

MATERIAL SAFETY DATA SHEET
B1NiZn-1

UNITED STATES METAL POWDERS, INC.
408 U.S. HIGHWAY 202
FLEMINGTON, NJ 08822

HMIS RATING:
HEALTH: 1*
FLAMMABILITY: 0
REACTIVITY: 0
PERS.

Phone: 908-782-5454
PROTECTION: E

SECTION I. MATERIAL IDENTIFICATION

Material name: NICKEL SILVER Chemical: ALLOY
Item Number: C-300, C-307

SECTION II. INGREDIENTS AND EXPOSURE LIMITS

| Ingredient | CAS Number | % | ACGIH | OSHA |
|------------|------------|-------|----------|--------------|
| | | | TLV-TWA | PEL-TWA |
| COPPER | 7440-50-8 | 60-70 | 1mg/m3 | N/A |
| NICKEL | 7440-02-0 | 15-20 | 1mg/m3 | N/A |
| ZINC | 7440-66-6 | 15-20 | 10mg/m3* | 10; 5 mg/m3* |

*As Zinc oxide, Dust

NOTE: "Total dust" and "Respirable fraction" OSHA/TWA values are listed for Zinc.

SECTION III. PHYSICAL DATA

Appearance & Odor: Dull gray color, odorless.

| | <u>Cu</u> | <u>Ni</u> | <u>Zn</u> |
|----------------------------------|----------------------|-------------------|--------------------|
| Boiling point: | 4653 °F (2567 °C) | 4946 °F (2730 °C) | 1665 °F (907 °C) |
| Evaporation rate: | N/A | N/A | N/A |
| Vapor pressure: 1mm Hg | @2962 °F @1628 °C | @1810 °C | @909 °F @487 °C |
| Specific gravity (H2O=1): | 8.92 | 8.90 | 7.14 |
| Water solubility (%): | INSOLUBLE | INSOLUBLE | INSOLUBLE |
| Melting point: | 1981 °F (1083 °C) | 2651 °F (1455 °C) | 788 °F (420 °C) |
| Vapor density (air=1): | N/A | N/A | N/A |
| % volatile by volume: | N/A | N/A | N/A |
| Molecular weight: | 63.54 | 58.7 | 65.38 |

SECTION IV. FIRE AND EXPLOSION DATA

Flash point: N/A

| | <u>Cu</u> | <u>Ni</u> | <u>Zn</u> |
|----------------------|-----------|-----------|------------|
| Limits: LEL%: | N/A | N/A | 0.5 oz/ft3 |
| UEL%: | N/A | N/A | N/A |

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Extinguishing media: Foam, CO₂, Dry Chemical, Water Fog.

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| SECTION V. REACTIVITY DATA |
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Material is stable. Hazardous polymerization will not occur.

Chemical incompatibilities: Strong alkalis, chlorates, bromates, strong acids, sulfur, mineral acid, ammonium salts, potassium nitrate, selenium, sodium peroxide, tellurium, carbon disulfide, chlorine, chlorine trifluoride, chromic anhydride, fluorine, hydroxylamine, magnesium.

Hazardous decomposition products: Decomposition yields hydrogen and noxious copper compounds.

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| SECTION VI. HEALTH HAZARD INFORMATION |
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*Nickel metal is listed as carcinogenic to humans by the International Agency for Research on Cancer (Group 1); and the U.S. National Toxicology Program. This specific alloy is not listed.

Target organs: Respiratory system, nasal septum, skin, eyes, gastrointestinal, kidneys, liver, cardiovascular system, lungs.

Primary entry route(s): Inhalation, ingestion, skin or eye contact.

Health effects: Copper dusts and mists are eye and mucous membrane irritants, primary skin irritants, and skin sensitizers. Acute exposure may cause metallic taste and nasal ulceration and perforation. Prolonged skin contact may produce sensitization dermatitis. Copper fume is an eye and mucous membrane irritant. Exposure may result in irritation and metal-fume fever, metallic taste, and discoloration of the skin and hair. Ingestion of copper compounds may cause vomiting and collapse. Acute poisoning is characterized by hemolysis, jaundice, anuria, hypotension, and convulsions.

Nickel metal is a pulmonary sensitizer, primary skin irritant and skin sensitizer. Exposure to nickel during refining causes lung cancer. Contact with nickel compounds causes "nickel itch", a form of sensitization with itching, burning, erythema, and eczema. Inhalation of nickel salts irritates the respiratory tract, causing pneumonitis and fever.

If exposed to excessively high temperatures, zinc metal fumes cause metal fume fever.

First aid:

Eye contact: Immediately wash the eyes with large amounts of water, occasionally lifting the lower and upper lids. Seek medical attention immediately. Contact lenses should not be worn.

Skin contact: Wash containment skin with soap and water. Seek medical attention if irritation occurs/persists.

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Inhalation: If a person breathes in large amounts of this chemical, move the person to fresh air at once. If breathing has stopped, perform artificial respiration. Keep the affected person warm and at rest. Seek medical attention as soon as possible.

Ingestion: If this chemical has been swallowed, do not induce vomiting. Seek medical attention immediately.

SECTION VII. SPILL, LEAK AND DISPOSAL PROCEDURES

Spill/Leak procedures: Sweep gently to avoid dust cloud formation.

Disposal: Observe all federal, state or local regulations when storing or disposing of this substance.

SECTION VIII. SPECIAL PROTECTION INFORMATION

Personal protective equipment:

Goggles: Safety goggles with side shields, if needed.

Gloves: Required for those with extreme sensitivity.

Dust mask: Use in confined or enclosed spaces, if needed.

Workplace considerations: Eye-wash fountain, soap and water wash station.

Ventilation: Sufficient ventilation, in volume and pattern, should be provided to keep air contamination below current applicable OSHA permissible limits.

SECTION IX. SPECIAL PRECAUTIONS

Special handling/storage: N/A

SECTION X. CARCINOGENICITY STATUS

Nickel, metal is listed as:

1. **NTP:** Group 2 2. **IARC:** Group 1 3. **OSHA:** Not Listed

SECTION X. SECTION 313 SUPPLIER NOTIFICATION

This product contains the following toxic chemicals subject to the reporting requirement of section 313 of the Emergency Planning and Community Right-To-Know Act of 1986 and of 40 CFR 372:

CAS#

Chemical Names

Percent by Weight

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| | | | |
|-----|-----------|--------|--------|
| 70% | 7440-50-8 | Copper | 60- |
| | 7440-02-0 | Nickel | 15-20% |
| | 7440-66-6 | Zinc | 15-20% |

This information must be included in all MSDSs that are copied and distributed for this material.

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| SECTION XII. EMERGENCY CONTACT |
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CHEMTREC: (800) 424-9300 To be used "ONLY IN THE EVENT OF CHEMICAL EMERGENCIES INVOLVING A SPILL, LEAK, FIRE, EXPOSURE, OR ACCIDENT INVOLVING CHEMICALS".

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| DISCLAIMER OF LIABILITY |
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Date: 03/20/07

Replaces: 1/14/04