


VERSAlloy® 78 Brazing Filler Metal

Section 1: Identification

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| Product Name: | VERSAlloy® 78 Brazing Filer Metal | |
| Issue Date: | June 18, 2001 | |
| Revision Date: | May 28, 2020 (supersedes all previous issues) | |
| Synonyms: | AWS A5.8 BNi-3, AMS 4778 Rev. L | |
| CAS Number(s): | See section 3 | |
| Product Usage: | Brazing Powder | |
| Manufacturer: | Rankin Industries / PMA Division 400 S. Rockefeller Ave. Ontario, CA 91761 | Phone: 909-483-3222 Fax: 909-483-3233 E-Mail: sales@rankin.com Web Site: www.broco-rankin.com |
| Transportation Emergency Number: | Emergency Response & Training Solutions 1-800-924-6804 1-440-349-2700 CIN #: 3730 | |

Section 2: Hazard(s) Identification

| Health – Environmental - Physical | | |
|--|---|---|
| Respiratory and Skin Sensitization | GHS Category 1 |  <p>Danger</p> |
| Target Organ Systemic Toxicity (single exposure) | GHS Category 2 (respiratory apparatus, kidney) | |
| Target Organ Systemic Toxicity (repeated exposure) | GHS Category 1 (respiratory apparatus) | |
| Carcinogenicity | GHS Category 2 (suspected of causing cancer) | |
| Aquatic Toxicity (chronic) | GHS Category 4 (may cause long lasting harmful effects to aquatic life) | |

This product is intended for industrial use by trained individuals. Keep away from children.

Section 3: Composition / Information on Ingredients

| Components of mixture* | CAS Number | Weight percentage** |
|------------------------|------------|---------------------|
| Nickel | 7440-02-0 | Balance |
| Boron | 7440-42-8 | 2.75 – 3.5 |
| Silicon | 7440-21-3 | 4 – 5 |

*This material is a homogenous metallic alloy of the components listed above.
 **This is a general reporting range and is not a product specification.

Exposure limits: See Section 8.

Section 4: First Aid Measures

| Exposure Route | Acute | Chronic (delayed) |
|---------------------|--|---|
| Eye contact | Eye irritation. Flush with water for 15 minutes or until all particles are removed. | If irritation persists, seek medical attention. |
| Skin contact | Itching, irritation or rash. Remove contaminated clothing. Wash skin with mild soap and water. | If irritation or rash persists, seek medical attention. |
| Inhalation | Difficulty breathing, coughing, metal fume fever. Remove exposed person to fresh air. If not breathing administer CPR. | If symptoms persist seek medical attention. |
| Ingestion | Rinse mouth. If large amount, induce vomiting. Seek medical advice. | Seek medical attention. |

Never give anything by mouth to an unconscious person. Treat symptomatically and supportively.

Section 5: Firefighting Measures

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| Suitable Extinguishing Media: | Material is not readily combustible. Do not use water on metal fires, use dry chemical, dry sand or carbon dioxide to smother fire. |
| Specific Hazards during a Fire: | Material may break down in fire and may produce toxic decomposition products associated with ingredients. Extreme oxidizing conditions may cause formation of metal oxides. These oxides may be carcinogens. |
| Protective Equipment: | SCBA and full protective gear is recommended for firefighting. |

Section 6: Accidental Release Measures

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| <ul style="list-style-type: none">Stay out of spill, floor may be slippery.Do not create airborne dust.Do not allow spill to enter floor drains or storm drains.Wear PPE: Respirator and Safety Goggles.Take up with damp sweeping compound or vacuum. Vacuum should be equipped with HEPA filter on exhaust. Transfer into disposal container(s). Dispose by recycling.A spill of greater than 100 lbs. (Nickel RQ 100 lbs., <106µm) which enters the environment requires reporting per OSHA CFR Title 40 Part 372 paragraph 372.4 CERCLA hazardous substance release. |
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Section 7: Handling and Storage

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| <ul style="list-style-type: none">General and/or point ventilation system with dust collection is recommended to ensure exposure to airborne dust is maintained below allowable exposure limits.Wear PPE such as work gloves (or vinyl/latex gloves), safety glasses/goggles. Respiratory protection is recommended, but is required only when exposure limits have been exceeded.Wash hands after use before eating or smoking.Do not eat or smoke in area where material is being used.Store in tightly closed container. For best results, keep product above the ambient dew point temperature.Not a shelf life limited material. |
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Section 8: Exposure Controls / Personal Protection

| Exposure Limits: | | | |
|-----------------------|------------|---|-------------------------------------|
| Components of mixture | CAS Number | OSHA PEL | ACGIH TLV |
| Nickel | 7440-02-0 | 1.0 mg/m ³ | 1.5 mg/m ³ |
| Boron | 7440-42-8 | 15 mg/m ³ (5 mg/m ³ respirable) | 10 mg/m ³ as boron oxide |
| Silicon | 7440-21-3 | 15 mg/m ³ (5 mg/m ³ respirable) | 10 mg/m ³ |

Engineering Controls:

- Local exhaust ventilation may be necessary to control air contaminants to their exposure limits.
- Provide mechanical ventilation for confined spaces or if method of use warrants.

