

Braze Core Silver, Copper, Zinc, Nickel

Material Safety Data Sheet

1. Product And Company Identification

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Supplier

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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

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800-424-9300 (Chemtrec):

Manufacturer

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

Manufacturer Emergency Contacts & Phone Number

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800-424-9300 (Chemtrec):

Issue Date: 07/29/2004  
Product Name: Braze Core Silver, Copper, Zinc, Nickel  
CAS Number: Not Established  
Chemical Family: Brazing alloy, flux-cored  
MSDS Number: 469  
Product Code: 30-505, 30-506, 30-507, 30-508, 30-511

Product Identification Text

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

2. Composition/Information On Ingredients

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Ingredient Name - (CAS Number) - %

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

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 this product 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:** Inhalation of boric acid may irritate the nose, throat, and respiratory system. Chronic exposure may cause borism, which is characterized by dry skin, skin eruptions, and gastrointestinal disturbances.

**BORATES/FLUOBORATES:** Inhalation may irritate the nose, throat, and respiratory system.

**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.

**POTASSIUM FLUORIDE:** Inhalation 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 abdominal pain and cramps, liver and kidney damage, impaired pulmonary function, and fluorosis (a disease characterized by mottled teeth, osteosclerosis, and pain and loss of mobility in joints).

**SILVER:** Chronic exposure via inhalation may cause argyria, a permanent 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

##### 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

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### Engineering Controls

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

### Eye/Face Protection

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Wear eye protection adequate to prevent eye injury from the hazards of brazing. Plastic-frame spectacles with side shields and filter lenses (shade #3 or #4) are recommended.

### Skin Protection

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

### Respiratory Protection

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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

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#### Boric acid

No ACGIH TLV(s)                      No OSHA PEL(s)

#### Copper

ACGIH TLVs: 0.2 mg/m<sup>3</sup> TWA (fume); 1 mg/m<sup>3</sup> TWA (dusts and mists)

OSHA PELs: 0.1 mg/m<sup>3</sup> TWA (fume); 1 mg/m<sup>3</sup> TWA (dusts and mists)

#### Nickel

ACGIH TLV: 1.5 mg/m<sup>3</sup> TWA                      OSHA PEL: 1 mg/m<sup>3</sup> TWA

#### Potassium fluoborate

ACGIH TLV: 2.5 mg/m<sup>3</sup> TWA (as F-).                      OSHA PEL: 2.5 mg/m<sup>3</sup> TWA (as F-)

#### Potassium fluoride

ACGIH TLV: 2.5 mg/m<sup>3</sup> TWA (as F-).                      OSHA PEL: 2.5 mg/m<sup>3</sup> TWA (as F-)

#### Potassium tetraborate

No ACGIH TLV(s)                      No OSHA PEL(s)

#### Silver

ACGIH TLV: 0.1 mg/m<sup>3</sup> TWA (metal)                      OSHA PEL: 0.01 mg/m<sup>3</sup> TWA

#### Zinc

ACGIH TLVs: 5 mg/m<sup>3</sup> TWA; 10 mg/m<sup>3</sup> STEL (as ZnO fume)

OSHA PEL: 5 mg/m<sup>3</sup> TWA (as ZnO fume)

## 9. Physical And Chemical Properties

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### Appearance

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

Chemical Type: Mixture  
Physical State: Solid  
Melting Point: ca. 1220 °F ca. 660 °C  
Percent Volitales: Not Applicable (N/A)  
Vapor Pressure: N/A  
Solubility: Insoluble

#### 10. Stability And Reactivity

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Stability: stable  
Hazardous Polymerization: will not occur  
Conditions To Avoid (Stability)  
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Silver and copper can form unstable acetylides if in contact with acetylene gas.

#### Incompatible Materials

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Strong acids; ammonia; 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; ammonium nitrate; halogens; hydrazine; hydrazoic acid; performic acid; phosphorus; selenium; dioxane; sulfur; titanium plus potassium perchlorate.

#### Hazardous Decomposition Products

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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

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In experimental animal studies, inorganic borate compounds and boric acid have been found to cause decreased sperm production and testicular effects in male rats, and developmental effects in fetuses of exposed female mice. No human reproductive effects attributable to occupational exposure to borates or boric acid have been established.

Nickel has produced fetotoxic and teratogenic effects in animal studies.

##### Mutagenicity (Genetic Effects)

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

##### Conditions Aggravated By Overexposure

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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

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Boric acid  
LD50: 2660 mg/kg (oral/rat). LC50: No data available.  
Copper  
LD50: No data available LC50: No data available  
Nickel  
LD50: 5 gm/kg (oral/rat) LC50: No data available  
Potassium fluoborate  
LD50: No data available LC50: No data available  
Potassium fluoride  
LD50: 245 mg/kg (oral/rat) LC50: No data available  
Potassium tetraborate  
LD50: No data available LC50: No data available  
Silver  
LD50: No data available LC50: No data available  
Zinc  
LD50: No data available LC50: No data available

12. Ecological Information

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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

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

14. Transport Information

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This product is not a Hazardous Substance or Dangerous Goods per USDOT/TDG/IATA/IMO regulations.

15. Regulatory Information

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SARA Hazard Classes

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Acute Health Hazard; Chronic Health Hazard

Ingredient(s) - U.S. Regulatory Information

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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): 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 Superceeds A Previous MSDS Dated: 03/19/2003

Disclaimer

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Lucas-Milhaupt, Inc.