SECTION 1: Identification

1.1. Identification
Product form : Mixture
Trade name : SILVALOY® 580
Product code : A00000317

1.2. Recommended use and restrictions on use
No additional information available

1.3. Supplier
Lucas-Milhaupt, Inc.
5656 South Pennsylvania Ave.
Cudahy, WI 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
Not classified

2.2. GHS Label elements, including precautionary statements
GHS-US labelling
No labelling applicable

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>Silver</td>
<td>(CAS-No.) 7440-22-4</td>
<td>56.5 - 58.5</td>
</tr>
<tr>
<td>Copper</td>
<td>(CAS-No.) 7440-50-8</td>
<td>31.5 - 33.5</td>
</tr>
<tr>
<td>Tin</td>
<td>(CAS-No.) 7440-31-5</td>
<td>6.5 - 7.5</td>
</tr>
<tr>
<td>Manganese</td>
<td>(CAS-No.) 7439-96-5</td>
<td>2.5 - 3.5</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 : Call a poison center or a doctor if you feel unwell. Rinse mouth.

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
Suitable extinguishing media: Dry powder. Water spray. Foam.
Unsuitable extinguishing media: Water.

5.2. Specific hazards arising from the chemical
Reactivity: The product is non-reactive under normal conditions of use, storage and transport.

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
For containment: Collect spillage.
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: Ensure good ventilation of the work station. Wear personal protective equipment.
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

<table>
<thead>
<tr>
<th>Copper (7440-50-8)</th>
<th>ACGIH</th>
<th>ACGIH TWA (mg/m³)</th>
<th>0.2 mg/m³ (fume)</th>
</tr>
</thead>
<tbody>
<tr>
<td>OSHA</td>
<td>OSHA PEL (TWA) (mg/m³)</td>
<td>0.1 mg/m³ (fume) 1 mg/m³ (dust and mist)</td>
<td></td>
</tr>
<tr>
<td>IDLH</td>
<td>US IDLH (mg/m³)</td>
<td>100 mg/m³ (dust, fume and mist)</td>
<td></td>
</tr>
<tr>
<td>NIOSH</td>
<td>NIOSH REL (TWA) (mg/m³)</td>
<td>1 mg/m³ (dust and mist) 0.1 mg/m³ (fume)</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Manganese (7439-96-5)</th>
<th>ACGIH</th>
<th>ACGIH TWA (mg/m³)</th>
<th>0.02 mg/m³ (respirable particulate matter) 0.1 mg/m³ (inhalable particulate matter)</th>
</tr>
</thead>
<tbody>
<tr>
<td>OSHA</td>
<td>OSHA PEL (Ceiling) (mg/m³)</td>
<td>5 mg/m³ (fume)</td>
<td></td>
</tr>
<tr>
<td>IDLH</td>
<td>US IDLH (mg/m³)</td>
<td>500 mg/m³</td>
<td></td>
</tr>
<tr>
<td>NIOSH</td>
<td>NIOSH REL (TWA) (mg/m³)</td>
<td>1 mg/m³ (fume)</td>
<td></td>
</tr>
</tbody>
</table>
SILVALOY® 580
Safety Data Sheet
according to Federal Register / Vol. 77, No. 58 / Monday, March 26, 2012 / Rules and Regulations

<table>
<thead>
<tr>
<th>Manganese (7439-96-5)</th>
<th>NIOSH REL (STEL) (mg/m³)</th>
<th>3 mg/m³</th>
</tr>
</thead>
<tbody>
<tr>
<td>Silver (7440-22-4)</td>
<td>ACGIH TWA (mg/m³)</td>
<td>0.1 mg/m³ (dust and fume)</td>
</tr>
<tr>
<td></td>
<td>OSHA PEL (TWA) (mg/m³)</td>
<td>0.01 mg/m³</td>
</tr>
<tr>
<td></td>
<td>IDLH US IDLH (mg/m³)</td>
<td>10 mg/m³ (dust)</td>
</tr>
<tr>
<td></td>
<td>NIOSH REL (TWA) (mg/m³)</td>
<td>0.01 mg/m³ (dust)</td>
</tr>
<tr>
<td>Tin (7440-31-5)</td>
<td>ACGIH TWA (mg/m³)</td>
<td>2 mg/m³</td>
</tr>
<tr>
<td></td>
<td>IDLH US IDLH (mg/m³)</td>
<td>100 mg/m³</td>
</tr>
<tr>
<td></td>
<td>NIOSH REL (TWA) (mg/m³)</td>
<td>2 mg/m³</td>
</tr>
</tbody>
</table>

