

Silver-Copper-Nickel-Zinc Alloys

Material Safety Data Sheet

1. Product And Company Identification

Supplier

Lucas Milhaupt, Inc. Handy & Harman of Canada, Ltd.
5656 South
Pennsylvania Ave. 290 Carlingview Drive
Cudahy, WI 53110 Rexdale, ON M9W 5G1

Supplier Emergency Contacts & Phone Number

Lucas-Milhaupt, Inc.: 414-769-6000
Handy & Harman of Canada, Limited: 416-675-1860

Manufacturer

Lucas Milhaupt, Inc. Handy & Harman of Canada, Ltd.
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Issue Date: 06/19/2007

Product Name: Silver-Copper-Nickel-Zinc Alloys

CAS Number: Not Established

MSDS Number: 88

Product Identification Text

The information in this MSDS is applicable to the following products: Alloys 24-703, 30-104, 30-114, 39-506, 39-681; Braze 403 (32-403), Braze 404 (32-404), Braze 505 (32-505), Braze 541 (32-541), Trimet 201 (38-201), Trimet 202 (38-202), 40-075, 69-207, and 70-005.

Alloy 39-506 is coated with a flux that contains potassium fluoride (CASRN 7789-23-3). Because potassium fluoride is <1% of the product by weight, this substance is not required to be listed as a hazardous ingredient in Section #2 by either HAZCOM or WHMIS criteria.

WARNING: These products contain a chemical(s) known to the State of California to cause cancer.

2. Composition/Information On Ingredients

Ingredient Name - (CAS Number) - %

Copper (7440-50-8) 19 - 95
Nickel (7440-02-0) 0.1 - 24

Silver (7440-22-4) 1.5 - 55

Zinc (7440-66-6) 2 - 44

No Data Available...

3. Hazards Identification

Primary Routes(s) Of Entry

Ingestion; inhalation

Eye Hazards

Eye contact with these products in finely-divided forms may cause irritation, conjunctivitis, ulceration of the cornea, and/or argyria, a permanent blue-gray discoloration of the eyes, skin, mucous membranes, and respiratory tract.

Skin Hazards

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

Ingestion Hazards

Ingestion of these products may cause nausea, vomiting, and gastrointestinal irritation.

Inhalation Hazards

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.

NICKEL: Acute exposure to nickel may cause headache, nausea, vertigo, and pulmonary edema. Chronic exposure may increase the risk of cancer to the nasopharynx, lungs, prostate, and kidney.

SILVER: Chronic exposure via inhalation may cause argyria.

ZINC: Acute exposure to zinc oxide 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

Eye

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 attention if necessary. Launder or dry-clean clothing before reuse.

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.

Note To Physician

None of the components are acutely toxic by ingestion, nor are they absorbed through the skin. Extensive or prolonged skin contact may cause contact or allergic dermatitis.

5. Fire Fighting Measures

Flash Point: N/A °F N/A °C
Autoignition Point: N/A °F N/A °C
Flammability Class: N/A
Lower Explosive Limit: N/A
Upper Explosive Limit: N/A
Fire And Explosion Hazards

In finely-divided form, these products may ignite when exposed to flame or by reaction with incompatible materials (see Section #10). 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.

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 Precautions

No special handling precautions are required.

Storage Precautions

Do not store in proximity to incompatible materials (see Section #10).

Work/Hygienic Practices

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

8. Exposure Controls/Personal Protection

Engineering Controls

Use appropriate ventilation (e.g., dilution, local exhaust) adequate to maintain concentrations of all components to within their applicable standards.

Eye/Face Protection

Wear eye protection adequate to prevent eye contact with finely-divided product and eye injury if products are used with a flame. 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 injury if these products are used with a flame. Avoid flammable fabrics.

Respiratory Protection

If an exposure level exceeds an applicable exposure standard, use a NIOSH-approved respirator having a configuration (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).

