SAFETY DATA SHEET

This safety data sheet represents a family grouping of all metal mixes that are blended with the same flux cake to make a flux cored wire for soldering applications. See alloy table for metal mixtures.

1. PRODUCT AND COMPANY IDENTIFICATION

Product Identifier:  INDALLOY WITH FLUXCAKE-807M (CW-807M)
SDS Number:  SDS-CW 5777W  Revised Date:  11 APRIL 2018
Product Use:  Industrial Use - Flux cored wire for soldering applications.
Flux varies between 1-5%. See alloy table.

MANUFACTURER:

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

Indium Corporation of America
Chicago Materials Division
80 Scott Street
Elk Grove Village, Illinois  60007

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

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

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: Carcinogen listed in

- Eye
- Inhalation
- Skin
- Ingestion
- NTP
- IARC
- OSHA
- Not Listed

GHS

Lead free products:

![Warning Symbol]

**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

**Lead containing products:**

![Warning Symbol]

**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
- 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.
- 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)
P501 Dispose of contents by recycling or thru an approved chemical waste hauler.

Classification:
Carcinogenicity (Category 2) (lead)
Reproductive toxicity (Category 2) (lead)
Skin sensitizer-Category 1B
Respiratory sensitizer-Category 1B
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: 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 and organic chemicals. May cause irritation.

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

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

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: Prolonged inhalation of fume may result in lung complications.

COPPER: Overexposure to fumes of copper may cause metal fume fever (chills, muscle aches, nausea, fever, dry throat, cough, weakness, lassitude); metallic or sweet taste; discoloration of skin and hair.

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.

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

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

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 #/#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>(US)</td>
<td>2</td>
<td>2</td>
<td>2</td>
<td>-</td>
</tr>
<tr>
<td></td>
<td>(EU)</td>
<td>-</td>
<td>2</td>
<td>4</td>
<td></td>
</tr>
<tr>
<td></td>
<td>(Canada)</td>
<td>-</td>
<td>2</td>
<td>4</td>
<td></td>
</tr>
<tr>
<td></td>
<td>(Singapore)</td>
<td>2</td>
<td>-</td>
<td>-</td>
<td></td>
</tr>
<tr>
<td>SILVER</td>
<td></td>
<td>7440-22-4/231-131-3</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>(US)</td>
<td>0.01</td>
<td>0.1</td>
<td>0.1</td>
<td>-</td>
</tr>
<tr>
<td></td>
<td>(EU)</td>
<td>-</td>
<td>0.1</td>
<td>-</td>
<td></td>
</tr>
<tr>
<td></td>
<td>(Canada)</td>
<td>-</td>
<td>0.1</td>
<td>0.1</td>
<td>0.3</td>
</tr>
<tr>
<td></td>
<td>(Singapore)</td>
<td>0.1</td>
<td>-</td>
<td>-</td>
<td></td>
</tr>
<tr>
<td></td>
<td>(Mexico)</td>
<td>-</td>
<td>0.1</td>
<td>-</td>
<td></td>
</tr>
<tr>
<td>LEAD</td>
<td></td>
<td>7439-92-1/231-100-4</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>(US)</td>
<td>0.05</td>
<td>0.05</td>
<td>-</td>
<td></td>
</tr>
<tr>
<td></td>
<td>(EU)</td>
<td>N.E.</td>
<td>0.15</td>
<td>N.E.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>(Canada)</td>
<td>0.05</td>
<td>0.05</td>
<td>N.E.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>(Singapore)</td>
<td>0.15</td>
<td>-</td>
<td>-</td>
<td></td>
</tr>
<tr>
<td></td>
<td>(Mexico)</td>
<td>0.15</td>
<td>-</td>
<td>-</td>
<td></td>
</tr>
<tr>
<td></td>
<td>(China)</td>
<td>-</td>
<td>0.05</td>
<td>0.03</td>
<td>(dust)</td>
</tr>
<tr>
<td>ANTIMONY</td>
<td></td>
<td>7440-36-0/231-146-5</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>(US)</td>
<td>0.5</td>
<td>0.5</td>
<td>-</td>
<td></td>
</tr>
<tr>
<td></td>
<td>(EU)</td>
<td>0.5</td>
<td>-</td>
<td>-</td>
<td></td>
</tr>
<tr>
<td></td>
<td>(Canada)</td>
<td>N.E.</td>
<td>0.5</td>
<td>1.5</td>
<td></td>
</tr>
<tr>
<td></td>
<td>(Singapore)</td>
<td>0.5</td>
<td>-</td>
<td>-</td>
<td></td>
</tr>
<tr>
<td></td>
<td>(Mexico)</td>
<td>0.5</td>
<td>-</td>
<td>-</td>
<td></td>
</tr>
<tr>
<td></td>
<td>(China)</td>
<td>-</td>
<td>0.5</td>
<td>-</td>
<td></td>
</tr>
<tr>
<td>COPPER</td>
<td></td>
<td>7440-50-8/231-159-6</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>(US)</td>
<td>0.1 (fume)</td>
<td>0.2 (fume)</td>
<td>-</td>
<td></td>
</tr>
<tr>
<td></td>
<td>(EU)</td>
<td>-</td>
<td>0.2 (fume)</td>
<td>-</td>
<td></td>
</tr>
</tbody>
</table>
(Singapore) 0.2(fume) 1(dust) -
(Mexico) - 0.2(fume) 2
(China) - 0.2(fume) 0.6
(Canada) - 0.2 (fume) 2.5
(Canada) - 0.2 (fume) 0.6 (fume)

ROSIN 0.5 - 3.0 65997-05-9 N.E. N.E. N.E.
(EU) 0.05 N.E. 0.15 (sensitiser)

PROPRIETARY 0.5 – 3 - N.E. N.E. N.E.

