1. PRODUCT AND COMPANY IDENTIFICATION

Product Identifier: INDALLOY WITH INDIUM 8.9HFC FLUX (Lead Containing)
SDS Number: SDS-7215
Revised Date: 30 SEPTEMBER 2020
Version: 1.1

Product Use: Industrial Use (mixture) - solder paste consisting of a flux vehicle blended with 85-90 weight percent pre-alloyed metal powder. See alloy table.

MANUFACTURER:

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

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Indium Corporation of America® (European Operations)
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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
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:

Classification

- Sensitization, skin- Category 1B
- Sensitization, respiratory- Category 1B
- Rep. 1A: H360FD; Lact.: H362; STOT RE1,H372

![Warning Symbol]

Signal Word: Danger

**Hazard statement(s)**

- **H317**: May cause an allergic skin reaction
- **H334**: May cause allergy or asthma symptoms or breathing difficulties if inhaled
- **H360FD**: May damage fertility or the unborn child
- **H362**: May cause harm to breast-fed children
- **H372**: Causes damage to organs through prolonged or repeated exposure

**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)

### 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 serious eye irritation.

**Ingestion**: This product contains metal alloy powders and organic chemicals. Lead 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. Inhalation of rosin fume may cause occupational asthma.

**Skin Contact**: May cause skin irritation. Rosin may cause dermatitis and skin sensitization.
TIN: Has been shown to increase incidence of sarcoma in animal tests.

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.

WARNING: This product can expose you to chemicals including [lead] which is known to the State of California to cause cancer, and 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.

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3. COMPOSITION / INFORMATION ON INGREDIENTS

<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>2</td>
<td>2</td>
</tr>
<tr>
<td></td>
<td></td>
<td>(US)</td>
<td>2</td>
<td>2</td>
<td>-</td>
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<td></td>
<td></td>
<td>(EU)</td>
<td>-</td>
<td>2</td>
<td>4</td>
</tr>
<tr>
<td></td>
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<td>(Canada)</td>
<td>-</td>
<td>2</td>
<td>4</td>
</tr>
<tr>
<td></td>
<td></td>
<td>(Singapore)</td>
<td>2</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>LEAD</td>
<td>*</td>
<td>7439-92-1/231-100-4</td>
<td></td>
<td>0.05</td>
<td>-</td>
</tr>
<tr>
<td></td>
<td></td>
<td>(US)</td>
<td>0.05</td>
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<td>-</td>
</tr>
<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>0.05</td>
<td>0.05</td>
<td>-</td>
</tr>
<tr>
<td></td>
<td></td>
<td>(Singapore)</td>
<td>0.15</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td></td>
<td></td>
<td>(Mexico)</td>
<td>N.E.</td>
<td>0.15</td>
<td>-</td>
</tr>
<tr>
<td></td>
<td></td>
<td>(China)</td>
<td>-</td>
<td>0.05(dust)</td>
<td>0.03(fume)</td>
</tr>
</tbody>
</table>
**ALLOY TABLE**

85-90% alloy in mix.

<table>
<thead>
<tr>
<th>Indalloy (metal mixture)</th>
<th>%tin Sn</th>
<th>%silver Ag</th>
<th>%lead Pb</th>
<th>%copper Cu</th>
<th>RoHS 2/3+ Compliance</th>
</tr>
</thead>
<tbody>
<tr>
<td>106 (Sn63Pb37)</td>
<td>53.6-56.7</td>
<td>-</td>
<td>31.5-33</td>
<td>-</td>
<td>No</td>
</tr>
</tbody>
</table>

+Product does not contain any RoHS 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.

**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 such as (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 any permissible exposure limits are not exceeded.

**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. Latex gloves not recommended.

**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. Follow standard lead work safety 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>1 g/cc (flux)</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>4 – 8 (flux)</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: Reasonably anticipated to be a human carcinogen (lead) 
OSHA: 29 CFR 1910.1025 (lead) 
IARC: Yes 2B: Group 2B. Possibly carcinogenic to humans (lead)
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.
RTECS: OF7525000 (lead)

Lead
reproductive toxicity – rat – inhalation
reproductive toxicity – rat – oral
reproductive toxicity – mouse-oral

Teratogenicity
Developmental toxicity – rat- inhalation
Developmental toxicity- rat- oral
Suspected human reproductive toxicant

GHS- Specific target organ toxicity- repeated exposure
May cause damage to organs through prolonged or repeated exposure
Lead- OSHA Hazards- carcinogen/target organ effect/harmful by ingestion/teratogen.

12. ECOLOGICAL INFORMATION

Product not tested.

Lead:
Toxicity to fish:
Rainbow trout- 1.19mg/l-96h
Mortality NOEC-salvelinus fontinalis-1.7 mg/l-10d
Toxicity to algae

Mortality EC50-skeletonema costatum-7.94mg/l-10d
An environmental hazard cannot be excluded in the event of unprofessional handling, use and or disposal of this product.
Applicable products: Contains a substance (lead) that is very toxic to aquatic life with long lasting effects.

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/IATA/IMDG).

Solder Paste: Non-hazardous under shipping requirements, all shipping modes.
UN – none
Marine Pollutant: No

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.).

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

SARA 313 Listing - 40 CFR 372.65
Lead

All ingredients are listed on the EPA TSCA Inventory.
EPA Genetic Toxicology Program – Lead CAS# 7439-92-1

This product has been classified in accordance with the hazard criteria of the Canadian Controlled Products Regulation (CPR).
Canadian WHMIS: D2B – Materials Causing Other Toxic Effects – irritation/sensitization

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 in accordance with the Mexican guidelines, NOM-018-STPS-2015 and NOM-010-STPS-2014.

Malaysia:
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). (GHS)

In China:
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 using the Chinese Occupational Limit for Hazardous Agents in the Workplace, GBZ2-2007.

16. OTHER INFORMATION

<table>
<thead>
<tr>
<th>HMIS Hazard Rating:</th>
<th>Health:</th>
<th>2</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Fire:</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td>Reactivity:</td>
<td>0</td>
</tr>
</tbody>
</table>

Revised Date: 20 SEPTEMBER 2020

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.

Note: This SDS may be translated into an international language. If there is any misinterpretation or misunderstanding of any words or phrases that may occur within any translation the ENGLISH language shall always prevail.