Ingredient(s) - Exposure Limits

Copper

ACGIH TLVs: 0.2 mg/m³ TWA (fume); 1 mg/m³ TWA (dusts and mists)

OSHA PELs: 0.1 mg/m³ TWA (fume); 1 mg/m³ TWA (dusts and mists)

Nickel

ACGIH TLV: 1.5 mg/m³ TWA OSHA PEL: 1 mg/m³ TWA

Silver

ACGIH TLV: 0.1 mg/m³ TWA (metal) OSHA PEL: 0.01 mg/m³ TWA

Zinc

ACGIH TLVs (as ZnO fume): 5 mg/m³ TWA; 10 mg/m³ STEL

OSHA PEL (as ZnO fume): 5 mg/m³ TWA

9. Physical And Chemical Properties

Appearance

Odorless white to light yellow metals in form of wire, rod, strip, powder, grain, clad alloys, or preformed shapes.

Chemical Type: Mixture

Physical State: Solid

Melting Point: >1220 °F >660 °C

Percent Volatiles: Not Applicable (N/A)

Vapor Pressure: N/A

Vapor Density: N/A

pH Factor: N/A

Solubility: Insoluble

10. Stability And Reactivity

Stability: stable

Hazardous Polymerization: will not occur

Conditions To Avoid (Stability)

Silver and copper can form unstable acetylides if in contact with acetylene gas.

Incompatible Materials

Strong oxidizers; ammonia; ammonium nitrate; azides; nitric acid; ethylene imine; chlorine trifluoride; sulfuric acid; inorganic and organic peroxides; peroxyformic acid; oxalic acid; tartaric acid; 1-bromo-2-propyne; permonosulfuric acid; bromates, chlorates, and iodates of alkali and alkali earth metals; halogens; hydrazine; hydrazoic acid; performic acid; phosphorus; selenium; dioxane; sulfur; titanium plus potassium perchlorate; strong acids; inorganic nitrates; carbon disulfide; hydrazine mononitrate; hydroxylamine; selenium; tellurium.

Hazardous Decomposition Products

Heating to elevated temperatures may liberate metal/metal oxide fumes.

11. Toxicological Information

Reproductive Effects

Nickel has produced fetotoxic and teratogenic effects in animal studies.

Mutagenicity (Genetic Effects)

Nickel has produced mutagenic responses in mammalian cell cultures.

Conditions Aggravated By Overexposure

Pre-existing pulmonary diseases (e.g., bronchitis, asthma) may be aggravated by inhalation overexposure, particularly as fume. Chronic overexposure by

inhalation may aggravate pre-existing diseases of the liver, kidneys, gastrointestinal system, nervous system, and musculoskeletal system.

Ingredient(s) - Carginogenicity

Nickel

NTP - Listed On The National Toxicology Program
Listed In The IARC Monographs

Ingredient(s) - Toxicological Data

Copper

LD50: No data available LC50: No data available

Nickel

LD50: 5 gm/kg (oral/rat) LC50: No data available

Silver

LD50: >5 gm/kg (oral/guinea pig) LC50: No data available

Zinc

LD50: No data available LC50: No data available

12. Ecological Information

In their intended manner of use, these products should not be released into the environment, and adverse effects on ecosystems are not anticipated under recommended conditions of use, storage, and disposal.

13. Disposal Considerations

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

14. Transport Information

These products are not classifiable as Hazardous Substances or Dangerous Goods per USDOT, TDG (Canada), IATA, or IMO regulations.

15. Regulatory Information

SARA Hazard Classes

Acute Health Hazard; Chronic Health Hazard

Ingredient(s) - U.S. Regulatory Information

Copper

SARA Title III - Section 313 Form "R"/TRI Reportable Chemical

Nickel

SARA Title III - Section 313 Form "R"/TRI Reportable Chemical

Silver

SARA Title III - Section 313 Form "R"/TRI Reportable Chemical

Ingredient(s) - State Regulations

Nickel

California - Proposition 65

Canadian Regulatory Information

WHMIS Class(es) and Division(s): D2A, D2B

Component(s) on Ingredients Disclosure List:

1. Copper, elemental (CASRN 7440-50-8)
2. Nickel, elemental (CASRN 7440-02-0)
3. Silver, elemental (CASRN 7440-22-4)

16. Other Information

Revision/Preparer Information

This MSDS Supersedes A Previous MSDS Dated: 11/12/2004

Disclaimer

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).

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