



Radiation Products Design, Inc.
 5218 Barthel Industrial Drive Albertville, MN 55301
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RPD is an Authorized Distributor

Item # 879-158
 Low Melting Alloy



MATERIAL SAFETY DATA SHEET

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Section 1. Chemical Product and Company Identification

Product Code	
Product Name NETSPEC 158 BISMUTH, LEAD, TIN, CADMIUM ALLOY	
Manufacturer's Name MCP Metalspecialties, Inc.	Emergency Telephone Number 203-384-0331
Address (Number, Street, City, State, and ZIP Code) 515 Commerce Drive Fairfield, CT 06825-5593	Telephone Number For Information 203-384-0331 Date Prepared JANUARY 1, 2007 Signature of Preparer (optional)

Section 2. Composition / Information on Ingredients

Component	CAS Registry #	wt. %	Exposure Limits	
			ACGIH TLV	OSHA PEL
Bismuth	7440-69-9	50	None	10 µg/m ³ total particulate
Lead	7439-92-1	26.7	0.05 mg/m ³	50 µg/m ³
Tin	7440-31-5	13.3	None	None
Cadmium	7440-43-9	10	10 µg/m ³	5 µg/m ³

Section 3. Hazards Identification

EMERGENCY OVERVIEW

As shipped this product does not present special health hazards. Conditions and work practices which generate dust or fumes should be avoided or controlled. Dust and fumes

may cause health effects.

Repeated exposure to a toxic material may produce general deterioration of health by an accumulation in one or many human organs.

POTENTIAL HEALTH EFFECTS:

EYE CONTACT: Direct contact may cause local irritation. Symptoms are more severe from prolonged overexposure.

INHALATION: ACUTE: Symptoms not visible until 12 - 36 hours: headache, dizziness, irritability, gastrointestinal disturbances, nausea, vomiting, abdominal spasms, severe chest pain and constriction; cough with hemoptysis; shortness of breath; fever, shivering, profuse sweating, weight loss, prostration, pneumonitis, (inflammation of the lungs), pulmonary edema, fatigue and pains in joints, legs and arms.

SKIN CONTACT: Direct contact may cause local irritation. Symptoms are more severe from prolonged overexposure.

INGESTION: Symptoms usually occur in 15 - 30 minutes; salivation, nausea, vomiting, abdominal pain, diarrhea, dizziness, unconsciousness. Chronic over-exposure to Lead

CHRONIC EFFECTS / CARCINOGENICITY: Rhinopharyngitis (nose and throat inflammation), soreness, bleeding, mucosal ulcerations and atrophy, loss of weight, proteinuria, damage to liver, yellow cadmium fringe on teeth, pulmonary emphysema (lung distention) fibrosis, central nervous system damage, anemia, and possible kidney dysfunction.

CADMIUM: NIOSH: occupational carcinogen, NTP: Suspect carcinogen,

OSHA: Possible select carcinogen, IARC: Group 1 carcinogen,

ACGIH: A2-suspected human carcinogen

LEAD: IARC classifies lead and some lead compounds as 2B carcinogens (possibly carcinogenic to humans)

TERATOLOGY (BIRTH DEFECT) INFORMATION:

Pregnant women should be protected from excessive exposure. Lead can cross the placental barrier and it is reported that infants with neurologic disorders have been born to women who have experienced excessive exposure to lead.

REPRODUCTION INFORMATION: Chronic over-exposure to Lead has been implicated as a causative agent for the impairment of male and female reproductive organs, but there is at present no substantiation of the implication.

Section 4. First Aid Measures

INHALATION: If symptoms of respiratory distress occur or there is a known exposure to dense fume, place individual at bed rest. Administer oxygen in the event of breathing difficulty.

EYE CONTACT: Flush with plenty of water for 15 minutes. Contact Physician immediately.

SKIN CONTACT: Flush with plenty of water for 15 minutes. Remove contaminated clothing and laundry before re-use.

INGESTION: Induce vomiting in a conscious individual. Contact Physician immediately.

Section 5. Fire Fighting Measures

FLAMMABLE PROPERTIES:

FLASH POINT: Not Applicable **METHOD USED:** Not Applicable

FLAMMABLE LIMITS

LFL: Not Applicable **UFL:** Not Applicable

EXTINGUISHING MEDIA: No specific agents recommended.

FIRE & EXPLOSION HAZARDS: None known.

FIRE FIGHTING INSTRUCTIONS: Never use water on molten metal.

FIRE FIGHTING EQUIPMENT: Use NIOSH/MSHA approved self-contained breathing apparatus and full protective clothing if involved in fire.

Section 6. Accidental Release Measures

Sweep or scoop up spilled material. For dust, do not clean with compressed air.

Any method of cleanup which minimizes dust is acceptable. Wear approved respiratory protection if the possibility of dust or fume exists. Return spilled material to supplier for reclaim.



