SECTION 1: Identification

1.1. Identification

Product form : Mixture
Trade name : SILVALOY® 302
Product code : A00000122

1.2. Recommended use and restrictions on use

Recommended use : Alloys for brazing/soldering and other metallurgical processes

1.3. Supplier

Lucas-Milhaupt, Inc.
5656 South Pennsylvania Ave.
Cudahy, 53110
USA
T (414)-769-6000
LM_SDSinfo@lucasmilhaupt.com - www.Lucasmilhaupt.com

1.4. Emergency telephone number

Emergency number : CHEMTREC within the USA and Canada: 1-800-424-9300
CHEMTREC outside the USA and Canada +1 701-741-5970

SECTION 2: Hazard(s) identification

2.1. Classification of the substance or mixture

GHS US classification
Specific target organ toxicity — Single exposure, Category 3, H335 May cause respiratory irritation.
Respiratory tract irritation
Full text of H-statements: see section 16

2.2. GHS Label elements, including precautionary statements

GHS US labelling
Hazard pictograms (GHS US) :

Signal word (GHS US) : Warning
Hazard statements (GHS US) : H335 - May cause respiratory irritation.
Precautionary statements (GHS US) : P261 - Avoid breathing dust/fume/gas/mist/vapours/spray.
P271 - Use only outdoors or in a well-ventilated area.
P304+P340 - If inhaled: Remove person to fresh air and keep comfortable for breathing.
P312 - Call a poison center/doctor if you feel unwell
P403+P233 - Store in a well-ventilated place. Keep container tightly closed.
P405 - Store locked up.
P501 - Dispose of contents/container to hazardous or special waste collection point, in accordance with local, regional, national and/or international regulation.

2.3. Other hazards which do not result in classification

No additional information available
2.4. Unknown acute toxicity (GHS US)
Not applicable

SECTION 3: Composition/information on ingredients

3.1. Substances
Not applicable

3.2. Mixtures

<table>
<thead>
<tr>
<th>Name</th>
<th>Product identifier</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Copper</td>
<td>CAS-No.: 7440-50-8</td>
<td>35 – 37</td>
</tr>
<tr>
<td>Zinc</td>
<td>CAS-No.: 7440-66-6</td>
<td>30 – 34</td>
</tr>
<tr>
<td>Silver</td>
<td>CAS-No.: 7440-22-4</td>
<td>29 – 31</td>
</tr>
<tr>
<td>Tin</td>
<td>CAS-No.: 7440-31-5</td>
<td>1.5 – 2.5</td>
</tr>
</tbody>
</table>

Full text of hazard classes and H-statements: see section 16

SECTION 4: First-aid measures

4.1. Description of first aid measures

First-aid measures general: Call a poison center or a doctor if you feel unwell.
First-aid measures after inhalation: Remove person to fresh air and keep comfortable for breathing.
First-aid measures after skin contact: Wash skin with plenty of water.
First-aid measures after eye contact: Rinse eyes with water as a precaution.
First-aid measures after ingestion: Rinse mouth. Call a poison center or a doctor if you feel unwell.

4.2. Most important symptoms and effects (acute and delayed)
No additional information available

4.3. Immediate medical attention and special treatment, if necessary
Treat symptomatically.

SECTION 5: Fire-fighting measures

5.1. Suitable (and unsuitable) extinguishing media


5.2. Specific hazards arising from the chemical

Hazardous decomposition products in case of fire: Toxic fumes may be released.

5.3. Special protective equipment and precautions for fire-fighters

Protection during firefighting: Do not attempt to take action without suitable protective equipment. Self-contained breathing apparatus. Complete protective clothing.
SECTION 6: Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures

6.1.1. For non-emergency personnel
Emergency procedures: Ventilate spillage area.

6.1.2. For emergency responders
Protective equipment: Do not attempt to take action without suitable protective equipment. For further information refer to section 8: “Exposure controls/personal protection”.

