SAFETY DATA SHEET

This safety data sheet represents a family grouping of all metal mixes that are blended with the same flux. A table is provided starting on page 4 that lists all metal groupings. To better serve all of our customers Indium Corporation has generated one SDS, for this product, to be used within the United States as well as internationally. Some of the regulatory information contained within may not be applicable to the customer’s individual state or country. Unless otherwise stated the health and safety information provided within is applicable to all products. Review any additional information that may be specific to the country where this is used.

1. PRODUCT AND COMPANY IDENTIFICATION

Product Identifier: INDALLOY WITH SR-7 FLUX VEHICLE
SDS Number: SDS-5041
Revised Date: 25 SEPTEMBER 2018
Product Use: Industrial Use - No-clean solder paste consisting of a flux vehicle blended with a 83-92 % pre-alloyed metal powder.

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USA: 1 (800) 424-9300
Outside USA: +1 (703) 527-3887
In China: Emergency 86+ 4008417580
## 2. HAZARDS IDENTIFICATION

### PRIMARY ROUTES OF ENTRY:

<table>
<thead>
<tr>
<th>Carcinogen listed in</th>
<th>NTP</th>
<th>IARC*</th>
<th>OSHA</th>
<th>Not Listed</th>
</tr>
</thead>
<tbody>
<tr>
<td>☐ Eye</td>
<td>☐</td>
<td>☑</td>
<td>☐</td>
<td>☑</td>
</tr>
<tr>
<td>☑ Inhalation</td>
<td>☐</td>
<td>☐</td>
<td>☑</td>
<td>☑</td>
</tr>
<tr>
<td>☐ Skin</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☑</td>
</tr>
<tr>
<td>☐ Ingestion</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☑</td>
</tr>
</tbody>
</table>

GHS:

#### Lead free products

![Warning symbol]

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 +P364** 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 + P341** IF INHALED: If breathing is difficult, remove victim to fresh air and keep at rest in a position comfortable for breathing
- **P305 + P351** IF IN EYES: Rinse continuously with water for several minutes (15 mins)

#### Lead containing products

![Warning symbol]

Signal Word: Warning

**Hazard statement(s)**

- **H303** May be harmful if swallowed
- **H351** Suspected of causing cancer
- **H361** Suspected of damaging fertility or the unborn child
- **H373** May cause damage to organs through prolonged or repeated exposure
- **H410** Very toxic to aquatic life with long lasting harmful effects
- **EUH201A** Warning! Contains lead. Review listing.

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
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- **P304 + P341** IF INHALED: If breathing is difficult, remove victim to fresh air and keep at rest in a position comfortable for breathing
- **P305 + P351** IF IN EYES: Rinse continuously with water for several minutes (15 mins)
Classification:
Acute toxicity - Category 4 (lead)
Specific target organ toxicity - repeated exposure – Category 2
Carcinogenicity (Category 2) (lead)
Reproductive toxicity (Category 2) (lead)
Acute aquatic toxicity – Category 1 for lead containing products
Chronic aquatic toxicity – Category 1 for lead containing products

POTENTIAL HEALTH EFFECTS:

Eye Contact: Contact with material at room temperature or fume from material at typical re-flow temperatures over 100°C may cause eye irritation.

Ingestion: This product contains alloy powder and organic chemicals. May be harmful if swallowed.

Inhalation: Vapors or fumes from this material at typical re-flow temperatures over 100°C may cause local irritation to the respiratory system.

Skin Contact: May cause skin irritation.

Chronic: LEAD: Prolonged exposure to vapors or fumes at higher temperatures may cause respiratory irritation and systematic lead poisoning. Symptoms of lead poisoning include headache, nausea, abdominal pain, muscle and joint pain and damage to the nervous system, blood system and kidneys.

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

TIN: Has been shown to increase incidence of sarcoma in animal tests.

WARNING: This product can expose you to chemicals including [lead] which is known to the State of California to cause cancer, and can cause birth defects or other reproductive harm. For more information go to www.P65Warnings.ca.gov

NOTE: The Indium Corporation does not recommend, manufacture, market or endorse any of its products for human consumption.

WARNING: This product may contain lead. Lead may be harmful to your health. US Federal law prohibits the use of leaded solders in making joints or fittings in any private or public water supply system. Keep out of the reach of children.

