This safety data sheet represents a family grouping of all metal mixes that are blended with the same flux. A table is provided that lists all metal groupings. To better serve all of our customers and reduce paperwork 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.

SAFETY DATA SHEET

1. PRODUCT AND COMPANY IDENTIFICATION

Product Identifier: INDALLOY WITH INDIUM 6.8 FLUX VEHICLE
SDS Number: SDS-989
Revised Date: 26 MARCH 2018

Product Use: Industrial Use - Water wash solder paste consisting of a flux vehicle blended with an 83-92 % pre-alloyed metal powder.

MANUFACTURER:

In America:
The Indium Corporation of America®.  
34 Robinson Rd., Clinton, NY  13323
Information: (315) 853-4900
nswarts@indium.com

In Europe:
The Indium Corporation of America® (European Operations)  
7 Newmarket Ct  
Kingston, Milton Keynes, UK, MK 10 OAG  
Information: +44 [0] 1908 580400

In Asia:
Indium Corporation of America  
Asia-Pacific Operations-Singapore  
29 Kian Teck Avenue  
Singapore 628908  
Information: +65 6268-8678

EMERGENCY PHONE:
CHEMTREC 24 hrs.  
USA: 1 (800) 424-9300  
Outside USA: +1 (703) 527-3887

In China:
Indium Corporation (Suzhou), Co., Ltd.  
No. 428 Xinglong Street  
Suzhou Industrial Park  
Suchun Industrial Square  
Unit No. 14-C  
Jiangsu Province, China 215126  
Information: (86) 512-6283-4900
2. HAZARDS IDENTIFICATION

PRIMARY ROUTES OF ENTRY:

- Eye  X
- Inhalation  X
- Skin  X
- Ingestion  X

CARCINOGEN LISTED IN:

- NTP
- IARC
- OSHA  X
- Not Listed

See Section 11

GHS

Lead-free products

Signal Word: Warning

Hazard statement(s)

- H317  May cause an allergic skin reaction
- H334  May cause allergy or asthma symptoms or breathing difficulties if inhaled
- EUH208  Contains rosin. May produce an allergic reaction

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 + 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)

Lead Containing Products

Signal Word: Warning

Hazard statement(s)

- H303  May be harmful if swallowed
- H317  May cause an allergic skin reaction
- H334  May cause allergy or asthma symptoms or breathing difficulties if inhaled
- 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 effects
- EUH201A  Warning! Contains lead. Review listing.
- EUH208  Contains rosin. May produce an allergic reaction

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 + 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)

Classification:
Specific target organ toxicity- repeated exposure – Category 2
Carcinogenicity (Category 2) (lead)
Reproductive toxicity (Category 2 ) (lead)
Skin sensitization – Category1B
Respiratory sensitization- Category1B
Acute toxicity, inhalation- Category 4
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 may contain lead alloy powder and organic chemicals. Harmful if swallowed. May cause systematic lead poisoning and burns to the digestive tract. Symptoms of lead poisoning include headache, nausea, abdominal pain, muscle and joint pain and damage to the nervous system, blood system and kidneys.

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 or dermatitis.

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.

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

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.

WARNING: This product can expose you to chemicals including [trace levels of ethylene oxide, 1,4 dioxane, and lead] which are known to the State of California to cause cancer and [trace levels of ethylene oxide and lead] which are known to the State of California to 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.
### 3. COMPOSITION / INFORMATION ON INGREDIENTS

<table>
<thead>
<tr>
<th>Components</th>
<th>% wt</th>
<th>CAS Registry #</th>
<th>PEL mg/m³</th>
<th>TLV-TWA mg/m³</th>
<th>TLV-STEL mg/m³</th>
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<tr>
<td><strong>TIN</strong></td>
<td>*</td>
<td>7440-31-5 (US)</td>
<td>2</td>
<td>2</td>
<td>-</td>
</tr>
<tr>
<td></td>
<td></td>
<td>(EU)</td>
<td>-</td>
<td>2</td>
<td>4</td>
</tr>
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<td></td>
<td></td>
<td>(Canada)</td>
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<td>2</td>
<td>4</td>
</tr>
<tr>
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<td></td>
<td>(Singapore)</td>
<td>2</td>
<td>-</td>
<td>-</td>
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<td>0.05</td>
<td>-</td>
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<tr>
<td></td>
<td></td>
<td>(EU)</td>
<td>-</td>
<td>0.15</td>
<td>-</td>
</tr>
<tr>
<td></td>
<td></td>
<td>(Canada)</td>
<td>-</td>
<td>0.05</td>
<td>-</td>
</tr>
<tr>
<td></td>
<td></td>
<td>(Mexico)</td>
<td>0.15</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td></td>
<td></td>
<td>(Singapore)</td>
<td>0.15</td>
<td>N.E.</td>
<td>N.E.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>(China)</td>
<td>-</td>
<td>0.05(dust)</td>
<td>-</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>-</td>
<td>0.03(fume)</td>
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<td><strong>SILVER</strong></td>
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<td>-</td>
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<td></td>
<td></td>
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<td>-</td>
<td>0.1</td>
<td>-</td>
</tr>
<tr>
<td></td>
<td></td>
<td>(Canada)</td>
<td>-</td>
<td>0.1</td>
<td>0.3</td>
</tr>
<tr>
<td></td>
<td></td>
<td>(Mexico)</td>
<td>0.1</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
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<td></td>
<td>(Singapore)</td>
<td>0.1</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td><strong>ROSIN</strong></td>
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<td>N.E.</td>
<td>N.E.</td>
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<td>65997-05-9 (US)</td>
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<td></td>
<td>(EU)</td>
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<td>-</td>
<td>0.15 (sensitiser)</td>
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<td>2.0-2.5</td>
<td>- (US)</td>
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<tr>
<td></td>
<td></td>
<td>(Singapore)</td>
<td>5</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td><strong>POLYGLYCOL ETHER</strong></td>
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<td>9038-95-3</td>
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<td>N.E.</td>
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<tr>
<td><strong>PROPRIETARY ACTIVATORS</strong></td>
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<td>-</td>
<td>N.E.</td>
<td>N.E.</td>
<td>N.E.</td>
</tr>
</tbody>
</table>

