



**THE INDIUM CORPORATION OF AMERICA®\EUROPE®\ASIA-PACIFIC®**  
**INDIUM CORPORATION (SUZHOU)®**  
**SAFETY DATA SHEET**

This safety data sheet represents a family grouping of all metal mixes that are blended with the same flux. To better serve all of our customers Indium Corporation has generated one SDS, for this product, to be used within the United States as well as internationally. Some of the regulatory information contained within may not be applicable to the customer's individual state or country.

### 1. PRODUCT AND COMPANY IDENTIFICATION

**Product Identifier:** INDALLOY WITH INDIUM6.3

**SDS Number:** SDS- 4664

**Revised Date:** 5 JANUARY 2016

**Product Use:** INDUSTRIAL USE (MIXTURE) - WATER WASH SOLDER PASTE WITH 83-92% METAL ALLOY MIXED WITH FLUX. SEE ALLOY TABLE FOR PRODUCTS.

#### MANUFACTURER:

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## 2. HAZARDS IDENTIFICATION

### PRIMARY ROUTES OF ENTRY:

Eye    Inhalation    Skin    Ingestion    NTP

### Carcinogen listed in

IARC    OSHA    Not Listed  
**\*See Section 11**

### GHS



(lead containing)

Signal Word: Warning

#### Hazard statement(s)

- H303 May be harmful if swallowed
- H316 Causes mild skin irritation
- H318 Causes serious eye damage
- H351 Suspected of causing cancer (lead)
- H361 Suspected of damaging fertility or the unborn child (lead)
- H373 May cause damage to organs through prolonged or repeated exposure (lead)
- H410 Very toxic to aquatic life with long lasting effects (lead)

#### Precautionary statement(s)

- 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 in accordance with applicable local/state and federal regulations. Recycle when possible.

#### Classification under GHS

##### Lead

- Acute toxicity, Oral-Category 4
- Carcinogen- Category 2
- Reproductive toxicity- Category 2
- Specific organ toxicity-repeated exposure- Category 3
- Acute aquatic toxicity- Category 1
- Chronic aquatic toxicity- Category 1

##### Flux

- Acute toxicity, serious eye damage- Category 1
- Acute toxicity skin irritant- Category 3
- Acute toxicity, oral- Category 5

### POTENTIAL HEALTH EFFECTS:

**Eye Contact:** Contact with material at room temperature or fume from material at typical re-flow temperatures over 100°C may cause severe eye damage.

**Ingestion:** This product contains alloy powder and organic chemicals. May be harmful if swallowed.

**Inhalation:** Vapors or fumes from this material at typical re-flow temperatures over 100°C may cause local irritation to the respiratory system.

**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.

**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.

**TIN:** Has been shown to increase incidence of sarcoma in animal tests. Chronic exposure to tin dusts and fume results in “stannosis” a mild form of pneumoconiosis.

**BISMUTH:** May cause kidney damage.

Target organs: CNS, blood, kidneys

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

**Warning:** **This product contains chemicals known to the State of California to cause cancer and/or birth defects (or other reproductive harm). lead**

**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

| 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> |
|------------|------|------------------------|--------------------------|------------------------------|-------------------------------|
| TIN        | *    | 7440-31-5/231-141-8    |                          |                              |                               |
|            |      | (US)                   | 2                        | 2                            | -                             |
|            |      | (EU)                   | -                        | 2                            | 4                             |
|            |      | (Singapore)            | 2                        | -                            | -                             |
|            |      | (Canada)               | N.E.                     | 2                            | 4                             |
| SILVER     | *    | 7440-22-4/231-131-3    |                          |                              |                               |

