

## Silver-Copper-Tin Brazing Alloys

## Safety Data Sheet

## 1. Product and Company Identification

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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-SN

Product(s): 30668 (ECONOBRITE), 34053 (SILVABRITE 100), 35509 (SILVALOY B-7T), 5371 (SILVALOY B-7T), 35596 (SILVALOY B-7TV), 24786 (SILVALOY B-7T)

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 11-99% of the product's ingredients are unknown.

## 3. Composition/Information on Ingredients

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Ingredient                      CAS Number                      %                      Impurities  
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Copper                              7440-50-8                      3-85                      None known  
Silver                              7440-22-4                      3-7                      None known  
Tin                                  7440-31-5                      8-97                      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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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

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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)

#### Silver

ACGIH TLV: 0.1 mg/m<sup>3</sup> TWA (metal) OSHA PEL: 0.01 mg/m<sup>3</sup> TWA

#### Tin

ACGIH TLV: 2 mg/m<sup>3</sup> TWA OSHA PEL: 2 mg/m<sup>3</sup> TWA

### Ingredients - Biological Limits

#### Copper

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

#### Silver

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

#### Tin

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 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 to yellow-white metals, various forms  
Odor: none  
Odor threshold: not applicable  
pH: not applicable  
Melting Point: 437-1,148F./225-620C.  
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): 7.35-9.9  
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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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; hydrazine mononitrate; hydrazoic acid; hydrogen sulfide; bromates, chlorates, and iodates of alkali and alkali earth metals; cupric nitrate.

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

### Primary Routes(s) of Entry

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Ingestion; inhalation.

## 11. Toxicological Information (continued)

### Eye Hazards

Eye contact with finely-divided forms or product 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 finely-divided forms of product may cause irritation, argyria, discoloration, and/or contact dermatitis.

### Ingestion Hazards

Ingestion 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). Inhalation of tin fume may cause stannosis (a benign pneumoconiosis), shortness of breath, and respiratory irritation.

### 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

Aggravation of 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 components determined to be germ cell mutagens.

### Reproductive Effects

The product contains no components determined to be damaging to fertility or to the unborn child.

### Acute Toxicity Estimates

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 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

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: Chronic Health Hazard

### SARA Section 313 Notification

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. Silver (CASRN 7440-22-4)

### Canadian Regulatory Information

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): D2B

Components on Ingredients Disclosure List:

1. Copper, elemental (CASRN 7440-50-8)
2. Silver, elemental (CASRN 7440-22-4)
3. Tin, elemental (CASRN 7440-31-5)

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 - 1 (slight hazard)  
Physical Hazard - 1 (slight 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 - 1

#### Preparation Information

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Date of Preparation: 21 January 2015

Date of Prior SDS: 1 January 2013

#### Disclaimer

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Although reasonable care has been taken in the preparation of this document, we extend no warranties and make no representations as to the accuracy or completeness of the information contained therein, and assume no responsibility regarding the suitability of this information for the user's intended purposes or for the consequences of its use. Each individual should make a determination as to the suitability of the information for their particular purpose(s).

Lucas-Milhaupt, Inc.



Code: AG-CU-SN  
Date: 12 NOV 1997  
Revised: 01 NOV 2007  
Printed: 01 NOV 2007

WOLVERINE JOINING TECHNOLOGIES, LLC

MATERIAL SAFETY DATA SHEET

Product: ECONOBRITE, SILVABRITE 100, SILVALOY B-7T,  
SILVALOY B-7TV, SILVALOY B-60T, SILVALOY B-60TV, 5371, 6601,  
24752, 24786, 30668, 34053, 35509

SECTION 1: CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

Common Name : SILVER-COPPER-TIN ALLOY  
Chemical Name : SILVER-COPPER-TIN ALLOY  
Formula : SILVER-COPPER-TIN  
Product CAS No.: CHEMICAL MIXTURE  
Product Use : Welding/Brazing/Soldering

Supplier : WOLVERINE JOINING TECHNOLOGIES, LLC.  
Address : 235 KILVERT STREET  
City, St, Zip : WARWICK, RI 02886  
Phone : 1-401-739-9550

FOR CHEMICAL EMERGENCY CALL CHEMTREC (24 HOURS):  
1-800-424-9300 (US, Canada, Puerto Rico, Virgin Islands)  
1-703-527-3887 (Outside Above Area)

SECTION 2: COMPOSITION/INFORMATION ON INGREDIENTS

INGREDIENT	CAS NO.	% Wt.
SILVER	7440-22-4	0.3-60
COPPER	7440-50-8	3-85
TIN	7440-31-5	8-97

INGREDIENT NOTES

NOTE: The percentage by weight values reported for the ingredients in this product represent approximate formulation values. See Section 8 for Exposure Limits and Section 11 for Toxicological Information.



