

Copper Metal

1. General information

The information contained herein was obtained from sources believed to be reliable; Electrochemical Devices, Inc. (EDI) disclaims all liability for the content. This information applies to material in bulk form and may not be relevant to the small quantities of material used in our products. Copper metal is present in EDI reference electrodes with **CUG** in the second grouping of the model designation. The material is entirely contained within the electrode housing.

Synonyms: None

CAS#: 7440-50-8

2. Hazard Overview

Appearance: red to brown solid.

Warning! Causes respiratory tract irritation. Causes eye and skin irritation. May cause lung damage. Inhalation of fumes may cause metal-fume fever. May cause liver and kidney damage.

Target Organs: Kidneys, liver, lungs.

Potential Health Effects

Eye: Causes eye irritation.

Skin: Causes skin irritation. May cause skin discoloration.

Ingestion: Causes gastrointestinal irritation with nausea, vomiting and diarrhea. May cause liver and kidney damage.

Inhalation: Dust is irritating to the respiratory tract. Inhalation of fumes may cause metal fume fever, which is characterized by flu-like symptoms with metallic taste, fever, chills, cough, weakness, chest pain, muscle pain and increased white blood cell count.

Chronic: Prolonged or repeated skin contact may cause dermatitis. May cause liver and kidney damage. May cause lung damage.

3. First Aid

Eyes: Flush eyes with plenty of water for at least 15 minutes, occasionally lifting the upper and lower eyelids. Get medical aid.

Skin: Flush skin with plenty of water for at least 15 minutes while removing contaminated clothing and shoes. Get medical aid if irritation develops or persists.

Ingestion: Call a poison control center. If swallowed, do not induce vomiting unless directed to do so by medical personnel. Never give anything by mouth to an unconscious person. Get medical aid.

Inhalation: Remove from exposure and move to fresh air immediately. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Get medical aid.

Notes to Physician: Individuals with Wilson's disease are more susceptible to chronic copper poisoning.

4. Fire Fighting

General Information: As in any fire, wear a self-contained breathing apparatus in pressure-demand, MSHA/NIOSH (approved or equivalent), and full protective gear. Material can spontaneously ignite (pyrophoric) when exposed to air at normal or slightly elevated temperatures.

Extinguishing Media: Use extinguishing media most appropriate for the surrounding fire.

Flash Point: Not applicable.

Autoignition Temperature: Not applicable.

Explosion Limits, Lower: Not available.

Upper: Not available.

NFPA Rating: (estimated) Health: 2; Flammability: 1; Instability: 0

5. Accidental Release

General Information: Use proper personal protective equipment as indicated in Section 7.

Spills/Leaks: Sweep up, and then place into a suitable container for disposal. Avoid generating dusty conditions.

6. Handling and Storage

Handling: Use with adequate ventilation. Minimize dust generation and accumulation. Avoid contact with skin and eyes. Avoid ingestion and inhalation.

Storage: Store in a tightly closed container. Store in a cool, dry, well-ventilated area away from incompatible substances. Do not expose to air.

7. Exposure Control

Engineering Controls: Use adequate general or local exhaust ventilation to keep airborne concentrations below the permissible exposure limits.

Exposure Limits:

ACGIH: 0.2 mg/m³ TWA (fume);
1 mg/m³ TWA (dusts and mists, as Cu)

NIOSH: 1 mg/m³ TWA (dust and mist)
100 mg/m³ IDLH (dust, mist and fume)

OSHA - Final PELs: 0.1 mg/m³ TWA (fume);
1 mg/m³ TWA (dusts and mists)

OSHA Vacated PELs: 0.1 mg/m³ TWA (fume, dusts, mists as Cu)

Personal Protective Equipment

Eyes: Wear appropriate protective eyeglasses or chemical safety goggles as described by OSHA's eye and face protection regulations in 29 CFR 1910.133 or European Standard EN166.

Skin: Wear appropriate gloves to prevent skin exposure.

Clothing: Wear appropriate protective clothing to minimize contact with skin.

Respirators: Follow the OSHA respirator regulations found in 29 CFR 1910.134 or European Standard EN 149. Use a NIOSH/MSHA or European Standard EN 149 approved respirator if exposure limits are exceeded or if irritation or other symptoms are experienced.

8. Physical and Chemical Characteristics

Physical State: Solid

Appearance: Red to brown

Odor: None reported

pH: Not available.

Vapor Pressure: 1 mm Hg @1628C

Vapor Density: Not available.

Evaporation Rate: Not applicable.

Viscosity: Not applicable.

Boiling Point: 2595 deg C

Freezing/Melting Point: 1083 deg C

Decomposition Temperature: Not available.

Solubility: Insoluble in water.

Specific Gravity/Density: 8.92

Molecular Formula: Cu

Molecular Weight: 63.54

9. Stability and Reactivity

Chemical Stability: Stable.

Conditions to Avoid: Dust generation, moisture, exposure to air.

Incompatibilities with Other Materials: None reported.

Hazardous Decomposition Products: Copper fumes.

Hazardous Polymerization: Has not been reported.

10. Toxicological Information

LD50/LC50: Not available.

Carcinogenicity: CAS# 7440-50-8: Not listed by ACGIH, IARC, NTP, or CA Prop 65.

Epidemiology: No data available.

Teratogenicity: Experimental studies show teratogenic effects in laboratory animals.

Reproductive Effects: No data available.

Mutagenicity: No data available.

Neurotoxicity: No data available.

11. Ecological Information

No information available.