SAFETY DATA SHEET

1. PRODUCT AND COMPANY IDENTIFICATION

Product Identifier: INDALLOY WITH FLUXCAKE-219 (CW-219)
SDS Number: SDS-CW 5813
Revised Date: 2 DECEMBER 2019

Product Use: Industrial Use Only - Flux cored wire for soldering applications. See alloy table for metal combinations.

MANUFACTURER:

In America:
The Indium Corporation of America®.
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Information: (86) 512-6283-4900
2. HAZARDS IDENTIFICATION

PRIMARY ROUTES OF ENTRY:

- Eye
- Inhalation
- Skin
- Ingestion

Carcinogen listed in

- NTP
- IARC
- OSHA
- Not Listed

GHS:

Lead Free Products:

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
H335  May cause respiratory irritation
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)

Lead containing products:

Signal Word: Warning

Hazard statement(s)

H303  May be harmful if swallowed
H317  May cause an allergic skin reaction
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
H410  Very toxic to aquatic life, will long lasting 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
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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)

Classification:
Acute toxicity, Oral (Category 4) (lead)
Specific target organ toxicity- repeated exposure – Category 2
Carcinogenicity (Category 2) (lead)
Reproductive toxicity (Category 2 ) (lead)
Skin sensitization – Category1B
Respiratory sensitization- Category1B
Acute aquatic toxicity – Category 1 for lead containing products
Chronic aquatic toxicity – Category 1 for lead containing products

POTENTIAL HEALTH EFFECTS:

Eye Contact: May cause irritation 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 or allergic skin reaction.

Chronic: 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.

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.

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 solder in making joints or fittings of any private or public water supply system. Keep out of the reach of children. Not intended for household use.

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

Solid metal does not pose any hazard.
### 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>
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<td>0.2 (fume)</td>
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<td>(EU) 0.05</td>
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<td>0.15 (sensitiser)</td>
<td>N.E.</td>
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</tbody>
</table>

N.E. = Not established       TWA = time weighted average       STEL = short term exposure limit
### Alloy Table

**Flux core 0-5%**

<table>
<thead>
<tr>
<th>Indalloy (metal mixture)</th>
<th>Tin Sn</th>
<th>Silver Ag</th>
<th>Copper Cu</th>
<th>Lead Pb</th>
<th>RoHS 2/3* Compliance</th>
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</thead>
<tbody>
<tr>
<td>151 (Pb92.5/Sn5/Ag2.5)</td>
<td>4.75 - 5</td>
<td>2.37 - 2.5</td>
<td>-</td>
<td>87.9 – 92.5</td>
<td>YES with exemption</td>
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<tr>
<td>161 (Pb97.5/Ag2.5)</td>
<td>-</td>
<td>2.37 - 2.5</td>
<td>-</td>
<td>92.6 - 97.5</td>
<td>YES with exemption</td>
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<tr>
<td>241 (SAC 387) (95.5Sn/3.8Ag/0.7Cu)</td>
<td>90.7-95.5</td>
<td>3.6-3.8</td>
<td>0.6-0.7</td>
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<td>Yes</td>
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<tr>
<td>256 (SAC305) (96.5Sn/3Ag/0.5Cu)</td>
<td>91.6-96.5</td>
<td>2.85-3</td>
<td>0.48-0.5</td>
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<td>Yes</td>
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<tr>
<td>262 (Sn995) (99.5Sn/0.5Cu) doped with 0.05Co</td>
<td>94.5-99.5</td>
<td>-</td>
<td>0.48-0.5</td>
<td>-</td>
<td>Yes</td>
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<tr>
<td>263 (SAC0307) (99Sn/0.3Ag/0.7Cu)</td>
<td>94.1-99</td>
<td>0.285-0.3</td>
<td>0.67-0.7</td>
<td>-</td>
<td>Yes</td>
</tr>
</tbody>
</table>

*RoHS 2 = EU Restriction of Hazardous Substances (2011/65/EU)  *RoHS 3 = products do not contain any listed phthalates

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**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. Not flammable.
- **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.

Personal protection:
Eyes: Chemical safety glasses/goggles. Face shield for splash hazard.
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: 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.

9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance: Solid metal - wire
Odor: Odorless
Specific Gravity: See table
Vapor Pressure: Not established
Vapor Density: (air=1) Not applicable.
Boiling Point: Not applicable.
Melting Point: See table
pH: Not applicable
Solubility in Water: Insoluble

10. STABILITY AND REACTIVITY

General: Stable.
Conditions to Avoid: Not established.
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.

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.

12. ECOLOGICAL INFORMATION

Product not tested.

Lead:
Toxicity to fish:
Rainbow trout- 1.19mg/l-96h
LC50 micropterus dolomieui- 2.2 mg/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. May contain a substance (lead), that is very toxic to aquatic life with long lasting effects. Review alloy table

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). Not hazardous under shipping regulations, all modes.

UN – none
Marine pollutant: No

Not regulated- ground/IATA/ocean
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

USEPA 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 [lead] which is known to the State of California to cause cancer, and can cause 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)

Canadian WHMIS:
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.

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).

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.

16. OTHER INFORMATION

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