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3146

Material Safety Data Sheet

Page: 1  
Rev. Date  
02/03/98

Silver-Copper-Zinc Brazing Alloys

1. CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

ALY00013

Lucas-Milhaupt, Inc.  
A Handy & Harman Company  
5656 South Pennsylvania Avenue  
Cudahy, WI 53110 USA

TELEPHONE NUMBER: (414)769-6000

EMERGENCY TELEPHONE NUMBER

Chemtrec (800)424-9300

PRODUCT NAME: 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).

2. COMPOSITION/INFORMATION ON INGREDIENTS

INGREDIENT: Copper

CAS NUMBER: 7440-50-8	PERCENT BY WEIGHT: 13 to 58
OSHA PELs: 0.1 mg/m3 TWA (fume)	ACGIH TLVs: 0.2 mg/m3 TWA (fume)
1 mg/m3 TWA (dusts and mists)	1 mg/m3 TWA (dusts and mists)

INGREDIENT: Silver

CAS NUMBER: 7440-22-4	PERCENT BY WEIGHT: 5 to 80
OSHA PEL: 0.01 mg/m3 TWA	ACGIH TLV: 0.1 mg/m3 TWA (metal)

INGREDIENT: Zinc

CAS NUMBER: 7440-66-6	PERCENT BY WEIGHT: 3 to 38
OSHA PEL (as ZnO fume):	ACGIH TLVs (as ZnO fume):
5 mg/m3 TWA	5 mg/m3 TWA; 10 mg/m3 STEL

3. HAZARDS IDENTIFICATION

POTENTIAL HEALTH EFFECTS

EYES

Eye contact with these products in finely-divided forms may cause irritation,

3146

Material Safety Data Sheet

Page: 2  
Rev. Date  
02/03/98

Silver-Copper-Zinc Brazing Alloys

3. HAZARDS IDENTIFICATION - Continued

EYES - Continued

argyria, conjunctivitis, and/or ulceration of the cornea.

SKIN

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

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.

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.

4. FIRST AID MEASURES

EYES

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

SKIN

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

3146

Material Safety Data Sheet

Page: 3  
Rev. Date  
02/03/98

Silver-Copper-Zinc Brazing Alloys

4. FIRST AID MEASURES - Continued

INGESTION

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

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.

5. FIRE FIGHTING MEASURES

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.

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.

6. ACCIDENTAL RELEASE MEASURES

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.

7. HANDLING AND STORAGE

HANDLING AND STORAGE PRECAUTIONS

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

WORK/HYGIENIC PRACTICES

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

3146

Material Safety Data Sheet

Page: 4  
Rev. Date  
02/03/98

Silver-Copper-Zinc Brazing Alloys

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

ENGINEERING CONTROLS

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/FACE 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).

9. PHYSICAL AND CHEMICAL PROPERTIES

APPEARANCE

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

BASIC PHYSICAL PROPERTIES

MELTING POINT: 1235-1545 F 670-840 C  
VAPOR PRESSURE: Not Applicable (N/A)  
SPECIFIC GRAVITY: 8.48-10.0  
SOLUBILITY (H<sub>2</sub>O): Insoluble  
PERCENT VOLATILES: N/A

10. STABILITY AND REACTIVITY

CONDITIONS TO AVOID (STABILITY)

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

3146

Material Safety Data Sheet

Page: 5  
Rev. Date  
02/03/98

Silver-Copper-Zinc Brazing Alloys

10. STABILITY AND REACTIVITY - Continued

INCOMPATIBLE MATERIALS

Strong oxidizers; chlorates; NH<sub>3</sub>; HNO<sub>3</sub>; azides, ethanol, ethylene imine; ClF<sub>3</sub>; inorganic and organic peroxides; peroxyformic acid; chlorine; fluorine; permonosulfuric acid; CrO<sub>3</sub>; Mn and Ca chlorides; CS<sub>2</sub>; 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.

11. TOXICOLOGICAL INFORMATION

MISCELLANEOUS TOXICOLOGICAL INFORMATION

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

MEDICAL 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.

12. ECOLOGICAL INFORMATION

NO DATA GIVEN

13. DISPOSAL CONSIDERATIONS

Consult the manufacturer for disposition of unused or unusable product.

14. TRANSPORT INFORMATION

HAZARD CLASS: Shipment not controlled by USDOT/ICAO/IMO regulations.

3146

Material Safety Data Sheet

Page: 6  
Rev. Date  
02/03/98

Silver-Copper-Zinc Brazing Alloys

15. REGULATORY INFORMATION

SARA TITLE III NOTIFICATIONS AND INFORMATION

SARA TITLE III - HAZARD CLASSES: Acute Health Hazard  
Chronic Health Hazard

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 NUMBER	INGREDIENT NAME	PERCENT BY WEIGHT
7440-50-8	Copper	13 to 58
7440-22-4	Silver	5 to 80
7440-66-6	Zinc	3 to 38

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

16. OTHER INFORMATION

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).