6.2. Environmental precautions
Avoid release to the environment.

6.3. Methods and material for containment and cleaning up
Methods for cleaning up: Mechanically recover the product.
Other information: Dispose of materials or solid residues at an authorized site.

6.4. Reference to other sections
For further information refer to section 13.

SECTION 7: Handling and storage

7.1. Precautions for safe handling
Precautions for safe handling: Wear personal protective equipment. Ensure good ventilation of the work station.
Hygiene measures: Do not eat, drink or smoke when using this product. Always wash hands after handling the product.

7.2. Conditions for safe storage, including any incompatibilities
Storage conditions: Store in a well-ventilated place. Keep cool.

SECTION 8: Exposure controls/personal protection

8.1. Control parameters

Silver (7440-22-4)

USA - ACGIH - Occupational Exposure Limits
ACGIH OEL TWA 0.1 mg/m³ (dust and fume)

USA - OSHA - Occupational Exposure Limits
OSHA PEL TWA [1] 0.01 mg/m³

USA - IDLH - Occupational Exposure Limits
IDLH 10 mg/m³ (dust)

USA - NIOSH - Occupational Exposure Limits
NIOSH REL TWA 0.01 mg/m³ (dust)
### Copper (7440-50-8)

#### USA - ACGIH - Occupational Exposure Limits
- ACGIH OEL TWA: 0.2 mg/m³ (fume)

#### USA - OSHA - Occupational Exposure Limits
- OSHA PEL TWA [1]:
  - 0.1 mg/m³ (fume)
  - 1 mg/m³ (dust and mist)

#### USA - IDLH - Occupational Exposure Limits
- IDLH: 100 mg/m³ (dust, fume and mist)

#### USA - NIOSH - Occupational Exposure Limits
- NIOSH REL TWA:
  - 1 mg/m³ (dust and mist)
  - 0.1 mg/m³ (fume)

### Tin (7440-31-5)

#### USA - ACGIH - Occupational Exposure Limits
- ACGIH OEL TWA: 2 mg/m³

#### USA - IDLH - Occupational Exposure Limits
- IDLH: 100 mg/m³

#### USA - NIOSH - Occupational Exposure Limits
- NIOSH REL TWA: 2 mg/m³

### Zinc (7440-66-6)

#### USA - ACGIH - Occupational Exposure Limits
- ACGIH OEL TWA: 2 mg/m³ (as ZnO)

### 8.2. Appropriate engineering controls

- Appropriate engineering controls: Ensure good ventilation of the work station.
- Environmental exposure controls: Avoid release to the environment.

### 8.3. Individual protection measures/Personal protective equipment

**Hand protection:**
- Protective gloves

**Eye protection:**
- Safety glasses

**Skin and body protection:**
- Wear suitable protective clothing

**Respiratory protection:**
- In case of insufficient ventilation, wear suitable respiratory equipment

**Personal protective equipment symbol(s):**

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2/1/2022 (Revision date)  EN (English)  4/9
SECTION 9: Physical and chemical properties

