This safety data sheet represents a family grouping of all metal mixes that are blended with the same flux. A table is provided that lists all metal groupings. 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. Unless otherwise stated the health and safety information provided within is applicable to all products.

SAFETY DATA SHEET

1. PRODUCT AND COMPANY IDENTIFICATION

Product Identifier: INDALLOY WITH INDIUM 9.52 FLUX VEHICLE (Lead Free)
SDS Number: SDS-4100-LF  Revised Date: 30 NOVEMBER 2020

Product Use: Industrial Use: No-clean solder paste consisting of a flux vehicle blended with an 83-92 % pre-alloyed metal powder. Review alloy table.

MANUFACTURER:

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

In Europe:
The Indium Corporation of America® (European Operations)
7 Newmarket Ct
Kingston, Milton Keynes, UK, MK 10 OAG
Information: +44 [0] 1908 580400

In China:
Indium Corporation (Suzhou), Co., Ltd.
No. 428 Xinglong Street
Suzhou Industrial Park
Suchun Industrial Square
Unit No. 14-C
Jiangsu Province, China 215126
Information: (86) 512-6283-4900

EMERGENCY PHONE:
CHEMTREC 24 hrs.
USA: 1 (800) 424-9300
Outside USA: +1 (703) 527-3887
In China: Emergency 86+ 4001-204937
2. HAZARDS IDENTIFICATION

PRIMARY ROUTES OF ENTRY:

- Eye
- Inhalation
- Skin
- Ingestion
- NTP

Carcinogen listed in

- IARC
- OSHA
- Not Listed

See Section 11

Skin sensitizer - Category 1B
Respiratory sensitizer - Category 1B
Eye irritation - Category 2A

GHS:

Signal Word: Warning
Hazard statement(s)

H317 May cause an allergic skin reaction
H320 Causes eye irritation
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)
P501 Dispose of content via approved waste handling or recycle if possible.

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 eye irritation.

Ingestion: This product may contain 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. When heated rosin may be a respiratory sensitizer.

Skin Contact: May cause skin irritation. Rosin may cause dermatitis.

Chronic: SILVER: Chronic skin contact or ingestion of silver dust, salts, or fume can result in a condition known as Argyria, a condition with bluish pigmentation of the skin and eyes.

TIN: Has been shown to increase incidence of sarcoma in animal tests.

WARNING: This product can expose you to chemicals including [trace amounts of 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
NOTE: The Indium Corporation does not recommend, manufacture, market or endorse any of its products for human consumption.

### 3. COMPOSITION / INFORMATION ON INGREDIENTS

<table>
<thead>
<tr>
<th>Components</th>
<th>% wt</th>
<th>CAS Registry #/EINECS#</th>
<th>PEL ( \text{mg/m}^3 )</th>
<th>TLV-TWA ( \text{mg/m}^3 )</th>
<th>TLV-STE ( \text{mg/m}^3 )</th>
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<tr>
<td>TIN</td>
<td>74.7-88.8</td>
<td>7440-31-5/231-141-8</td>
<td>2</td>
<td>2</td>
<td>-</td>
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<tr>
<td></td>
<td>(US)</td>
<td>2</td>
<td>2</td>
<td>4</td>
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<td>(Singapore)</td>
<td>2</td>
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<tr>
<td>SILVER</td>
<td>0 – 3.2</td>
<td>7440-22-4/231-131-3</td>
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<td>0.1</td>
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<td>(US)</td>
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<td></td>
<td>(EU)</td>
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<td>0.1</td>
<td>0.3</td>
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<td>(Singapore)</td>
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<tr>
<td>ANTIMONY</td>
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<td>7440-36-0/231-146-5</td>
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<td>-</td>
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<td></td>
<td>(EU)</td>
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<td></td>
<td>(Canada)</td>
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<td>1.5</td>
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<tr>
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<td>(Mexico)</td>
<td>N.E.</td>
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<td>(Singapore)</td>
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<td>-</td>
<td>-</td>
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<tr>
<td></td>
<td>(China)</td>
<td>-</td>
<td>0.5</td>
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<tr>
<td>ROSIN</td>
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<td>65997-05-9 (US)</td>
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<td>N.E.</td>
<td>N.E.</td>
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<td>(EU)</td>
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<td>N.E.</td>
<td>0.15 (sensitiser)</td>
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<tr>
<td>PROPRIETARY</td>
<td>5.5-13.5</td>
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<td>N.E.</td>
<td>N.E.</td>
<td>N.E.</td>
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</table>