|  |         |                     |      |            |      |
|--|---------|---------------------|------|------------|------|
|  |         | (US)                | 0.01 | 0.1        | -    |
|  |         | (EU)                | -    | 0.1        | -    |
|  |         | (Canada)            | -    | 0.1        | 0.3  |
|  |         | (Mexico)            | -    | 0.1        | N.E. |
|  |         | (Singapore)         | 0.1  | -          | -    |
| <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)            | 0.15 | -          | -    |
|  |         | (China)             | -    | 0.05(dust) | -    |
|  |         |                     |      | 0.03(fume) | -    |
| <b>BISMUTH</b>   | *       | 7440-69-9/231-177-4 | N.E. | N.E.       | N.E. |
| <b>ALKYLCARBOXYLIC ACID AMIDE</b>                      | 5-8     | 67700-97-4          | N.E. | N.E.       | N.E. |
| <b>CARBOXYLIC ACIDS(C4-11)</b>                         | 2-4     | 68937-72-4          | N.E. | N.E.       | N.E. |
| <b>ETHANOL,2-AMINO, REACTION PRODUCTS WITH AMMONIA</b> | 1.0-5.0 | 68910-05-4          | N.E. | N.E.       | N.E. |
| N.E. = Not established                                 |         | * See table         |      |            |      |

**\*ALLOY TABLE**

Metal alloy mixed with flux

| ALLOY MIXTURE                | % TIN Sn    | %SILVER Ag | %BISMUTH Bi | %LEAD Pb  | RoHS Compliance** |
|------------------------------|-------------|------------|-------------|-----------|-------------------|
| Indalloy 97 (43Sn/43Pb/14Bi) | 35.7-40     | -          | 11.6-12.9   | 35.7-40   | No                |
| Indalloy 100                 | 51.9 – 57.6 | .33-.37    | -           | 30.7-34.0 | No                |

|   |             |             |           |           |     |
|---|-------------|-------------|-----------|-----------|-----|
| <b>(62.6Sn 37Pb 0.4Ag)</b>              |             |             |           |           |     |
| <b>Indalloy 104<br/>(Sn62/Pb36/Ag2)</b> | 51.5-57     | 1.7-1.8     | -         | 29.9-33   | No  |
| <b>Indalloy 106<br/>(Sn63/Pb37)</b>     | 52.3-58     | -           | -         | 30.7-34   | No  |
| <b>109<br/>(Sn60/Pb40)</b>              | 49.8-55.2   | -           | -         | 33.2-36.8 | No  |
| <b>Indalloy 281<br/>(58Bi/42Sn)</b>     | 34.9 – 38.6 | -           | 48 – 53.4 | -         | Yes |
| <b>Indalloy 282<br/>(57Bi/42Sn/1Ag)</b> | 34.9 – 38.6 | 0.83 – 0.92 | 47 – 52   | -         | Yes |

\*\*RoHS 2 (2011/65/EU) = Restriction of Hazardous Substances (review applicable exemptions related to lead containing materials)

#### 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 applicable      **Method:** Not applicable
- Auto-ignition Temperature:** Not established.
- Flammable Limits:** Limits not established. Not flammable
- Extinguishing Media:** Use extinguishers appropriate for the surrounding fire conditions. Foam, dry chemical, water spray.
- 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:** Wear a respirator and appropriate personal protection (See Exposure Controls/Personal Protective Section). Use spatula, scoop up paste and place in glass or plastic container. Remove traces of paste residue using cloth rags or paper towels moistened with isopropyl alcohol. Dispose of following all Federal, State and Local regulations. In the EU refer to the Special Waste Regulations.

## 7. HANDLING AND STORAGE

- Handling** Keep containers tightly closed when not in use. Use care to avoid spills. Avoid breathing vapors from heated material. Avoid contact with eyes, skin and clothing. Use with adequate ventilation.
- Precautions:**
- Storage Precautions:** Store product in tightly capped original containers in a cool, dry area. Keep away from heat and flame. Store away from incompatible materials. Empty containers may be hazardous as they contain product residue.

