



## 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:

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#### In China:

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## 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)**

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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

**Carcinogen listed in**

IARC

OSHA

⊕Not Listed

**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**

| Components    | % wt | CAS Registry #/EINECS# | PEL<br>mg/m <sup>3</sup> | TLV-TWA<br>mg/m <sup>3</sup> | TLV-STEL<br>mg/m <sup>3</sup> |
|---------------|------|------------------------|--------------------------|------------------------------|-------------------------------|
| <b>TIN</b>    | *    | 7440-31-5/231-141-8    |                          |                              |                               |
|               |      | (US)                   | 2                        | 2                            | -                             |
|               |      | (EU)                   | -                        | 2                            | 4                             |
|               |      | (Canada)               | -                        | 2                            | 4                             |
|               |      | (Singapore)            | 2                        | -                            | -                             |
| <b>SILVER</b> | *    | 7440-22-4/231-131-3    |                          |                              |                               |
|               |      | (US)                   | 0.01                     | 0.1                          | -                             |
|               |      | (EU)                   | -                        | 0.1                          | -                             |
|               |      | (Canada)               | -                        | 0.1                          | 0.3                           |
|               |      | (Singapore)            | 0.1                      | -                            | -                             |
|               |      | (Mexico)               | -                        | 0.1                          | -                             |
| <b>COPPER</b> | *    | 7440-50-8/231-159-6    |                          |                              |                               |
|               |      | (US)                   | 0.1 (fume)               | 0.2 (fume)                   | -                             |
|               |      | (EU)                   | -                        | 0.2 (fume)                   | -                             |
|               |      | (Canada)               | -                        | 0.2 (fume)                   | 0.6 (fume)                    |
|               |      | (Singapore)            | 0.2(fume)                | -                            | -                             |
|               |      | (Mexico)               | -                        | 0.2(fume)                    | 2                             |
|               |      | (China)                | -                        | 0.2(fume)                    | 0.6                           |
| <b>LEAD</b>   | *    | 7439-92-1/231-100-4    |                          |                              |                               |
|               |      | (US)                   | 0.05                     | 0.05                         | -                             |
|               |      | (EU)                   | -                        | 0.15                         | -                             |
|               |      | (Canada)               | 0.05                     | 0.05                         | -                             |
|               |      | (Singapore)            | 0.15                     | -                            | -                             |
|               |      | (Mexico)               | N.E.                     | 0.15                         | -                             |
|               |      | (China)                | -                        | 0.05(dust)                   | -                             |
|               |      | 0.03(fume)             | -                        |                              |                               |
| <b>INDIUM</b> | *    | 7440-74-6/231-180-0    |                          |                              |                               |
|               |      | (US)                   | 0.1                      | 0.1                          | -                             |
|               |      | (EU)                   | -                        | 0.1                          | 0.3                           |
|               |      | (Canada)               | -                        | 0.1                          | 0.3                           |
|               |      | (Singapore)            | 0.1                      | -                            | -                             |

|                  |         |                     |             |      |      |      |
|------------------|---------|---------------------|-------------|------|------|------|
|                  |         |                     | (Mexico)    | 0.1  | -    | 0.3  |
|                  |         |                     | (China)     | 0.1  | -    | 0.3  |
| <b>ANTIMONY</b>  | *       | 7440-36-0/231-146-5 |             |      |      |      |
|                  |         |                     | (US)        | 0.5  | 0.5  | -    |
|                  |         |                     | (EU)        | 0.5  | -    | -    |
|                  |         |                     | (Canada)    | -    | 0.5  | 1.5  |
|                  |         |                     | (Mexico)    | N.E. | 0.5  | -    |
|                  |         |                     | (Singapore) | 0.5  | -    | -    |
|                  |         |                     | (China)     | -    | 0.5  | -    |
| <b>RESIN MIX</b> | 1.0-5.0 | -                   |             | N.E. | N.E. | N.E. |