### SECTION 3: HAZARDS IDENTIFICATION

#### EMERGENCY OVERVIEW

Metallic wire, rod or strip

Odorless

Flash Point: Not Applicable

Prolonged or repeated inhalation or ingestion may cause damage to the lungs, blood, kidneys, and liver.  
May cause respiratory tract irritation. Overexposure to freshly formed fumes may cause a flu-like illness called "metal fume fever".  
Harmful if swallowed. Causes gastrointestinal irritation, abdominal pain, nausea, vomiting and diarrhea.  
May cause eye and skin irritation.  
Not a fire or explosion hazard in solid form. Finely divided dust may ignite and burn rapidly when mixed with air in the proper proportions.  
Toxic metal fumes may be released in a fire situation.

#### ROUTES OF ENTRY

Eyes? YES

Skin? YES

Inhalation? YES

Ingestion? YES

#### POTENTIAL HEALTH EFFECTS

EYE CONTACT may cause irritation.

SKIN CONTACT may cause irritation.

INHALATION may cause irritation of the respiratory tract. Short-term overexposure may cause a flu-like illness called metal fume fever. Typically metal fume fever begins four to twelve hours after sufficient exposure to freshly formed fumes. The first symptoms are a metallic taste, dryness and irritation of the throat. Cough and shortness of breath may occur along with headache, fatigue, nausea, vomiting, muscle and joint pain, fever and chills. The syndrome runs its course in 24-48 hours.

INGESTION is harmful. May cause abdominal pain, nausea, vomiting and diarrhea. COPPER poisoning can result in hemolytic anemia and kidney, liver and spleen damage.

NOTE: The potential health effects described above only apply if dust or fume is formed.

#### CARCINOGENICITY

NTP? NO

IARC? NO

OSHA? NO

#### CHRONIC HEALTH HAZARDS

Overexposure may lead to COPPER poisoning, resulting in hemolytic anemia and liver, kidney and spleen damage.

Prolonged or repeated inhalation may cause a benign pneumoconiosis.

Prolonged or excessive exposures may result in argyria, a permanent localized blue-grey discoloration of the eyes, skin or mucous membranes.

Prolonged exposure to SILVER can cause damage to the nasal septum.

Refer to Potential Health Effects.

#### MEDICAL CONDITIONS GENERALLY AGGRAVATED BY EXPOSURE

May adversely affect existing medical conditions, such as eye, skin, respiratory, blood, liver and/or kidney ailments.

Individuals with Wilson's Disease are at increased risk of COPPER poisoning.

NOTE: See Section 8 for Exposure Limits, Section 11 for Toxicological Information and Section 12 for Ecological Information.

### SECTION 4: FIRST AID MEASURES

EYE CONTACT: Flush eyes with plenty of water. If irritation develops, call a physician.

SKIN CONTACT: Immediately wash skin with soap and plenty of water. If irritation persists, call a physician.

INHALATION: If exposed to excessive levels of metal fumes, remove to fresh air and seek medical attention.

INGESTION: If person is conscious and able to swallow, give large amounts of water to dilute. If vomiting occurs, keep head below hips to help prevent aspiration. Get medical attention immediately.

### SECTION 5: FIRE-FIGHTING MEASURES

Flash Point: Not Applicable  
Auto-Ignition: Not Applicable  
LEL: Not Applicable  
UEL: Not Applicable

#### NFPA HAZARD CLASSIFICATION

Health: 2                      Flammable: 0                      Reactivity: 0

#### HMIS HAZARD CLASSIFICATION

Health: 2\*                      Flammable: 0                      Reactivity: 0                      Special: B

\* Indicates the possibility of chronic health effects. See Chronic Health Hazards in Section 3 for more information.

#### EXTINGUISHING MEDIA

Use carbon dioxide, chemical foam or dry chemical. Use any means for extinguishing surrounding fire.

Do NOT use water on metal fires.

#### SPECIAL FIRE FIGHTING PROCEDURES

Wear NIOSH/MSHA approved positive-pressure self-contained breathing apparatus and protective clothing as specified in 29 CFR 1910.156.

#### UNUSUAL FIRE AND EXPLOSION HAZARDS

Not a fire or explosion hazard in solid form. Finely divided dust may ignite and burn rapidly when mixed with air in the proper proportions. Toxic metal fumes may be released in a fire situation.

