



## BRASS

**SECTION 1: IDENTIFICATION****Product Identifiers:** Brass**UNS Alloy Numbers:** C21000; C22000; C22600; C23000; C24000; C26000; C28000**Common Names:** Gilding Metal; Commercial Bronze; Jewelry Bronze; Red Brass; Low Brass; Cartridge Brass; Yellow Brass; Muntz Metal**Intended Use of the Product:** Manufacture of copper alloy products for, but not limited to, architecture, automotive, building, consumer; electrical.**Name, Address, and Telephone of the Manufacturer:** Revere Copper Products, One Revere Park, Rome, NY 13440**Emergency Telephone Number:** 800-448-1776 or 315-338-2022**SECTION 2: HAZARDS IDENTIFICATION****Solid copper and copper alloys, in massive form (rod, plate, sheet, strip, bar), are not hazardous.**

GHS-US Classification: Not classified

GHS-US Labeling: No labeling applicable

**Hazards Not Otherwise Classified:**

When processed by milling, grinding, welding, melting, sawing, brazing, burning or other similar processes the generated dust, fines, fume or mist may pose a hazard through inhalation, ingestion or by eye or skin contact.

- Fine particles or dust dispersed in the air may present a fire/explosion hazard.
- Exposure to fumes or dust may aggravate existing respiratory disease or dermatitis.
- This product contains components that are environmentally hazardous and small chips, turnings and dust from processing may be toxic to aquatic life.

**SECTION 3: COMPOSITION/INFORMATION ON INGREDIENTS****Product Form:** Mixture

| Name   | Product Identifier | % (w/w)             | Classification (GHS-US)                                                                                 |
|--------|--------------------|---------------------|---------------------------------------------------------------------------------------------------------|
| Copper | (CAS No) 7440-50-8 | 59 - 70,<br>70 - 96 | Aquatic Acute 1, H400<br>Aquatic Chronic 1, H410                                                        |
| Zinc   | (CAS No) 7440-66-6 | 4 - 41              | Comb. Dust<br>Aquatic Acute 1, H400<br>Aquatic Chronic 1, H410                                          |
| Lead   | (CAS No) 7439-92-1 | < 0.09              | Carc. 1B, H350<br>Repr. 1A, H360<br>STOT RE 1, H372<br>Aquatic Acute 1, H400<br>Aquatic Chronic 1, H410 |
| Iron   | (CAS No) 7439-89-6 | < 0.07              | Not classified                                                                                          |

Multiple WHMIS ranges have been utilized to account for varying concentration.

Full text of H-phrases: see section 16

For exact composition of each UNS Alloy refer to alloy specifications

**SECTION 4: FIRST AID MEASURES****Solid copper and copper alloys in massive form (rod, plate, sheet, strip, bar), do not present inhalation, ingestion, eye contact or skin contact hazards. The information below relates to the dust, fines, fumes or mists generated by subsequent processing.****Description of First Aid Measures:****General:** Never give anything by mouth to an unconscious person. If medical advice is needed, have this SDS at hand.

- Inhalation:** Remove to fresh air and keep at rest in a position comfortable for breathing. If symptoms develop seek medical attention.
- Skin Contact:** Do not rub. Wash with plenty of soap and water. Promptly treat cuts or abrasions by thorough cleaning of the affected area. Contact with hot or molten metal will cause thermal burns, cool rapidly and seek medical attention.
- Eye Contact:** Do not rub. Thoroughly flush eyes with water for at least 15 minutes, including under lids, to remove all particles. Seek immediate medical attention for abrasions or other injuries to the eye.
- Ingestion:** Rinse mouth. Drink water to dilute. Seek medical attention if symptoms develop or you feel ill.

#### Most Important Symptoms and Effects both Acute and Delayed:

- Inhalation:** Short term exposure to fumes or dust may produce irritation of the mucous membranes and respiratory system. Exposure to metal fumes can produce an acute allergic condition known as "metal fume fever". Symptoms may include chills, muscle aches, nausea, fever, dry throat, cough, weakness, and lassitude. The onset of symptoms may be delayed several hours and recovery generally occurs without intervention within 24 to 48 hours.
- Skin Contact:** Contact with fumes or metal powder may irritate skin. Contact with hot, molten metal will cause thermal burns. Injury from flying particles is possible.
- Eye Contact:** Short term exposure to fumes or dusts may cause eye irritation. Mechanical injury can result from particulate.
- Ingestion:** Ingestion of dust may cause nausea, vomiting, abdominal pain, metallic taste and diarrhea. Ingestion of large doses may cause stomach and intestine ulceration, jaundice and kidney or liver damage.