N.E. = Not established * See alloy table
### Alloy Table

<table>
<thead>
<tr>
<th>Metal Mix</th>
<th>%Tin</th>
<th>%Lead</th>
<th>%Silver</th>
<th>RoHS* Compliance</th>
</tr>
</thead>
<tbody>
<tr>
<td>100 (Sn62.6/Pb37/Ag0.4)</td>
<td>52.0-57.6</td>
<td>30.7-34.0</td>
<td>0.33-0.37</td>
<td>No</td>
</tr>
<tr>
<td>104 (Sn62/Pb36/Ag2)</td>
<td>51.9-57.5</td>
<td>29.9-33.2</td>
<td>1.2-1.8</td>
<td>No</td>
</tr>
<tr>
<td>106 (Sn63/Pb37)</td>
<td>52.3-58</td>
<td>30.7-34</td>
<td>-</td>
<td>No</td>
</tr>
</tbody>
</table>

*RoHS = Restriction on Hazardous Substances (Review directive for applicable exemptions that may apply)
- [http://europa.eu.int/comm/environment/waste/weee_index.tm](http://europa.eu.int/comm/environment/waste/weee_index.tm)
- [http://www.pbfree.com](http://www.pbfree.com)

### 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.

**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 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 ventilation and other safety features specifically designed for use with solder paste. Control concentration of all components so that their exposure levels are not exceeded. Other applications use proper 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, eyewash 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. Follow proper lead work practices if applicable.

9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance: Grey colored paste.
Odor: Mild characteristic odor.
Specific Gravity: 1 g/cc
Vapor Pressure: Not applicable.
Vapor Density: (air=1) Not applicable.
Boiling Point: Not applicable.
Melting Point: Not applicable
pH: 4 - 8
Solubility in Water: Insoluble (paste)

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 (29CFR 1910.1025)
IARC: Yes Lead and lead compounds are listed as possible carcinogens.

LD50: Not established.  LC50: Not established.

Other: Chronic Toxicity: Prolonged or repeated exposure to rosin flux fume may cause workers to develop occupational asthma. Lead can cause potential harm to the developing fetus.

12. ECOLOGICAL INFORMATION

This section is subject to future development. 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 regulations and requirements. Not regulated (Department of Transportation).
Non hazardous for shipping.

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).

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

This product has been classified under the Mexican regulations NOM-018-STPS-2015 and NOM-010-STPS-2014.

In China:
This product has been classified using the Chinese Occupational Limit for Hazardous Agents in the Workplace, GBZ2-2007. Decree No. 591: Regulations on the Control over Safety of Hazardous Chemicals GB 30000.2-29-2013, Rules for classification and labeling of chemicals. (GHS) GB/T 16483-2008, GB/T 17517-2013

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).

WARNING: This product can expose you to chemicals including [trace levels of ethylene oxide, 1,4 dioxane, and lead] which are known to the State of California to cause cancer and [trace levels of ethylene oxide and lead] which are known to the State of California to cause birth defects or other reproductive harm. For more information go to www.P65Warnings.ca.gov

SARA 313 Listing - 40 CFR 372.65
   Lead CAS# 7439-92-1/ Silver CAS#7440-22-4/ Ethylene Oxide CAS#75-21-8 / 1, 4 Dioxane CAS# 123-91-1

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
   Reactivity: 0

   Revised Date: 26 MARCH 2018
   Prepared by: Nancy Swarts, Indium Corporation of America
   Approved by: Nancy Swarts, Indium Corporation of America

The information and recommendations contained herein are, to the best of The Indium Corporation of America's knowledge and belief, accurate and reliable as of the date issued. The Indium Corporation of America does not warrant or guarantee their accuracy or reliability, and The Indium Corporation of America shall not be liable for any loss or damage arising out of the user thereof. The information and recommendations are offered for the user's consideration and examination, and it is the user's responsibility to satisfy itself that they are suitable and complete for its particular use. If buyer repackages this product, legal counsel should be consulted to insure proper health, safety and other necessary information is included on the container. The Indium Corporation does not recommend, manufacture, market or endorse any of its products for human consumption.