<table>
<thead>
<tr>
<th>Components</th>
<th>% wt</th>
<th>CAS Registry#/EINECS#</th>
<th>PEL mg/m³</th>
<th>TLV-TWA mg/m³</th>
<th>TLV-STEL mg/m³</th>
</tr>
</thead>
<tbody>
<tr>
<td>TIN</td>
<td>*</td>
<td>7440-31-5/231-141-8</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>(US) 2</td>
<td>2</td>
<td>2</td>
<td>-</td>
</tr>
<tr>
<td></td>
<td></td>
<td>(EU) N.E.</td>
<td>2</td>
<td>4</td>
<td></td>
</tr>
<tr>
<td>Metal mixed with flux</td>
<td>Indalloy Metal mix</td>
<td>%Sn</td>
<td>%Ag</td>
<td>%Pb</td>
<td>%Cu</td>
</tr>
<tr>
<td>----------------------</td>
<td>-------------------</td>
<td>-----</td>
<td>-----</td>
<td>-----</td>
<td>-----</td>
</tr>
<tr>
<td>POLYGLYCOL ETHER</td>
<td>9038-95-3</td>
<td>N.E.</td>
<td>N.E.</td>
<td>N.E.</td>
<td>N.E.</td>
</tr>
<tr>
<td>CARBOXYLIC ACID</td>
<td>-</td>
<td>N.E.</td>
<td>N.E.</td>
<td>N.E.</td>
<td>N.E.</td>
</tr>
<tr>
<td>PROPRIETARY</td>
<td>3-10.5</td>
<td>N.E.</td>
<td>N.E.</td>
<td>N.E.</td>
<td>N.E.</td>
</tr>
</tbody>
</table>

**Alloy Table**

<table>
<thead>
<tr>
<th>Indalloy</th>
<th>%Sn</th>
<th>%Ag</th>
<th>%Pb</th>
<th>%Cu</th>
<th>RoHS2/3*</th>
</tr>
</thead>
<tbody>
<tr>
<td>106</td>
<td>52.3-58.0</td>
<td>-</td>
<td>30.7-34.0</td>
<td>-</td>
<td>NO</td>
</tr>
</tbody>
</table>

N.E. = Not established

*See Alloy Table*
<table>
<thead>
<tr>
<th>Indalloy Metal mix</th>
<th>%Tin (Sn)</th>
<th>%Silver (Ag)</th>
<th>%Lead (Pb)</th>
<th>%Copper (Cu)</th>
<th>RoHS2/3*</th>
</tr>
</thead>
<tbody>
<tr>
<td>121 (96.5Asn/3.5Ag)</td>
<td>80.1-88.8</td>
<td>29.1-3.2</td>
<td>-</td>
<td>-</td>
<td>YES</td>
</tr>
<tr>
<td>132 (95Sn/5Ag)</td>
<td>79-87.4</td>
<td>4.2-4.6</td>
<td>-</td>
<td>-</td>
<td>YES</td>
</tr>
<tr>
<td>151 (92.5Pb/5Sn/2.5Ag)</td>
<td>4.2-4.6</td>
<td>2.1-2.3</td>
<td>76.8-85.1</td>
<td>-</td>
<td>YES High lead exemption</td>
</tr>
<tr>
<td>246 (95.5Sn/4Ag/0.5Cu)</td>
<td>79-88.8</td>
<td>3.3-3.7</td>
<td>-</td>
<td>0.42-0.46</td>
<td>YES</td>
</tr>
</tbody>
</table>

NS = Non Standard Alloy-
*RoHS 2= Restriction of Hazardous Substances  EU Directive 2002/95/EC review any applicable exemptions that may apply. (2011/65/EU)
RoHS 3 = products do not contain any listed phthalates

### 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.

### 5. FIRE FIGHTING MEASURES

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

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

**Flammable Limits:** Limits not established, not flammable. **Extinguishing Media:** Use extinguishers appropriate for the surrounding fire conditions.

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

### 6. ACCIDENTAL RELEASE MEASURES

**Spill or Leak Procedures:** Using a spatula, scoop up paste and place in a plastic or glass jar and tightly cap. Remove traces of paste residue using cloth rags or paper towels moistened with ethyl or isopropyl alcohol. Dispose of contaminated cloth rags or paper towels following all Federal, State and Local regulations. In the EU refer to the Special Waste Regulations.
7. HANDLING AND STORAGE

Handling Precautions: Keep containers tightly closed when not in use. Use care to avoid spills. Use only with production equipment specifically designed for use with solder paste. Wear appropriate personal protective equipment when working or handling solder paste. Always thoroughly wash your hands after handling this product. DO NOT touch or rub eyes until hands are washed.

Storage Precautions: Store product in tightly capped original containers in a cool, dry area. Refer to product label for specific storage temperature requirements. Rotate stock to ensure use before expiration date on the label.

8. EXPOSURE CONTROLS / PERSONAL PROTECTION

Engineering Controls: Use only with production equipment (stencil printers and re-flow furnaces) with adequate exhaust ventilation and other safety features specifically designed for use with solder paste. Control concentration of all components so that the exposure levels are not exceeded. Use exhaust ventilation.