#### Indication of Any Immediate Medical Attention or Special Treatment Needed:

If you feel unwell, seek medical advice. Have this SDS available.

### SECTION 5: FIRE-FIGHTING MEASURES

- Suitable Extinguishing Media:** Solid products are not flammable or explosive, use extinguishing media appropriate for surrounding fire.  
Use Class D extinguishing agents or dry sand on fires involving dust or fines.
- Unsuitable Extinguishing Media:** Do NOT use water on molten material, will react violently due to steam explosions.  
Do NOT use water or halogenated extinguishing agents on fires involving dust or fines.
- Specific Hazards Arising From Material:** Dusts or fines may burn if they are ignited.  
Fumes may contain oxides of copper and other ingredients.  
Fine particles or dust dispersed in the air may present a fire/explosion hazard.  
Use of water on molten material will cause steam explosions.
- Special Protective Equipment and Precautions for Firefighters:** Do not breathe fumes from fires or vapors from decomposition, wear self-contained NIOSH approved breathing apparatus. Wear full protective clothing.

### SECTION 6: ACCIDENTAL RELEASE MEASURES

Not applicable to copper and copper alloys in the massive form. The information below relates to the dust or fines generated by processing.

- Personal Precautions, Protective Equipment and Emergency Procedures:** Avoid generation of airborne dust. Ensure adequate ventilation. Protect clean-up personnel from inhalation of dusts or fumes, or contact with eyes and skin.
- Environmental Precautions:** Do not flush dust or fines to surface waters, soil or sanitary sewer system.
- Methods / Material for Containment and Clean Up:** Dust and fines should be cleaned up avoiding generation of airborne particulates. Wash down with water if in contact with acids.
- Reference to Other Sections :** See Sec 8 and Sec 13.

**SECTION 7: HANDLING AND STORAGE**

- Precautions for Safe Handling:** As sold in the massive form, copper and copper alloys pose no chemical handling hazard. Avoid contact with sharp edges, where proper gloves when handling.  
Dust, fines, fume or mist generated by processing may pose a hazard through inhalation, ingestion and eye or by skin contact. Avoid breathing metal fumes and/or dust. Practice good housekeeping. Practice good hygiene. Avoid generating dusts. Eating, drinking or smoking should not be allowed in areas where these alloys are processed.
- Conditions for Safe Storage:** Other than incompatibles, no special storage conditions for copper in the massive form.
- Incompatible Materials:** Strong acids. Strong bases. Strong oxidizers. Halogens. Mercury.

**SECTION 8: EXPOSURE CONTROLS/PERSONAL PROTECTION**

- Appropriate Engineering Controls:** Use appropriate engineering controls to minimize exposure to airborne concentrations during chemical treatment, milling, grinding, welding, melting, sawing, brazing, burning or other similar processes.  
  
Provide emergency eye wash fountains and safety showers in the immediate vicinity of any potential exposure.
- Personal Protective Equipment:** Highly dependent upon process being performed. User must review every process individually to evaluate appropriate PPE.  
Do not eat, drink or smoke during processing operations.
- Respiratory Protection:** As appropriate for process and engineering controls in place.
- Eye Protection:** Safety glasses, chemical goggles or face shield as appropriate to process.
- Hand Protection:** Cut resistant gloves whenever handling. Chemically resistant gloves or thermally resistant gloves as appropriate to process.
- Skin and Body Protection:** Wear suitable protective clothing. With molten material wear thermally protective clothing.
- Hygiene Measures:** Wash hands and other exposed areas with mild soap and water before eating, drinking or smoking and when leaving work.