## 8. EXPOSURE CONTROLS / PERSONAL PROTECTION

- Engineering Controls:** Exhaust ventilation is required to control airborne levels. Use only with production equipment with adequate ventilation and other safety features specifically designed for solder paste. Do not use without proper ventilation.
- Personal protection:**
- Eyes:** Chemical safety glasses/goggles. Face shield for splash hazards.
- 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.
- Skin:** Compatible chemical resistant gloves such, as nitrile should be worn. Protective outer garment, apron and sleeves as appropriate.
- Other:** Eyewash fountain or safety shower and eyewash unit in work area. Avoid the use of contact lenses.
- Work/Hygienic Practices:** Maintain good housekeeping. Clean up spills immediately. Avoid eating, smoking or drinking in the work area. Wash hands thoroughly with soap and water immediately upon leaving the work area. Follow standard lead work practices.

## 9. PHYSICAL AND CHEMICAL PROPERTIES

- |                          |                           |                             |                 |
|--------------------------|---------------------------|-----------------------------|-----------------|
| <b>Appearance:</b>       | Grey paste                | <b>Boiling Point:</b>       | Not established |
| <b>Odor:</b>             | Mild characteristic odor. | <b>Melting Point:</b>       | Not available   |
| <b>Specific Gravity:</b> | Not established           | <b>pH:</b>                  | Not applicable  |
| <b>Vapor Pressure:</b>   | Not applicable.           | <b>Solubility in Water:</b> | Water Soluble   |
| <b>Vapor Density:</b>    | (air=1) Not applicable.   |                             |                 |

## 10. STABILITY AND REACTIVITY

- General:** Stable.
- Conditions to Avoid:** High temperatures, open flame.
- Incompatible Materials:** Not established
- Hazardous Decomposition / Combustion:** Harmful organic fumes and toxic oxide fumes may form at elevated temperatures. (Decomposition products: Carbon dioxide, carbon monoxide)
- Hazardous Polymerization:** Will not occur.

## 11. TOXICOLOGICAL INFORMATION

|                         |   |   |
|-------------------------|---|---|
| <b>Carcinogenicity:</b> | <b>NTP:</b> No<br><b>OSHA:</b> CFR1910.1025<br><b>IARC:</b> Yes | Lead and lead compounds are listed as possible carcinogens. |
| <b>LD50:</b>            | Not established.  | <b>LC50:</b> Not established.                               |
| <b>Other:</b>           | Lead can cause potential harm to the developing fetus.          |   |

## 12. ECOLOGICAL INFORMATION

Product not tested.

## 13. DISPOSAL CONSIDERATION

**Waste Disposal Method:** Dispose of in accordance with all Federal, State and Local environmental regulations. In Europe follow the Special Waste Regulations. May have reclaim value. Recycle where possible.

## 14. TRANSPORT INFORMATION

Transport in accordance with applicable regulations and requirements. Not classified as hazardous in shipping under US DOT.

Product is Non - hazardous under all shipping modes.

Not regulated under USDOT/IATA or 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.).

GHS = Globally Harmonized System

This product has been classified in accordance with the Mexican regulations: NOM – 018-STPS-2000 and NOM-010-STPS-1999.

This product has been classified using the Chinese Occupational Exposure Limit for Hazardous Agents in the Workplace GBZ2-2002.

This product has been classified in accordance with the hazard criteria of the Canadian Controlled Products Regulation (CPR).

Canadian WHMIS: Class D 2A-Materials Causing Other Toxic Effects-Very Toxic Material (Chronic) (lead)  
 Class D 2 – Materials Causing Other Toxic Effects – skin irritant



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

For compliance with EU directive 2011/65/EU, Restriction of Hazardous Substances (RoHS 2) see alloy table.

California Prop 65- California Safe Drinking Water Standard: This product may contain a chemical(s) known to the State of California to cause cancer and/or birth defects (or other reproductive harm). lead.

SARA 313 Listing - 40 CFR 372.65 (silver, lead, 3.7% proprietary glycol ether)

All ingredients are listed on the EPA TSCA Inventory.

## 16. OTHER INFORMATION

|                            |                         |   |
|----------------------------|-------------------------|---|
| <b>HMIS Hazard Rating:</b> | <b>Health:</b>          | 2 |
|                            | <b>Fire:</b>            | 1 |
|                            | <b>Physical Hazard:</b> | 0 |

**Revised Date:** 5 JANUARY 2016

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

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