



SECTION 1: PRODUCT AND COMPANY IDENTIFICATION

Product Identity: Copper Rod/Anodes

Product Use: Copper is used in the manufacture of copper alloys, electrical conductors and as anodes for electroplating.

Manufacturer:

IMC-MetalsAmerica, LLC
135 Old Boiling Springs Road
Shelby, NC 28152 USA
704-482-8200

Emergency Telephone: 704-482-8200
Outside the US Call: 011-704-482-8200

SECTION 2: HAZARDS IDENTIFICATION

2(a) Classification of the chemical: Copper Rod/Anode is considered an article under Reach regulation (REACH REGULATION (EC) No 1907/2006) and is not subject to classification under CLP regulation (REGULATION (EC) No 1272/2008). However, Copper Rod/Anode is not exempt as an article under OSHA's Hazard Communication Standard (29 CFR 1910.1200) due to its downstream use, thus this product is considered a mixture and a hazardous material. Therefore, the categories of Health Hazards as defined in "GLOBALLY HARMONIZED SYSTEM OF CLASSIFICATION AND LABELLING OF CHEMICALS (GHS), Third revised edition ST/SG/AC.10/30/Rev. 3" United Nations, New York and Geneva, 2009 have been evaluated. Refer to Section 3, 8 and 11 for additional information.

2(b) Signal word, hazard statement(s), symbols and precautionary statement(s):

Hazard Symbol	Hazard Classification	Signal Word	Hazard Statement(s)
	Specific Target Organ Toxicity (STOT) Repeat Exposure - 2	WARNING	May cause damage to skin, eyes, liver and kidneys through prolonged or repeated inhalation exposure.
Precautionary Statement(s):			
Prevention		Response	Storage/Disposal
Do not breathe dusts / fume.		Get medical advice/attention if you feel unwell.	Dispose of contents in accordance with federal, state and local regulations.

2(c) Hazards not otherwise classified: None Known

2(d) Unknown acute toxicity statement (mixture): None Known

SECTION 3: COMPOSITION/INFORMATION ON INGREDIENTS

3(a-c) Chemical name, common name (synonyms), CAS number and other identifiers, and concentration

Hazardous Ingredient	Approximate Percentage by Weight Varies by product	CAS Number & EINECS Number	Occupational Exposure Limits OELs	LD50/LC50 Species & Route
Copper	99.99% max. 99.95% min.	7440-50-8	OSHA PEL 0.1 mg/m ³ fume 1.0 mg/m ³ dusts/mists ACGIH 0.2 mg/m ³ fume TLV* 1.0 mg/m ³ dusts/mists 0.1 mg/m ³ (Respirable) fume NIOSH REL 1.0 mg/m ³ dusts/mists	No Data

NOTE: OELs for individual jurisdictions may differ from OSHA PELs. Check with local authorities for the applicable OELs in your jurisdiction.

OSHA - Occupational Safety and Health Administration; ACGIH - American Conference of Governmental Industrial Hygienists; NIOSH - National Institute for Occupational Safety and Health. OEL – Occupational Exposure Limit, PEL – Permissible Exposure Limit, TLV – Threshold Limit Value, REL – Recommended Exposure Limit.

*In 2005 the ACGIH published a Notice of Intended Changes for Copper, Elemental Metal and Copper Oxides to introduce a TLV of 0.1 mg/m³ (as Cu) as a time-weighted average for inhalable dust/fume.

Trade Names and Synonyms: T-Phos (C12200), Oxygen Free (C10100 & C10200), ETP (C11000)

SECTION 4: FIRST AID MEASURES

4(a) Description of necessary measures:

Eye Contact: Do not allow victim to rub eye(s). Let the eye(s) water naturally for a few minutes. If particle/dust does not dislodge, flush with lukewarm, gently flowing water for five minutes or until particle/dust is removed, while holding eyelid(s) open. If irritation persists, immediately obtain medical attention. DO NOT attempt to manually remove anything stuck to the eye.

Skin Contact: Dust: No health effects expected. If irritation does occur, flush with lukewarm, gently flowing water for 5 minutes. If irritation persists, obtain medical advice. Molten Metal: Flush contact area to solidify and cool but do not attempt to remove encrusted material or clothing. Cover burns and seek medical attention immediately.

Inhalation: Remove victim from exposure area to fresh air immediately. If breathing has stopped, give artificial respiration. Keep affected person warm and at rest. Administer oxygen, if required. Seek medical attention immediately.