Personal protection:
Eyes: Chemical safety glasses/goggles. Face shield for splash hazards.
Respirator: An authority approved or compliant marked air-purifying respirator with a fume/organic chemical cartridge is recommended under certain circumstances (i.e. when re-flowing manually on a plate instead of a ventilated re-flow furnace) where airborne concentrations are expected to be elevated or exceed exposure limits.
Skin: Compatible chemical resistant gloves.
Other: Lab coat, 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. Do not allow rags or paper towels contaminated with solder paste to accumulate in the work area. 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. When working with lead containing product observe OSHA/EU or other countries established lead work practices.

9. PHYSICAL AND CHEMICAL PROPERTIES

<table>
<thead>
<tr>
<th>Property</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Appearance</td>
<td>Grey colored paste.</td>
</tr>
<tr>
<td>Odor</td>
<td>Mild characteristic odor.</td>
</tr>
<tr>
<td>Specific Gravity</td>
<td>0.92</td>
</tr>
<tr>
<td>Vapor Pressure</td>
<td>Not applicable</td>
</tr>
<tr>
<td>Vapor Density</td>
<td>(air=1) Not applicable.</td>
</tr>
<tr>
<td>Boiling Point</td>
<td>Not applicable</td>
</tr>
<tr>
<td>Melting Point</td>
<td>Not applicable</td>
</tr>
<tr>
<td>pH</td>
<td>Not applicable</td>
</tr>
<tr>
<td>Solubility in Water</td>
<td>Insoluble (paste)</td>
</tr>
</tbody>
</table>

10. STABILITY AND REACTIVITY

General: Stable.
Conditions to Avoid: Not established.
Incompatible Materials: Avoid contact with acids, bases or oxidizing agents.
Hazardous Decomposition / Combustion: Harmful organic fumes and toxic oxide fumes may form at elevated temperatures.
Hazardous Polymerization: Will not occur.
11. TOXICOLOGICAL INFORMATION

Carcinogenicity:
- NTP: No
- OSHA: No
- IARC: Yes  Lead and lead compounds are listed as possible carcinogens.

LD50: Not established.
LC50: Not established.

Other: Chronic Toxicity: Lead can cause potential harm to the developing fetus.

12. ECOLOGICAL INFORMATION

Product not tested.

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.

14. TRANSPORT INFORMATION

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

UN- none
Not regulated- ground/IATA/ocean

15. REGULATORY INFORMATION

The information in this Safety Data Sheet meets the requirements of the United States Occupational Safety and Health Act and regulations promulgated hereunder (29 CFR 1910.1200 ET. SEQ.).

This product has been classified in accordance with the hazard criteria of the Canadian Controlled Products Regulation (CPR).

Canadian WHMIS: D2A-Materials Causing Other Toxic Effects-Very Toxic Material (Chronic) (lead)

This product has been classified in accordance with the guidelines set by the Dept of Industrial Health of the Republic of Singapore.

For compliance with EU Directive 2002/95/EC, Restriction of Hazardous Substances (RoHS) see Alloy Table.

Philippines Inventory of Chemicals and Chemical Substances – 2000  [< 5% ingredients not listed]
WARNING: This product can expose you to chemicals including [lead] which is known to the State of California to cause cancer, and can cause birth defects or other reproductive harm. For more information go to www.P65Warnings.ca.gov

This product has been classified in accordance with the Mexican guidelines, NOM-018-STPS-2015 and NOM-010-STPS-2014.

Regulatory Information China:
GB/T 16483-2008, GB/T 17519-2013, Safety Data Sheets for Chemical Products
GB 30000.2-29-2013, Rules for classification and labeling of chemicals (GHS)
Decree No. 591: Regulations on the Control Over Safety of Hazardous Chemicals.
This product has been classified using the Chinese Occupational Limit for Hazardous Agents in the Workplace, GBZ2-2007.

This product has been classified in accordance with: Malaysian – OCCUPATIONAL SAFETY AND HEALTH (CLASSIFICATION, LABELING AND SAFETY DATA SHEET OF HAZARDOUS CHEMICALS) REGULATION OCTOBER 2013 – (CLASS).

SARA 313 Listing - 40 CFR 372.65
Lead CAS# 7439-92-1 Silver CAS# 7440-22-4

EPA Genetic Toxicology Program – Lead CAS# 7439-92-1

All ingredients are listed on the EPA TSCA Inventory.

16. OTHER INFORMATION

HMIS Hazard Rating: 
   Health: 2
   Fire: 1
   Physical Hazards: 0

Revised Date: 25 SEPTEMBER 2018
Prepared by: Nancy Swarts, Indium Corporation of America
Approved by: Nancy Swarts, Indium Corporation of America

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