**Control Parameters**

For substances listed in section 3 that are not listed here, there are no established Exposure limits from the manufacturer, supplier, importer, or the appropriate advisory agency including: ACGIH (TLV), NIOSH (REL), OSHA (PEL), Canadian provincial governments, or the Mexican government.

| <b>Copper (7440-50-8)</b> |                                      |                                                                     |
|---------------------------|--------------------------------------|---------------------------------------------------------------------|
| <b>Mexico</b>             | OEL TWA (mg/m <sup>3</sup> )         | 0.2 mg/m <sup>3</sup> (fume)<br>1 mg/m <sup>3</sup> (dust and mist) |
| <b>Mexico</b>             | OEL STEL (mg/m <sup>3</sup> )        | 2 mg/m <sup>3</sup> (fume)<br>2 mg/m <sup>3</sup> (dust and mist)   |
| <b>USA ACGIH</b>          | ACGIH TWA (mg/m <sup>3</sup> )       | 0.2 mg/m <sup>3</sup> (fume)                                        |
| <b>USA OSHA</b>           | OSHA PEL (TWA) (mg/m <sup>3</sup> )  | 0.1 mg/m <sup>3</sup> (fume)<br>1 mg/m <sup>3</sup> (dust and mist) |
| <b>USA NIOSH</b>          | NIOSH REL (TWA) (mg/m <sup>3</sup> ) | 1 mg/m <sup>3</sup> (dust and mist)<br>0.1 mg/m <sup>3</sup> (fume) |
| <b>USA IDLH</b>           | US IDLH (mg/m <sup>3</sup> )         | 100 mg/m <sup>3</sup> (dust, fume and mist)                         |
| <b>Alberta</b>            | OEL TWA (mg/m <sup>3</sup> )         | 0.2 mg/m <sup>3</sup> (fume)<br>1 mg/m <sup>3</sup> (dust and mist) |
| <b>British Columbia</b>   | OEL TWA (mg/m <sup>3</sup> )         | 1 mg/m <sup>3</sup> (dust and mist)<br>0.2 mg/m <sup>3</sup> (fume) |
| <b>Manitoba</b>           | OEL TWA (mg/m <sup>3</sup> )         | 0.2 mg/m <sup>3</sup> (fume)                                        |
| <b>New Brunswick</b>      | OEL TWA (mg/m <sup>3</sup> )         | 0.2 mg/m <sup>3</sup> (fume)<br>1 mg/m <sup>3</sup> (dust and mist) |

|                                    |                               |                                                                     |
|------------------------------------|-------------------------------|---------------------------------------------------------------------|
| <b>Newfoundland &amp; Labrador</b> | OEL TWA (mg/m <sup>3</sup> )  | 0.2 mg/m <sup>3</sup> (fume)                                        |
| <b>Nova Scotia</b>                 | OEL TWA (mg/m <sup>3</sup> )  | 0.2 mg/m <sup>3</sup> (fume)                                        |
| <b>Nunavut</b>                     | OEL STEL (mg/m <sup>3</sup> ) | 0.6 mg/m <sup>3</sup> (fume)<br>2 mg/m <sup>3</sup> (dust and mist) |
| <b>Nunavut</b>                     | OEL TWA (mg/m <sup>3</sup> )  | 0.2 mg/m <sup>3</sup> (fume)<br>1 mg/m <sup>3</sup> (dust and mist) |
| <b>Northwest Territories</b>       | OEL STEL (mg/m <sup>3</sup> ) | 0.6 mg/m <sup>3</sup> (fume)<br>2 mg/m <sup>3</sup> (dust and mist) |
| <b>Northwest Territories</b>       | OEL TWA (mg/m <sup>3</sup> )  | 0.2 mg/m <sup>3</sup> (fume)<br>1 mg/m <sup>3</sup> (dust and mist) |
| <b>Ontario</b>                     | OEL TWA (mg/m <sup>3</sup> )  | 0.2 mg/m <sup>3</sup> (fume)<br>1 mg/m <sup>3</sup> (dust and mist) |
| <b>Prince Edward Island</b>        | OEL TWA (mg/m <sup>3</sup> )  | 0.2 mg/m <sup>3</sup> (fume)                                        |
| <b>Québec</b>                      | VEMP (mg/m <sup>3</sup> )     | 0.2 mg/m <sup>3</sup> (fume)<br>1 mg/m <sup>3</sup> (dust and mist) |
| <b>Saskatchewan</b>                | OEL STEL (mg/m <sup>3</sup> ) | 0.6 mg/m <sup>3</sup> (fume)<br>3 mg/m <sup>3</sup> (dust and mist) |
| <b>Saskatchewan</b>                | OEL TWA (mg/m <sup>3</sup> )  | 0.2 mg/m <sup>3</sup> (fume)<br>1 mg/m <sup>3</sup> (dust and mist) |
| <b>Yukon</b>                       | OEL STEL (mg/m <sup>3</sup> ) | 0.2 mg/m <sup>3</sup> (fume)<br>2 mg/m <sup>3</sup> (dust and mist) |
| <b>Yukon</b>                       | OEL TWA (mg/m <sup>3</sup> )  | 0.2 mg/m <sup>3</sup> (fume)<br>1 mg/m <sup>3</sup> (dust and mist) |

