

**MATERIAL SAFETY DATA SHEET**

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**REVERE COPPER PRODUCTS, INC.**

One Revere Park  
 Rome, New York 13440  
 Telephone: 315-338-2022

**IMPORTANT:** Read this MSDS before  
 handling and disposing of this product and  
 pass this information to employees, customers  
 and users of this product.

**SECTION 1 – MATERIAL IDENTIFICATION**

Identity:                      Leaded Brass  
 UNS Designation:            C36000, C36500, C38000  
 ASTM Specification:        B16, B171, B455, B124

**SECTION II – HAZARDOUS INGREDIENTS**

Chemical Name	CAS NO.	Percent by wt.	Permissible Air Concentration (mg/m <sup>3</sup> )	
			OSHA PEL	ACGIH TLV
*COPPER	7440-50-8	55 – 63	0.1 (Fume) 1 (Dust)	0.2 (Fume) 1 (Dust)
*ZINC	7440-66-6	33 – 44	5 (Fume) 15 (Dust)	2 (as Oxide) Respirable)
*LEAD	7439-92-1	0.25 – 3.7	0.05	0.05
ALUMINUM (C38000 only)	7429-90-5	0.5 max	5 (Fume) 15 (Dust)	10 (Dust)

\*Identifies substances that are subject to the requirements of Section 313 of Title III of Superfund Amendments and Reauthorization Act of 1986 and 40 CFR Part 372.

**SECTION III – PHYSICAL DATA**

Color:                              Yellow to Yellow-Gray

Melting point (°F):            C36000            C36500            C38000  
    1650                1650                1640

Specific Gravity (H<sub>2</sub>O=1):    8.50                8.41                8.44

Solubility in Water:            Negligible

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**SECTION IV – FIRE AND EXPLOSION HAZARD DATA**

<b>Flash Point (Method Used):</b>	Not Applicable
<b>Extinguishing Media:</b>	Dry Sand or Metal Extinguishing Powders
<b>Special Fire Fighting Procedures:</b>	Use NIOSH approved self-contained breathing apparatus and full protective clothing if involved in fire.
<b>Unusual Fire and Explosion Hazards:</b>	Solid form can burn at minimum rate without flame (smolder). Do not use water on molten or smoldering metal. Grinding or other machining operations can produce fine particulate dust that may explode in the presence of a strong ignition source.

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**SECTION V – HEALTH HAZARD DATA**

Specialty copper alloys are generally not considered hazardous in the form shipped (solid bars, billets, rods, wire, etc.) However, if your process involves grinding, melting, welding, cutting, or any other process that causes a release of dust or fume, hazardous levels of dust or fume of the constituents of these alloys could be generated. The following is a list of potential health effects for hazardous elements potentially contained in the alloys. Please refer to Section II titled "Composition / Ingredients" for a list of those specific elements contained in this particular alloy.

**Primary Route(s) of Entry: Inhalation****Target Organs: Respiratory System****Acute Hazards:**

Elevated exposure to excessive concentrations of metal dust can cause irritation to the eyes, skin and mucous membranes of the upper respiratory tract. Exposure to metal fumes can produce "metal fume fever", which may include chills and fever, metallic taste in the mouth, dryness and irritation of the throat, cough, stomach pain, headache, nausea, vomiting, and muscle and joint pain. The onset of symptoms may be delayed 4 to 12 hours, and could last from 12 to 48 hours.