### SECTION 6: ACCIDENTAL RELEASE MEASURES

Contain spillage and scoop up or vacuum. Notification of the National Response Center (800/424-8802) may be required. Refer to EPA, DOT and applicable state and local regulations for current response information.

It is recommended that each user establish a spill prevention, control and countermeasure plan (SPCC). Such plan should include procedures applicable to proper storage, control and clean-up of spills, including reuse or disposal as appropriate (see Section 13: Disposal Considerations).

**\*\*NOTE\*\*** In the event of an accidental release of this material, the above procedures should be followed. Additionally, proper exposure controls and personal protection equipment should be used (see Section 8: Exposure Control/Personal Protection), and disposal of the material should be in accordance with Section 13: Disposal Considerations.

### SECTION 7: HANDLING AND STORAGE

Wash thoroughly after handling.

Store in a cool, dry location away from incompatible materials.

Avoid breathing any dust, mist or fumes resulting from the use of this product.

Avoid contact with any dusts, mists or fumes resulting from the use of this product.

Use only with adequate ventilation.

Do not eat, drink, or smoke in work area.

## SECTION 8: EXPOSURE CONTROLS/PERSONAL PROTECTION

### EXPOSURE LIMITS

INGREDIENT	PEL-OSHA	TLV-ACGIH
SILVER		
CAS NO.: 7440-22-4	0.01 mg/m3	0.1 mg/m3
COPPER		
CAS NO.: 7440-50-8	0.1 mg/m3 (Fume) 1 mg/m3 (Dust)	0.2 mg/m3 (Fume) 1 mg/m3 (Dust)
TIN		
CAS NO.: 7440-31-5	2 mg/m3	2 mg/m3

NOTE: Both OSHA and the ACGIH list welding fumes as having an exposure limit of 5 mg/m3 (total particulate not otherwise classified). However, the ACGIH states that welding fumes must be tested frequently for individual components which are likely to be present to determine whether specific exposure limits are exceeded.

NOTE: The permissible exposure limits (PELs), threshold limit values (TLVs), potential health effects statements and SARA hazard categories may not be applicable as the hazardous ingredients listed are in the solid form. If dust, powder or fume is generated then these statements will be applicable.

Unless otherwise noted, all values are reported as 8-hour Time-Weighted Averages (TWAs) and total dust (particulates only). All ACGIH TLVs refer to the 1998 Standards. All OSHA PELs refer to 29 CFR Part 1910 Air Contaminants: Final Rule, January 19, 1989.

### RESPIRATORY PROTECTION

If dust or fume is generated, a NIOSH/MSHA approved respirator may be necessary. Follow all requirements for respiratory programs and selection set forth in the OSHA regulations (29 CFR 1910.139).

### VENTILATION

General; local exhaust ventilation as necessary to control any air contaminants to within their PELs or TLVs during the use of this product.

### PROTECTIVE EQUIPMENT

Refer to ANSI/ASC Z49.1-94 (Safety in Welding, Cutting and Allied Processes), published by the American Welding Society, for further information on the selection of personal protective equipment. Safety glasses (with side shields). Body protection as necessary to prevent skin contact.

### PERSONNEL SAMPLING PROCEDURE

For COPPER (dust & fume): Refer to NIOSH Manual of Analytical Methods (NMAM), 4th Edition, Method 7029.  
For SILVER: Refer to NIOSH Manual of Analytical Methods (NMAM), 4th Edition, Method 7300.  
For TIN: Refer to NIOSH Manual of Analytical Methods (NMAM), 4th Edition, Method 7300.

## SECTION 9: PHYSICAL AND CHEMICAL PROPERTIES

Appearance: Metallic wire, rod or strip  
Odor: Odorless  
Boiling Point: Not Determined  
Specific Gravity (H2O=1): 7.35 to 9.90  
Melting Point: 225 to 620 °C  
Vapor Pressure (mm Hg): Not Applicable  
Vapor Density (Air=1): Not Applicable  
Evaporation Rate: Not Applicable  
% Solubility In Water: Insoluble  
pH: Not Applicable

## SECTION 10: STABILITY AND REACTIVITY

Stability: Generally considered stable.  
Avoid: None expected.

### INCOMPATIBILITY (Materials to Avoid)

Strong acids and bases, strong oxidizers, acetylene, ammonia, hydrogen peroxide, chlorine, bromine, iodine, turpentine, magnesium metal, ammonium nitrate, hydrogen sulfide.

### HAZARDOUS DECOMPOSITION OR BY-PRODUCTS

Toxic metal oxides are emitted when heated above the melting point. The amount of fume evolved increases as the temperature rises.

