SAFETY DATA SHEET

Section 1: GENERAL INFORMATION

<table>
<thead>
<tr>
<th>TRADE NAME (Common Name or Synonym)</th>
<th>CHEMICAL NAME</th>
<th>PREPARED BY</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tin/Silver Solder</td>
<td>Tin/Silver Solder</td>
<td>Metallic Resources</td>
</tr>
</tbody>
</table>

**USED IN INDUSTRIAL SOLDERING PROCESSES**

**ADDRESS (No., Street, City, State, Zip Code):**
Metals Resources, Inc., 2368 East Enterprise Parkway, Twinsburg, OH 44087

**CONTACT**

- Metallic Resources, Inc.: (330) 425-3155
- Chemtrec: (800) 424-9300

**or contact any emergency room within 15 minutes of your location.**

Section 2: HAZARDS IDENTIFICATION

**Signal Word:** Warning

**Hazard statement(s)**
H303 May be harmful if swallowed
H335 May cause respiratory irritation

**Precautionary statement(s)**

- P233 Keep container tightly closed
- P261 Avoid breathing dust/fume/gas/mist/vapors/spray
- P270 Do not eat, drink or smoke when using this product
- P273 Avoid release to the environment
- P280 Wear protective gloves/protective clothing/eye protection/face protection
- P362 Take off contaminated clothing and wash before reuse
- P301 + P314 IF SWALLOWED: Get Medical advice/attention if you feel unwell
- P302 + P352 IF ON SKIN: Wash with plenty of soap and water
- P304 + 341 IF INHALED: If breathing is difficult, remove victim to fresh air and keep at rest in a position comfortable for breathing
- P305 + 351 IF IN EYES: Rinse continuously with water for several minutes (15 mins)
- P501 Dispose of in accordance with applicable local/state and federal regulations. Consider recycling.

**POTENTIAL HEALTH EFFECTS:**

**Eye Contact:** Contact with powered metal alloy or fume from molten metal may cause irritation. Severe eye damage may result from hot molten metal being splashed into the eyes. Wear safety glasses and face shield when working with molten metal.

**Ingestion:** Ingestion of dust may cause headache, nausea, abdominal pain, fatigue and pain in the legs, arms and joints. May be harmful.

**Inhalation:** Inhalation of fume or dust may cause local irritation to the respiratory system. Inhalation of fume or dust may cause headache, nausea, abdominal pain, fatigue and pain in the legs, arms and joints. Inhalation can be harmful.

**Skin Contact:** Normal handling of solid metal should not cause any adverse health effects. Hot molten metal may cause burns to the skin. Wear protective equipment when handling molten metal. Protect skin when grinding/cutting, may cause irritation.
Section 2: HAZARDS IDENTIFICATION (Continued)

Chronic:  
**TIN:** Has been shown to increase incidence of sarcoma in animal tests. Chronic exposure result in “stannosis” a mild form of pneumoconiosis.

**Silver:** Chronic skin contact or ingestion of silver dusts, salts or fume can result in a condition known as Argyria, a condition with bluish pigmentation of the skin and eyes.

Exposure to metal fumes may cause irritation to the respiratory system. Long term exposure by inhalation to metal fumes may cause illness such as metal fume fever. Exposure to lead fume may cause harm. Sign of overexposure is anemia.

**NOTE:** Metallic Resources does not recommend, manufacturer, market or endorse any of its products for human consumption.

Section 3: COMPOSITION/INFORMATION ON INGREDIENTS

<table>
<thead>
<tr>
<th>Material or Substance</th>
<th>C.A.S. #</th>
<th>Wt. %</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tin</td>
<td>7440-31-5</td>
<td>95-99%</td>
</tr>
<tr>
<td>Silver</td>
<td>7440-22-4</td>
<td>0.2-5.0%</td>
</tr>
</tbody>
</table>

Section 4: FIRST AID MEASURES

**Eye Contact:** Hold eyelids apart and flush eyes with plenty of tepid water for at least 15 minutes. Seek medical attention if irritation persists.

**Ingestion:** If patient is conscious, ONLY induce vomiting as directed by trained personnel. NEVER give anything by mouth to an unconscious person. Seek medical attention immediately.

**Inhalation:** Remove to fresh air. If not breathing, give artificial respiration or oxygen by trained personnel. Seek immediate medical attention.

**Skin Contact:** Remove contaminated clothing. Wash affected area with soap and water. Wash clothing before reuse. If irritation persists, obtain medical attention.

Section 5: FIRE FIGHTING MEASURES

**Flash Point:** Not established.  **Method:** Not established.

**Auto-ignition Temperature:** Not established.

**Flammable Limits:** Limits not established. Massive metal is not flammable; however dust or powder may be a dust hazard.

**Extinguishing Media:** Use extinguishers appropriate for the surrounding fire conditions. Never add water to molten metal.

