SAFETY DATA SHEET

1. PRODUCT AND COMPANY IDENTIFICATION

Product Identifier: INDALLOY WITH CORE 229-RC (lead free)
SDS Number: SDS-12340LF
Revised Date: 1 OCTOBER 2020
Revision 1.1

Product Use: Industrial Use - Flux cored wire-soldering applications

MANUFACTURER:

In America:
The Indium Corporation of America®
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nswarts@indium.com

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

GHS:

Classification:
Skin sensitizer - Category 1B
Respiratory sensitizer - Category 1B

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

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)

Other:
EUH208 Contains rosin. May produce an allergic reaction

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POTENTIAL HEALTH EFFECTS:

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

Ingestion: May cause irritation.

Inhalation: Rosin has been known to cause occupational asthma.

Skin Contact: May cause skin irritation. Exposure to rosin may cause irritation or 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: 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.

**NICKEL**: poison by ingestion. Can cause pulmonary asthma, and hypersensitivity. Skin irritation.

**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 [trace amounts of nickel, 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)

Normal handling of solid metal wire is not harmful.

### 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-STELO mg/m³</th>
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</thead>
<tbody>
<tr>
<td><strong>TIN</strong></td>
<td></td>
<td>7440-31-5/231-141-8</td>
<td></td>
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<tr>
<td></td>
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<td>(US) 2</td>
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<td>(EU) -</td>
<td>2</td>
<td>4</td>
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<td>4</td>
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<td>(Singapore) 2</td>
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<td><strong>SILVER</strong></td>
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<td>7440-22-4/231-131-3</td>
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<td>(EU) -</td>
<td>0.1</td>
<td>-</td>
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</tr>
<tr>
<td></td>
<td></td>
<td>(Canada) -</td>
<td>0.1</td>
<td>0.3</td>
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<td>(Singapore) 0.1</td>
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<td>-</td>
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</tr>
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<td></td>
<td></td>
<td>(Mexico) -</td>
<td>0.1</td>
<td>-</td>
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<tr>
<td><strong>COPPER</strong></td>
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<td>7440-50-8/231-159-6</td>
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<td>(US) 0.1 (fume)</td>
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<tr>
<td></td>
<td></td>
<td>(EU) -</td>
<td>0.2 (fume)</td>
<td>-</td>
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<tr>
<td></td>
<td></td>
<td>(Canada) -</td>
<td>0.2 (fume)</td>
<td>0.6 (fume)</td>
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<td></td>
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<td>(Singapore) 0.2(fume)</td>
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<td>-</td>
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<tr>
<td></td>
<td></td>
<td>(Mexico) -</td>
<td>0.2(fume)</td>
<td>2</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>(China) -</td>
<td>0.2(fume)</td>
<td>0.6</td>
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<tr>
<td></td>
<td></td>
<td>(China) -</td>
<td>0.5</td>
<td>-</td>
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<tr>
<td><strong>NICKEL</strong></td>
<td></td>
<td>7440-02-0/231-111-4</td>
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### ALLOY TABLE

**1.5% flux core**

<table>
<thead>
<tr>
<th>Indalloy (metal mix) Products</th>
<th>%TIN Sn</th>
<th>%SILVER Ag</th>
<th>%COPPER Cu</th>
<th>%COBALT Co</th>
<th>%Nickel Ni</th>
<th>%Germanium Ge</th>
<th>RoHS 2/3 Compliance</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>121</strong> (96.5Sn/3.5Ag)</td>
<td>91.7-95</td>
<td>3.07-3.47</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>Yes</td>
</tr>
<tr>
<td><strong>241</strong> (SAC 387) (95.5Sn/3.8Ag/0.7Cu)</td>
<td>90.7-94</td>
<td>3.6-3.8</td>
<td>0.665-0.69</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>Yes</td>
</tr>
<tr>
<td><strong>256</strong> (SAC 305) (96.5Sn/3Ag/0.5Cu)</td>
<td>91.7-95</td>
<td>2.85-2.97</td>
<td>0.475-0.49</td>
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<td>-</td>
<td>-</td>
<td>Yes</td>
</tr>
<tr>
<td><strong>263</strong> (SAC0307) (Sn99/0.3Ag/0.7Cu)</td>
<td>94.1-98</td>
<td>0.285-0.297</td>
<td>0.665-0.69</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>Yes</td>
</tr>
<tr>
<td><strong>291</strong> (99.25Sn, 0.7Cu, 0.05Ni, ≤0.01Ge)</td>
<td>94.29-9 8.26</td>
<td>-</td>
<td>0.665-0.69</td>
<td>0.0475-0.0495</td>
<td>0.0095-0.0099</td>
<td>Yes</td>
<td></td>
</tr>
<tr>
<td><strong>Sn995</strong> (99.5Sn/0.5Cu)</td>
<td>94.5-98</td>
<td>-</td>
<td>-</td>
<td>0.475-0.495</td>
<td>-</td>
<td>-</td>
<td>Yes</td>
</tr>
</tbody>
</table>

