



**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. A table is provided at the end of this document that lists all metal groupings. To better serve all of our customers and reduce the paperwork burden, the 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.

**1. PRODUCT AND COMPANY IDENTIFICATION**

**Product Identifier:** INDALLOY WITH INDIUM 9.15 FLUX VEHICLE

**SDS Number:** SDS-6346 **Revised Date:** 21 DECEMBER 2016

**Product Use:** Industrial Use - Rosin-based mildly activated solder paste consisting of a flux vehicle blended with 83-92 weight percent of pre-alloyed metal powder. Used in soldering applications. Review alloy table for metal mixtures with the same flux.

**MANUFACTURER:**

**In America:**

The Indium Corporation of America  
1676 Lincoln Ave., Utica NY 13502  
Information: (315) 853-4900  
nswarts@indium.com

**EMERGENCY PHONE:**

**CHEMTREC 24 hrs.**  
**USA: 1 (800) 424-9300**  
**Outside USA: +1 (703) 527-3887**

**In Europe:**

Indium Corporation of Europe  
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

**In Asia:**

The Indium Corporation of America  
Asia-Pacific Operations-Singapore  
29 Kian Teck Avenue  
Singapore 628908  
Information: +65 6268-8678

## 2. HAZARDS IDENTIFICATION

### PRIMARY ROUTES OF ENTRY:

⊕Eye    ⊕Inhalation    ⊕Skin    ⊕Ingestion    NTP

### Carcinogen listed in

IARC    OSHA    ⊕Not Listed  
(See Section 11)

GHS:



Signal Word: Warning

#### Hazard statement(s)

H303      May be harmful if swallowed (lead)  
 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 (lead)  
 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 (lead)  
 EUH201A    Warning! Contains lead (applicable only to the products listed that contain 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      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)

#### Classification:

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  
 Chronic aquatic toxicity – Category 1

### 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.
<b>Ingestion:</b>	Contains metal alloy and organic chemicals. May be harmful.
<b>Inhalation:</b>	Vapors or fumes from this material at typical re-flow temperatures over 100°C may cause local irritation to the respiratory system. Lead fumes may be harmful. Rosin may cause occupational asthma.
<b>Skin Contact:</b>	May cause skin irritation. <u>ANTIMONY</u> has been known to cause dermatitis.
<b>Chronic:</b>	<u>LEAD</u> : 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.  <u>SILVER</u> : 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.  <u>TIN</u> : Has been shown to increase incidence of sarcoma in animal tests.  <u>INDIUM</u> : May cause damage to respiratory system.
<b>WARNING:</b>	<b>This product contains a chemical known to the State of California to cause cancer and/or birth defects (or other reproductive harm). Applicable in California.</b>
<b>NOTE:</b>	<b>The Indium Corporation does not recommend, manufacture, market or endorse any of its products for human consumption.</b>
<b>WARNING:</b>	<b>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.</b>

### 3. COMPOSITION / INFORMATION ON INGREDIENTS

Components	%	CAS Registry #/EINECS#	PEL mg/m <sup>3</sup>	TLV-TWA mg/m <sup>3</sup>	TLV-STEL 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>LEAD</b>	*	7439-92-1/231-100-4			
		(US)	0.05	0.05	-
		(EU)	N.E.	0.15	-
		(Canada)	0.05	0.05	-
		(China)	-	0.05(dust) 0.03(fume)	-
		(Mexico)	-	0.15	-
		(Singapore)	0.15	-	-
<b>SILVER</b>	*	7440-22-4/231-131-3			
		(US)	0.01	0.1	-
		(EU)	-	0.1	-
		(Canada)	-	0.1	0.3
		(Mexico)	-	0.1	-
		(Singapore)	0.1	-	-
<b>INDIUM</b>	*	7440-74-6/231-180-0			
		(US)	0.1	0.1	-
		(EU)	-	0.1	0.3
		(Canada)	-	0.1	0.3
		(China)	-	0.1	0.3
		(Mexico)	-	0.1	0.3
		(Singapore)	0.1	-	-
<b>ANTIMONY</b>	*	7440-36-0/231-146-5			
		(US)	0.5	0.5	-
		(EU)	0.5	-	-

		(Canada)	-	0.5	1.5
		(China)	-	0.5	-
		(Mexico)	-	0.5	-
		(Singapore)	0.5	-	-
<b>ROSIN</b>	5.0-6.0	65997-05-9 (US)	N.E.	N.E.	N.E.
		(EU)	0.05	N.E.	0.15 (sensitizer)
<b>POLYGLYCOL ETHER</b>	2.0 -4.0	9038-95-3	N.E.	N.E.	N.E.
<b>MODIFIED CASTER OIL</b>	1.0 – 7.0	61788-85-0	N.E.	N.E.	N.E.

\*See alloy table at the end of document

N.E. = Not established

#### 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 extinguisher 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.

## 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 they're permissible exposure levels are not exceeded. Protect workers from potential exposures.

### Personal protection:

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

**Respirator:** An approved or compliant marked air-purifying respirator with a fume/organic chemical cartridge is recommended under certain circumstances (i.e. when re-flowing manually on a hot plate instead of a ventilated re-flow furnace) where airborne concentrations are expected to exceed exposure limits. Lead containing products require that ventilation be provided to ensure workers are protected from potential exposures.

