

# Silver-Copper-Nickel Alloys

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

SDS Number: 84  
Product: AG-CU-NI

Product Codes: 15-750 (Consil 750), 15-984, 26-602, 27-711 (SILVALOY 711 VTG), A00000308 (SILVALOY 711 VTG), 27-716 (SILVALOY 716 VTG GRADE 1), A00000309 (SILVALOY 716 VTG GRADE 1), 32-258 (SILVALOY 258), 16808 (SILVALOY 559), 32-559 (SILVALOY 559), A00000038 (SILVALOY 559), 30619 (SILVALOY 559 VTG), 32-654 (SILVALOY 654), 2972 (SILVALOY 715), 32-715 (SILVALOY 715), A00000014 (SILVALOY 715), 24794 (SILVALOY 716 VTG GRADE 2), 32-716 (SILVALOY 716 VTG GRADE 2), A00000052 (SILVALOY 716 VTG GRADE 2), 32-717 (SILVALOY 717 VTG GRADE 1), A00000320 (SILVALOY 717 VTG GRADE 1), 30015 (SILVALOY 753), 32-753 (SILVALOY 753), 40-082 (BLA 082), 40-083 (BLA 083), 69-243, 69-797, 69-806, 35-27-716-W, 35-27-716-S, 35600 (SILVALOY 126), A00000172 (SILVALOY 126), Compo Casting Grain 10-15, 24-015-GRA, 24-015 (SILVALOY 156), 35601 (SILVALOY 156), A00000173 (SILVALOY 156), 35602 (SILVALOY 176), A00000174 (SILVALOY 176), 35603 (SILVALOY 176), A00000175 (SILVALOY 176), 24-017 (SILVALOY 176), Compo Casting Grain 10-18 (24-018-GRA), 35604 (SILVALOY 186), A00000176 (SILVALOY 186), 24-018 (SILVALOY 186), Compo Casting Grain 10-20 (24-020-GRA), 35606 (SILVALOY 206), A00000178 (SILVALOY 206), 24-020 (SILVALOY 206), 35605 (SILVALOY 206), A00000177 (SILVALOY 206), 24-038 (SILVALOY 206), Compo Casting Grain 10-25 (24-025-GRA), 35607 (SILVALOY 256), A00000179 (SILVALOY 256), 24-025 (SILVALOY 256), 35608 (SILVALOY 286), A00000180 (SILVALOY 286), 24-028 (SILVALOY 286), Compo Casting Grain 10-35 (24-035-GRA), 35609 (SILVALOY 356), A00000181 (SILVALOY 356), 24-035 (SILVALOY 356), 35623 (SILVALOY 459), A00000191 (SILVALOY 459), 35628 (SILVALOY 306), A00000196 (SILVALOY 306)

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

### 2. Hazards Identification

#### Classification(s)

Skin Sensitization: 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/container in accordance with applicable regulations.  
The acute toxicities of 1-95% of the product's ingredients are unknown.  
  
WARNING: These products contain a chemical known to the State of California to cause cancer.

#### 3. Composition/Information on Ingredients

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Ingredient Name	CAS Number	%	Impurities
Copper	7440-50-8	1-95	None known
Nickel	7440-02-2	<1-10	None known
Silver	7440-22-4	5-99	None known

  
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#### 4. First Aid Measures

##### 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 and/or argyria.

## 5. Fire Fighting Measures

### ----- 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 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 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

### ----- 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

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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

### ----- Ingredients - Exposure Limits -----

#### Copper

ACGIH TLVs: 0.2 mg/m3 TWA (fume); 1 mg/m3 TWA (dusts and mists)

OSHA PELs: 0.1 mg/m3 TWA (fume); 1 mg/m3 TWA (dusts and mists)

#### Nickel

ACGIH TLV: 1.5 mg/m3 TWA

OSHA PEL: 1 mg/m3 TWA

#### Silver

ACGIH TLV: 0.1 mg/m3 TWA (metal)

OSHA PEL: 0.01 mg/m3 TWA

### ----- Ingredients - Biological Limits -----

#### Copper

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

#### Nickel

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 products are 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 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

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Appearance: White or light-yellow metals, various forms

Odor: none

Odor threshold: not applicable

pH: not applicable

Melting Point: >1762F./961C.

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

## 9. Physical and Chemical Properties (Continued)

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Upper Explosive Limit: not applicable  
Vapor pressure: not applicable  
Vapor density: not applicable  
Relative density (H<sub>2</sub>O): 9.0-10.5  
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

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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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Acetylene; ammonia; azides; nitric acid; halogens; ethylene imine; ethylene oxide; chlorine trifluoride; sulfuric acid; peroxides; peroxyformic acid; oxalic acid; tartaric acid; 1-bromo-2-propyne; permonosulfuric acid; sulfur; hydrazine mononitrate; hydrazoic acid; hydrogen sulfide; bromates, chlorates, and iodates of alkali and alkali earth metals; hydroxylamine; selenium; tellurium; carbon disulfide; hydrazine; performic acid; phosphorus; titanium plus potassium chlorate.

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

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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 contact or allergic 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).

## 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 and respiratory systems.

## 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).

## 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): >2,000 mg/kg  
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:

### Nickel

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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 Aquatic Toxicity to Microorganisms, Toxicity to Terrestrial Organisms, Persistence and Degradability, Bioaccumulation Potential, or Mobility in Soil.

### Copper and Silver

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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

### 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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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. Nickel (CASRN 7440-02-0)
3. Silver (CASRN 7440-22-4)

### Ingredients - State Regulations

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Nickel (CASRN 7440-02-0): California Proposition 65 listed chemical

## Canadian Regulatory Information

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

This product has been classified in accordance with Canada's Hazardous Products Regulations (SOR/DORS/2015-17).

### 16. Other Information

#### HMIS Ratings

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

Health - 2      Flammability - 1      Reactivity - 0

#### Preparation Information

Date of Preparation: 26 January 2016  
Date of Prior SDS: 08 December 2014

#### Disclaimer

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Lucas-Milhaupt, Inc.