9.1. Information on basic physical and chemical properties

<table>
<thead>
<tr>
<th>Physical state</th>
<th>Solid</th>
</tr>
</thead>
<tbody>
<tr>
<td>Appearance</td>
<td>White to light yellow metallic luster, various forms.</td>
</tr>
<tr>
<td>Colour</td>
<td>No data available</td>
</tr>
<tr>
<td>Odour</td>
<td>No data available</td>
</tr>
<tr>
<td>Odour threshold</td>
<td>No data available</td>
</tr>
<tr>
<td>pH</td>
<td>No data available</td>
</tr>
<tr>
<td>Melting point</td>
<td>1390 °F</td>
</tr>
<tr>
<td>Freezing point</td>
<td>Not applicable</td>
</tr>
<tr>
<td>Boiling point</td>
<td>No data available</td>
</tr>
<tr>
<td>Flash point</td>
<td>Not applicable</td>
</tr>
<tr>
<td>Relative evaporation rate (butylacetate=1)</td>
<td>No data available</td>
</tr>
<tr>
<td>Flammability (solid, gas)</td>
<td>Non flammable.</td>
</tr>
<tr>
<td>Vapour pressure</td>
<td>No data available</td>
</tr>
<tr>
<td>Relative vapour density at 20 °C</td>
<td>No data available</td>
</tr>
<tr>
<td>Relative density</td>
<td>No data available</td>
</tr>
<tr>
<td>Solubility</td>
<td>No data available</td>
</tr>
<tr>
<td>Partition coefficient n-octanol/water (Log Pow)</td>
<td>No data available</td>
</tr>
<tr>
<td>Auto-ignition temperature</td>
<td>Not applicable</td>
</tr>
<tr>
<td>Decomposition temperature</td>
<td>No data available</td>
</tr>
<tr>
<td>Viscosity, kinematic</td>
<td>Not applicable</td>
</tr>
<tr>
<td>Viscosity, dynamic</td>
<td>No data available</td>
</tr>
<tr>
<td>Explosive limits</td>
<td>Not applicable</td>
</tr>
<tr>
<td>Explosive properties</td>
<td>No data available</td>
</tr>
<tr>
<td>Oxidising properties</td>
<td>No data available</td>
</tr>
</tbody>
</table>

9.2. Other information

No additional information available

SECTION 10: Stability and reactivity

10.1. Reactivity

The product is non-reactive under normal conditions of use, storage and transport.

10.2. Chemical stability

Stable under normal conditions.

10.3. Possibility of hazardous reactions

No dangerous reactions known under normal conditions of use.

10.4. Conditions to avoid

None under recommended storage and handling conditions (see section 7).

10.5. Incompatible materials

No additional information available

10.6. Hazardous decomposition products

Under normal conditions of storage and use, hazardous decomposition products should not be produced.
SILVALOY® 302
Safety Data Sheet
according to Federal Register / Vol. 77, No. 58 / Monday, March 26, 2012 / Rules and Regulations

SECTION 11: Toxicological information

11.1. Information on toxicological effects

<table>
<thead>
<tr>
<th>Acute toxicity (oral)</th>
<th>Not classified</th>
</tr>
</thead>
<tbody>
<tr>
<td>Acute toxicity (dermal)</td>
<td>Not classified</td>
</tr>
<tr>
<td>Acute toxicity (inhalation)</td>
<td>Not classified</td>
</tr>
</tbody>
</table>

**Silver (7440-22-4)**

<table>
<thead>
<tr>
<th>LD50 oral rat</th>
<th>&gt; 5000 mg/kg</th>
</tr>
</thead>
<tbody>
<tr>
<td>LD50 dermal rat</td>
<td>&gt; 2000 mg/kg</td>
</tr>
</tbody>
</table>

**Tin (7440-31-5)**

<table>
<thead>
<tr>
<th>LD50 oral rat</th>
<th>700 mg/kg</th>
</tr>
</thead>
</table>

**Zinc (7440-66-6)**

| LD50 oral rat | 630 mg/kg |

<table>
<thead>
<tr>
<th>Skin corrosion/irritation</th>
<th>Not classified</th>
</tr>
</thead>
<tbody>
<tr>
<td>Serious eye damage/irritation</td>
<td>Not classified</td>
</tr>
<tr>
<td>Respiratory or skin sensitisation</td>
<td>Not classified</td>
</tr>
<tr>
<td>Germ cell mutagenicity</td>
<td>Not classified</td>
</tr>
<tr>
<td>Carcinogenicity</td>
<td>Not classified</td>
</tr>
<tr>
<td>Reproductive toxicity</td>
<td>Not classified</td>
</tr>
<tr>
<td>STOT-single exposure</td>
<td>May cause respiratory irritation.</td>
</tr>
<tr>
<td>STOT-repeated exposure</td>
<td>Not classified</td>
</tr>
<tr>
<td>Aspiration hazard</td>
<td>Not classified</td>
</tr>
<tr>
<td>Viscosity, kinematic</td>
<td>Not applicable</td>
</tr>
</tbody>
</table>

SECTION 12: Ecological information

12.1. Toxicity

Ecology - general: The product is not considered harmful to aquatic organisms nor to cause long-term adverse effects in the environment.

