

REC'D MAR 23 2000

1754

Material Safety Data Sheet

Page: 1
Rev. Date
01/19/98

Silver-Copper-Phosphorus Brazing Alloys

1. CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

ALY00001

ALY00005

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-Phosphorus Brazing Alloys
CHEMICAL FORMULA: Alloys of silver, copper, and phosphorus

The information in this MSDS is applicable to the following products (with respective product codes): Braze 719 (32-719), Sil-Fos & Sil-Fos 15 (71-150); Sil-Fos 2 (71-020); Sil-Fos 2M (71-017); Sil-Fos 5 (71-050); Sil-Fos 5F (71-052); Sil-Fos 6 (71-060); Sil-Fos 6M (71-062); Sil-Fos 6i (71-063); Sil-Fos 10 (71-100); Sil-Fos 18 (71-180) and Sil-Fos 18M (71-181).

2. COMPOSITION/INFORMATION ON INGREDIENTS

INGREDIENT: Copper

CAS NUMBER: 7440-50-8	PERCENT BY WEIGHT: 27 to 92.6
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: 0.9 to 73
OSHA PEL: 0.01 mg/m3 TWA	ACGIH TLV: 0.1 mg/m3 TWA (metal)

INGREDIENT: Phosphorus

CAS NUMBER: 7723-14-0	PERCENT BY WEIGHT: 0.01 to 7.25
No applicable OSHA PEL(s)	No applicable ACGIH TLV(s)

3. HAZARDS IDENTIFICATION

POTENTIAL HEALTH EFFECTS

EYES

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

SKIN

Skin contact with these products in finely-divided forms may cause argyria,

1754

Material Safety Data Sheet

Page: 2
Rev. Date
01/19/98

Silver-Copper-Phosphorus Brazing Alloys

3. HAZARDS IDENTIFICATION - Continued

SKIN - Continued

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, and gastrointestinal 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.
- » PHOSPHORUS: The red form of phosphorus is stable and relatively non-toxic at room temperature. When heated in the presence of air, it is converted to phosphorus pentoxide, which is corrosive and irritating to the eyes, nose, throat, and mucous membranes.
- » SILVER: Chronic exposure may produce argyria, a permanent blue-gray discoloration of the skin, eyes, mucous membranes, and respiratory tract.

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.

INGESTION

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

1754

Material Safety Data Sheet

Page: 3

Silver-Copper-Phosphorus Brazing Alloys

Rev. Date

01/19/98

4. FIRST AID MEASURES - Continued

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

In finely-divided form, these products may ignite when exposed to flame or by reaction with incompatible materials (see Section #6). If present in a fire or explosion, they may emit fumes of the constituent metals or metal oxides and phosphorus pentoxide.

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.

1754

Material Safety Data Sheet

Page: 4
Rev. Date
01/19/98

Silver-Copper-Phosphorus 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 light-copper metals in form of wire, rod, strip, powder, tape, grain, or preformed shapes.

BASIC PHYSICAL PROPERTIES

MELTING POINT: ca. 1190 F ca. 645 C
VAPOR PRESSURE: Not Applicable (N/A)
VAPOR DENSITY (AIR=1): N/A
SPECIFIC GRAVITY: 7.86-8.44
SOLUBILITY (H2O): Insoluble

10. STABILITY AND REACTIVITY

CONDITIONS TO AVOID (STABILITY)

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

1754

Material Safety Data Sheet

Page: 5
Rev. Date
01/19/98

Silver-Copper-Phosphorus Brazing Alloys

10. STABILITY AND REACTIVITY - Continued

INCOMPATIBLE MATERIALS

Ammonia; HNO₃; azides; ethanol; ethylene imine; Mg; chlorates, bromates, and iodates; inorganic and organic peroxides; peroxyformic acid; nitrobenzene; halogens; permonosulfuric acid; SeOCl; SeOF; SeF₄; hydrazine mononitrate; carbon disulfide; ferric carbonyl; seleninyl bromide.

HAZARDOUS DECOMPOSITION PRODUCTS

Heating to elevated temperatures may liberate metal/metal oxide fume and phosphorus pentoxide. 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, and gastrointestinal 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.

1754

Material Safety Data Sheet

Page: 6
Rev. Date
01/19/98

Silver-Copper-Phosphorus 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	27 to 92.6
7440-22-4	Silver	0.9 to 73
7723-14-0	Phosphorus	0.01 to 7.25

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).