

# Silver-Copper-Phosphorus Alloys

## Safety Data Sheet

### 1. Product and Company Identification

#### Suppliers and Manufacturers

Lucas Milhaupt, Inc.  
5656 South Pennsylvania Avenue  
Cudahy, WI 53110 USA  
Telephone: 414-769-2000  
www.lucasmilhaupt.com

#### Emergency Phone Number

Chemtrec: 800-424-9300

SDS Number: 77

Product Codes: 15-996; 21-015; 24-863; 67-150; 71-017; 71-020; 71-050;  
71-052; 71-060; 71-061; 71-062; 71-063; 71-100; 71-150; 71-180; 71-181

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

### 2. Hazards Identification

Classification(s): None applicable  
Label Symbol(s): None applicable  
Label Signal Word(s): None applicable  
Label Hazard Statement(s): None applicable

#### Label Precautionary Statement(s)

<1-93% of the products consist of ingredients of unknown acute toxicity.

### 3. Composition/Information on Ingredients

Ingredient	CAS Number	%	Impurities
Copper	7440-50-8	<1-93	None known
Phosphorus	7723-14-0	<0.1-8	None known
Silver	7440-22-4	<1-99.8	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

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None of the components are acutely toxic by ingestion, nor are they absorbed through the skin. Long-term chronic exposure may cause argyria.

5. Fire Fighting Measures

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Fire and Explosion Hazards

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These products are non-flammable and non-explosive. If present in a fire or explosion, they may emit fumes of the constituent metals and/or phosphorus pentoxide.

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 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

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Methods and Materials

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

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Prevent spills from entering sewers or contaminating soil.

### 7. Handling and Storage

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#### Handling Precautions

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No special handling precautions are required.

#### Work and Hygiene Practices

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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

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

### 8. Exposure Controls and Personal Protection

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#### Ingredients - Exposure Limits

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##### 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)

##### Phosphorus

No applicable ACGIH TLV(s)      No applicable 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

#### Ingredients – Biological Limits

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##### Copper

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

##### Phosphorus

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

##### Silver

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 and filter lenses (shade #3/#4) 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 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 1003, USA).

### 9. Physical and Chemical Properties

Appearance: Light-copper metals, various forms

Odor: none

Odor threshold: not applicable

pH: not applicable

Melting Point: >1190F./645C.

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 (H<sub>2</sub>O): 7.8-10.5

Solubility (H<sub>2</sub>O): 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: see "Conditions to Avoid"

### Conditions to Avoid

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

### Incompatible Materials

Strong oxidizers; ammonia; azides; nitric acid; ethylene imine; sulfuric acid; chlorine trifluoride; inorganic and organic peroxides; peroxyformic acid; oxalic acid; bromates, chlorates, and iodates of alkali and alkali earth metals; tartaric acid; 1-bromo-2-propyne; permonosulfuric acid; alkaline hydroxides.

### Hazardous Decomposition Products

Heating to elevated temperatures may liberate fumes of the constituent metals and/or phosphorus pentoxide.

## 11. Toxicological Information

This product has not been subject to toxicological testing by the manufacturer/supplier. <1-93% of the products consist of ingredient(s) of unknown acute toxicity.

### Ingredients - Toxicological Data

#### Copper

LD50: No data available      LC50: No data available

#### Phosphorus

LD50: >15,000 mg/kg (oral/rat)      LC50: 4,300 mg/m<sup>3</sup> for 1 hr (rat)

#### Silver

LD50: >2,000 mg/kg (oral/rat)      LC50: No data available

### 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 gray discoloration of the eyes, skin, mucous membranes, and respiratory tract.

#### Skin Hazards

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

#### Ingestion Hazards

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Ingestion of these products in finely-divided forms 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 overheated in air, it is converted to phosphorus pentoxide, which is corrosive and irritating to eyes, nose, throat, and mucous membranes.

#### 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.

#### Delayed Effects from Long Term Overexposure

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Chronic overexposure by inhalation and/or ingestion may aggravate pre-existing diseases of the liver, kidneys, and gastrointestinal system.

#### Carcinogenicity

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The product contains no chemicals classified as potential or demonstrated carcinogens by IARC, NTP, or OSHA.

#### 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 of the unborn child.

#### Acute Toxicity Estimates

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LD50 (oral): >2,000 mg/kg

LD50 (dermal): no data available

LC50: 4,300 mg/m<sup>3</sup>

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:

### Copper

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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.

### Phosphorus

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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.

### Silver

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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.

## 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

### United States Regulatory Information

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

SARA Hazard Classes: Chronic Health Hazard

## SARA Section 313 Notification

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These products contain these components subject to the requirements of Section 313 of the Emergency Preparedness and Community Right-to-Know Act (EPCRA) of 1986 and of 40CFR, Part 372:

1. Copper (CASRN 7440-50-8)
2. Phosphorus (CASRN 7723-14-0)
3. Silver (CASRN 7440-22-4)

## Canadian Regulatory Information

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

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

Components on Ingredients Disclosure List:

1. Copper, elemental (CASRN 7440-50-8)
2. Phosphorus (CASRN 7723-14-0)
3. Silver, elemental (CASRN 7440-22-4)

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

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Health – 2\* (moderate chronic hazard)  
Flammability – 1 (slight 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 - 1 Reactivity – 0

### Preparation Information

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Date of Preparation: 5 May 2014  
Date of Prior SDS: 1 May 2013



## Disclaimer

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Lucas-Milhaupt, Inc.