**Lead (7439-92-1)**

|                                    |                                      |                                                                                                                                                                          |
|------------------------------------|--------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Mexico</b>                      | OEL TWA (mg/m <sup>3</sup> )         | 0.15 mg/m <sup>3</sup> (dust and fume)                                                                                                                                   |
| <b>USA ACGIH</b>                   | ACGIH TWA (mg/m <sup>3</sup> )       | 0.05 mg/m <sup>3</sup>                                                                                                                                                   |
| <b>USA ACGIH</b>                   | ACGIH chemical category              | Confirmed Animal Carcinogen with Unknown Relevance to Humans                                                                                                             |
| <b>USA OSHA</b>                    | OSHA PEL (TWA) (mg/m <sup>3</sup> )  | 50 µg/m <sup>3</sup>                                                                                                                                                     |
| <b>USA NIOSH</b>                   | NIOSH REL (TWA) (mg/m <sup>3</sup> ) | 0.050 mg/m <sup>3</sup>                                                                                                                                                  |
| <b>USA IDLH</b>                    | US IDLH (mg/m <sup>3</sup> )         | 100 mg/m <sup>3</sup>                                                                                                                                                    |
| <b>Alberta</b>                     | OEL TWA (mg/m <sup>3</sup> )         | 0.05 mg/m <sup>3</sup>                                                                                                                                                   |
| <b>British Columbia</b>            | OEL TWA (mg/m <sup>3</sup> )         | 0.05 mg/m <sup>3</sup>                                                                                                                                                   |
| <b>Manitoba</b>                    | OEL TWA (mg/m <sup>3</sup> )         | 0.05 mg/m <sup>3</sup>                                                                                                                                                   |
| <b>New Brunswick</b>               | OEL TWA (mg/m <sup>3</sup> )         | 0.05 mg/m <sup>3</sup>                                                                                                                                                   |
| <b>Newfoundland &amp; Labrador</b> | OEL TWA (mg/m <sup>3</sup> )         | 0.05 mg/m <sup>3</sup>                                                                                                                                                   |
| <b>Nova Scotia</b>                 | OEL TWA (mg/m <sup>3</sup> )         | 0.05 mg/m <sup>3</sup>                                                                                                                                                   |
| <b>Nunavut</b>                     | OEL STEL (mg/m <sup>3</sup> )        | 0.45 mg/m <sup>3</sup>                                                                                                                                                   |
| <b>Nunavut</b>                     | OEL TWA (mg/m <sup>3</sup> )         | 0.15 mg/m <sup>3</sup>                                                                                                                                                   |
| <b>Northwest Territories</b>       | OEL STEL (mg/m <sup>3</sup> )        | 0.45 mg/m <sup>3</sup>                                                                                                                                                   |
| <b>Northwest Territories</b>       | OEL TWA (mg/m <sup>3</sup> )         | 0.15 mg/m <sup>3</sup>                                                                                                                                                   |
| <b>Ontario</b>                     | OEL TWA (mg/m <sup>3</sup> )         | 0.05 mg/m <sup>3</sup> (designated substances regulation)<br>0.05 mg/m <sup>3</sup> (applies to workplaces to which the designated substances regulation does not apply) |
| <b>Prince Edward Island</b>        | OEL TWA (mg/m <sup>3</sup> )         | 0.05 mg/m <sup>3</sup>                                                                                                                                                   |
| <b>Québec</b>                      | VEMP (mg/m <sup>3</sup> )            | 0.05 mg/m <sup>3</sup>                                                                                                                                                   |
| <b>Saskatchewan</b>                | OEL STEL (mg/m <sup>3</sup> )        | 0.15 mg/m <sup>3</sup>                                                                                                                                                   |
| <b>Saskatchewan</b>                | OEL TWA (mg/m <sup>3</sup> )         | 0.05 mg/m <sup>3</sup>                                                                                                                                                   |
| <b>Yukon</b>                       | OEL STEL (mg/m <sup>3</sup> )        | 0.45 mg/m <sup>3</sup> (dust and fume)                                                                                                                                   |
| <b>Yukon</b>                       | OEL TWA (mg/m <sup>3</sup> )         | 0.15 mg/m <sup>3</sup> (dust and fume)                                                                                                                                   |

