1. PRODUCT AND COMPANY IDENTIFICATION

<table>
<thead>
<tr>
<th>Product Identifier:</th>
<th>INDALLOY WITH 197-53 FLUX</th>
</tr>
</thead>
<tbody>
<tr>
<td>SDS Number:</td>
<td>SDS-CW 4347</td>
</tr>
<tr>
<td>Revised Date:</td>
<td>19 OCTOBER 2018</td>
</tr>
<tr>
<td>Product Use:</td>
<td>Industrial Use- Flux cored wire</td>
</tr>
</tbody>
</table>

**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
China Emergency: 86+ 4008417580

**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:

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

GHS

Lead free products:

Signal Word: Warning

Hazard statement(s)

H317 May cause an allergic skin reaction
H319 Causes serious eye irritation
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 + 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:

Signal Word: Warning

Hazard statement(s)

H303 May be harmful if swallowed
H317 May cause an allergic skin reaction
H319 Causes serious eye irritation
H334 May cause allergy or asthma symptoms or breathing difficulties if inhaled
H335 May cause respiratory irritation
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
EUH201A Warning! Contains lead. Review listing
H410 Very toxic to aquatic life with long lasting effects
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
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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:
Carcinogenicity (Category 2) (lead)
Reproductive toxicity (Category 2 ) (lead)
Skin sensitizer-Category 1B
Respiratory sensitizer-Category 1B
Eye irritation-Category 2A
Acute aquatic toxicity – Category 1 for lead containing products (H400)
Chronic aquatic toxicity – Category 1 for lead containing products (H410)

POTENTIAL HEALTH EFFECTS:

Eye Contact:  Moderately irritating to the eyes and if not removed, may result in serious injury. Contact with fume from molten metal may cause irritation.

Ingestion: This product contains metal alloy and organic chemicals.

Inhalation: Inhalation of fume or dust may cause local irritation to the respiratory system. Rosin flux fume may cause occupational asthma.

Skin Contact: May cause skin irritation. Rosin may cause dermatitis.

Chronic:  
SILVER: Chronic skin contact or ingestion of silver powder, 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.

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.
## 3. COMPOSITION / INFORMATION ON INGREDIENTS

<table>
<thead>
<tr>
<th>Components</th>
<th>% wt</th>
<th>CAS Registry #/EINECS#</th>
<th>PEL $\text{mg/m}^3$</th>
<th>TLV-TWA $\text{mg/m}^3$</th>
<th>TLV-STEL $\text{mg/m}^3$</th>
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<tbody>
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<td>TIN</td>
<td>*</td>
<td>7440-31-5/231-141-8</td>
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<td>(EU) - 2 4</td>
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<td>SILVER</td>
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<td>LEAD</td>
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<td>(EU) - 0.15 -</td>
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<td>(Mexico) 0.15 -</td>
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<tr>
<td></td>
<td></td>
<td>(China) - 0.05(dust) 0.03(fume) -</td>
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</tr>
<tr>
<td>RESIN MIX</td>
<td>1.0-6.0</td>
<td>N.E.</td>
<td>N.E.</td>
<td>N.E.</td>
<td></td>
</tr>
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</table>

N.E. = Not established

* See alloy table

### Alloy Table

<table>
<thead>
<tr>
<th>Indalloy (Metal)</th>
<th>SPECIFIC GRAVITY</th>
<th>%TIN Sn</th>
<th>% LEAD Pb</th>
<th>% Silver Ag</th>
<th>RoHS 2/3 Compliance</th>
</tr>
</thead>
<tbody>
<tr>
<td>NON STANDARD MIX 93.5Pb/5Sn/1.5Ag</td>
<td>11.03</td>
<td>4.89-4.93</td>
<td>91.4-92.1</td>
<td>1.47-1.48</td>
<td>YES*</td>
</tr>
</tbody>
</table>

* RoHS 2 compliance under the exemptions as stated in EU Directive 2011/65/EU. Otherwise not compliant.
  RoHS 2 = Restriction of Hazardous Substances
  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.

**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:** Pick up solids and put in container for reuse or recycling. Do not sweep powder or small particulate. Use vacuum. Reduce airborne dust and prevent scattering by moistening with water. Dispose of following all Federal, State and Local regulations.

7. HANDLING AND STORAGE

**Handling**
Keep containers tightly closed when not in use. Use care to avoid spills. Always thoroughly wash your hands after handling this product. DO NOT touch or rub eyes until hands are washed.

**Storage Precautions:** 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:** Local exhaust ventilation is recommended to keep exposures below established limits and protect operators. Lead fume needs to be properly vented. Follow state and federal regulations when there is a potential exposure to lead.

**Personal protection:**

**Eyes:** Chemical safety glasses/goggles. Face shield for splash hazards.

**Respirator:** An approved or compliant air-purifying respirator with a fume/organic chemical cartridge is recommended under certain circumstances where airborne concentrations are expected to be elevated or exceed exposure limits. Protect employees from exposure to lead fume.

**Skin:** Compatible chemical resistant gloves may be required for certain applications. Hot gloves as needed for melting applications.
Other: Lab coat, eye-wash fountain in work area. Avoid the use of contact lenses in high fume areas.

Work/Hygienic: 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. Keep exposures as low as possible.

9. PHYSICAL AND CHEMICAL PROPERTIES

<table>
<thead>
<tr>
<th>Property</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Appearance</td>
<td>Wire</td>
</tr>
<tr>
<td>Odor</td>
<td>Odorless</td>
</tr>
<tr>
<td>Specific Gravity</td>
<td>See table</td>
</tr>
<tr>
<td>Vapor Pressure</td>
<td>Not established</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 available</td>
</tr>
<tr>
<td>pH</td>
<td>Not applicable</td>
</tr>
<tr>
<td>Solubility in Water</td>
<td>Insoluble</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 is listed Suspected carcinogen - lead.

LD50: Not established.

LC50: Not established.

Other: 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

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.

14. TRANSPORT INFORMATION

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

UN: NONE
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](http://www.P65Warnings.ca.gov)

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

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

WHMIS:

D2A-Materials Causing Other Toxic Effects-Very Toxic Material (Chronic) (lead).

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.

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

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

All ingredients are listed on the EPA TSCA Inventory.   EPA Genetic Toxicology Program - Lead

16. OTHER INFORMATION

HMIS Hazard Rating:  
Health: 2
Fire: 1
Reactivity: 0

Revised Date: 19 OCTOBER 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.