Personal Protective Equipment:

- Gloves – work gloves or non-permeable gloves such as vinyl or latex.
- Eyes – safety glasses/goggles or face shield.
- Clothing – Cover-all, lab coat or normal work clothing.
- Respirator – NIOSH N-95 or N-100 filtering face-piece (dusk mask) or equivalent alternative is recommended for up to 10 times the exposure limits.

Section 9: Physical and Chemical Properties

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| Physical State | Silver / Grey metallic powder |
| Odor | Odorless |
| Odor Threshold | Not applicable |
| PH | Not applicable |
| Melting Point / Freezing Point | 1800°F |
| Boiling Point | Not determined |
| Flash Point | Not determined |
| Evaporation Rate (butyl acetate = 1) | None |
| Flammability | Non-flammable |
| LFL (LEL) lower flammability (explosive) limit | Not applicable |
| UFL (UEL) upper flammability (explosive) limit | Not applicable |
| Vapor Pressure | Not applicable |
| Vapor Density | Not applicable |
| Specific Gravity (Bulk Density) | 8.13 |
| Solubility | Not water soluble |
| Partition Coefficient (n-octanol/water) | Not determined |
| Autoignition Temperature | Not available |
| Decomposition Temperature | Not available |
| % VOC's | 0% |

Section 10: Stability and Reactivity

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| <ul style="list-style-type: none"> Chemical Stability: This material is stable. Possibility of Hazardous Reactions: Hazardous polymerization will not occur. Conditions to Avoid: None Incompatible Materials: Strong acids and/or oxidizers. Hazardous Decomposition Products: Intense heat may produce carbon monoxide and/or carbon dioxide and oxidizing conditions may produce oxides of the ingredients shown in Section 3. Oxides of these ingredients may be carcinogenic. |
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Section 11: Toxicological Information

Likely Routes of Exposure: Skin contact, inhalation of dust.

Skin Contact: May cause sensitivity, dermatitis or allergic reaction.
Contact toxicity data not available. GHS Category 1

Inhalation of Dust: Prolonged inhalation of dust may cause pulmonary irritation, asthma, coughing, shortness of breath.

Ingestion of Dust or powder: Ingestion is not a likely route of exposure.

| Ingredient Name | Oral Toxicity (LD50) | Inhalation Toxicity (LC50) |
|--------------------------|---------------------------|----------------------------|
| Nickel (metallic) | Oral rat LDLo 5,000 mg/kg | * |
| Boron | Oral rat 650 mg/kg | * |
| Silicon | Oral rat 3,160 mg/kg | * |

*Toxicity data not available.

Carcinogenicity: GHS Category 2

| Ingredient Name | NTP Status | | IARC Category | OSHA | CA Prop. 65* |
|--------------------------|------------|-------------|---------------|------|--------------|
| | Known | Anticipated | | | |
| Nickel (metallic) | No | Yes | 2B | No | Yes |
| Boron | No | No | None | No | No |
| Silicon | No | No | None | No | No |

*This product contains a chemical known to the State of California to cause cancer.

Section 12: Ecological Information

- **Aquatic Toxicity:** Acute – None, Chronic – GHS Category 4

Section 13: Disposal Consideration

- Material should be recycled to reclaim scrap metal value.
- If recycling is not possible, dispose of in accordance with local, state, and federal regulations for industrial wastes of this form.

Section 14: Transport Information

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| DOT Classification | Not regulated unless greater than 100 lbs. per inner container. |
| UN Identification Number | Not regulated unless greater than 100 lbs. per inner container. |
| DOT Shipping Description | Not applicable unless greater than 100 lbs. per inner container. |

Section 15: Regulatory Information

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| Toxic Substances Control Act (TSCA) | All ingredients are listed on the TSCA inventory of chemical substances. |
| Superfund Amendments & Reauthorization Act (SARA) | This product contains Nickel and Chromium. |
| Resource Conservation & Recovery Act (RCRA) | This material is not a hazardous waste. It is Recyclable. |
| RoHS & REACH | None |

Hazard Codifications & Labeling Requirements

H317 – May cause an allergic skin reaction (nickel).

H351 – Suspected of causing cancer (nickel, chromium).

H370 – Target organ (acute), respiratory apparatus, kidney.

H372 – Target organ (chronic), respiratory apparatus.

Section 16: Other Information

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| NFPA Numbers (estimated) | Health: 1 | Flammability: 0 | Reactivity: 1 |
|---------------------------------|------------------|------------------------|----------------------|

WHMIS Category: Class D, Division 2: Nickel and Chromium



The information supplied herein follows the guidelines of WHMIS, GHS, OSHA Hazard Communication Standard 29 CFR 1910.1200 and California Proposition 65, to the best of our knowledge, is accurate and complete. The recommended hygiene and handling practices are believed to be appropriate for the use of this material. However, it is up to the end user to review this information and establish their own procedures and guidelines, based upon their particular application(s). Rankin Industries assumes no responsibility for damage or injury resulting from the end use of this product.