SAFETY DATA SHEET

User must review the contents of this (SDS) and determine what is applicable to their own country laws under Health and Safety and apply them as necessary. This (SDS) will not reference every countries Health and Safety Laws. It is the user’s responsibility to determine what is applicable to them, including but not limited to review of any specific chemical lists and apply the requirements as necessary.

1. PRODUCT AND COMPANY IDENTIFICATION

General Product Class Identifier:  INDALLOY WITH FLUXCAKE-301 (CW-301)
SDS Number:  SDS-CW 4327  Revised Date:  17 SEPTEMBER 2018

Product Use:  Industrial Use - Flux cored wire for soldering applications. (See alloy table for metal alloy mix)

MANUFACTURER:

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

EMERGENCY PHONE:
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Outside USA: +1 (703) 527-3887
China: Emergency 86+ 4008417580

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Chicago Materials Division
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Kingston, Milton Keynes, UK, MK 10 OAG
Information: +44 [0] 1908 580400

In China:
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Suzhou Industrial Park
Suchun Industrial Square
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Information: (86) 512-6283-4900

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

GHS:

Lead-free products

Signal Word: Warning

**Hazard statement(s)**

H335  May cause respiratory irritation

**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 +P 341  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)
P501  Dispose of contents and containers following applicable regulations.

Lead containing products

Signal Word: Warning

**Hazard statement(s)**

H303  May be harmful if swallowed
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
H410  Very toxic to aquatic life with long lasting 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
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 +P 341  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)
P501  Dispose of contents and containers following applicable regulations.

**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 (H400)
Chronic aquatic toxicity – Category 1 for lead containing products (H410)

**PRIMARY ROUTES OF ENTRY:**
- Eye
- Inhalation
- Skin
- Ingestion
- NTP

<table>
<thead>
<tr>
<th>Carcinogen listed in</th>
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<tbody>
<tr>
<td>IARC</td>
</tr>
<tr>
<td>OSHA</td>
</tr>
<tr>
<td>✗ Not Listed</td>
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</table>

**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.

**Inhalation:** Inhalation of fume or dust may cause local irritation to the respiratory system. Inhalation of lead fume may be harmful.

**Skin Contact:** May cause skin irritation.

**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.
- **INDIUM:** May cause damage to respiratory system. Kidney and liver damage from injection of indium compounds has been reported based on limited animal testing. Target organs: teeth and gums.

**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/or birth defects or other reproductive harm. For more information go to [www.P65Warnings.ca.gov](http://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 of joints in any private or public potable (drinking) water supply system. Keep out of the reach of children.
### 3. COMPOSITION / INFORMATION ON INGREDIENTS

<table>
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<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>
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**INDALLOY MIXTURE**

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<tr>
<th>INDALLOY MIXTURE (%METAL)</th>
<th>Lead Pb</th>
<th>Tin Sn</th>
<th>Copper Cu</th>
<th>Antimony Sb</th>
<th>Silver Ag</th>
<th>Indium In</th>
<th>Specific Gravity</th>
<th>RoHS 2/3 Compliance</th>
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<td>104 (Sn62/Pb36/Ag2)</td>
<td>34-35.6</td>
<td>58.9-61</td>
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<td>8.41</td>
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<td>106 (Sn63/Pb37)</td>
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<td>60-62</td>
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<td>8.40</td>
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<td>133 (Sn95/5Sb)</td>
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<td>153 Pb85/Sn15</td>
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<td>241 (SAC387) (95.5Sn/3.8Ag/0.7Cu)</td>
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<td>256 (SAC305) (96.5Sn/3Ag/0.5Cu)</td>
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<td>Sn 995 (99.5Sn/0.5Cu/&lt;50ppm Co)</td>
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<td>NON STANDARD ALLOY (96.35Sn/3Ag/0.5Cu/0.15Sb)</td>
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<td>2.85-2.97</td>
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<td>7.35</td>
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</tr>
</tbody>
</table>

*RoHS 2 = Restriction of Hazardous Substances (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.

**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. 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>
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<tr>
<td>Boiling Point</td>
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<tr>
<td>Odor</td>
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<tr>
<td>Melting Point</td>
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<tr>
<td>Specific Gravity</td>
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<tr>
<td>pH</td>
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<td>Vapor Pressure</td>
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<td>Solubility in Water</td>
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<tr>
<td>Vapor Density</td>
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</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.

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

12. ECOLOGICAL INFORMATION

Protect not tested.

Copper – Toxicity to daphnia and other aquatic invertebrates mortality NOEC – Daphnia 0.004 mg/l – 24h.

Antimony –. Toxicity to fish – mortality NOEC (sheepshead minnow) 6.2 mg/l – 96h. Toxic to aquatic organisms, may cause long term adverse effects in the aquatic environment.

Lead – Toxicity to fish – mortality LOEC – rainbow trout – 1.19 mg/l – 96h. Very toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment. Bioaccumulation – Oncorhynchus kisutch – 2 weeks Bioconcentration factor (BCF): 12
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 (GROUND/IATA/OCEAN).

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.).

SARA 313 Listing - 40 CFR 372.65
Silver  Copper  Lead

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/or 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 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).

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.

Japan:
Poisonous and Deleterious Substance Control Law (PDSCL): No ingredients are listed.
Fire Service Law (FSL): Not regulated/not dangerous.
Industrial Safety and Health Law (ISHL): ingredients are listed
PRTR and Promotion of Chemical Management law, Class I Substance: Not applicable.
Waste Disposal and Public Cleaning Law: Specific Harmful Industrial Wastes: Some contents of the family grouping may contain lead within the solder paste. Review alloy table and product label/purchased and used.
Class II Designated Chemical Substances: No ingredients are listed.
Ingredients are listed on the Japanese Inventory Chemical Substance List/Industrial Safety and Health Law Substance List. Review SDS and apply regulations where applicable.

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.
All ingredients are listed on the China Chemical Inventory.

16. OTHER INFORMATION

HMIS Hazard Rating:

Health: 2
Fire: 1
Reactivity: 0

Revised Date: 17 SEPTEMBER 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.