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Material Safety Data Sheet

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Silver-Copper-Zinc Brazing Alloys

RCVD-7-10-98

516-520+525
516-530+535
516-540+545

RECEIVED
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MAY 22 98

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SECTION #1 - IDENTIFICATION

Product: Silver-Copper-Zinc Brazing Alloys

Chemical Formula: Alloys of silver, copper, and zinc

The information in this MSDS is applicable to products with the following product codes: Bimet 962 (21-962), Braze 051 (32-051), Braze 058 (32-058),Braze 059 (32-059), Braze 070 (32-070), Braze 090 (32-090), Braze 180 (32-180), Braze 202 (32-202), Braze 250 (32-250), Braze 300 (32-300), Braze 350 (32-350), Braze 351 (32-351), Braze 400 (32-400), Braze 401 (32-401), Braze 450 (32-450), Braze 451 (32-451), Braze 453 (32-453), Braze 501 (32-501), Braze 600 (32-600), Braze 650 (32-650), Braze 680 (32-680), Braze 681 (32-681), Braze 682 (32-682), Braze 700 (32-700), Braze 750 (32-750), Braze 751 (32-751) Braze 800 (32-800), and Lithobraze 650 (37-650).

SECTION #2 - HAZARDOUS CHEMICAL COMPONENTS

Component: Copper
CAS Number: 7440-50-8
OSHA PELs: 0.1 mg/m3 TWA (fume)
1 mg/m3 TWA (dusts and mists)
Percent of Mixture: 13.0 to 58.0
ACGIH TLVs: 0.2 mg/m3 TWA (fume)
1 mg/m3 TWA (dusts and mists)

Component: Silver
CAS Number: 7440-22-4
OSHA PEL: 0.01 mg/m3 TWA
Percent of Mixture: 5.0 to 80.0
ACGIH TLV: 0.1 mg/m3 TWA (metal)

Component: Zinc
CAS Number: 7440-66-6
OSHA PEL (as ZnO fume):
5 mg/m3 TWA
Percent of Mixture: 3.0 to 38.0
ACGIH TLVs (as ZnO fume):
5 mg/m3 TWA; 10 mg/m3 STEL

SECTION #3 - PHYSICAL DATA

Melting Point: 1235-1545 F 670-840 C
Vapor Pressure: Not Applicable (N/A)
Specific Gravity: 8.48-10.0
Solubility (H2O): Insoluble
Percent Volatiles: N/A

SECTION #3 - PHYSICAL DATA Continued...

Appearance

Odorless white to brass yellow metal in forms of wire, rod, strip, powder, grain, preformed shapes, or clad alloys.

SECTION #4 - FIRE FIGHTING & EXPLOSION DATA

Fire and Explosion Hazards

These products may react vigorously or ignite when exposed to flame and/or incompatible materials (see Section #6). If present in a fire or explosion, they will emit fumes of the constituent metals and/or metal oxides.

Extinguishing Media

Use dry chemical. Do not use water.

Special Fire Fighting Instructions

If fighting a fire in which these products are present, wear a self-contained breathing apparatus with full facepiece operated in pressure-demand or other positive pressure mode.

SECTION #5 - EXPOSURE EFFECTS and FIRST AID

Route of Exposure - Inhalation

Inhalation of the components of these products is not known to present a significant risk to health when used according to instructions and with appropriate protective measures (see Section #8). Inhalation of component elements has been reported to cause one or more of the following symptoms and effects upon excessively high or prolonged exposure:

- COPPER: Acute exposure may cause respiratory tract irritation, fever, muscle ache, chills, cough, weakness, and a metallic taste. Chronic exposure may damage the liver, kidney, spleen, pancreas, and brain.

- SILVER: Chronic exposure may produce argyria, a permanent blue-gray discoloration of the skin, eyes, mucous membranes, and respiratory tract.

- ZINC: Acute exposure to zinc oxide fume may cause respiratory tract irritation and "metal fume fever", which is characterized by a metallic taste, cough, dry throat, chills, fever, tightness of chest, headache, nausea, shortness of breath, vomiting, and fatigue.

SECTION #5 - EXPOSURE EFFECTS and FIRST AID Continued...

First Aid - Inhalation

If signs and symptoms of toxicity are observed, remove subject from area, administer oxygen, and seek medical attention. Keep the subject warm and at rest. Perform artificial respiration if breathing has stopped.

Route of Exposure - Skin

Skin contact with these products in finely-divided forms may cause argyria, irritation, discoloration, and/or contact dermatitis.

First Aid - Skin

Remove contaminated clothing. Wash affected area with large quantities of water for at least five minutes. Seek medical assistance if necessary.

