Alloys 77-818/77-819/77-820/77-821/77-822

Safety Data Sheet

## 1. Product and Company Identification

### Manufacturer

Lucas Milhaupt, Inc.
5656 South Pennsylvania Avenue
Cudahy, WI 53110 USA
Telephone: 414-769-6000
www.lucasmilhaupt.com

### Emergency Phone Number

Chemtrec: 800-424-9300

SDS Number: 242

Product Codes: 77-818, 77-819, 77-820, 77-821, 77-822

Product Use(s): Alloys for brazing and other metallurgical processes

## 2. Hazards Identification

### Classifications

Sensitization, Skin: Hazard Category 1B
Carcinogenicity: Hazard Category 2

Label Symbol(s): Health Hazard, Exclamation Point

Label Signal Word(s): Warning

### Label Hazard Statement(s)

May cause an allergic skin reaction.
Suspected of causing cancer by inhalation.

### Label Precautionary Statement(s)

Do not handle until all safety precautions have been read and understood.
Obtain special instructions before use. Store locked up.
Avoid breathing dust or fumes.
Wear protective gloves and eye/face protection.
If skin irritation or rash occurs, get medical advice or attention.
If exposed or concerned, get medical advice/attention.

IF ON SKIN: Wash with plenty of water. Wash contaminated clothing before reuse. Contaminated work clothing must not be allowed out of the workplace.

Dispose of contents/container in accordance with applicable regulations.
The acute toxicities of 6-15% of the product’s ingredients are unknown.

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

## 3. Composition/Information on Ingredients

| Ingredient | CAS Number | % | Impurities |
|---|---|---|---|
| Boron | 7440-42-8 | 2-4 | None known |
| Chromium | 7440-47-3 | 6-15 | None known |
| Cobalt | 7440-48-4 | <0.1 | None known |
| Iron | 7439-89-6 | 2-5 | None known |
| Nickel | 7440-02-0 | 71-85 | None known |
| Silicon | 7440-21-3 | 4-5 | None known |

## 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. Do not give anything by mouth to an unconscious or convulsive person.

### 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 or Poison Control Center

None of the components are acutely toxic by ingestion, nor are they absorbed through the skin. Nickel may cause an allergic skin reaction in susceptible individuals.

## 5. Fire Fighting Measures

### Fire and Explosion Hazards

This product is non-flammable and non-explosive. If present in a fire or explosion, it may emit fumes of the constituent metals or their oxides.

### Extinguishing Media

Use dry chemical. Do not use water.

### 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

### Methods and Materials

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If a finely-divided form of product is spilled, clean up spillage so as to minimize dispersion of dust. Either wet sweeping or vacuuming using HEPA filtration is recommended.

Personal Precautions
---
Avoid contact with skin, eyes, and mucous membranes.

Environmental Precautions
---
Prevent spills from entering sewers or contaminating soil.

## 7. Handling and Storage

Handling Precautions
---
No special handling precautions are required.

Work and Hygiene Practices
---
To prevent ingestion following use of the product, wash hands and face before eating, drinking, applying cosmetics, or using tobacco. Remove contaminated clothing or protective equipment before entering eating/drinking areas.

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

## 8. Exposure Controls and Personal Protection

Ingredients - Exposure Limits
---
Boron
    No ACGIH TLV(s)  No OSHA PEL(s)
Chromium (metal)
    ACGIH TLV: 0.5 mg/m3 TWA  OSHA PEL: 1 mg/m3 TWA
Cobalt
    ACGIH TLV: 0.02 mg/m3 TWA  OSHA PEL: 0.1 mg/m3 TWA
Iron
    ACGIH TLV: 5 mg/m3 TWA, as iron oxide (respirable fraction)
    OSHA PEL: 10 mg/m3 TWA, as iron oxide fume
Nickel
    ACGIH TLV: 1.5 mg/m3 TWA  OSHA PEL: 1 mg/m3 TWA
Silicon
    No ACGIH TLV(s)
    OSHA PELs: 15 mg/m3 TWA (total dust); 5 mg/m3 TWA (respirable fraction)

Ingredients – Biological Limits
---
Boron
    No ACGIH BEI(s) or other biological limit(s)
Chromium
    No ACGIH BEI(s) or other biological limit(s)
Cobalt
    ACGIH BEIs: Co in urine, 15 ug/l, end of shift at end of work week
                Co in blood, 1 ug/l, end of shift at end of work week Iron
Iron
    No ACGIH BEI(s) or other biological limit(s)
Nickel
    No ACGIH BEI(s) or other biological limit(s)

Silicon
No ACGIH BEI(s) or other biological limit(s)

Engineering Controls
---
Use dilution or local exhaust ventilation adequate to maintain concentrations of all components and their byproducts to within their applicable standards.