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

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>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>No data available</td>
</tr>
<tr>
<td>Freezing point</td>
<td>Not applicable</td>
</tr>
<tr>
<td>Boiling 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>Not applicable</td>
</tr>
<tr>
<td>Solubility</td>
<td>No data available</td>
</tr>
<tr>
<td>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>
</tbody>
</table>
Explosive limits: Not applicable
Explosive properties: No data available
Oxidising properties: No data available

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.

SECTION 11: Toxicological information

11.1. Information on toxicological effects
Acute toxicity: Not classified

<table>
<thead>
<tr>
<th>Manganese (7439-96-5)</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>LD50 oral rat</td>
<td>9 g/kg</td>
</tr>
<tr>
<td>ATE US (oral)</td>
<td>9000 mg/kg bodyweight</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Silver (7440-22-4)</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>LD50 oral rat</td>
<td>&gt; 5000 mg/kg</td>
</tr>
<tr>
<td>LD50 dermal rat</td>
<td>&gt; 2000 mg/kg</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Tin (7440-31-5)</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>LD50 oral rat</td>
<td>700 mg/kg</td>
</tr>
<tr>
<td>ATE US (oral)</td>
<td>700 mg/kg bodyweight</td>
</tr>
</tbody>
</table>

Skin corrosion/irritation: Not classified
Serious eye damage/irritation: Not classified
Respiratory or skin sensitisation: Not classified
Germ cell mutagenicity: Not classified
Carcinogenicity: Not classified

Reproductive toxicity: Not classified
Specific target organ toxicity (single exposure): Not classified
Specific target organ toxicity (repeated exposure): Not classified
Aspiration hazard: Not classified

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. Very toxic to aquatic life.
### Copper (7440-50-8)

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

### Silver (7440-22-4)

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

**Department of Transportation (DOT)**
In accordance with DOT
Not applicable

**Transportation of Dangerous Goods**
Not applicable

**Transport by sea**
Not applicable

**Air transport**
Not applicable

### SECTION 15: Regulatory information

#### 15.1. US Federal regulations

<table>
<thead>
<tr>
<th>Substance</th>
<th>Information</th>
</tr>
</thead>
<tbody>
<tr>
<td>Copper (7440-50-8)</td>
<td>Listed on the United States TSCA (Toxic Substances Control Act) inventory Subject to reporting requirements of United States SARA Section 313</td>
</tr>
<tr>
<td>CERCLA RO</td>
<td>5000 lb no reporting of releases of this hazardous substance is required if the diameter of the pieces of the solid metal released is &gt;100 µm</td>
</tr>
</tbody>
</table>

**Manganese (7439-96-5)**
Listed on the United States TSCA (Toxic Substances Control Act) inventory Subject to reporting requirements of United States SARA Section 313
Silver (7440-22-4)
Listed on the United States TSCA (Toxic Substances Control Act) inventory
Subject to reporting requirements of United States SARA Section 313
CERCLA RO 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

Tin (7440-31-5)
Listed on the United States TSCA (Toxic Substances Control Act) inventory

15.2. International regulations

Copper (7440-50-8)
Listed on the TCSI (Taiwan Chemical Substance Inventory)

Manganese (7439-96-5)
Listed on the TCSI (Taiwan Chemical Substance Inventory)

Silver (7440-22-4)
Listed on the TCSI (Taiwan Chemical Substance Inventory)

Tin (7440-31-5)
Listed on the TCSI (Taiwan Chemical Substance Inventory)

15.3. US State regulations

Copper (7440-50-8)
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

Manganese (7439-96-5)
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

Silver (7440-22-4)
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

Tin (7440-31-5)
U.S. - Massachusetts - Right To Know List
U.S. - New Jersey - Right to Know Hazardous Substance List
U.S. - Pennsylvania - RTK (Right to Know) List

SECTION 16: Other information

SDS US (GHS HazCom 2012)

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Lucas-Milhaupt, Inc.