**SECTION 9: PHYSICAL AND CHEMICAL PROPERTIES**

|                        |          |                        |                      |
|------------------------|----------|------------------------|----------------------|
| <b>Physical State:</b> | Solid    | <b>Appearance:</b>     | Red to Gold metallic |
| <b>Odor:</b>           | Odorless | <b>Odor Threshold:</b> | Not applicable       |

|                                                           |                                                                       |                                                          |                                                                     |
|-----------------------------------------------------------|-----------------------------------------------------------------------|----------------------------------------------------------|---------------------------------------------------------------------|
| <b>pH:</b>                                                | Not applicable                                                        | <b>Evaporation Rate:</b>                                 | Not applicable                                                      |
| <b>Melting Point:</b>                                     | S:1650 - 1920 °F (899 - 1049 °C)<br>L: 1660 - 1950 °F (905 - 1066 °C) | <b>Freezing Point:</b>                                   | Not available                                                       |
| <b>Boiling Point:</b>                                     | Not available                                                         | <b>Boiling Point Range:</b>                              | Not available                                                       |
| <b>Flash Point:</b>                                       | Not applicable                                                        | <b>Auto-ignition Temperature:</b>                        | Not applicable                                                      |
| <b>Flammability (solid, gas):</b>                         | Not flammable                                                         | <b>Decomposition Temperature:</b>                        | Not applicable                                                      |
| <b>Upper Flammable Limit</b>                              | Not applicable                                                        | <b>Lower Flammable Limit:</b>                            | Not applicable                                                      |
| <b>Vapor Pressure:</b>                                    | Not applicable                                                        | <b>Vapor Density at 20 °C:</b>                           | Not applicable                                                      |
| <b>Relative Density:</b>                                  | 8.39 - 8.86 g/cm <sup>3</sup> @ 20 °C                                 | <b>Specific Gravity:</b>                                 | 8.39 - 8.86                                                         |
| <b>Solubility:</b>                                        | Negligible in water                                                   | <b>Viscosity:</b>                                        | Not applicable                                                      |
| <b>Explosion Data – Sensitivity to Mechanical Impact:</b> | Not expected to present an explosion hazard due to mechanical impact  | <b>Explosion Data – Sensitivity to Static Discharge:</b> | Not expected to present an explosion hazard due to static discharge |
| <b>Partition Coefficient: N-Octanol/Water:</b>            | Not applicable                                                        |                                                          |                                                                     |

## SECTION 10: STABILITY AND REACTIVITY

|                                            |                                                                                                                           |
|--------------------------------------------|---------------------------------------------------------------------------------------------------------------------------|
| <b>Reactivity:</b>                         | Stable at under normal conditions.                                                                                        |
| <b>Chemical Stability:</b>                 | Stable under normal conditions of use and under recommended handling and storage conditions. (Section 7).                 |
| <b>Possibility of Hazardous Reactions:</b> | Hazardous polymerization cannot occur.                                                                                    |
| <b>Conditions to Avoid:</b>                | Avoid creating or spreading dust. Incompatible materials.                                                                 |
| <b>Incompatible Materials:</b>             | Strong acids. Strong bases. Strong oxidizers. Halogens. Mercury.<br>Water (when in molten form)                           |
| <b>Hazardous Decomposition Products:</b>   | When heated to decomposition, may produce metal oxides and fumes.<br>Contact with strong acids will release hydrogen gas. |

## SECTION 11: TOXICOLOGICAL INFORMATION

Information on Likely Routes of Exposure:

Solid copper and copper alloys in massive form (rod, plate, sheet, strip, bar), do not present inhalation, ingestion, eye or skin contact hazards.

When processed by milling, grinding, welding, melting, sawing, brazing, burning or other similar processes the generated dust, fines, fume or mist may pose a hazard through inhalation, ingestion or by eye or skin contact. Most likely exposure routes: For dust: ingestion, inhalation, skin and eye contact. For fume: inhalation and eye contact.