Eye/Face Protection
---
Wear eye protection adequate to prevent eye contact with the product and injury if the products are used with a flame. Plastic-frame spectacles with side shields and filter lenses (shade #3/#4) are recommended.

Skin Protection
---
Wear protective gloves and clothing to prevent skin injuries if the products are used with a flame and/or for prolonged or repeated contact with finely-divided forms of product. Avoid flammable fabrics.

Respiratory Protection
---
If an exposure level to a component(s) exceeds an applicable standard, use a NIOSH-approved respirator having a configuration (facepiece, filter media, assigned protection factor, etc.) effective for the concentration of the component(s) generated. For guidance on selection and use of respirators, consult American National Standard Z88.2 (ANSI, New York, NY 10036, USA).

## 9. Physical and Chemical Properties

Appearance: white metals, various forms
Odor: none
Odor threshold: not applicable
pH: not applicable
Melting Point: not determined
Freezing point: not applicable
Boiling point/boiling range: not determined
Flash Point: not applicable
Evaporation Rate: not applicable
Flammability Class: not applicable
Lower Explosive Limit: not applicable
Upper Explosive Limit: not applicable
Vapor pressure: not applicable
Vapor density: not applicable
Relative density (H2O): approx. 8.0
Solubility (H2O): insoluble
Oil-water partition coefficient: not applicable
Autoignition Point: not applicable
Decomposition temperature: not applicable
Viscosity: not applicable

## 10. Stability and Reactivity

Reactivity: none reasonably foreseeable
Stability: stable
Hazardous Polymerization: will not occur
Risk of Dangerous Reactions: none reasonably foreseeable

Incompatible Materials
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Ammonium nitrate; peroxides; lithium; nitric oxide; chlorates; sulfur dioxide; acetylene; lithium; halogens; chlorine trifluoride; nitrogen

dioxide; carbides; hydrazine; hydrazoic acid; dioxane; performic acid; phosphorus; selenium; sulfur; titanium plus potassium perchlorate; alkali carbonates; cesium and rubidium carbides; cobaltic fluoride; iodine pentafluoride; silver fluoride; calcium; sodium; potassium.

### Hazardous Decomposition Products

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

## 11. Toxicological Information

This product has not been tested for toxicology by the manufacturer.

### Ingredients - Toxicological Data

| | | |
|---|---|---|
| Boron | | |
| | LD50: 650 mg/kg (oral/rat) | LC50: no data available |
| Chromium | | |
| | LD50: no data available | LC50: no data available |
| Cobalt | | |
| | LD50: 6,170 mg/kg (oral/rat) | LC50: >1,000 mg/m3 for 1 h. (rat) |
| Iron | | |
| | LD50: 30,000 mg/kg (oral/rat) | LC50: no data available |
| Nickel | | |
| | LD50: >9,000 mg/kg (oral/rat) | LC50: no data available |
| Silicon | | |
| | LD50: 3,160 mg/kg (oral/rat) | LC50: no data available |

### Primary Routes(s) of Entry

Ingestion; inhalation.

### Eye Hazards

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

### Skin Hazards

Skin contact, particularly in finely-divided forms, may produce localized irritation and contact and/or allergic dermatitis.

### Ingestion Hazards

Ingestion of this product in finely-divided forms may cause nausea, vomiting, and gastrointestinal irritation.

### Inhalation Hazards

Inhalation of toxicologically-significant quantities of the components is unlikely when the product is used in accordance with instructions and specified protective measures (see Section #8).

### Symptoms Related to Overexposure

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

### Delayed Effects from Long Term Overexposure

Chronic overexposure by inhalation may aggravate pre-existing diseases of the respiratory system.

Carcinogenicity
---
Nickel is classified as a potential human carcinogen by IARC (“2b”, possibly carcinogenic to humans) and NTP (“K”, known to be a human carcinogen). Exposure to some compounds of nickel has been shown to increase the risk of various cancers, although these effects have not been demonstrated among individuals occupationally exposed only to nickel metal. ACGIH classifies nickel metal as “A5” (not suspected as a human carcinogen).

Germ Cell Mutagenicity
---
The product contains no chemicals determined to be germ cell mutagens.

Reproductive Effects
---
The product contains no chemicals determined to be damaging to fertility or the unborn child.

Acute Toxicity Estimates
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LD50 (oral): no data available
LD50 (dermal): no data available
LC50: no data available

Interactive Effects of Components: no data available

## 12. Ecological Information

No ecological data is available for the product. Available ecological data for the components is as follows:

Boron
---
No data available for Aquatic Toxicity to Fish and Invertebrates, Aquatic Toxicity to Plants and Microorganisms, Toxicity to Terrestrial Organisms, Persistence and Degradability, Bioaccumulation Potential, Mobility in Soil.

