Braze Core Silver, Copper, Zinc, Nickel

Material Safety Data Sheet

1. Product And Company Identification

Supplier

Lucas-Milhaupt, Inc.
A Handy & Harman Company
5656 South Pennsylvania Avenue
Cudahy, WI 53110
Telephone Number: 414-769-6000
FAX Number: 414-769-1093

Supplier Emergency Contacts & Phone Number

Chemtrec: (800) 424-9300

Manufacturer

Lucas-Milhaupt, Inc.
A Handy & Harman Company
5656 South Pennsylvania Avenue
Cudahy, WI 53110
Telephone Number: 414-769-6000
FAX Number: 414-769-1093

Manufacturer Emergency Contacts & Phone Number

Chemtrec: (800) 424-9300

Issue Date: 09/02/2008
Product Name: Braze Core Silver, Copper, Zinc, Nickel
CAS Number: Not Established
Chemical Family: Brazing alloy, flux-cored
MSDS Number: 469
Product Code: 30-504; 30-505; 30-506; 30-507; 30-508; 30-509; 30-510; 30-511

Product Identification Text

WARNING: This product contains a chemical(s) known to the State of California to cause cancer.

2. Composition/Information On Ingredients

Ingredient Name - (CAS Number) - %

Boric acid (10043-35-3) 1 - 8
Copper (7440-50-8) 16 - 19
Nickel (7440-02-0) 1 - 2
Potassium fluoborate (14075-53-7) 1 - 6
Potassium fluoride (7789-23-3) 1 - 7
Potassium tetraborate (12045-78-2) 1 - 4
Silver (7440-22-4) 40 - 46
Zinc (7440-66-6) 22 - 26

No Data Available...

3. Hazards Identification

Primary Routes(s) Of Entry

Inhalation.

Eye Hazards

Except for the potential for physical injury, eye exposure to this product is not a plausible mode of exposure.

Skin Hazards

Except for the potential for physical injury, skin contact with this product is not a plausible mode of exposure.

Ingestion Hazards

Ingestion of this product, as a solid, is not a plausible mode of exposure.

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:

BORIC ACID: Irritation may irritate the nose, throat, and respiratory system. Chronic exposure to boric acid may cause borism, a condition characterized by skin eruptions and gastrointestinal illness.

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

POTASSIUM FLUOBORATE: Inhalation may irritate the nose, throat, and respiratory tract. Chronic exposure may cause fluorosis, a disease characterized by mottled teeth, osteosclerosis, and pain and loss of mobility in joints.

POTASSIUM FLUORIDE: Acute exposure may irritate the nose, throat, and respiratory tract, and cause cough, nose bleeds, nausea, vomiting, chest tightness, chills, fever, tearing, pneumonitis, and pulmonary edema. Chronic exposure may cause liver and kidney damage, impaired pulmonary function, and fluorosis (a disease characterized by mottled teeth, osteosclerosis, and pain and loss of mobility in joints).

POTASSIUM TETRABORATE: Inhalation may irritate the nose, throat, and respiratory tract. Chronic exposure to borates may cause borism, which is characterized by dry skin, skin eruptions, and gastrointestinal stress.

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

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

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

The component potassium fluoride is acutely toxic. Inhalation is the only plausible mode of exposure, as the component is within the core of the wire. Treat fluoride intoxication symptomatically.

5. Fire Fighting Measures

Flash Point: N/Appl. °F N/Appl. °C
Autoignition Point: N/Appl. °F N/Appl. °C
Lower Explosive Limit: N/Appl.
Upper Explosive Limit: N/Appl.

Fire And Explosion Hazards

This product is non-flammable and non-explosive. However, if present in a fire or explosion, it may emit fumes of the constituent metals or metal oxides, gaseous and particulate fluorides, and boron oxide.

Fire Fighting Instructions

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

6. Accidental Release Measures

Not applicable.

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 from the hazards of brazing. Plastic-frame spectacles with side shields and filter lenses (shade #3/#4) are recommended.

