

# Silver-Copper-Phosphorus Brazing Alloys

## Safety Data Sheet

### 1. Product and Company Identification

#### ----- Manufacturer

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Lucas-Milhaupt, Inc.  
235 Kilvert Street  
Warwick, RI 02886 USA  
Telephone: 401-739-9550  
www.lucasmilhaupt.com

#### Emergency Phone Number

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Chemtrec: 800-424-9300

Product Code: AG-CU-P

Product(s): 28704 (SIL-FOS 10), 34286 (SIL-FOS 5M), 26310 (SIL-FOS 1), 27953 (SIL-FOS 1), 2774 (SIL-FOS 2), 34649 (SIL-FOS 2F), 28134 (SIL-FOS 2M), 35502 (SIL-FOS 2M), 35503 (SIL-FOS 5), 25841 (SIL-FOS 5), 7054 (SIL-FOS 5), 28118 (SIL-FOS 5F), 17152 (HANDY-FLO 6), 17244 (HANDY-FLO 6), 35542 (SIL-FOS 6i), 28126 (SIL-FOS 6), 29538 (SIL-FOS 15), 7153 (SIL-FOS 15), 26047 (SIL-FOS 15), 35528 (SIL-FOS 15), 35544 (SIL-FOS 15LP), 19422 (SIL-FOS 18W), 31138 (SIL-FOS 18M), 35207 (SIL-FOS 18M), 35216 (SIL-FOS 18)

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

### 2. Hazards Identification

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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)

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The acute toxicities of 74-94% of the product's ingredients are unknown.

### 3. Composition/Information on Ingredients

Ingredient	CAS Number	%	Impurities
Copper	7440-50-8	74-94	None known
Phosphorus	7723-14-0	2-8	None known
Silver	7440-22-4	<1-19	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. 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

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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

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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 -----

#### 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 -----

#### Copper

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

#### Phosphorus

No ACGIH BEI(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 are recommended.

### Skin Protection -----

Wear protective gloves and clothing to prevent skin injuries if the product is used with a flame. 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

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Appearance: Yellow-white metals, various forms  
Odor: none  
Odor threshold: not applicable  
pH: not applicable  
Melting Point: approx. 1,178F./637C.  
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): 7.4-8.6  
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: silver and copper can form unstable acetylides in contact with acetylene gas.

### Incompatible Materials

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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

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

## 10. Toxicological Information

### Ingredients - Toxicological Data

#### Copper

LD50: No data available

LC50: No data available

#### Phosphorus

LD50: >15,000 mg/kg (oral/rat)

LC50: 4,300 mg/m3 for 1 hr (rat)

#### Silver

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

LC50: No data available

### Primary Routes(s) of Entry

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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

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

#### Ingestion Hazards

Ingestion of these products 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). 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

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

#### Carcinogenicity

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

#### 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 to the unborn child.

#### Acute Toxicity Estimates

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

No ecological data is available for the product or any of its components.

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: Chronic Health Hazard

SARA Section 313 Notification  
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This product contains these components in 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. 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

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HMIS Ratings (Legend)  
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Health - 2\* (moderate chronic hazard)  
Flammability - 1 (slight hazard)  
Physical Hazard - 0 (minimal hazard)  
PPE - see Note

Note: Lucas-Milhaupt Warwick, LLC 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: 8 December 2014

Date of Prior SDS: 1 January 2013

Disclaimer

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Lucas-Milhaupt, Inc.