**Silver (7440-22-4)**

<table>
<thead>
<tr>
<th>LC50 - Fish [1]</th>
<th>0.00155 – 0.00293 mg/l (Exposure time: 96 h - Species: Pimephales promelas [static])</th>
</tr>
</thead>
<tbody>
<tr>
<td>EC50 - Crustacea [1]</td>
<td>0.00024 mg/l (Exposure time: 48 h - Species: Daphnia magna [Static])</td>
</tr>
<tr>
<td>LC50 - Fish [2]</td>
<td>0.0062 mg/l (Exposure time: 96 h - Species: Oncorhynchus mykiss [flow-through])</td>
</tr>
</tbody>
</table>

**Copper (7440-50-8)**

<table>
<thead>
<tr>
<th>LC50 - Fish [1]</th>
<th>0.0068 – 0.0156 mg/l (Exposure time: 96 h - Species: Pimephales promelas)</th>
</tr>
</thead>
<tbody>
<tr>
<td>EC50 - Crustacea [1]</td>
<td>0.03 mg/l (Exposure time: 48 h - Species: Daphnia magna [Static])</td>
</tr>
<tr>
<td>LC50 - Fish [2]</td>
<td>&lt; 0.3 mg/l (Exposure time: 96 h - Species: Pimephales promelas [static])</td>
</tr>
</tbody>
</table>

**Zinc (7440-66-6)**

<table>
<thead>
<tr>
<th>LC50 - Fish [1]</th>
<th>2.16 – 3.05 mg/l (Exposure time: 96 h - Species: Pimephales promelas [flow-through])</th>
</tr>
</thead>
<tbody>
<tr>
<td>EC50 - Crustacea [1]</td>
<td>0.139 – 0.908 mg/l (Exposure time: 48 h - Species: Daphnia magna [Static])</td>
</tr>
<tr>
<td>LC50 - Fish [2]</td>
<td>0.211 – 0.269 mg/l (Exposure time: 96 h - Species: Pimephales promelas [semi-static])</td>
</tr>
</tbody>
</table>
12.2. Persistence and degradability
No additional information available

12.3. Bioaccumulative potential
No additional information available

12.4. Mobility in soil
No additional information available

12.5. Other adverse effects
No additional information available

SECTION 13: Disposal considerations

13.1. Disposal methods
Waste treatment methods: Dispose of contents/container in accordance with licensed collector’s sorting instructions.

SECTION 14: Transport information

In accordance with DOT / TDG / IMDG / IATA

14.1. UN number
Not regulated for transport

14.2. UN proper shipping name
Proper Shipping Name (DOT): Not applicable
Proper Shipping Name (TDG): Not applicable
Proper Shipping Name (IMDG): Not applicable
Proper Shipping Name (IATA): Not applicable

14.3. Transport hazard class(es)

DOT
Transport hazard class(es) (DOT): Not applicable

TDG
Transport hazard class(es) (TDG): Not applicable

IMDG
Transport hazard class(es) (IMDG): Not applicable

IATA
Transport hazard class(es) (IATA): Not applicable

14.4. Packing group
Packing group (DOT): Not applicable
Packing group (TDG): Not applicable
Packing group (IMDG): Not applicable
Packing group (IATA): Not applicable

14.5. Environmental hazards
Other information: No supplementary information available.
14.6. Special precautions for user

**DOT**
No data available

**TDG**
No data available

**IMDG**
No data available

**IATA**
No data available

14.7. Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code

Not applicable

**SECTION 15: Regulatory information**

15.1. US Federal regulations

Commercial status of components according to the United States Environmental Protection Agency’s Toxic Substances Control Act (TSCA):