NOTE: Metal fume fever may develop 3-10 hours after exposure. If symptoms of metal fume fever (flu-like symptoms) develop, obtain medical attention.

Ingestion: Never give anything by mouth if victim is rapidly losing consciousness or is unconscious or convulsing. Have victim rinse mouth thoroughly with water. DO NOT INDUCE VOMITING. Have victim drink 2 – 8 oz. (60 – 240 ml) of water. If vomiting occurs naturally, have victim rinse mouth with water again. Obtain medical advice and [bring a copy of this MSDS](#).

4(b) Most important symptoms/effects, acute and delayed (chronic):

- Inhalation: Copper Rod/Anode as sold is unlikely to present an acute or chronic health effect.
- Eye: Copper Rod/Anode as sold is unlikely to present an acute or chronic health effect.
- Skin: Copper Rod/Anode as sold is unlikely to present an acute or chronic health effect.
- Ingestion: Copper Rod/Anode as sold is unlikely to present an acute or chronic health effect.

However, during further processing (welding, grinding, burning, etc.), individual components may illicit an acute or chronic health effect.

SECTION 5: FIRE FIGHTING MEASURES

5 (a) Extinguishing Media: Do NOT use water, carbon dioxide, foam, or halons. Apply dry sand, dolomite, graphite, powdered sodium chloride, soda ash, or other suitable dry powders.

Fire Fighting: Fire fighters must be fully trained and wear full protective clothing including an approved, self-contained breathing apparatus which supplies a positive air pressure within a full face-piece mask.

5 (b) Fire and Explosion Hazards: Massive metal is not considered a fire or explosion hazard. Finely divided copper metal dust or powder may be flammable or explosive when dispersed in the air at high concentrations and exposed to heat, flame, or other ignition sources. Explosions may also occur upon contact with certain incompatible materials (see Stability and Reactivity, Section 10).

5(c) Special protective equipment and precautions for fire-fighters: Self-contained NIOSH approved respiratory protection and full protective clothing should be worn when fumes and/or smoke from fire are present. Heat and flames cause emittance of acrid smoke and fumes. Do not release runoff from fire control methods to sewers or waterways. Firefighters should wear full face-piece self-contained breathing apparatus and chemical protective clothing with thermal protection. Direct water stream will scatter and spread flames and, therefore, should not be used.

Flashpoint and Method: Not Applicable.

Upper and Lower Flammable Limit: Not Applicable

SECTION 6: ACCIDENTAL RELEASE MEASURES

6 (a) Personal Precautions, Protective Equipment, and Emergency Procedures: Not applicable to product as shipped. Persons responding to an accidental release should wear protective clothing, gloves and a respirator (see also Section 8). Close-fitting safety goggles may be necessary in some circumstances to prevent eye contact with dust and fume. Where molten metal is involved, wear heat-resistant gloves and suitable clothing for protection from hot-metal splash.

6(b) Methods and materials for containment and clean up: Not Applicable for Copper Rod/Anode as sold. Control source of spillage, if possible, to do so safely. Clean up spilled material immediately, observing precautions in Section 8, Personal Protection. Molten metal should be allowed to cool and harden before cleanup. Once solidified wear gloves, pick up and return to process. Powder or dust should be cleaned up using methods which will minimize dust generation (e.g., vacuum solids, dampen material and shovel or wet sweep). Return uncontaminated spilled material to the process if possible. Place contaminated material in suitable labeled containers for later recovery in view of the commercial value of copper.

Environmental Precautions: Copper compounds can pose a significant threat to aquatic life forms. However, in metal form it is not readily bio-available in the environment. Nevertheless, contamination of water and soil should be prevented.

SECTION 7: HANDLING AND STORAGE

7(a) Precautions for safe handling: Not Applicable for Copper Rod/Anode as sold, however further processing (welding, burning, grinding, etc.) with the potential for generating high concentrations of airborne particulates should be evaluated

and controlled as necessary. Obtain special instructions before use. Do not handle until all safety precautions have been read and understood.

7(b) Conditions for safe storage, including any incompatibilities: Store copper in a dry, covered area away from acids and incompatible materials. Always practice good personal hygiene. Refrain from eating, drinking, or smoking in work areas. Thoroughly wash hands before eating, drinking, or smoking.

