



INDIUM CORPORATION OF AMERICA®\EUROPE®\ASIA-PACIFIC®  
INDIUM CORPORATION (SUZHOU)®

## SAFETY DATA SHEET

### 1. PRODUCT AND COMPANY IDENTIFICATION

**Product Identifier:** INDALLOY WITH INDIUM 5.9 FLUX

**SDS Number:** SDS-6231

**Revised Date:** 31 MAY 2016

**Product Use:** Industrial Use (mixture) - solder paste consisting of a flux vehicle blended with **88-89** weight percent pre-alloyed metal powder.

#### MANUFACTURER:

##### In America:

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

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    IARC    OSHA    ⊕Not Listed

### Carcinogen listed in

GHS:



for lead containing products

Signal Word: Warning

#### Hazard statement(s)

- H303            May be harmful if swallowed (lead)
- H317            May cause an allergic skin reaction
- H319            Causes serious eye irritation
- H334            May cause allergy or asthma symptoms or breathing difficulties if inhaled
- H351            Suspected of causing cancer (lead)
- H361            Suspected of damaging fertility or the unborn child (applicable to lead containing product)
- H373            May cause damage to organs through prolonged or repeated exposure (applicable to lead containing product)
- H410            Very toxic to aquatic life with long lasting effects (lead containing product)
- 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 + 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)

### 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 serious eye irritation.

**Ingestion:**        This product contains metal alloy powders 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. May be harmful if inhaled. Inhalation of rosin fume may cause occupational asthma.

**Skin Contact:**    May cause skin irritation. Rosin may cause dermatitis and skin sensitization.

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

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.

**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.

**Warning:** State of California Only: This product contains a chemical known to the State of California to cause cancer and/or birth defects (or other reproductive harm). (lead)  
Safe Drinking Water Standard – California Prop 65.

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

### 3. COMPOSITION / INFORMATION ON INGREDIENTS

Components	% wt	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>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>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)
		(Mexico)	-	0.2(fume)	2

		(Singapore)	0.2	-	-
		(China)	-	1(dust)	2.5
				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>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>ROSIN</b>	5.0 – 6.0	65997-05-9	N.E.	N.E.	N.E.
		(EU)	0.05	N.E.	0.15 (sensitiser)
<b>POLYGLYCOL ETHER</b>	3.0 – 5.0	9038-95-3	N.E.	N.E.	N.E.
<b>PROPRIETARY ACTIVATORS</b>	1.0 – 3.0	-	N.E.	N.E.	N.E.
N.E. = Not established					
** See Alloy table					

**ALLOY TABLE 88-89% metal load**

INDALLOY Metal Mix	%TIN Sn	%SILVER Ag	%COPPER Cu	%ANTIMONY Sb	%LEAD Pb	RoHS 2 Compliance
121 (96.5Sn/3.5Ag)	85-85.9	3.08-3.1	-	-	-	Yes
133 95Sn/5Sb	83.6-84.6	-	-	0.44-0.445	-	Yes
233 (85Pb/10Sb/5Sn)	4.4-4.45	-	-	8.8-8.9	74.8-75.7	Yes*
241 (SAC387) 95.5Sn/3.8Ag/0.7Cu)	84-85	3.3-3.4	0.62-0.623	-	-	Yes
256 (SAC305) 96.5Sn/3Ag/0.5Cu)	85-85.9	2.6-2.67	0.44-0.445	-	-	Yes
268 (SACM0510) (98.5Sn/0.5Ag/1Cu/0.05Mn)	86.7-87.7	0.44-0.445	0.88-0.89	-	-	Yes

RoHS 2 = (2011/65/EU) \* Complies with high melting lead exemption

**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.

## 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 any permissible exposure limits are not exceeded.

### 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 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. Latex gloves 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. When working with lead containing products use standard lead work procedures.

## 9. PHYSICAL AND CHEMICAL PROPERTIES

**Appearance:** Grey colored paste.

**Odor:** Mild characteristic odor.

**Specific Gravity:** 1 g/cc (flux)

**Vapor Pressure:** Not applicable.

**Vapor Density:** (air=1) Not applicable.

**Boiling Point:** Not applicable.

**Melting Point:** Not applicable

**pH:** 4 – 8 (flux)

**Solubility in Water:** Insoluble (paste)

**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.
<b>Other:</b> Chronic Toxicity:	Prolonged or repeated exposure to rosin flux fume may cause workers to develop occupational asthma.		

Product not tested.

**12. ECOLOGICAL INFORMATION**

Product not tested.

**13. DISPOSAL CONSIDERATION**

<b>Waste Disposal Method:</b>	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.
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**14. TRANSPORT INFORMATION**

Transport in accordance with applicable regulations and requirements. Not regulated under US DOT (United States Department of Transportation).

Non - hazardous under shipping requirements. (USDOT/IATA/IMDG)

UN – none

North American Emergency Guide Book – Not Classified

**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):

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

SARA 313 Listing - 40 CFR 372.65

Silver Copper Lead Antimony

All ingredients are listed on the EPA TSCA Inventory.

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 – irritation/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 the Mexican guidelines, NOM-018-STPS-2015 and NOM-010-STPS-2014.

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

Most of the ingredients are listed on the Canadian Domestic Substance List.

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>	1
	<b>Fire:</b>	1
	<b>Reactivity:</b>	0



<b>Revised Date:</b>	31 MAY 2016
<b>Prepared by:</b>	Nancy Swarts, Indium Corporation of America
<b>Approved by:</b>	Nancy Swarts, Indium Corporation of America

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**Note: This SDS may be translated into an international language. If there is any misinterpretation or misunderstanding of any words or phrases that may occur within any translation the ENGLISH language shall always prevail.**