Route of Exposure - Eyes

Eye contact with these products in finely-divided forms may cause irritation, argyria, conjunctivitis, and/or ulceration of the cornea.

First Aid - Eyes

Flush affected areas with water for at least fifteen minutes. Seek medical assistance if necessary.

Route of Exposure - Ingestion

Ingestion of these products in finely-divided forms may cause nausea, vomiting, and gastrointestinal irritation. Long-term chronic ingestion may damage the liver, kidneys, gastrointestinal system, and nervous system.

First Aid - Ingestion

If subject is conscious, induce vomiting. If unconscious or convulsive, seek immediate medical assistance.

Miscellaneous Toxicological Information

Carcinogenicity: None of the components of these products are classified as potential or demonstrated human carcinogens by IARC, NTP, or OSHA.

Health Conditions Aggravated By Exposure

Pre-existing pulmonary diseases (e.g., bronchitis, asthma) may be aggravated by inhalation exposure, particularly as fume. Chronic exposure by inhalation and/or ingestion may aggravate pre-existing diseases of the liver, kidneys, gastrointestinal system, and nervous system.

SECTION #6 - REACTIVITY & POLYMERIZATION

Conditions to Avoid (Stability)

Stable at room temperature. Silver and copper can form unstable acetylides upon contact with acetylene gas.

Incompatible Materials

Strong oxidizers; chlorates; NH_3; HNO_3; azides, ethanol, ethylene imine; ClF_3; inorganic and organic peroxides; peroxyformic acid; chlorine; fluorine; permonosulfuric acid; CrO_3; Mn and Ca chlorides; CS_2; hydrazine mononitrate; nitrobenzene; ferric carbonyl; seleninyl bromide.

Hazardous Decomposition Products

Heating to elevated temperatures may liberate metal/metal oxide fumes. Hazardous polymerization will not occur.

SECTION #7 - SPILL, LEAK, & DISPOSAL PROCEDURES

Steps to be Taken in The Event of Spills, Leaks, or Release

If a finely-divided form of product is spilled, clean up spillage so as to minimize dispersion of dust. Wet sweeping or vacuuming using HEPA filtration are recommended.

Waste Disposal Methods

Consult the manufacturer for disposition of unused or unusable product.

SARA Title III Notifications and Information

SARA Title III - Hazard Classes: Acute Health Hazard
Chronic Health Hazard

SECTION #7 - SPILL, LEAK, & DISPOSAL PROCEDURES Continued...

SARA Title III Notifications and Information

SARA Title III - Section 313 Supplier Notification:

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

CAS #	Chemical Name	Percent of Mixture
7440-50-8	Copper	13.0 - 58.0
7440-22-4	Silver	5.0 - 80.0
7440-66-6	Zinc	3.0 - 38.0

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

SECTION #8 - SPECIAL PROTECTIVE MEASURES

Ventilation

Use appropriate ventilation (e.g., dilution, local exhaust) adequate to maintain concentrations of all components and their decomposition byproducts to within their respective OSHA PELs or other applicable standards.

Eye Protection

Wear eye protection adequate to prevent eye contact with finely-divided forms of product and eye injury from the hazards of brazing. Plastic-frame spectacles with side shields and filter lenses (shade #3 or #4) are recommended.

Skin Protection

Wear appropriate protective gloves and clothing to prevent skin injuries from the hazards of brazing and/or for prolonged or repeated contact with finely-divided forms of product. Avoid flammable fabrics.

Respiratory Protection

If an exposure level exceeds an OSHA PEL(s) or other applicable standard, use a NIOSH-approved respirator having a configuration (class, type of facepiece, filter media, assigned protection factor, etc.) appropriate to the concentration of the contaminant(s) generated. For guidance on selection and use of respiratory protection, consult American National Standard Z88.2 (ANSI, New York, NY 10036 USA).

SECTION #8 - SPECIAL PROTECTIVE MEASURES Continued...

Work/Hygienic Practices

To minimize the possibility of ingestion, wash hands and face before eating, drinking, applying cosmetics, or using tobacco.

SECTION #9 - SPECIAL PRECAUTIONS - STORAGE & HANDLING

Storage & Handling Conditions

Do not store in proximity to incompatible materials (see Section #6).

SECTION #10 - SHIPPING INFORMATION

Hazard Class: Shipment not controlled by USDOT/ICAO/IMO regulations.

DISCLAIMER OF EXPRESSED AND IMPLIED WARRANTIES

Although reasonable care has been taken in the preparation of this document, we extend no warranties and make no representations as to the accuracy or completeness of the information contained therein, and assume no responsibility regarding the suitability of this information for the user's intended purposes or for the consequences of its use. Each individual should make a determination as to the suitability of the information for their particular purpose(s).