EU Safety Phrase(s): Not applicable - copper is not listed as a dangerous substance.

SECTION 8: EXPOSURE CONTROLS/PERSONAL PROTECTION

8(a) Occupational Exposure Limits (OELs): Copper Rod/Anode as sold in its physical form does not present an inhalation, ingestion or contact hazard, nor would any of the following exposure data apply.

8(b) Appropriate Engineering Controls: Not Applicable for Copper Rod/Anode as sold. Use controls as appropriate to minimize exposure to metal fumes and dusts during handling operations. Provide general or local exhaust ventilation systems to minimize airborne concentrations. Local exhaust is necessary for use in enclosed or confined spaces. Provide sufficient local exhaust ventilation to control inhalation exposures below current exposure limits.

8(c) Individual Protection Measures:

Protective Clothing: Protective clothing, close-fitting safety goggles, gloves, and respiratory equipment are recommended when copper is handled at potentially hazardous levels. Where hot or molten metal is handled, heat resistant gloves, goggles or face shield, and clothing to protect from hot metal splash should be worn. Safety type boots are recommended.

Ventilation: Use adequate local or general ventilation to maintain the concentration of copper fumes in the working environment well below recommended occupational exposure limits. Supply sufficient replacement air to make up for air removed by the exhaust system.

Respirators: Where copper dust or fumes are generated and cannot be controlled to within acceptable levels by engineering means, use appropriate NIOSH-approved respiratory protection equipment (a 42CFR84 Class N, R or P-95 particulate filter cartridge or better).

SECTION 9: PHYSICAL AND CHEMICAL PROPERTIES

9(a) Appearance (physical state, color, etc.): Solid, reddish
9(b) Odor: Odorless
9(c) Odor Threshold: NA
9(d) pH: NA
9(e) Melting Point/Freezing Point: ≈ 1985 °F (≈ 1085 C) / NA
9(f) Initial Boiling Point and Boiling Range: ≈ 46432 °F (≈ 2577 C)
9(g) Flash Point: NA
9(h) Evaporation Rate: NA
9(i) Flammability (solid, gas): Non-flammable, non-combustible

9(j) Upper/lower Flammability or Explosive Limits: NA
9(k) Vapor Pressure: NA
9(l) Vapor Density (Air = 1): NA
9(m) Relative Density: 8.96 g/cm³
9(n) Solubility: Soluble in water
9(o) Partition Coefficient n-octanol/water: ND
9(p) Auto-ignition Temperature: NA
9(q) Decomposition Temperature: ND
9(r) Viscosity: NA

NA - Not Applicable

ND - Not Determined for product as a whole

SECTION 10: STABILITY AND REACTIVITY

10(a) Reactivity: Not Determined (ND) for product in a solid form.

10(b) Chemical Stability: Copper products are stable under normal storage, temperature, and handling conditions.

10(c) Possibility of hazardous reaction: Hazardous polymerization or runaway reactions will not occur.

10(d) Conditions to Avoid: None Known

10(e) Incompatible Materials: None Known

10(f) Hazardous Decomposition Products: High temperature operations such as oxy-acetylene cutting, electric arc welding, arc-air gouging or overheating a molten metal bath may generate fumes. The fumes will contain copper oxides,

which, on inhalation in sufficient quantity, can produce metal fume fever.

SECTION 11: TOXICOLOGICAL INFORMATION

11 Information on toxicological effects:

- a. No LC50 or LD50 has been established for Copper Rod/Anode.
 - Copper: Rat LD50 = 481 mg/kg (REACH)
Rat LD50 > 2500 mg/kg (REACH)
 - b. No Skin (Dermal) Irritation data available for Copper Rod/Anode.
 - c. No Eye Irritation data available for Copper Rod/Anode.
 - d. No Skin (Dermal) Sensitization data available for Copper Rod/Anode.
 - e. No Respiratory Sensitization data available for Copper Rod/Anode.
 - f. No Germ Cell Mutagenicity data available for Copper Rod/Anode.
 - g. Carcinogenicity: IARC, NTP, and OSHA do not list Copper Rod/Anode as a carcinogen.
 - h. No Toxic Reproduction data available for Copper Rod/Anode.
 - i. No Specific Target Organ Toxicity (STOT) following a Single Exposure data available for Copper Rod/Anode.
 - j. No Specific Target Organ Toxicity (STOT) following Repeated Exposure data was available for Copper Rod/Anode.
- Copper: Target organs affected - Skin, eyes liver, kidneys, and respiratory tract.