|                                              |                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
|----------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Symptoms/Injuries After Inhalation:</b>   | Metal fumes or dust may irritate the mucous membranes and respiratory tract (shortness of breath, wheezing, coughing)<br>Metal fumes or dust can produce an acute allergic condition known as “metal fume fever”. Symptoms of metal fume fever may include chills, muscle aches, nausea, fever, dry throat, cough, weakness, and lassitude. The onset of symptoms may be delayed several hours and recovery generally occurs without intervention within 24 to 48 hours. |
| <b>Symptoms/Injuries After Skin Contact:</b> | Dust or fines may irritate skin.<br>Hot or molten metal will cause thermal burns.<br>Mechanical injury from via flying particles and chipped slag is possible.                                                                                                                                                                                                                                                                                                           |
| <b>Symptoms/Injuries After Eye Contact:</b>  | Dust, fines or fumes may cause eye irritation.<br>Hot or molten metal will cause thermal burns.<br>Mechanical damage via flying particles and chipped slag is possible.                                                                                                                                                                                                                                                                                                  |
| <b>Symptoms/Injuries After Ingestion:</b>    | Ingestion of dusts or fines from processing can occur due to poor hygiene and may produce irritation of the gastrointestinal tract (nausea, vomiting, and diarrhea)                                                                                                                                                                                                                                                                                                      |

**Chronic Symptoms:**

|                |                                                                                                                                                                                                                                                                                                                                                                        |
|----------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Copper:</b> | Overexposure to fumes may cause metal fume fever. Tissue damage of mucous membranes may follow chronic dust exposure.                                                                                                                                                                                                                                                  |
| <b>Zinc:</b>   | Prolonged exposure to high concentrations of zinc fumes may cause "zinc shakes", an involuntary twitching of the muscles. Otherwise, zinc is non-toxic.                                                                                                                                                                                                                |
| <b>Iron:</b>   | Inhalation of iron oxide fumes undergoing decomposition may cause irritation and flu-like symptoms, otherwise iron oxide is not hazardous.                                                                                                                                                                                                                             |
| <b>Lead:</b>   | Chronic exposure to fumes and/or dust or ingestion of dust can cause kidney damage, anemia, reproductive effects, developmental effects and permanent nervous system damage. Other reported symptoms include polyneuritis, diminished vision and peripheral neuropathy, such as tingling or loss of feeling in fingers, arms & legs, gingival lead line; hypertension. |

**Information on Toxicological Effects – Product in Massive Form**

|                                           |                |                                                            |                |
|-------------------------------------------|----------------|------------------------------------------------------------|----------------|
| <b>Acute Toxicity:</b>                    | Not classified | <b>Germ Cell Mutagenicity:</b>                             | Not classified |
| <b>LD50 and LC50 Data:</b>                | Not available  | <b>Teratogenicity:</b>                                     | Not classified |
| <b>Skin Corrosion/Irritation:</b>         | Not classified | <b>Carcinogenicity:</b>                                    | Not classified |
| <b>Serious Eye Damage/Irritation:</b>     | Not classified | <b>Specific Target Organ Toxicity (Repeated Exposure):</b> | Not classified |
| <b>Respiratory or Skin Sensitization:</b> | Not classified | <b>Reproductive Toxicity:</b>                              | Not classified |
| <b>Aspiration Hazard:</b>                 | Not classified | <b>Specific Target Organ Toxicity (Single Exposure):</b>   | Not classified |

**Information on Toxicological Effects - Ingredient(s)****LD50 and LC50 Data:**

|                                                  |                                                |
|--------------------------------------------------|------------------------------------------------|
| <b>Lead (7439-92-1)</b>                          |                                                |
| <b>IARC Group</b>                                | 2A                                             |
| <b>National Toxicology Program (NTP) Status</b>  | Reasonably anticipated to be Human Carcinogen. |
| <b>OSHA Hazard Communication Carcinogen List</b> | In OSHA Hazard Communication Carcinogen list.  |

**SECTION 12: ECOLOGICAL INFORMATION****12.1. Toxicity** Not classified

|                                       |                                                                                                         |
|---------------------------------------|---------------------------------------------------------------------------------------------------------|
| <b>Copper (7440-50-8)</b>             |                                                                                                         |
| <b>LC50 Fish 1</b>                    | <= 0.0068 (0.0068 - 0.0156) mg/l (Exposure time: 96 h - Species: Pimephales promelas)                   |
| <b>EC50 Daphnia 1</b>                 | 0.03 mg/l (Exposure time: 48 h - Species: Daphnia magna [Static])                                       |
| <b>EC50 Other Aquatic Organisms 1</b> | 0.0426 (0.0426 - 0.0535) mg/l (Exposure time: 72 h - Species: Pseudokirchneriella subcapitata [static]) |
| <b>LC 50 Fish 2</b>                   | 0.3 mg/l (Exposure time: 96 h - Species: Pimephales promelas [static])                                  |
| <b>EC50 Other Aquatic Organisms 2</b> | 0.031 (0.031 - 0.054) mg/l (Exposure time: 96 h - Species: Pseudokirchneriella subcapitata [static])    |

