



**I – Identification of the Substance and of the Company**

SUPPLIER: RMO, Inc.  
650 W. Colfax Ave.  
Denver, CO 80204  
303-592-8200

Trade Name and Synonyms -  
Description: Welding Electrodes

Emergency Information Chemtrec: 800-424-9300  
Chemtrec International: 202-483-7616

Product Grade / Name:  
**COPPER**

**II – Composition / Information on Ingredients**

<u>Alloys</u>	<u>% Range</u>		<u>8-hr TWA</u>	<u>ACGIH 8-hr TWA</u>	<u>ACGIH STEL</u>
Copper	53.0 – 99.99 wt	dust	1 mg/m <sup>3</sup>	1 mg/m <sup>3</sup>	2 mg/m <sup>3</sup>
		fume	0.1 mg/m <sup>3</sup>	0.02 mg/m <sup>3</sup>	
Zinc	0 – 37.0 wt	fume	5 mg/m <sup>3</sup>	5 mg/m <sup>3</sup>	10 mg/m <sup>3</sup>
Nickel	0 – 19.5 wt		1 mg/m <sup>3</sup>	1 mg/m <sup>3</sup>	
Tin	0 – 11.0 wt		2 mg/m <sup>3</sup>	2 mg/m <sup>3</sup>	4 mg/m <sup>3</sup>
Lead	0 – 4.49 wt		0.05 mg/m <sup>3</sup>	0.15 mg/m <sup>3</sup>	0.45 mg/m <sup>3</sup>
Manganese, Phosphorus	0 – 1.0 wt		0.1 mg/m <sup>3</sup>	0.1 mg/m <sup>3</sup>	0.3 mg/m <sup>3</sup>

**III – Hazards Identification**

The copper alloys listed above present no health hazards in their solid form. However, with some metal working processes hazardous conditions involving these metals may be created. Primarily the hazardous forms are: molten metals and their fumes, dusts, and metallic salts. The most common practices to be concerned with, but not limited to, are melting, thermal cutting, welding, machining, grinding, and chemical reactions used to clean metal.

Exposure to the elements listed in Section 2 by inhalation, ingestion, and skin contact can occur when melting, casting, gross handling, pickling, chemical cleaning, heat treating, abrasive cutting, welding, grinding, sanding, polishing, milling, crushing, or otherwise heating or abrading the surface of this material in a manner which generates particulate.

Exposure may also occur during repair or maintenance activities on contaminated equipment such as: maintenance, repair, cleaning, renovation of equipment, welding, etc.

Inhalation Particulates can cause irritation to the nose, throat, lungs, and mucous membranes. Inhalation of this particulate may cause metal fume fever (high temperature, metallic taste, nausea, coughing, general weakness, muscle aches, and exhaustion), bronchitis, chills, decreased pulmonary function, and asthma-like symptoms. Copper

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	<p>particulates can cause ulceration and perforation of the nasal septum. Lead can be absorbed through the respiratory system. In cases of acute exposure, symptoms such as metallic taste, chest and abdominal pain, and increased lead blood levels may follow.</p>
Ingestion	<p>Ingestion can occur from hand, clothing, and food and drink contact with particulate during hand to mouth activities such as eating, drinking, smoking, nail biting, etc. Copper ingestion causes nausea, vomiting, abdominal pain, metallic taste, and diarrhea. Ingestion of large doses may cause stomach and intestine ulceration, jaundice, and kidney and liver damage. Lead causes lead poisoning; the symptoms of lead poisoning include abdominal pain and spasms, nausea, vomiting, headache. Acute poisoning can lead to muscle weakness, "lead line" on the gums, metallic taste, loss of appetite, insomnia, dizziness, and high lead levels in blood and urine with shock, coma and death in extreme cases.</p>
Skin	<p>In some sensitive individuals, and allergic dermal response may occur. Symptoms include redness, itching, and pain. Copper particulates may cause a greenish-black skin discoloration. Lead may be absorbed through the skin on prolonged exposure; the symptoms of lead poisoning described for ingestion exposure may occur.</p>
Eyes	<p>Exposure may occur from direct contact with airborne particulate or contact to the eye with contaminated hands or clothing. Damage can result from irritation or mechanical injury to the eyes by particulate. Copper particulates may cause discoloration. Lead absorption can occur through eye tissue.</p>

Chronic long term health effects:

Copper: prolonged or repeated exposure to copper can discolor skin and hair, and irritate the skin. May cause mild dermatitis, runny nose, and irritation of the mucous membranes. Repeated ingestion may damage the liver and kidneys. Repeated inhalation can cause chronic respiratory disease.

Lead: Lead absorption in the body is cumulative. The concentration of lead in the blood is an important aspect of assessing exposure and potential adverse health effects. Excessive concentration may cause neuromuscular dysfunction accompanied by signs of weakness. Chronic lead poisoning has been associated with kidney disorders.

Zinc: Repeated inhalation may cause chronic bronchitis.

Carcinogenic reference:

Lead: The International Agency for Research on Cancer (IARC) lists lead as a Group 2B – Possibly Carcinogenic to Humans. The National Toxicology Program (NTP) lists lead as reasonably anticipated to be a human carcinogen. The ACGIH lists lead and inorganic lead compounds as an A3-Animal Carcinogen.

Medical conditions aggravated by exposure:

Persons with impaired pulmonary function, airway diseases, or conditions such as asthma, emphysema, chronic bronchitis, etc. may incur further impairment if particulate is inhaled. If prior damage or disease to the neurological, circulatory, hematological, or urinary systems has occurred, proper screening or examinations should be conducted on individuals who may be exposed to further risk where handling and use of this material may cause exposure.