Polymerization: Polymerization is not expected to occur.  
Avoid: Not applicable.

## SECTION 11: TOXICOLOGICAL INFORMATION

CHEMICAL NAME	% Wt.	LD50	LC50
SILVER			
CAS NO.: 7440-22-4	0.1-60	Not Available	Not Available
COPPER			
CAS NO.: 7440-50-8	4-85	3.5 mg/kg MOUSE, intraperitoneal	Not Available
TIN			
CAS NO.: 7440-31-5	8-97	Not Available	Not Available

NOTE: See Sections 3, 8 and 12 for additional information.

## SECTION 12: ECOLOGICAL INFORMATION

### ECOTOXICITY

No data available.

### ENVIRONMENTAL FATE

No data available.

## SECTION 13: DISPOSAL CONSIDERATIONS

US EPA Waste Number: D011

This product contains SILVER or silver compounds and disposal may be regulated under EPA hazardous waste regulations, waste number D011. Before disposal, this product or mixtures containing this product should be tested for toxicity characteristics (TC) under the current EPA Hazardous Waste Regulations TCLP testing procedures, 40 CFR Part 261 et seq. Disposal/recycling/reclamation requirements will vary by location and type of disposal selected. Consult with state and local regulatory authorities.

**\*\*NOTE\*\*** Chemical additions, processing or otherwise altering this material may make the waste management information presented above incomplete, inaccurate or otherwise inappropriate.

As local regulations may vary; all waste must be disposed/recycled/reclaimed in accordance with federal, state, and local environmental control regulations.

## SECTION 14: TRANSPORT INFORMATION

### INTERNATIONAL

UN Number: Not Regulated

### UNITED STATES

EPA Waste Number: D011

DOT Classification: Not Regulated

### CANADA

PIN Number: Not Regulated

TDG Class: Not Regulated

### EC

DGL: Not Determined

## SECTION 15: REGULATORY INFORMATION

### US FEDERAL REGULATIONS

TSCA: IN TSCA

SARA 311 AND 312 HAZARD CATEGORIES

IMMEDIATE (Acute) Health Hazard: YES  
DELAYED (Chronic) Health Hazard: YES  
FIRE Hazard: NO  
REACTIVITY Hazard: NO  
Sudden Release of PRESSURE: NO

#### SARA SECTION 313 NOTIFICATION

This product contains a toxic chemical (or chemicals) subject to the reporting requirements of Section 313 of Title III of the Superfund Amendments and Reauthorization Act of 1986 and 40 CFR Part 372.

CHEMICAL NAME	CAS Number	% Wt.
SILVER	7440-22-4	0.1-60
COPPER	7440-50-8	4-85

#### OZONE DEPLETING SUBSTANCES (ODS)

This product neither contains nor is manufactured with an ozone depleting substance subject to the labeling requirements of the Clean Air Act Amendments 1990 and 40 CFR Part 82.

#### VOLATILE ORGANIC COMPOUNDS (VOC)

None

#### US STATE REGULATIONS

VOLATILE ORGANIC COMPOUND (CARB): Not Determined

#### CANADIAN REGULATIONS

"This product has been classified in accordance with the hazard criteria of the *Controlled Products Regulations* and the MSDS contains all the information required by the *Controlled Products Regulations*."

DSL/NDSL: DSL

WHMIS Classification: Uncontrolled Product

#### EUROPEAN REGULATIONS

EINECS: Yes

#### OTHER REGULATIONS

MITI (Japan): Yes

AICS (Australia): Yes

## SECTION 16: OTHER INFORMATION

### REVISIONS

Revision Number: 7

### PREPARATION INFORMATION

Prepared By: Wolverine Joining Technologies, and Wolverine Tube Inc.  
Corporate Environmental, Health and Safety Group.

Phone Number/Address: See Section 1

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This Material Data Sheet is offered pursuant to OSHA's Hazard Communication Standard (29 CFR 1910.1200). Other government regulations must be reviewed for applicability to these products. The information in this Material Safety Data Sheet should be provided to all who will use, handle, store, transport, or otherwise be exposed to this product. This information has been prepared for the guidance of plant engineering, operations, and management and for persons working with or handling these products. The information presented in the MSDS is premised upon proper handling and anticipated uses and is for the material without chemical additions/alterations. We believe this information to be reliable and up-to-date as of the date of publication, but make no warranty that it is. Additionally, if this Material Safety Data Sheet is more than three years old, please contact the supplier at the phone number listed in Section 1 to make certain that this sheet is the most current. Copyright Wolverine Joining Technologies, LLC. License granted to make unlimited copies for internal use only.