SECTION 12: ECOLOGICAL INFORMATION

12(a) Ecotoxicity (aquatic & terrestrial): No Data Available for Copper Rod/Anode as sold.

12(b) Persistence & Degradability: No Data Available for Copper Rod/Anode as sold.

12(c) Bioaccumulative Potential: No Data Available for Copper Rod/Anode as sold. Copper metal is insoluble in water and generally has essentially no direct bioavailability. However, its processing or extended exposure in the aquatic and terrestrial environments can lead to the release of copper in bioavailable forms

12(d) Mobility (in soil): No data available for Copper Rod/Anode as sold. However, the mobility of copper in soluble forms is media dependent. These can bind with inorganic and organic ligands and particulates, reducing mobility and bioavailability in soil and water. Bioavailability is also controlled by other factors such as pH and hardness in the aquatic environment.

12(e) Other adverse effects: None Known

SECTION 13: DISPOSAL CONSIDERATIONS

Disposal: If material cannot be returned to process; recycle or dispose of only in accordance with applicable regulations.

Container Cleaning and Disposal: Follow applicable federal, state and local regulations. Observe safe handling precautions.

SECTION 14: TRANSPORT INFORMATION

14 (a-g) Transportation Information: No special shipping or transportation requirements in solid form.

SECTION 15: REGULATORY INFORMATION

U.S. Ingredient Listed on TSCA Inventory Yes
Hazardous Under Hazard Communication Standard Yes
CERCLA Section 103 Hazardous Substances Yes RQ: 1,000 lbs. (454 kg.) *

*Reporting not required when diameter of the pieces of solid metal released is equal to or exceeds 100 micrometers (0.004 inches).

EPCRA Section 302 Extremely Hazardous Substance No
EPCRA Section 311/312 Hazard Categories No Hazard Categories Apply
EPCRA Section 313 Toxic Release Inventory Copper CAS No. 7440-50-8
Percent by Weight - At least 99%

CANADIAN:

WHMIS Classification Not applicable. Copper is not a controlled product under WHMIS. This Material Safety Data Sheet is provided for information purposes only.

EUROPEAN UNION:

Listed on the European Inventory of Existing Commercial Chemical Substances (EINECS): Yes
EU Classification: Not applicable. Copper is not listed as a dangerous substance.

SECTION 16: OTHER INFORMATION

The information in this Material Safety Data Sheet is based on the following references:

- American Conference of Governmental Industrial Hygienists, 2004, Documentation of the Threshold Limit Values and Biological Exposure Indices, 7th Edition plus updates.
- American Conference of Governmental Industrial Hygienists, 2006, Guide to Occupational Exposure Values.
- American Conference of Governmental Industrial Hygienists, 2006, Threshold Limit Values for Chemical Substances and Physical Agents and Biological Exposure Indices.
- Bretherick's Handbook of Reactive Chemical Hazards, 20th Anniversary Edition. (P. G. Urben ed.) 1995.
- Canadian Centre for Occupational Health and Safety (CCOHS) CHEMINFO Record No: 2073, Copper - Last Revised 2005 03-24.
- Commission de la santé et la sécurité du travail, Service du répertoire toxicologique, Cuivre, 2001-07.
- Industry Canada, Controlled Products Regulations SOR/88-66, as amended.
- International Chemical Safety Cards (WHO/IPCS/ILO) ICSC:0240 – Copper (Revised Sept 1993).
- International Labour Office (WHO/ILO) Encyclopedia of Occupational Health & Safety 4th Ed. CD-ROM Version (1998).
- Merck & Co., Inc., 2001, The Merck Index, An Encyclopedia of Chemicals, Drugs, and Biologicals, Thirteenth Edition.
- Patty's Toxicology, 5th Edition, (E Bingham, B Cahrssen & C H Powell, ed.) 2001.
- U.S. Department of Health and Human Services, Public Health Service, Agency for Toxic Substances and Disease Registry, Toxicological Profile for Copper (Sept 2004).
- U.S. Department of Health and Human Services, National Institute for Occupational Safety and Health, NIOSH Pocket Guide to Chemical Hazards. CD-ROM Edition September 2005.
- U.S. Occupational Safety and Health Administration, 1989, Code of Federal Regulations, Title 29, Part 1910.

NOTICE TO READER

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