Copper: Persons with pre-existing skin disorders or impaired liver, kidney, or pulmonary function or pre-existing Wilson's disease may be more susceptible to the effects of this

material.

Lead: Persons with pre-existing kidney, nerve or circulatory disorders or with skin or eye problems may be more susceptible to the effects of this substance.

#### **IV – First Aid Measures**

Skin	Thoroughly wash skin cuts or wounds to remove all particulate debris from the wound. Seek medical attention for wounds that cannot be thoroughly cleansed. Treat skin cuts and wounds with standard first aid practices such as cleaning, disinfecting, and covering to prevent infection and contamination before continuing work. Obtain medical help for persistent irritation. Material accidentally implanted or lodged under the skin must be removed.
Eyes	Immediately flush eyes with plenty of water for at least 15 minutes, lifting lower and upper eyelids occasionally. Get medical attention immediately.
Ingestion	Induce vomiting immediately as directed by medical personnel. Never give anything by mouth to an unconscious person.
Inhalation (dust or fume)	Breathing difficulties caused by inhalation of particulate required immediate removal to fresh air. If breathing has stopped, perform artificial respiration and obtain medical help.

#### **V – Fire Fighting Measures**

Flash Point: N/A

Flammability Limits: N/A

Autoignition Temperature: N/A

Solid form of material is not combustible under ordinary fire conditions. Fire and explosion hazards are moderate when material is in the form of dust and exposed to heat or flames, chemical reactions, or contact with powerful oxidizers. Water, oil, grease, and other substances that can rapidly change their physical states from liquid to gas may explode on contact with molten metal.

#### **VI – Accidental Release Measures**

Clean up by mechanical means.

#### **VII – Handling and Storage**

Store in a dry environment; avoid moisture. Particulate may enter body through cuts, abrasions or other wounds on the surface of the skin; wear gloves when handling parts with loose surface particulate or sharp edges.

#### **VIII – Exposure Controls / Personal Protection**

Ventilation: Provide ventilation as needed. Use NIOSH approved respiratory equipment.

The use of local exhaust ventilation or other engineering controls is the preferred method of controlling exposure to airborne particulate. Where utilized, exhaust inlets to the ventilation system must be positioned as close as possible to the source of airborne generation.

Welding: Local exhaust or general ventilating systems must be provided and arranged to keep the amount of toxic fumes, gases, or dusts below the maximum allowable concentration for the constituents listed in Section 2.

Respiratory Protection: When airborne exposures exceed or have the potential to exceed the occupational limits, approved respirators must be used.

Eye Protection: Use dust proof safety goggles.

Skin: Protective over-garments or work clothing must be worn by persons who may become contaminated with particulate during activities such as machining, etc.

Wear gloves to prevent contact with particulates. Wash hands before eating, drinking, smoking.

#### **IX – Physical and Chemical Properties**

Melting Point: 880 – 1150 °C

Boiling Point: N/A

Vapor Pressure: N/A

Specific Gravity: 8.33 – 8.94

Solubility in Water: Insoluble

Appearance: Red, orange, lustrous metal that becomes dull on exposure to air.

#### **X – Stability and Reactivity**

##### Stability:

Unstable ( ) Stable (X)

Conditions to Avoid: High temperatures of smelting, welding, or fire may cause production of metal fumes. Avoid moisture.

##### Incompatibility:

Material to Avoid: Acids, bases, and oxidizers. Reacts violently with acetylene, ammonium nitrate, bromates, chlorates, iodates, chlorine, chlorine trifluoride, ethylene oxide, fluorine, hydrogen peroxide, hydrazine mononitrate, hydrogen sulfide, hydrazoic acid, lead azide, potassium peroxide, sodium azide, and sodium peroxide.

##### Hazardous Polymerization:

May Occur ( ) Will Not Occur (X)

Conditions to Avoid: N/A

#### **XI – Toxicological Information**

No toxic effect would be expected from exposure to the solid form of Copper products. Prolonged, repeated exposure to fumes or dust generated during subsequent operations may or may not cause adverse health effects associated with the listed constituents in excess of OSHA permissible exposure limits established in 29 CFR Part 2920.1200 (See Section 2. Generic Ingredients). This material contains lead; The National Toxicology Program (NTP) lists lead as reasonably anticipated to be a human carcinogen.

#### **XII – Ecological Information**

No ecological effects are known.

#### **XIII – Disposal Considerations**

Dispose of in accordance with Federal, State, and Local Regulations. Recycling is recommended. This material contains lead which is regulated under RCRA.

#### **XIV – Transportation Information**

Technical Shipping Name: Not regulated

Freight Class Bulk: N/A

Freight Class Package: N/A

Product Label: N/A

Hazard Class or Division: Non-Hazardous

Hazard Class Division Number: Not Hazardous by D.O.T. Regulations

#### **XV – Regulatory Information**

SARA Title III Reporting Requirements: Section 313 covers annual emission reporting on specific chemicals which are manufactured, processed or used at certain U.S. Industrial facilities. The mixture contains the following reportable constituents: Copper, Zinc, and Lead. The specific chemical makeup and concentration by weight are provided in Section 2.

#### **XVI – Other Information**

Note: While the information and recommendations set forth on this data sheet are believed to be accurate as received from our suppliers, RMO, Inc. makes no warranty with respect thereto and disclaims all liability from reliance thereon.