N.E. = Not established  *See Alloy Table
ALLOY TABLE

%Metal in flux

<table>
<thead>
<tr>
<th>Indalloy (Metal)</th>
<th>%TIN Sn</th>
<th>%SILVER Ag</th>
<th>%ANTIMONY Sb</th>
<th>RoHS 2/3 Compliance</th>
</tr>
</thead>
<tbody>
<tr>
<td>121 (96.5Sn/3.5Ag)</td>
<td>80.1-88.8</td>
<td>2.9-3.2</td>
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<tr>
<td>259 (90Sn/10Sb)</td>
<td>74.7-82.8</td>
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<td>8.3-9.2</td>
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</tbody>
</table>

+RoHS 2 = Restriction of Hazardous Substances (2011/65/EU)
RoHS 3- product does 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: Using a spatula, scoop up paste and place in a plastic or glass jar and tightly cap. Remove traces of paste residue using cloth rags or paper towels moistened with ethyl or isopropyl alcohol. Dispose contaminated cloth rags or paper towels following all Federal, State and Local regulations. In the EU refer to the Special Waste Regulations.

7. HANDLING AND STORAGE

Handling Precautions: Keep containers tightly closed when not in use. Use care to avoid spills. Use only with production equipment specifically designed for use with solder paste. Wear appropriate personal protective equipment when working or handling solder paste. Always thoroughly wash your hands after handling this product. DO NOT touch or rub eyes until hands are washed.

Storage Precautions: Store product in tightly capped original containers in a cool, dry area. Refer to product label for specific storage temperature requirements. Rotate stock to ensure use before expiration date on the label. Consult Product Data Sheet for additional information.
8. EXPOSURE CONTROLS / PERSONAL PROTECTION

Engineering Controls: Use only with production equipment such as stencil printers and re-flow furnaces with adequate ventilation and other safety features specifically designed for use with solder paste. Control concentration of all components so that the exposure levels are not exceeded.

Personal protection:
Eyes: Chemical safety glasses/goggles. Face shield for splash hazards.
Respirator: A NIOSH approved or EU compliant CE marked air-purifying respirator with a fume/organic chemical cartridge is recommended under certain circumstances (i.e. when re-flowing manually on a plate instead of a ventilated re-flow furnace) where airborne concentrations are expected to be elevated or exceed exposure limits.
Skin: Compatible chemical resistant gloves.
Other: Lab coat, eyewash fountain in work area. Avoid the use of contact lenses in high fume areas.

Work/Hygienic Practices: Maintain good housekeeping. Clean up spills immediately. DO NOT allow rags or paper towels contaminated with solder paste to accumulate in the work area. 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: Grey colored paste.  
Boiling Point: Not applicable.
Odor: Mild characteristic odor.  
Melting Point: Not applicable
Specific Gravity: Not applicable.  
PH: Not applicable
Vapor Pressure: Not applicable.  
Solubility in Water: Insoluble (paste)
Vapor Density: (air=1) Not applicable.

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: Chronic Toxicity: Prolonged or repeated exposure to rosin flux fume may cause workers to develop occupational asthma.
Silver – LD50 oral – rat > 5,000 mg/kg
Antimony - LD50 oral – rat 7,000 mg/kg
12. **ECOLOGICAL INFORMATION**

Product not tested.

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.

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. In Europe follow the Special Waste Regulations.

14. **TRANSPORT INFORMATION**

Transport in accordance with applicable international regulations and requirements. Not regulated under US Department of Transportation.

Non-hazardous for shipping (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.).

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 (skin irritation/skin sensitization)

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

This product has been classified in accordance with Mexican regulations NOM-018-STPS-2015 and NOM-010-STPS-2014.

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 Limit for Hazardous Agents in the Workplace, GBZ2-2007.
WARNING: This product can expose you to chemicals including [trace amounts of 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

SARA 313 Listing - 40 CFR 372.65
Silver CAS# 7440-22-4 Antimony CAS# 7440-36-0

All ingredients are listed on the EPA TSCA Inventory.

16. OTHER INFORMATION

HMIS Hazard Rating:

Health: 2
Fire: 1
Reactivity: 0

Revised Date: 30 NOVEMBER 2020
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.