N.E. = Not established

\* See alloy table

**ALLOY TABLE**

Metal alloy mixed with resin core (1-5%)

| INDALLOY MIXTURE (%METAL)                            | Lead Pb   | Tin Sn      | Copper Cu   | Antimony Sb | Silver Ag  | Indium In | Specific Gravity | RoHS 2/3 Compliance |
|--|-----------|-------------|-------------|-------------|------------|-----------|------------------|---------------------|
| <b>104 (Sn62/Pb36/Ag2)</b>                           | 34-35.6   | 58.9-61     | -           | -           | 1.9-1.98   | -         | 8.41             | No                  |
| <b>106 (Sn63/Pb37)</b>                               | 35-36.6   | 60-62       | -           | -           | -          | -         | 8.40             | No                  |
| <b>133 (Sn95/5Sb)</b>                                | -         | 90.3-94     | -           | 4.75-4.95   | -          | -         | 7.25             | Yes                 |
| <b>153 Pb85/Sn15</b>                                 | 80.8-84   | 14.3-14.9   | -           | -           | -          | -         | 10.7             | Yes*                |
| <b>227 (77.2Sn/20In/2.8Ag)</b>                       | -         | 73.3-76.4   | -           | -           | 2.66-2.77  | 19-19.8   | 7.25             | Yes                 |
| <b>228 (88Pb/10Sn/2Ag)</b>                           | 83.6 - 87 | 9.5 - 9.9   | -           | -           | 1.9 – 1.98 | -         | 10.75            | Yes*                |
| <b>241 (SAC387) (95.5Sn/3.8Ag/0.7Cu)</b>             | -         | 90.7 - 94.5 | 0.67 - 0.69 | -           | 3.6 - 3.76 | -         | 7.4              | Yes                 |
| <b>254 (86.7Sn/10In/3.1Ag)</b>                       | -         | 82.3-85.8   | -           | -           | 2.9-3      | 9.5-9.9   | 7.37             | Yes                 |
| <b>256 (SAC 305) (96.5Sn/3Ag/0.5Cu)</b>              | -         | 91.6-95.5   | 0.475-0.495 | -           | 2.85-2.97  | -         | 7.40             | Yes                 |
| <b>Sn 995 (99.5Sn/0.5Cu/&lt;50ppm Co)</b>            | -         | 94.5-98.5   | 0.475-0.495 | -           | -          | -         | 7.29             | Yes                 |
| <b>NON STANDARD ALLOY (96.35Sn/3Ag/0.5Cu/0.15Sb)</b> | -         | 91.5 - 95.4 | 0.475-0.495 | 0.14-0.149  | 2.85-2.97  | -         | 7.35             | Yes                 |

\*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

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

## 10. STABILITY AND REACTIVITY

|  |  |
|--|--|
| <b>General:</b>                              | Stable.  |
| <b>Conditions to Avoid:</b>                  | Not established.   |
| <b>Incompatible Materials:</b>               | Avoid contact with acids, bases or oxidizing agents.                           |
| <b>Hazardous Decomposition / Combustion:</b> | Harmful organic fumes and toxic oxide fumes may form at elevated temperatures. |
| <b>Hazardous Polymerization:</b>             | Will not occur.  |

## 11. TOXICOLOGICAL INFORMATION

|                         |                  |   |                  |
|-------------------------|------------------|---|------------------|
| <b>Carcinogenicity:</b> | <b>NTP:</b> No   |   |                  |
|                         | <b>OSHA:</b> No  |   |                  |
|                         | <b>IARC:</b> Yes | Lead and lead compounds are listed as possible carcinogens. |                  |
| <b>LD50:</b>            | Not established. | <b>LC50:</b>  | 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](http://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

|                            |                    |   |
|----------------------------|--------------------|---|
| <b>HMIS Hazard Rating:</b> | <b>Health:</b>     | 2 |
|                            | <b>Fire:</b>       | 1 |
|                            | <b>Reactivity:</b> | 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.