Chromium
---
No data available for Aquatic Toxicity to Fish and Invertebrates, Aquatic Toxicity to Plants and Microorganisms, Toxicity to Terrestrial Organisms, Persistence and Degradability, Bioaccumulation Potential, Mobility in Soil.

Cobalt
---
Aquatic Toxicity to Fish: LC50 >100 mg/liter for 4 d. (Freshwater fish)
Aquatic Toxicity to Invertebrates: NOEC = 3.2 mg/liter for 48 hrs. (Daphnia)
Aquatic Toxicity to Plants: NOEC = 0.015 mg/liter for 3 d. (Algae)
No data available for Toxicity to Terrestrial Organisms, Persistence and Degradability, Bioaccumulation Potential, or Mobility in Soil.

Iron
---
No data available for Aquatic Toxicity to Fish and Invertebrates, Aquatic Toxicity to Plants and Microorganisms, Toxicity to Terrestrial Organisms, Persistence and Degradability, Bioaccumulation Potential, Mobility in Soil.

Nickel
---
Aquatic Toxicity to Fish: LC50 >100 mg/liter for 4 d. (Freshwater fish)
Aquatic Toxicity to Invertebrates: EC50 >100 mg/liter for 48 hrs. (Daphnia)

Aquatic Toxicity to Plants: EC50 = 0.18 mg/liter for 3 d. (Algae)
No data available for Toxicity to Terrestrial Organisms, Persistence and Degradability, Bioaccumulation Potential, or Mobility in Soil.

Silicon
---
No data available for Aquatic Toxicity to Fish and Invertebrates, Aquatic Toxicity to Plants and Microorganisms, Toxicity to Terrestrial Organisms, Persistence and Degradability, Bioaccumulation Potential, Mobility in Soil.

Ozone Depletion Potential: This product contains no ingredients listed in the Annexes to the Montréal Protocol on Substances that Deplete the Ozone Layer.

## 13. Disposal Considerations

Do not discharge waste product into sanitary or storm sewers or allow it to contaminate soil. Consult applicable Federal, State/Provincial, and local regulations.

## 14. Transport Information

Transport is not regulated by USDOT, TDG (Canada), IATA, or IMO.

## 15. Regulatory Information

### United States Regulatory Information

All components of this product are listed on the EPA's TSCA inventory.

SARA Hazard Classes: Acute Health Hazard; Chronic Health Hazard

SARA Section 313 Notification
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This product contains these components at concentrations >1% (>0.1% for carcinogens) subject to Section 313 of the Emergency Preparedness and Community Right-to-Know Act (EPCRA) of 1986 and of 40CFR, Part 372:

1. Chromium (CASRN 7440-47-3)
2. Cobalt (CASRN 7440-48-4)
3. Nickel (CASRN 7440-02-2)

Ingredients – State Regulation
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Cobalt (CASRN 7440-48-4) – California Proposition 65 listed chemical
Nickel (CASRN 7440-02-0) – California Proposition 65 listed chemical

### Canadian Regulatory Information

All components of this product are listed on either the Domestic Substances List (DSL) or the Nondomestic Substances List (NDSL).

Components on Ingredients Disclosure List:
WHMIS Class(es) and Division(s): D2A, D2B
Component(s) on Ingredients Disclosure List:

1. Chromium, elemental (CASRN 7440-47-3)
2. Cobalt, elemental (CASRN 7440-48-4)
3. Nickel, elemental (CASRN 7440-02-2)

This product has been classified according to the hazard criteria of the CPR and this SDS contains all of the information required by the CPR.

## 16. Other Information

### HMIS Ratings (Legend)

Health – 2* (moderate chronic hazard)
Flammability – 0 (minimal hazard)
Physical Hazard – 0 (minimal hazard0
PPE - see Note

Note: Lucas-Milhaupt, Inc. recommends use of protective eyewear and gloves (Personal Protection Index "B") as standard PPE. HMIS recommends that its ratings be used only in conjunction with a fully implemented HMIS program, and that specific PPE codes be created by the user, who is familiar with the actual conditions under which the product is used. We cannot anticipate every condition of the product's use, and it is the user's responsibility to evaluate the hazards pertinent to its specific operations, and to determine the specific PPE required.

### NFPA Ratings

Health – 2  Flammability - 0  Reactivity – 0

### Preparation Information

Date of Preparation: 11 July 2014
Date of Prior SDS: 12 August 2013

### Disclaimer

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Lucas-Milhaupt, Inc.