<table>
<thead>
<tr>
<th>Name</th>
<th>CAS-No.</th>
<th>Listing</th>
<th>Commercial status</th>
<th>Flags</th>
</tr>
</thead>
<tbody>
<tr>
<td>Silver</td>
<td>7440-22-4</td>
<td>Present</td>
<td>Active</td>
<td></td>
</tr>
<tr>
<td>Copper</td>
<td>7440-50-8</td>
<td>Present</td>
<td>Active</td>
<td></td>
</tr>
<tr>
<td>Tin</td>
<td>7440-31-5</td>
<td>Present</td>
<td>Active</td>
<td></td>
</tr>
<tr>
<td>Zinc</td>
<td>7440-66-6</td>
<td>Present</td>
<td>Active</td>
<td></td>
</tr>
</tbody>
</table>

**Silver (7440-22-4)**
Subject to reporting requirements of United States SARA Section 313

CERCLA RQ 1000 lb no reporting of releases of this hazardous substance is required if the diameter of the pieces of the solid metal released is >100 µm

**Copper (7440-50-8)**
Subject to reporting requirements of United States SARA Section 313

CERCLA RQ 5000 lb no reporting of releases of this hazardous substance is required if the diameter of the pieces of the solid metal released is >100 µm

**Zinc (7440-66-6)**
Subject to reporting requirements of United States SARA Section 313

CERCLA RQ 454 kg no reporting of releases of this hazardous substance is required if the diameter of the pieces of the solid metal released is >100 µm

15.2. International regulations

No additional information available
15.3. US State regulations

California Proposition 65 - This product does not contain any substances known to the state of California to cause cancer, developmental and/or reproductive harm

<table>
<thead>
<tr>
<th>Component</th>
<th>State or local regulations</th>
</tr>
</thead>
<tbody>
<tr>
<td>Silver(7440-22-4)</td>
<td>U.S. - Massachusetts - Right To Know List; U.S. - New Jersey - Right to Know Hazardous Substance List; U.S. - Pennsylvania - RTK (Right to Know) - Environmental Hazard List; U.S. - Pennsylvania - RTK (Right to Know) List</td>
</tr>
<tr>
<td>Copper(7440-50-8)</td>
<td>U.S. - Massachusetts - Right To Know List; U.S. - New Jersey - Right to Know Hazardous Substance List; U.S. - Pennsylvania - RTK (Right to Know) - Environmental Hazard List; U.S. - Pennsylvania - RTK (Right to Know) List</td>
</tr>
<tr>
<td>Tin(7440-31-5)</td>
<td>U.S. - Massachusetts - Right To Know List; U.S. - New Jersey - Right to Know Hazardous Substance List; U.S. - Pennsylvania - RTK (Right to Know) - Environmental Hazard List; U.S. - Pennsylvania - RTK (Right to Know) List</td>
</tr>
<tr>
<td>Zinc(7440-66-6)</td>
<td>U.S. - Massachusetts - Right To Know List; U.S. - New Jersey - Right to Know Hazardous Substance List; U.S. - Pennsylvania - RTK (Right to Know) - Environmental Hazard List; U.S. - Pennsylvania - RTK (Right to Know) List</td>
</tr>
</tbody>
</table>

SECTION 16: Other information

Revised date: 02/01/2022

Full text of H-statements

H335 May cause respiratory irritation.

NFPA health hazard: 2 - Materials that, under emergency conditions, can cause temporary incapacitation or residual injury.

NFPA fire hazard: 1 - Materials that must be preheated before ignition can occur.

NFPA reactivity: 1 - Materials that in themselves are normally stable but can become unstable at elevated temperatures and pressures.

Hazard Rating
Health: 2 Moderate Hazard - Temporary or minor injury may occur
*: "Chronic (long-term) health effects may result from repeated overexposure
Flammability: 1 Slight Hazard - Materials that must be preheated before ignition will occur. Includes liquids, solids and semi solids having a flash point above 200 F. (Class IIIB)
Physical: 1 Slight Hazard - Materials that are normally stable but can become unstable (self-react) at high temperatures and pressures. Materials may react non-violently with water or undergo hazardous polymerization in the absence of inhibitors.

Personal protection: B - Safety glasses, Gloves

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Lucas-Milhaupt, Inc.