|                         |                                                                                       |
|-------------------------|---------------------------------------------------------------------------------------|
| <b>Zinc (7440-66-6)</b> |                                                                                       |
| <b>LC50 Fish 1</b>      | 2.16 - 3.05 mg/l (Exposure time: 96 h - Species: Pimephales promelas [flow-through])  |
| <b>EC50 Daphnia 1</b>   | 0.139 - 0.908 mg/l (Exposure time: 48 h - Species: Daphnia magna [Static])            |
| <b>LC 50 Fish 2</b>     | 0.211 - 0.269 mg/l (Exposure time: 96 h - Species: Pimephales promelas [semi-static]) |

|                         |                                                                               |
|-------------------------|-------------------------------------------------------------------------------|
| <b>Lead (7439-92-1)</b> |                                                                               |
| <b>LC50 Fish 1</b>      | 0.44 mg/l (Exposure time: 96 h - Species: Cyprinus carpio [semi-static])      |
| <b>EC50 Daphnia 1</b>   | 600 µg/l (Exposure time: 48 h - Species: water flea)                          |
| <b>LC 50 Fish 2</b>     | 1.17 mg/l (Exposure time: 96 h - Species: Oncorhynchus mykiss [flow-through]) |

**12.2. Persistence and Degradability** Not readily biodegradable

**12.4. Mobility in Soil** Not available

**12.5. Other Adverse Effects** Not available

### SECTION 13: DISPOSAL CONSIDERATIONS

**Waste Disposal Methods:** Recycle all solid copper and copper alloy scrap. Dust, fines or powders should also be recycled or classified by an environmental professional and disposed of in accordance with all local, regional, national, provincial, territorial and international regulations.

Do not dispose of dust, fines and powders to surface waters or sanitary sewers

**Packaging Disposal:** Dispose of in accordance with all local, regional, national, provincial, territorial and international regulations.

### SECTION 14: TRANSPORT INFORMATION

**In Accordance with DOT:** Not regulated for transport

**In Accordance with IMDG:** Not regulated for transport

**In Accordance with IATA:** Not regulated for transport

**In Accordance with TDG:** Not regulated for transport

### SECTION 15: REGULATORY INFORMATION

#### 15.1. US Federal Regulations

| <b>Copper (7440-50-8)</b>                                                 |                           |
|---------------------------------------------------------------------------|---------------------------|
| Listed on the United States TSCA (Toxic Substances Control Act) inventory |                           |
| Listed on United States SARA Section 313                                  |                           |
| <b>SARA Section 313 - Emission Reporting</b>                              | 1.0 %                     |
| <b>Zinc (7440-66-6)</b>                                                   |                           |
| Listed on the United States TSCA (Toxic Substances Control Act) inventory |                           |
| Listed on United States SARA Section 313                                  |                           |
| <b>SARA Section 313 - Emission Reporting</b>                              | 1.0 % (dust or fume only) |
| <b>Iron (7439-89-6)</b>                                                   |                           |
| Listed on the United States TSCA (Toxic Substances Control Act) inventory |                           |
| <b>Lead (7439-92-1)</b>                                                   |                           |
| Listed on the United States TSCA (Toxic Substances Control Act) inventory |                           |
| Listed on United States SARA Section 313                                  |                           |
| <b>SARA Section 313 - Emission Reporting</b>                              | 0.1 %                     |

#### 15.2. US State Regulations

| <b>Lead (7439-92-1)</b>                                                    |                                                                                                                |
|----------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------|
| <b>U.S. - California - Proposition 65 - Carcinogens List</b>               | WARNING: This product contains chemicals known to the State of California to cause cancer.                     |
| <b>U.S. - California - Proposition 65 - Developmental Toxicity</b>         | WARNING: This product contains chemicals known to the State of California to cause birth defects.              |
| <b>U.S. - California - Proposition 65 - Reproductive Toxicity - Female</b> | WARNING: This product contains chemicals known to the State of California to cause (Female) reproductive harm. |
| <b>U.S. - California - Proposition 65 - Reproductive Toxicity - Male</b>   | WARNING: This product contains chemicals known to the State of California to cause (Male) reproductive harm.   |
| <b>Copper (7440-50-8)</b>                                                  |                                                                                                                |
| U.S. - Massachusetts - Right To Know List                                  |                                                                                                                |

