundice, convulsions, blood effects, paralysis and coma. Death may occur from shock or renal failure.

Effects of Chronic Exposure to Product:

Chronic copper poisoning causes hepatic cirrhosis, brain damage and demyelination, kidney defects, copper deposition in the cornea, discolouration of the skin and hair, blood and liver damage, ulceration and perforation of the nasal septum, runny nose, metallic taste in the mouth, irritation of mucous membranes. It may lead to hemolytic anemia and it accelerates arteriosclerosis. People with pre-existing skin disorders, impaired liver, kidney, or pulmonary function, or with Wilson's disease, may be more susceptible to the effects of copper compounds.

Carcinogenicity:

An excess of cancer cases has been found in the Cu smelting industry (Occupational Carcinogenesis; Saffioti and Wagoner). Not listed as carcinogenic by NTP, IARC, OSHA.

Teratogenicity:

No information available

Reproductive Effects:

No information available

Mutagenicity:

No information available

Synergistic Products:

None known

PREVENTIVE MEASURES

Engineering Controls:

Local exhaust ventilation recommended

Respiratory Protection:

Dust mask. Up to 10x TLV, or the maximum use specified by the respirator supplier, whichever is lowest, NIOSH/OSHA approved half-face dust/mist respirator. Up to 50x TLV, or the maximum use specified by the respirator supplier, whichever is lowest, NIOSH/MSHA approved full face-piece dust/mist respirator. Higher or unknown concentrations, or for fire or spill conditions, self-contained breathing apparatus, or full face-piece, positive-pressure supplied-air respirator.

Eye Protection:

Chemical safety goggles.

Skin Protection:

Protective gloves. Other protective clothing, apron or lab coat, sleeves, coveralls, boots as required to limit contact.

Other Personal Protective Equipment:

Safety shower and eye-wash fountain in work area.

Leak and Spill Procedure:

Restrict access to area of spill. Ventilate area. Cleanup personnel must be thoroughly trained in the hazards of this chemical and its safe use, and must wear protective equipment and clothing sufficient to prevent inhalation of dust or fumes, and contact with skin and eyes. Prevent from entering sewers and waterways. Do not touch spilled material. Contain spill with inert material (earth, sand, inert absorbent). Avoid generating dust; wet if necessary. Collect in suitable, labelled, covered containers for disposal. Contaminated absorbent may pose the same hazards as the chemical; treat with caution. Flush area of spill with large amounts of running water.

Waste Disposal:

Follow all federal, provincial and local regulations for disposal.

Handling Procedures and Equipment:

TOXIC, IRRITANT. Workers using this chemical must be thoroughly trained in its hazards and its safe use, and must wear appropriate protective equipment and clothing. Prevent release of dusts into workplace air. Avoid contact. Use the smallest possible amount for the purpose, in designated areas with adequate ventilation. Use good housekeeping practices; avoid accumulation of dust; keep workplace free of extraneous materials. Keep containers closed when not in use and when empty. Empty containers may contain hazardous residues; treat with caution.

Storage Requirements:

Store in suitable, labelled containers, in a cool, dry, well-ventilated area, out of direct sunlight. Store away from incompatible materials. Keep containers tightly closed when not in use and when empty. Protect from damage, and inspect frequently for signs of leaking.

FIRST AID MEASURES

Specific Measures:

Eyes:

Flush eyes immediately with large amounts of cool, gently running water or normal saline, holding eyelids open, for at least fifteen (15) minutes, or until no evidence of chemical remains. Take care not to flush contaminated water into unaffected eye. Get medical attention immediately.

Skin:

Remove contaminated clothing. Wipe off excess material and flush affected areas with soap and water. If irritation persists, repeat flushing and obtain medical advice. Wash contaminated clothing before reuse, or discard.

Inhalation:

Move victim to fresh air. Give oxygen and get medical attention for breathing difficulty. Give artificial respiration ONLY if breathing has stopped, and obtain medical advice immediately.

Ingestion:

If the victim is alert and NOT convulsing, rinse mouth thoroughly with water. Do not induce vomiting. Give 2 to 4 glasses of water, milk, egg white or gelatin to drink to dilute. Spontaneous vomiting usually occurs in cases of copper salt ingestion. When vomiting occurs, rinse mouth and give more water to drink. Get medical attention.

REFERENCES USED

CCINFO disc

Budavari: *The Merck Index*, 12th ed., 1997

Sax, Lewis: *Hawley's Condensed Chemical Dictionary*, 11th ed., 1987

Sax: *Dangerous Properties of Industrial Materials*, 5th ed., 1979
Suppliers' Material Safety Data Sheets

ADDITIONAL INFORMATION

Date Issued:

March 19, 1992

Revision:

February 2012

MSDS:

3240-1

Proposed WHMIS Designation:

D2B

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