**Special Fire Fighting Procedures:** Firefighters must wear NIOSH approved self-contained breathing apparatus and full protective clothing.
Section 6: ACCIDENTAL RELEASE MEASURES

**Spill or Leak Procedures:** Contain spill. If molten, cool to allow metal to solidify. If a solid metal, wear gloves, pick up and return to process. If dust, wear recommended personal protective equipment. DO NOT SWEEP, avoid generation of dust. Ventilation required. Use a vacuum, place in barrels and return to process if applicable. Otherwise, dispose of following all Federal, State and Local regulations. In the EU refer to the Special Waste Regulations. Metal has reclaim value.

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Section 7: HANDLING AND STORAGE

**Handling Precautions:** Only dry metals should be added to molten bath. If working with molten metals, or exposed to fume or dust, use appropriate personal protective equipment.

**Storage Precautions:** Store product in a cool, dry area away from incompatible materials.

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Section 8: EXPOSURE CONTROLS/PERSONAL PROTECTION

**Engineering Controls:** Exhaust ventilation is required to control any air contaminants containing lead. Control concentration of all components so that their permissible exposure limits are not exceeded.

**Personal protection:**

**Eyes:** Chemical safety glasses/goggles and face shield with molten metal.

**Respirator:** An authority approved or compliant marked air-purifying respirator with a fume/dust chemical cartridge is recommended under certain circumstances where airborne concentrations are expected to be elevated or if in powder form. Avoid inhalation of lead dust. Additional respiratory protection maybe required based on the work conditions.

**Skin:** Gloves-leather or impervious (vinyl) type. Heat resistant gloves if handling hot metal. Safety type boots. Personal protective equipment is recommended when working with molten metal to avoid burns.

**Other:** Lab coat, safety shower and eye-wash fountain in work area. Avoid the use of contact lenses in high fume areas.

**Work/Hygienic Practices:** Maintain good housekeeping. Clean up spills immediately. Good personal hygiene is essential. Avoid eating, smoking or drinking in the work area. Wash hands thoroughly with soap and water immediately upon leaving the work area. Follow standard lead work practices as established under governmental regulations.

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Section 9: PHYSICAL AND CHEMICAL PROPERTIES

**Appearance:** Silver grey solid metal

**Odor:** Odorless

**Specific Gravity:** Alloy Dependent

**Vapor Pressure:** Not applicable.

**Vapor Density:** (air=1) Not applicable.

**Boiling Point:** Not applicable.

**Melting Point:** 361°F (182°C)

**pH:** Not applicable

**Solubility in Water:** Insoluble

**Flash point:** Not applicable

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Section 10: STABILITY AND REACTIVITY

**General:** Stable.

**Conditions to Avoid:** Not established.

**Incompatible Materials:** Avoid contact with mineral acids.

**Hazardous Decomposition / Combustion:** Harmful organic fumes and toxic oxide fumes may form at elevated temperatures.

**Hazardous Polymerization:** Will not occur.
Section 11: TOXICOGICAL INFORMATION

Carcinogenicity:
National Toxicity Program (NTP): No
Occupational Safety & Health Administration (OSHA): No
U.N. International Agency for Research on Cancer (IARC): No
LD50: Not established  LC50: Not established

Other:
Irritancy of Product: Not established  Mutagenicity: Not established
Sensitization to Product: Not established  Teratogenicity: Not established
Reproductive Toxicity: No specific data is available  Synergistic Products: Not established

RTECS#: Tin – XP7320000 (Registry of Toxic Effects of Chemical Substances)

Section 12: ECOLOGICAL INFORMATION

Product mixture not tested.

Section 13: DISPOSAL CONSIDERATION

Waste Disposal Method: Scrap metal alloy usually has value. Contact a commercial reclaimer for recycling. Otherwise, dispose of in accordance with all Federal, State and Local environmental regulations. In Europe follow the Special Waste Regulations. Avoid release to the environment.

Section 14: TRANSPORT INFORMATION

Transport in accordance with applicable regulations and requirements. Not regulated under US DOT (United States Department of Transportation).

Metal solid form:

Not hazardous under shipping modes/ regulations.

UN - none

Section 15: REGULATORY INFORMATION

UNITED STATES
HCS Classification: Irritating material, target organ effects.

U.S. Federal Regulations:
TSCA 5(a)2 proposed risk management: SILVER.
TSCA 5(a)2 final significant new use rules. No products were found.
TSCA 12(b) one time export. No products were found.

SARA 313                Substance Name
Form R - Reporting Requirements: Silver
Supplier Notification: Silver

WHMIS (Canada): Not controlled under WHMIS (Canada).

Reach Directive 1907/2006: This product does not contain any Substances of Very High Concern (SVHC).
Section 16: OTHER INFORMATION

ABBREVIATION TERMS:
ACGIH  American Conference of Government Industrial Hygienists   OSHA   Occupational Safety and Health Act
CAS    Chemical Abstracts Service   PEL    Permissible Exposure Limit
CEPA   Canadian Environmental Protection Act   REL    Recommended Exposure Limit
IARC   International Agency for Research on Cancer   SARA   Superfund Amendments & Reauthorization Act
NIOSH  National Institute for Occupational Safety and Health   TSCA   Toxic Substances Control Act
NTP    National Toxicology Program   N/A    Not Applicable, Not Available

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