**Chronic Hazards:**

<b>Copper:</b>	Dust and/or fumes may cause irritation of eyes, skin and respiratory tract. Dry burning throat, headache, muscle aches, cough, nausea, chills, fever, metallic taste, skin and hair discoloration.
<b>Zinc:</b>	Zinc is very low in toxicity but inhalation of fumes may cause "metal fume fever". The onset of symptoms may be delayed 4 to 12 hours and may include irritation of the nose, mouth and throat, cough, stomach pain, headache, nausea, vomiting, metallic taste, chills, fever, pains in the muscles and joints, thirst, bronchitis or pneumonia and bluish tint to the skin. These symptoms go away in 24 to 48 hours and leave no effect.
<b>Lead:</b>	Short Term Exposure – Lead is an accumulative poison. Inhalation effects of exposure to fumes or dust of inorganic lead may not develop quickly. Symptoms may include decreased physical fitness, fatigue, sleep disturbance, headache, aching bones and muscles, constipation,

abdominal pains, and decreasing appetite. The effects are reversible and complete recovery is possible. Inhalation of large amounts of lead may lead to seizures, coma and death.

**Lead:** Long Term Exposure – Long term exposure can result in a buildup of lead in the body and more severe symptoms. These include anemia, pale skin, a blue line at the gum margin, decreased handgrip strength, abdominal pain, severe constipation, nausea, vomiting, and paralysis of the wrist joint. Prolonged exposure may also result in kidney damage. If the nervous system is affected, usually due to very high exposures, the resulting effects include severe headache, convulsions, coma, delirium and death. Alcohol ingestion and physical exertion may bring on symptom. Continued exposure can result in decreased fertility and/or increased chances of miscarriage or birth defects.

**Aluminum:** Excessive exposure to dusts/fines are low health risk by inhalation and should be treated as nuisance dust.

**Medical Conditions Aggravated by Long-Term Exposure:**

Persons suffering from chronic respiratory disorders may be adversely affected by exposure to metal fume and airborne particulate matter.

**Emergency and First Aid Procedures:**

**Skin:** Flush thoroughly with water.

**Eyes:** Flush with water, call physician.

**Ingestion:** Not a likely route of exposure. However, if ingested, seek medical attention.

**Inhalation:** For persons suspected of over-exposure to airborne fumes and particulates, remove person to fresh air. Seek medical attention promptly.

**Carcinogenicity:** Inorganic Lead has been listed as "reasonably anticipated to be a human carcinogen" by the NTP<sup>1</sup>, and "possibly carcinogenic to humans" by the IARC<sup>2</sup>.

<sup>1</sup> National Toxicology Program

<sup>2</sup> International Agency for Research on Cancer

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**SECTION VI – REACTIVITY DATA**

**Stability:** Stable

**Incompatibility (Material to avoid):** Avoid contact with strong oxidizers. Avoid liberation of airborne dust that can be explosive.

**Hazardous Decomposition Products:** At temperatures above the melting point metallic oxide fumes may be evolved.

**Hazardous Polymerization:** Will not occur.

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## SECTION VII – SPILL OR LEAK PROCEDURES

**Steps to be Taken in Case Material is Released or Spilled:** A clean-up procedure that minimizes exposure is required. Vacuuming is preferred. Place material in closed containers. Do not use compressed air for cleaning. Use NIOSH approved respiratory protection if possibility of dust, and/or fume exposure exists.

**Waste Disposal Method:** Copper containing waste is normally collected to recover copper value. Should waste disposal be deemed necessary, follow all Federal, State and Local disposal regulations.

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## SECTION VIII – SPECIAL PROTECTION INFORMATION

<b>Respiratory Protection:</b>	If grinding, cutting, or machining of material generates airborne exposures above recommended limits, then a NIOSH approved respirator should be worn.
<b>Ventilation:</b>	Exhaust dust, mist and/or fume away from the operator.
<b>Engineering Controls:</b>	Use adequate ventilation to keep dust and/or fume concentrations below the occupational exposure limits shown in Section II.
<b>Eye Protection:</b>	Safety glasses or a face shield should be worn, when appropriate.
<b>Gloves:</b>	Protective gloves should be worn, when appropriate.

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## SECTION IX – SPECIAL PRECAUTIONS

### Precautions to be Taken in Handling and Storing:

Good housekeeping must be practiced during storage, transfer, handling and use to avoid excess dust release. Good personal hygiene procedures should be observed at all times.

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