

BUNTING BEARINGS, LLC

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Material Safety Data Sheet

Bunting Continuous Cast

Revised: September 1, 2009

Section I – Material Identification

Manufacturer:	Bunting Bearings, LLC 200 Van Buren Street Delta, Ohio 43515	Emergency Telephone Number 419-866-7000	Information Telephone Number 419-522-3323
Product Class:	Copper-Bismuth Alloys C89320, C89325, C89510, C89520, C89550, C89831, C89833, C89835, C89837, C89844, 89940 B02 – B07		

Section II – Hazardous Ingredients / Identity Information

Hazardous Ingredient(s)	CAS Number	OSHA PEL	ACGIH TLV	Percent Range
Base Metal:				
Copper	7440-50-8	1.0 mg/m ³	1.0 mg/m ³	dust 64 – 91%
Copper	7440-50-8	0.1 mg/m ³	0.2 mg/m ³	fume
Alloys:				
Aluminum	7429-90-5	15.0 mg/m ³	10.0 mg/m ³	dust ≤ 0.6%
Aluminum	7429-90-5	5.0 mg/m ³		respirable fractions
Manganese	7439-96-5	5.0 mg/m ³	5.0 mg/m ³	dust 0.0 – 0.20%
Manganese	7439-96-5	1.0 mg/m ³	1.0 mg/m ³	fume
Iron	1309-37-1	10.0 mg/m ³	5.0 mg/m ³	0.15 – 2.0%
Silicon	7440-21-3	15.0 mg/m ³	10.0 mg/m ³	dust ≤ 0.25%
Silicon	7440-21-3	5.0 mg/m ³		respirable fractions
Bismuth	7440-69-9	N/A	N/A	0.6 – 6%
Selenium	7782-49-2	0.2 mg/m ³	0.2 mg/m ³	≤ 1.2%
Sulfur	7446-09-5	13.0 mg/m ³	5.2 mg/m ³	≤ 0.08%
Phosphorus	7723-14-0	0.1 mg/m ³	0.1 mg/m ³	0.02 – 1.5%
Antimony	7440-36-0	0.5 mg/m ³	0.5 mg/m ³	≤ 0.5%
Lead	7439-92-1	0.05 mg/m ³	0.15 mg/m ³	≤ 0.25%
Tin	7440-31-5	2.0 mg/m ³	2.0 mg/m ³	1.2 – 11%
Zinc	7440-66-6	15.0 mg/m ³	10.0 mg/m ³	dust 1.0 – 38%
Zinc	7440-66-6	5.0 mg/m ³	5.0 mg/m ³	fume
Nickel	7440-02-0	1.0 mg/m ³	1.0 mg/m ³	1.0 – 23%

HMIS Rating: Lead/Copper, Health 2, Flammability 0, Reactivity 0

Section III – Physical/Chemical Characteristics

Boiling Point:	N/A	Specific Gravity (H₂O = 1):	7.5-9.0
Vapor Pressure:	N/A	Melting Point:	1500F – 1950F
Vapor Density:	0.27-0.323 1	Evaporation Rate:	N/A
Solubility in Water:	Insoluble	Odor:	None
Appearance:	Most alloys will be yellow to red, with a few silver/white		

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: Solid, massive form is not combustible. Fire and explosion hazards are moderate when material is in the form of dust and exposed to heat, flames, chemical reaction, or contact with powerful oxidizers. Use special mixtures of dry chemical or sand. 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 Decomposition or byproducts: Metal fume, dust in handling

Hazardous Polymerization: Will not occur.

Section VI – Health Hazard Data

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

Health Hazards:

Copper: 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 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.

Lead – 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 to lower levels can result in a buildup of lead in the body and more severe symptoms. Prolonged exposure may also result in kidney damage. Continuous exposure can result in decreased fertility, and exposure of the mother during pregnancy can cause birth defects.

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”.

Manganese: Chronic manganese poisoning may result from inhalation of dust or fume. The central nervous system is the chief site of the injury. Chronic manganese poisoning is not a fatal disease although it is extremely disabling. Some individuals may be hyper susceptible to manganese. Freshly formed manganese fume has caused fever and chills similar to metal fume fever.

Tin: The inhalation of inorganic tin fumes or dust may cause an apparent benign pneumoconiosis called stannosis, which is reported not to be disabling.

Aluminum: Excessive exposure to aluminum fume and dust has been associated with lung disease, but this effect is probably due to simultaneous silica exposures.

Antimony: Antimony and its compounds are irritating to the skin and mucous membranes and are systemic poisons. Effects are reported to include a Metallic taste in the mouth, vomiting, colic, loss of appetite and weight, and diarrhea. In addition, dermatitis may result which starts as an inflammation of the hair follicles and can progress through pus formation and sloughing to leave a contracted scar. Chronic inhalation of antimony trioxide is reported to produce a reduction in white blood cells and damage to the liver. Antimony and its compounds have been identified as potential cancer causing agents.

Bismuth: There are no recognized or reported ill effects in an industrial environment that have been traced to bismuth metal. All reported toxicity data has been determined on soluble bismuth pharmaceuticals that are no longer used.

Silicon: Airborne dust generated through the use of handling of this product may result in respiratory and/or eye irritation. Avoid prolonged exposure to concentrations above the recommended exposure limit unless protective equipment is used. IARC: Not classified as a human carcinogen (Group 3); human evidence-inadequate, animal evidence-inadequate.

Selenium: may cause amyotrophic lateral sclerosis, bronchial irritation, gastrointestinal distress, vasopharyngeal irritation, garlic odor on breath and sweat, metallic taste, pallor, irritability, excessive fatigue, loss of fingernails and hair, pulmonary edema, anemia and weight loss.

Phosphorous: Red phosphorus does not react with the air and is extremely insoluble making it harmless. Yellow phosphorus is extremely flammable. The liquid ignites spontaneously in the presence of air. It is normally stored as a solid kept underwater and is transferred as a liquid. Yellow phosphorus is toxic and may produce poisoning if taken by mouth. Chronic poisoning takes the form of general weakness, including anemia, loss of appetite, indigestion, and chronic cough resulting from irritation of the gastrointestinal system and fatty degeneration of the liver.

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, manganese, aluminum, antimony, lead, zinc, tin 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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