**Skin:** Compatible chemical resistant gloves. Latex gloves are not recommended.

**Other:** Lab coat, eye-wash 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

<b>Appearance:</b>	Grey colored paste.	<b>Boiling Point:</b>	Not applicable.
<b>Odor:</b>	Mild characteristic odor.	<b>Melting Point:</b>	Not applicable
<b>Specific Gravity:</b>	Not applicable.	<b>pH:</b>	5 – 8 (flux)
<b>Vapor Pressure:</b>	Not applicable.	<b>Solubility in Water:</b>	Insoluble (paste)
<b>Vapor Density:</b>	(air=1) Not applicable.	<b>Volatile Organics:</b>	<132,700 ug/kg

**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	29CFR1910.1025	
	<b>IARC:</b> Yes	Lead and lead compounds are listed as possible carcinogens.	
<b>LD50:</b>	Not established.	<b>LC50:</b>	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 has not been tested.

**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 regulations and requirements. Not regulated under US DOT (United States Department of Transportation).

Non-hazardous for shipping (ground / IATA/ Ocean).

UN – none  
Marine Pollutant: No

North American Emergency Guide Book – Not applicable

## 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.).

California PROP 65 Safe Drinking Water Standard: WARNING: Applicable in California

This product contains a chemical(s) known to the State of California to cause cancer and/or birth defects (or other reproductive harm). (lead)

USEPA -SARA 313 Listing - 40 CFR 372.65

Lead CAS# 7439-92-1

Silver CAS# 7440-22-4

Antimony CAS# 7440-36-0

Copper CAS# 7440-50-8

Zinc CAS# 7440-66-6

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

All ingredients are listed on the EPA TSCA Inventory.

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)



D2B -Materials Causing Other Toxic Effects –skin irritation

Ingredients are listed on the Canadian Domestic Substance List.

This product has been classified in accordance with the guidelines set by the Dep.t 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.

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 of Hazardous Agents in the Workplace, GBZ2-2002.

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).

## 16. OTHER INFORMATION

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

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

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

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**ALLOY TABLE**

<b>INDALLOY Metal Alloy Mix</b>	<b>% Sn Tin</b>	<b>% Pb Lead</b>	<b>% Ag Silver</b>	<b>% In Indium</b>	<b>% Sb Antimony</b>	<b>RoHS 2 Compliance</b>
<b>143 (Pb90/Sb10)</b>	-	74.7-82.8	-	-	8.3-9.2	YES with exemption
<b>149 (Pb80/Sn20)</b>	16.6-18.4	66.4-73.6	-	-	-	NO
<b>150 (Pb81/In19)</b>	-	67.2-74.5	-	15.8-17.5	-	NO
<b>151 (Pb92.5/Sn5/ Ag2.5)</b>	4.2-4.6	76.8-85	2-2.3	-	-	YES with exemption
<b>152 (Pb92/Sn5/Sb3)</b>	4.2-4.6	76.4-85.6	-	-	2.5-2.8	YES with exemption
<b>155 (Pb90/Ag5/Sn5)</b>	4.2-4.6	74.7-82.8	4-4.6	-	-	YES with exemption
<b>159 (Pb90/Sn10)</b>	8.3-9.2	74.7-82.8	-	-	-	YES with exemption
<b>161 (Pb97.5/Ag2.5)</b>	-	80.9-89.7	2-2.3	-	-	YES with exemption
<b>163 (Pb95.5/Ag2.5/ Sn2)</b>	1.7- 1.9	79.3-87.9	2.1-2.3	-	-	YES with exemption
<b>164 (Pb92.5/In5/Ag2.5)</b>	-	76.8-85.1	2.1-2.3	4.2-4.6	-	YES with exemption
<b>165 (Pb97.5/Ag1.5/ Sn1)</b>	0.8-0.9	80.9-89.7	1.2-1.4	-	-	YES with exemption
<b>171 (Pb95/Sn5)</b>	4.2-4.6	78.9-87.4	-	-	-	YES with exemption
<b>175 (Pb95/Ag5)</b>	-	78.9-87.4	4.2-4.6	-	-	YES with exemption
<b>228 (Pb88/Sn10/Ag2)</b>	8.3-9.2	73-81	1.7-1.8	-	-	YES with exemption
<b>233 (Pb85/Sb10/Sn5)</b>	4.2-4.6	70.6-78.2	-	-	8.3-9.2	YES with exemption
<b>236 (Pb83/Sb10/Sn5/ Ag2)</b>	4.2-4.6	68.9-76.4	1.7-1.8	-	8.3-9.2	NO
<b>266 (93.5Pb/5Sn/1.5Ag )</b>	4.2-4.6	77.6-86	1.2-1.4	-	-	YES with exemption
<b>NS (Sn5/Pb93.5/Ag1.5)</b>	4.2-4.6	77.6-86	1.2-1.4	-	-	YES with exemption
<b>NS</b>	12.5-13.8	68.5-75.9	2.1-2.3	-	-	NO

(Sn15/Pb82.5/ Ag2.55)							
<b>NS</b> (Sn3.5/Pb84.5/ Sb12)		2.9-3.2	70.1-78.2	-	-	9.5-10.6	<b>NO</b>

**NS = Non Standard Alloy Mix**

RoHS2 = Restriction of Hazardous Substances (2011/65/EU). Please review any applicable exemptions that may apply. This information is provided as information only. It is the responsibility of the customer to determine compliance with their particular specifications and restrictions.