

REC'D APR 24 2000

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Material Safety Data Sheet

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Tin-Silver Solder Alloys

1. CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

SLD00002

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: Tin-Silver Solder Alloys
CHEMICAL FAMILY: Solder filler metals
CHEMICAL FORMULA: Alloys of silver and tin

This MSDS is applicable to products with the following codes: Clean N Brite 6 (63-941), 63-953, 63-963, Clean N Brite (63-965), 63-966, 63-969 and 63-975.

2. COMPOSITION/INFORMATION ON INGREDIENTS

INGREDIENT: Silver

CAS NUMBER: 7440-22-4

OSHA PEL: 0.01 mg/m3 TWA

PERCENT BY WEIGHT: 1.6 to 6.5

ACGIH TLV: 0.1 mg/m3 TWA (metal)

INGREDIENT: Tin

CAS NUMBER: 7440-31-5

OSHA PEL: 2 mg/m3 TWA

PERCENT BY WEIGHT: 93.5 to 97

ACGIH TLV: 2 mg/m3 TWA

INGREDIENT: Antimony

CAS NUMBER: 7440-36-0

OSHA PEL: 0.5 mg/m3 TWA (as Sb)

PERCENT BY WEIGHT: 0.01 to 0.5

ACGIH TLV: 0.5 mg/m3 TWA (as Sb)

3. HAZARDS IDENTIFICATION

POTENTIAL HEALTH EFFECTS

EYES

Eye exposure to finely-divided forms of these products may cause irritation, argyria, and/or conjunctivitis.

SKIN

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

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3. HAZARDS IDENTIFICATION - Continued

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, nervous system, 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/or effects upon excessively high or prolonged exposure:

- » ANTIMONY: Acute inhalation exposure may cause respiratory system irritation, pneumonitis, and adverse effects to the heart and lungs. Chronic toxic effects from exposure are reported to include respiratory system irritation, abdominal pain, and loss of appetite.
- » SILVER: Chronic exposure may produce argyria, a permanent blue-gray discoloration of the eyes, skin, mucous membranes, and respiratory tract.
- » TIN: Exposure to tin dust or fume by inhalation can cause stannosis (a benign pneumoconiosis), dyspnea, and respiratory tract irritation.

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.

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.

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5. FIRE FIGHTING MEASURES
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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 may emit fumes of the constituent metals 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.

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6. ACCIDENTAL RELEASE MEASURES
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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.

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7. HANDLING AND STORAGE
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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.

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8. EXPOSURE CONTROLS/PERSONAL PROTECTION
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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 contact with finely-divided forms of product and injury from the hazards of soldering. Plastic-frame spectacles with side shields and filter lenses (shade #3 or #4) are recommended.

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8. EXPOSURE CONTROLS/PERSONAL PROTECTION - Continued
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SKIN PROTECTION

Wear appropriate protective gloves and clothing to prevent skin injuries from the hazards of soldering and 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).

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9. PHYSICAL AND CHEMICAL PROPERTIES
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APPEARANCE

Odorless white metals in form of strip, wire, tape, powder, grain, rod, or preformed shapes.

BASIC PHYSICAL PROPERTIES

VAPOR PRESSURE: Not Applicable (N/A)
VAPOR DENSITY (AIR=1): N/A
SOLUBILITY (H2O): Insoluble
PERCENT VOLATILES: N/A

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10. STABILITY AND REACTIVITY
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CONDITIONS TO AVOID (STABILITY)

Stable at room temperature. Silver can form an unstable acetylide upon contact with acetylene gas.

INCOMPATIBLE MATERIALS

Strong oxidizers; chlorates; NH₃; HNO₃; azides, ethanol, ethylene imine; ClF₃; inorganic and organic peroxides; peroxyformic acid; chlorine; fluorine; permonosulfuric acid; CrO₃; Mn and Ca chlorides; CS₂; 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.

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11. TOXICOLOGICAL INFORMATION

MISCELLANEOUS TOXICOLOGICAL INFORMATION

None of the components of these products are classified as potential or demonstrated 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

Dispose of unused or unusable products in accordance with applicable Federal, State/Provincial, and local regulations.

14. TRANSPORT INFORMATION

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

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
7440-22-4	Silver	1.6 to 6.5

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15. REGULATORY INFORMATION - Continued

CAS NUMBER	INGREDIENT NAME	PERCENT BY WEIGHT
7440-36-0	Antimony	0.01 to 0.5

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).