N.E. = Not established

ALLOY TABLE

1-5% Flux

<table>
<thead>
<tr>
<th>INDALLOY (alloy mix)</th>
<th>% TIN Sn</th>
<th>% SILVER Ag</th>
<th>%LEAD Pb</th>
<th>%ANTIMONY Sb</th>
<th>%COPPER Cu</th>
<th>RoHS 2/3 Compliance (2011/65/EU)</th>
</tr>
</thead>
<tbody>
<tr>
<td>96Sn/4Ag</td>
<td>91-95</td>
<td>3.8-3.94</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>Yes</td>
</tr>
<tr>
<td>104</td>
<td>58.9-61.4</td>
<td>1.9-1.98</td>
<td>34-35.6</td>
<td>-</td>
<td>-</td>
<td>No</td>
</tr>
<tr>
<td>(Sn62/36Pb/2Ag)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>106</td>
<td>59.9-62.4</td>
<td>-</td>
<td>35-36.6</td>
<td>-</td>
<td>-</td>
<td>No</td>
</tr>
<tr>
<td>(Sn63/Pb37)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>133</td>
<td>90-94</td>
<td>-</td>
<td>-</td>
<td>4.75-4.95</td>
<td>-</td>
<td>Yes</td>
</tr>
<tr>
<td>(95Sn/5Sb)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>229</td>
<td>-</td>
<td>5.2-5.4</td>
<td>89.8-93.6</td>
<td>-</td>
<td>-</td>
<td>Yes*</td>
</tr>
<tr>
<td>(94.5Pb/5.5Ag)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>256</td>
<td>91.7-95.5</td>
<td>2.85-2.97</td>
<td>-</td>
<td>-</td>
<td>0.475-0.495</td>
<td>Yes</td>
</tr>
<tr>
<td>(SAC305)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>(96.5Sn/3Ag/0.5Cu)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

* high lead exemption  ^RoHS = 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:** Exhaust ventilation is recommended to keep exposures below established limits and protect operators. Use proper ventilation when working with leaded products.

**Personal protection:**

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

**Respirator:** An approved or compliant marked 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.

**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. Follow standard lead work practices when working with lead containing products.
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. Follow applicable 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>Solid metal - wire</td>
</tr>
<tr>
<td>Boiling Point</td>
<td>Not applicable.</td>
</tr>
<tr>
<td>Odor</td>
<td>Odorless</td>
</tr>
<tr>
<td>Melting Point</td>
<td>See table</td>
</tr>
<tr>
<td>Specific Gravity</td>
<td>See table</td>
</tr>
<tr>
<td>pH</td>
<td>Not applicable.</td>
</tr>
<tr>
<td>Vapor Pressure</td>
<td>Not established</td>
</tr>
<tr>
<td>Solubility in Water</td>
<td>Insoluble</td>
</tr>
<tr>
<td>Vapor Density (air=1)</td>
<td>Not applicable.</td>
</tr>
</tbody>
</table>

10. STABILITY AND REACTIVITY

<table>
<thead>
<tr>
<th>Property</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>General</td>
<td>Stable</td>
</tr>
<tr>
<td>Conditions to Avoid</td>
<td>Not established.</td>
</tr>
<tr>
<td>Incompatible Materials</td>
<td>Avoid contact with acids, bases or oxidizing agents.</td>
</tr>
<tr>
<td>Hazardous Decomposition / Combustion</td>
<td>Harmful organic fumes and toxic oxide fumes may form at elevated temperatures.</td>
</tr>
<tr>
<td>Hazardous Polymerization</td>
<td>Will not occur.</td>
</tr>
</tbody>
</table>

11. TOXICOLOGICAL INFORMATION

<table>
<thead>
<tr>
<th>Property</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Carcinogenicity</td>
<td>NTP: No</td>
</tr>
<tr>
<td></td>
<td>OSHA: No</td>
</tr>
<tr>
<td></td>
<td>IARC: No.</td>
</tr>
<tr>
<td>LD50</td>
<td>Not established.</td>
</tr>
<tr>
<td>LC50</td>
<td>Not established.</td>
</tr>
</tbody>
</table>

12. ECOLOGICAL INFORMATION

Protect not tested.

13. DISPOSAL CONSIDERATION

<table>
<thead>
<tr>
<th>Property</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Waste Disposal Method</td>
<td>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.</td>
</tr>
</tbody>
</table>

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 (USDOT/IATA/IMDG).
UN – none
Not regulated for shipping- ground/IATA/IMDG

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.).

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 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).

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, Lead, Antimony

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

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

16. OTHER INFORMATION

HMIS Hazard Rating:

<table>
<thead>
<tr>
<th>Health</th>
<th>Fire</th>
<th>Reactivity</th>
</tr>
</thead>
<tbody>
<tr>
<td>2</td>
<td>0</td>
<td>0</td>
</tr>
</tbody>
</table>

Revised Date: 11 APRIL 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.