

BUNTING BEARINGS, LLC

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Material Safety Data Sheet

Manganese Bronze / Aluminum Bronze

Revised: June 1, 2009

Section I – Material Identification

Manufacturer:	Bunting Bearings, LLC 153 E. Fifth Street Mansfield, Ohio 44902	Emergency Telephone Number 419-866-7000	Information Telephone Number 419-522-3323
Product Class:	Cast Bronze Alloys C85500, C85800, C86200, C86300, C86400, C86500, C95200 C95300, C95400, C95500, C95600, C95800, C95900		

Section II – Hazardous Ingredients / Identity Information

Hazardous Ingredient(s)	CAS Number	OSHA PEL	ACGIH TLV	Percent Range
Copper	7440-50-8	1.0 mg/m ³	1.0 mg/m ³	55-95%
Aluminum	7429-90-5	15 mg/m ³	10.0 mg/m ³	0-14%
Manganese	7439-96-5	5 mg/m ³	5 mg/m ³	0-5%
Zinc	7440-66-6	5.0 mg/m ³	5 mg/m ³	0-45%
Iron	1309-37-1	10.0 mg/m ³	10.0 mg/m ³	0-5%
Nickel	7440-02-0	1.0 mg/m ³	1.0 mg.m ³	0-6%
HMIS Rating;	Copper / Manganese, Health 2, Flammability 0, Reactivity 0			

Section III – Physical/Chemical Characteristics

Boiling Point:	N/A	Specific Gravity (H₂O = 1):	7.5-8.4
Vapor Pressure:	N/A	Melting Point:	1600F – 1940F
Vapor Density:	N/A	Evaporation Rate:	N/A
Solubility in Water:	Insoluble		
Appearance:	Yellow gold-silver		
Odor:	None		

Section IV – Fire and Explosion Data

Flash Point:	N/A	Flammable Limits: Upper:	N/A
Method:	N/A	Lower:	N/A

Extinguishing Media: Solid form – None
Fine Chips/Dust – Use a dry chemical or sand

Special Fire Fighting Procedures: Protective Clothing
NIOSH-self contained breathing apparatus

Unusual Fire and Explosion Hazards: Fine chips or dust may ignite and should be stored in a well ventilated area.

Section V – Reactivity Data

Stability:	Copper alloys are stable under normal conditions of use storage and transportation.
Conditions to Avoid:	Molten metal may react violently with water. Avoid contact of chips and dust with heat, oxidizers, acids, alkali's, molten lithium and halogenated compounds.
Incompatibility:	Avoid acids, bases and oxidizers.

Hazardous Polymerization: Will not occur.

Section VI – Health Hazard Data

Routes of Entry: Inhalation, Eye, Skin and Ingestion.

Health Hazards:

Copper and Manganese: Under normal handling and use, exposure to the solid form of copper alloys presents few health hazards. Thermal cutting, melting, machining or grinding may produce fumes or dust containing the component elements and breathing these fumes or dust may present potentially significant health hazards. The exposure levels in Section II are relevant to fumes and dust. Fumes of copper and manganese may cause metal fume fever with flu-like symptoms, and copper and manganese may cause hair discoloration. Copper fumes and dust irritate the nose and throat. If too many fumes are inhaled, it will cause a sweet or metallic taste in the mouth. Inhaling excessive amounts of copper dust and fume over a long period of time can cause anemia. Overexposure to manganese fumes can cause chronic manganese poisoning.

Iron Oxide and Tin: Chronic overexposure to iron oxide or tin fumes may cause an apparent benign pneumoconiosis. In the case of iron oxide, this is called siderosis, and for tin it is called stannosis.

Zinc Oxide: Overexposure to zinc oxide fumes can cause “Metal Fume Fever”.

Aluminum: Under normal handling and use, exposure to aluminum presents few health hazards. Thermal cutting and melting may produce fumes containing the component elements, and breathing these fumes or dust may present potentially significant health hazards. The exposure levels in Section II are relevant to fumes and dust. Inhalation of finely divided aluminum powder may cause pulmonary fibrosis. Overexposure to dust, and especially fumes containing component elements of aluminum alloys may cause skin, nose, mouth and eye irritation and lung changes in workers, potentially leading to pulmonary diseases.

Nickel: Under normal handling, exposure to nickel presents few health hazards. Dust may cause headache, coughing, dizziness or difficult breathing. Prolonged exposure may cause dermatitis. Ingestion may cause nausea, vomiting, headaches, dizziness, and gastrointestinal irritation.

Carcinogen: None for the alloys.

Nickel is considered a possible carcinogen by NTP and IARC.

Emergency and First Aid Procedures:

- Ingestion:** If swallowed and the person is conscious, immediately give large amounts of water. Get medical attention.
- Inhalation:** If a person breathes in large amounts of dust or fume, move the exposed people to fresh air. Get medical attention.
- Eye Contact:** Immediately flush with plenty of water for at least 15 minutes. Get medical attention.
- Skin Contact:** Immediately wash with plenty of soap and water.

Section VII – Precautions for Safe Handling and Use

Steps to be taken in case material is released or spilled:

No special precautions are necessary for spills of bulk materials. If large quantities of dust are spilled, remove by vacuuming or wet sweeping to prevent heavy concentrations of airborne dust. Respirators and protective clothing are recommended.

Waste Disposal Method:

Follow Federal, State and local regulations regarding disposal. Scrap metals can generally be reclaimed and recycled.

Precautions to be taken in handling and storing:

Use good safety practices. Store dust away from sources of ignition. Keep dust dry and away from exposure to water.

Section VIII – Control Measures

- Respiratory Protection:** When required, employees should wear MSHA or NIOSH approved respirators for protection against airborne dust or fumes.
- Ventilation:** Use general or local exhaust ventilation to keep airborne concentrations of dust and fumes below the TLV.
- Protective Gloves:** N/A
- Eye Protection:** Approved safety glasses and/or goggles should be worn during any machining, grinding, cutting, or other operation from which airborne particles may be emitted.
- Other Protective Clothing:** N/A
- Work/Hygienic Practices:** Wash hands after handling materials.
Food or drink should not be consumed in the work area.
Wash hands and face prior to eating, drinking or smoking.

Section 313 – Supplier Notification

These products contain copper, aluminum, manganese, zinc, iron and nickel which are all subject to the annual reporting requirements of Section 313 of the Emergency Planning and Community Right to Know Act of 1986 and of 40 CFR 372.

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