

Alloy 77-932

Safety Data Sheet

1. Product and Company Identification

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Manufacturer

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

Emergency Phone Number

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CHEMTREC Within the USA and Canada: 1-800-424-9300  
CHEMTREC Outside USA and Canada: +1 703-741-5970

SDS Number: 308  
Product Codes: 77-932  
Product Use(s): Alloy for brazing and other metallurgical processes

2. Hazards Identification

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Classification(s)

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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)

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

Label Precautionary Statement(s)

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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 and container in accordance with applicable regulations.  
WARNING: This product contains a chemical known to the State of California to cause cancer.

3. Composition/Information on Ingredients

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Ingredient	CAS Number	%	Impurities
Cobalt	7440-48-8	<0.1	None known

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Nickel	7440-02-2	87-90	None known
Phosphorus	7723-14-0	10-12	None known

#### 4. First Aid Measures

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##### Eye

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Flush affected areas with water for at least fifteen minutes. Seek medical assistance if necessary.

##### Skin

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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

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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

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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

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

#### 5. Fire Fighting Measures

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##### Fire and Explosion Hazards

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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

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Use dry chemical. Do not use water.

##### Fire Fighting Instructions

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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

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##### 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

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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

Cobalt

ACGIH TLV: 0.02 mg/m<sup>3</sup> TWA

OSHA PEL: 0.1 mg/m<sup>3</sup> TWA

Nickel

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

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

Phosphorus

No applicable ACGIH TLV(s)

No applicable OSHA PEL(s)

Ingredients - Biological Limits

Cobalt

ACGIH BEIs: 15 mcg/l. in urine (end of last shift of work week)

1 mcg/l. in blood (end of last shift of work week)

Nickel

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

Phosphorus

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 product is used with a flame. Plastic-frame spectacles with side shields are recommended.

Skin Protection

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

Respiratory Protection

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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

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Appearance: silver-white metal, 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/Upper Explosive Limits: not applicable  
Vapor pressure: not applicable  
Vapor density: not applicable  
Relative density (H2O): not determined  
Solubility (H2O): insoluble  
Oil-water partition coefficient: not applicable  
Autoignition Point: not applicable  
Decomposition temperature: not applicable  
Viscosity: not applicable

## 10. Stability and Reactivity

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

### Incompatible Materials

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Acetylene; ammonium nitrate; halogens; nitric acid; potassium chlorate; potassium nitrate; nitrogen dioxide; carbides; hydrazine; hydrazoic acid; dioxane; performic acid; phosphorus; selenium; sulfur; titanium plus potassium perchlorate.

### Hazardous Decomposition Products

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

## 11. Toxicological Information

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

### Ingredients - Toxicological Data

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#### Cobalt

LD50: >6,170 mg/m3 (oral/rat)                      LC50: 10,000 mg/m3/1h. (rat)

#### Nickel

LD50: 5,000 mg/kg (oral/rat)                      LC50: No data available

#### Phosphorus

LD50: >15,000 mg/kg (oral/rat)                      LC50: 4,300 mg/m3/1 hr. (rat)

### Primary Routes(s) of Entry

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Ingestion; inhalation.

### Eye Hazards

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Eye contact with finely-divided forms of product may cause irritation.

### Skin Hazards

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Skin contact with finely-divided forms of product may cause irritation and contact or allergic dermatitis.

### Ingestion Hazards

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Ingestion may cause nausea, vomiting, and gastrointestinal irritation.

### Inhalation Hazards

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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). When phosphorus is heated to elevated temperatures, it may form phosphorus pentoxide, which is irritating to the eyes, nose, throat, and respiratory tract.

### Symptoms Related to Overexposure

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Pre-existing pulmonary diseases (e.g., bronchitis, asthma) may be aggravated by inhalation overexposure, particularly as fume. Acute overexposure to cobalt dust or fume may cause respiratory disorders, including respiratory sensitization, asthma, and pulmonary edema.

### Delayed Effects from Long Term Overexposure

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

### Carcinogenicity

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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).

Cobalt is classified as a potential human carcinogen by IARC ("2b"). ACGIH classifies cobalt as "A3" (confirmed animal carcinogen with unknown relevance to humans).

### Germ Cell Mutagenicity

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The product contains no chemicals determined to be germ cell mutagens.

### Reproductive Effects

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The product contains no chemicals determined to be damaging to fertility or to 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

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

### Cobalt

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

### Nickel

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Aquatic Toxicity to Fish: LC50 >100 mg/l. for 4 d. (Freshwater fish)  
Aquatic Toxicity to Invertebrates: EC50 >100 mg/l. for 48 h. (Daphnia)  
Aquatic Toxicity to Plants: EC50 = 0.18 mg/l. for 3 d. (Algae)  
No data available for Aquatic Toxicity to Microorganisms, Toxicity to Terrestrial Organisms, Persistence and Degradability, Bioaccumulation Potential, or Mobility in Soil.

### Phosphorus

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No data available for Aquatic Toxicity to Fish, Invertebrates, Plants, or Microorganisms, Toxicity to Terrestrial Organisms, Persistence and Degradability, Bioaccumulation Potential, or 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

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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

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

## 15. Regulatory Information

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### United States Regulatory Information

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

1. Cobalt (CASRN 7440-48-4)
2. Nickel (CASRN 7440-02-0)

### 3. Phosphorus (CASRN 7723-14-0)

#### Ingredients - State Regulations

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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

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

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

#### Components on Ingredients Disclosure List:

1. Cobalt, elemental (CASRN 7440-48-4)

2. Nickel, elemental (CASRN 7440-02-0)

3. Phosphorus (CASRN 7723-14-0)

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

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#### HMIS Ratings (Legend)

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Health - 2\* (moderate chronic hazard)

Flammability - 0 (minimal hazard)

Physical Hazard - 0 (minimal hazard)

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

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Health - 2      Flammability - 0      Reactivity - 0

#### Preparation Information

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Date of Preparation: 27 January 2015

Date of Prior SDS: 5 February 2008

#### Disclaimer

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Lucas-Milhaupt, Inc.