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Section 7. Handling and Storage

HANDLING: Use of approved respirators is required for applications where adequate ventilation cannot be provided. Activities which generate dust or fume should be avoided. When melted, the temperature should be kept as low as possible.

PREVENTATIVE HYGIENE IS EXTREMELY IMPORTANT. Do not ingest. Do not breathe dust. No smoking, eating or nail biting in work area. Wash thoroughly before sacking or eating. Shower and change clothes at end of shift. Do not wear contaminated clothes home. Launder clothing before re-use. Do not use compressed air to remove dust from clothing.

STORAGE: Store away from acids in sealed containers in cool, dry location.

Section 8. Exposure Controls / Personal Protection

ENGINEERING CONTROLS: Local exhaust ventilation is recommended for dust and/or fume generating operations where airborne exposures may exceed permissible air concentration.

RESPIRATORY PROTECTION: Where airborne exposures may exceed OSHA/ACGIH permissible air concentrations, the minimum respiratory protection recommended is a negative pressure air purifying respirator with cartridges that are NIOSH/MSHA approved against dust, fumes and mists having a TWA less than 0.05 mg/cu.m.

SKIN PROTECTION: Wear full cover clothing and gloves to minimize skin contact.

EYE PROTECTION: Safety glasses recommended where the possibility of getting dust particles in eyes exists.

EXPOSURE GUIDELINE (S): Lead: OSHA - 0.05 mg/cu.m. ACGIH - 0.15 mg/cu.m.
 Cadmium: ACGIH - TLV-TWA 0.01 mg/cu.m. for total dust
 ACGIH - TLV-TWA 0.002 mg/cu.m. for respirable dust and fumes.

Section 9. Physical and chemical Properties

APPEARANCE: Silver white	PHYSICAL STATE: Solid
BOILING POINT: Cd 1409° F	SOLUBILITY IN WATER: Insoluble
EVAPORATION RATE: Not Applicable	SPECIFIC GRAVITY: 9.6
FREEZING POINT: 159° F	VAPOR DENSITY: Not Applicable
MELTING POINT: 158° F	VAPOR PRESSURE: Not Applicable
MOLECULAR WEIGHT: Not Applicable	VISCOSITY: Not Applicable
ODOR: None	% VOLATILE: Not Applicable
pH: Not Applicable	

Section 10. Stability and Reactivity

CHEMICAL STABILITY: Stable

Contact of Cadmium with hydrazoic acid (HN₃) may result in explosion.

INCOMPATIBILITY: Contact with oxidizers may cause a violent reaction.
 Cadmium will react violently with potassium.

HAZARDOUS DECOMPOSITION PRODUCTS: Oxide fumes upon over-heating.

HAZARDOUS POLYMERIZATION: Will not occur.

Section 11. Toxicological Information

EYE: Not Applicable

SKIN: Not Applicable

ROUTES OF ENTRY: Ingestion. Inhalation

Repeated exposure to a toxic material may produce general deterioration of health by an accumulation in one or many human organs.

The following organs are sensitive to acute and chronic overexposure of cadmium: respiratory system, bone structure, kidneys, prostate and blood. Chronic overexposure to cadmium may produce these signs and symptoms: shortness of breath, cough, osteoporosis and proteinuria.

Workers with the following conditions warrant particular attention: Osteoporosis, chronic kidney disease and emphysema.

CHRONIC/CARCINOGENICITY: Cadmium: Carcinogenic effects proven by IARC

TERATOLOGY: Not Applicable

REPRODUCTION: Chronic over-exposure to Lead has been implicated as a causative agent for the impairment of male and female reproductive organs, but there is at present no substantiation of the implication.

MUTAGENICITY: Lead tested positive as a mutagen in the Ames test.

SENSITIZATION: Not Applicable

Section 12. Ecological Information

ECOTOXICOLOGICAL INFORMATION: The LC50 of lead for the daphnia magna is 3.5 mg/L, and 5.1 mg/L for the daphnia pulex.

FATE INFORMATION: Lead is bioaccumulative in most aquatic life and mammals. It is highly mobile as lead dust or fume, yet forms complexes with organic material which limit its mobility.

Section 13. Disposal Considerations

Collect used and scrap material for reclaim. Return to supplier for reclaim or reprocessing.

Section 14. Transport Information (Not meant to be all inclusive)

D.O.T. SHIPPING NAME:	White metal, NIOBEN
TECHNICAL SHIPPING NAME:	Metapac 158
D.O.T. HAZARD CLASS:	Non Hazardous
UN/NA NUMBER:	Not Applicable
PRODUCT EQ (LBS):	Not Applicable
D.O.T. LABEL:	None
D.O.T. Placard:	None
FREIGHT CLASS:	Class 70
PRODUCT LABEL:	Metapac 158