Skin Protection

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

Boric acid

ACGIH TLVs: 2 mg/m3 TWA; 6 mg/m3 STEL	No OSHA PEL(s)

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
Potassium fluoborate
    ACGIH TLV: 2.5 mg/m3 TWA (as F-) OSHA PEL: 2.5 mg/m3 TWA (as F-)
Potassium fluoride
    ACGIH TLV: 2.5 mg/m3 TWA (as F-) OSHA PEL: 2.5 mg/m3 TWA (as F-)
Potassium tetraborate
    No ACGIH TLV(s) No OSHA PEL(s)
Silver
    ACGIH TLV: 0.1 mg/m3 TWA (metal) OSHA PEL: 0.01 mg/m3 TWA
Zinc
    ACGIH TLVs (as ZnO): 2 mg/m3 TWA; 10 mg/m3 STEL (both as respirable fractions)
    OSHA PEL: 5 mg/m3 TWA (as ZnO fume)

9. Physical And Chemical Properties

Appearance

Odorless light yellow metal in the form of flux-cored wire.

Chemical Type: Mixture
Physical State: Solid
Melting Point: approx. 1220 °F approx. 660 °C
Solubility: Insoluble

Other commonly-reported physical properties (odor threshold, evaporation rate, vapor pressure, vapor density, oil-water partition coefficient, percent volatiles, percent VOCs, pH, viscosity) are not applicable to this product.

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

Hazardous Decomposition Products

Heating to elevated temperatures may liberate fumes of the constituent metals or their oxides, gaseous and particulate fluorides, and boron oxide.

11. Toxicological Information

Reproductive Effects

BORATES/BORIC ACID: In high-dose animal feeding studies, boric acid and borate salts have demonstrated effects on fertility in females and testicular effects in males. Similar animal feeding studies with boric acid have demonstrated developmental effects in fetuses, including fetal weight loss and skeletal variations. Under representative conditions of occupational exposure to borate compounds, adverse reproductive effects in humans have not been observed.

NICKEL: Nickel has produced fetotoxic and teratogenic effects in animal studies.

Mutagenicity (Genetic Effects)

FLUORIDES: Inorganic fluoride compounds have been demonstrated to induce mutagenic changes in mammalian cell in culture. The significance of these findings to human health risks is unknown.

NICKEL: Nickel has produced mutagenic responses in mammalian cell cultures.

Conditions Aggravated By Overexposure

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

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

Ingredient(s) - Carginogenicity

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

Ingredient(s) - Toxicological Data

Boric acid
LD50: 2,660 mg/kg (oral/rat) LC50: No data available
Copper
LD50: No data available LC50: No data available
Nickel
LD50: >9,000 mg/kg (oral/rat) LC50: No data available
Potassium fluoborate
LD50: 5,854 mg/kg (oral/rat) LC50: No data available
Potassium fluoride
LD50: 245 mg/kg (oral/rat) LC50: No data available
Potassium tetraborate
LD50: >3,500 mg/kg (oral/rat) LC50: No data available
Silver
LD50: >2,000 mg/kg (oral/rat) LC50: No data available
Zinc
LD50: No data available LC50: No data available

12. Ecological Information

In its intended manner of use, this product 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

This product is not a Hazardous Substance or Dangerous Goods per USDOT, TDG (Canada), IATA, or IMO regulations.

15. Regulatory Information

U.S. Regulatory Information

All components of this product are listed in the EPA's TSCA Inventory.

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

All components of this product are listed in the Domestic Substances List.
WHMIS Class(es) and Division(s): D1B, D2A, D2B
Component(s) on Ingredients Disclosure List:

1. Boric acid (CASRN 10043-35-3)
2. Copper, elemental (CASRN 7440-50-8)
3. Fluoride compounds, inorganic, n.o.s.

4. Nickel, elemental (CASRN 7440-02-0)
5. Silver, elemental (CASRN 7440-22-4)

16. Other Information

Revision/Preparer Information

This MSDS Supersedes A Previous MSDS Dated: 11/09/2004

Disclaimer

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Lucas-Milhaupt, Inc.