U.S. - New Jersey - Right to Know Hazardous Substance List  
 U.S. - Pennsylvania - RTK (Right to Know) - Environmental Hazard List  
 U.S. - Pennsylvania - RTK (Right to Know) List

**Zinc (7440-66-6)**

U.S. - Massachusetts - Right To Know List  
 U.S. - New Jersey - Right to Know Hazardous Substance List  
 U.S. - Pennsylvania - RTK (Right to Know) - Environmental Hazard List  
 U.S. - Pennsylvania - RTK (Right to Know) List

**Lead (7439-92-1)**

U.S. - Massachusetts - Right To Know List  
 U.S. - New Jersey - Right to Know Hazardous Substance List  
 U.S. - Pennsylvania - RTK (Right to Know) - Environmental Hazard List  
 U.S. - Pennsylvania - RTK (Right to Know) List

**15.3. Canadian Regulations**

C21000; C22000; C22600; C23000; C24000; C26000; C28000

|                      |                                                                 |
|----------------------|-----------------------------------------------------------------|
| WHMIS Classification | Uncontrolled product according to WHMIS classification criteria |
|----------------------|-----------------------------------------------------------------|

**Copper (7440-50-8)**

Listed on the Canadian DSL (Domestic Substances List)  
 Listed on the Canadian IDL (Ingredient Disclosure List)

IDL Concentration 1 %

|                      |                                                                 |
|----------------------|-----------------------------------------------------------------|
| WHMIS Classification | Uncontrolled product according to WHMIS classification criteria |
|----------------------|-----------------------------------------------------------------|

**Zinc (7440-66-6)**

Listed on the Canadian DSL (Domestic Substances List)

|                      |                                                                 |
|----------------------|-----------------------------------------------------------------|
| WHMIS Classification | Uncontrolled product according to WHMIS classification criteria |
|----------------------|-----------------------------------------------------------------|

**Iron (7439-89-6)**

Listed on the Canadian DSL (Domestic Substances List)

|                      |                                                                 |
|----------------------|-----------------------------------------------------------------|
| WHMIS Classification | Uncontrolled product according to WHMIS classification criteria |
|----------------------|-----------------------------------------------------------------|

**Lead (7439-92-1)**

Listed on the Canadian DSL (Domestic Substances List)  
 Listed on the Canadian IDL (Ingredient Disclosure List)

IDL Concentration 0.1 %

|                      |                                                                                                                                                                     |
|----------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| WHMIS Classification | Class D Division 2 Subdivision A - Very toxic material causing other toxic effects<br>Class D Division 2 Subdivision B - Toxic material causing other toxic effects |
|----------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------|

This product has been classified in accordance with the hazard criteria of the Controlled Products Regulations (CPR) and the SDS contains all of the information required by CPR.

**SECTION 16: OTHER INFORMATION, INCLUDING DATE OF PREPARATION OR LAST REVISION****GHS Full Text Phrases:**

|                   |                                                                  |
|-------------------|------------------------------------------------------------------|
| Aquatic Acute 1   | Hazardous to the aquatic environment - Acute Hazard Category 1   |
| Aquatic Chronic 1 | Hazardous to the aquatic environment - Chronic Hazard Category 1 |
| Carc. 1B          | Carcinogenicity Category 1B                                      |
| Comb. Dust        | Combustible Dust                                                 |
| Repr. 1A          | Reproductive toxicity Category 1A                                |
| STOT RE 1         | Specific target organ toxicity (repeated exposure) Category 1    |
|                   | May form combustible dust concentrations in air                  |
| H350              | May cause cancer                                                 |
| H360              | May damage fertility or the unborn child                         |
| H372              | Causes damage to organs through prolonged or repeated exposure   |
| H400              | Very toxic to aquatic life                                       |



|      |                                                      |
|------|------------------------------------------------------|
| H410 | Very toxic to aquatic life with long lasting effects |
|------|------------------------------------------------------|

**Party Responsible for the Preparation of This Document**

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**Revision Date: 5/31/2015**

This document has been prepared in accordance with the SDS requirements of the OSHA Hazard Communication Standard 29 CFR 1910.1200.

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