RoHS 2 = Restriction of Hazardous Substances
EU Directive 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:** Sweep up and place in a clearly labeled container for chemical waste. Not regarded as dangerous to the environment. 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:** Good general ventilation should be used. If applicable use process enclosures, local exhaust ventilation, or other engineering controls to maintain airborne levels below recommended exposure limits.

   **Personal protection:**

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

   **Respirator:** An authority approved or compliant marked air-purifying respirator with a fume/organic/particulate 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 or particulate
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>Odor:</td>
<td>Odorless</td>
</tr>
<tr>
<td>Specific Gravity:</td>
<td>Not established</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>
<tr>
<td>Flash Point:</td>
<td>Not flammable</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: No
- LD50: Not established. LC50: Not established.
- Other: Chronic Toxicity: Prolonged or repeated exposure to rosin flux fume may cause workers to develop occupational asthma.

RTECS:
- NICKEL RTECS# QR5950000
- GERMANIUM RTECS Number: LY5200000
- TIN RTECS# XP7320000
- SILVER RTECS# VW3500000

Copper - LD50 – intraperitoneal mouse 3.5 mg/kg
- Silver – LD50 oral – rat > 5,000 mg/kg
- Germanium LC50: rat inhalation >5,340 mg/m3/4hr

12. ECOLOGICAL INFORMATION

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.
Germanium is insoluble and presents minimal environmental risk.

13. DISPOSAL CONSIDERATION

Waste Disposal Method: Scrap metal alloy usually has value. Contact a commercial reclamer 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/IMDG.

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 CAS# 7440-22-4    Copper CAS# 7440-50-8    Nickel CAS# 7440-02-0

EPA Genetic Toxicology Program – Lead CAS# 7439-92-1

All ingredients are listed on the EPA TSCA Inventory.

WARNING: This product can expose you to chemicals including [trace amounts of nickel, 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

Regulatory Information China:
GB/T 16483-2008, GB/T 17519-2013, Safety Data Sheets for Chemical Products
GB 30000.2-29-2013, Rules for classification and labeling of chemicals (GHS)
Decree No. 591: Regulations on the Control Over Safety of Hazardous Chemicals.
This product has been classified using the Chinese Occupational Exposure 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.

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).

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 -irritant

![D2A-Materials Causing Other Toxic Effects-Very Toxic Material (Chronic) (lead)](image)

Nickel: D2A Very Toxic Material Causing Other Toxic Effects carcinogenicity: IARC group 2B

D2B Toxic Material Causing Other Toxic Effects skin sensitization in humans

D2B Materials Causing Other Toxic Effects -irritant

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

Complies with the Korean Chemical Control Act

This product complies with the requirements established under the EU directive 2011/65/EU, Restriction of Hazardous Substances (RoHS). 1907/2006 REACH Regulations

### 16. OTHER INFORMATION

**HMIS Hazard Rating:**
- Health: 1
- Fire: 1
- Reactivity: 0

**Revised Date:** 1 OCTOBER 2020

**Prepared by:** Nancy Swarts, Indium Corporation of America

**Approved by:** Nancy Swarts, Indium Corporation of America

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