



## SAFETY DATA SHEET

### 1. PRODUCT AND COMPANY IDENTIFICATION

**Product Identifier:** INDALLOY WITH INDIUM 5.7 LT-1 FLUX

**SDS Number:** SDS-7017

**Revised Date:** 1 OCTOBER 2019

**Product Use:** Industrial Use (mixture) - solder paste consisting of a flux vehicle blended with 75-90 weight percent pre-alloyed metal powder. See alloy table.

#### MANUFACTURER:

##### In America:

The Indium Corporation of America®  
34 Robinson Rd., Clinton, New York 13323  
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**  
**CHINA: + 86 4008417580**

##### In Europe:

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

##### In Asia:

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

##### In India:

Indium Solder Private Limited  
Shed A, NP-7 Guindy Industrial Estate,  
Ekkaduthangal, Chennai, Tamil Nadu, India 600032  
Information: +91-044-46877888

## 2. HAZARDS IDENTIFICATION

### PRIMARY ROUTES OF ENTRY:

⊕Eye    ⊕Inhalation    ⊕Skin    ⊕Ingestion    NTP    IARC    OSHA    ⊕Not Listed

### Carcinogen listed in

GHS:



Signal Word: Warning

#### Hazard statement(s)

H317                    May cause an allergic skin reaction  
 H334                    May cause allergy or asthma symptoms or breathing difficulties if inhaled  
 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 + 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)

#### Classification

Sensitization, skin- Category1B  
 Sensitization, respiratory- Category 1B

### 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. 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 may cause metal fume fever (chills, muscle aches, nausea, and fever; dry throat, cough, weakness, lassitude); metallic or sweet taste; discoloration of skin and hair

**ANTIMONY:** May be harmful if inhaled. May cause respiratory irritation.

**INDIUM:** may cause irritation/damage to respiratory system.



**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](http://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**

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>BISMUTH</b>	*	7440-69-9/231-177-4	N.E.	N.E.	N.E.
<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>COPPER</b>	*	7440-50-8/231-159-6				
			(US)	0.1	0.2	-
			(EU)	-	0.2 (fume)	2(dust)
			(Canada)	-	0.2	0.6
			(Singapore)	0.2(fume)	1(dust)	-
			(Mexico)	0.2	-	2
			(China)	-	0.2(fume)	0.6(fume)
<b>INDIUM</b>	*	7440-74-6/231-180-0				
			(US)	0.1	0.1	N.E.
			(EU)	N.E.	0.1	0.3
			(Canada)	N.E.	0.1	0.3
			( Mexico)	0.1	N.E.	0.3
			(Singapore)	0.1	N.E.	N.E.
			(China)	-	0.1	0.3
<b>ROSIN</b>	4.0 – 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>CARBOXYLIC ACID</b>	1.0 – 4.0	68937-05-3		N.E.	N.E.	N.E.

N.E. = Not established \* See alloy table.

Product complies with the applicable parts of \*RoHS 2 Restriction of Hazardous Substances (2011/65/EU)

## 75-90% alloy in paste mixture.

<b>Indalloy (metal mixture)</b>	<b>%tin Sn</b>	<b>%silver Ag</b>	<b>%bismuth Bi</b>	<b>%indium In</b>	<b>%antimony Sb</b>	<b>%copper Cu</b>	<b>%nickel Ni</b>	<b>RoHS 2/3 Compliance</b>
281 (58Bi/42Sn)	31.5-37.8	-	43.5-52.2	-	-	-	-	Yes
282 (57Bi/42Sn/1Ag)	31.5-37.8	0.75-0.90	42.8-51.3	-	-	-	-	Yes
ALLOY 51-3 (Sn60-68/Bi28-36/Ag 1-2.5/In 0.5-1.5/Sb 0-1/Cu 0-1)	45-61.2	0.75-2.25	21-32.4	0.44-1.35	0-0.9	0-0.9	-	Yes
ALLOY 67-3 (Sn50-60/Bi 40-48/Ag 0-1.5/In 0-1/Cu0-1)	37.5-54	0-1.35	30-43.2	0-0.9	-	0-0.9	-	Yes
DURAFUSE LT-1	65-88	2-3.5	-	7.5-13.5	-	0-0.45	-	Yes
841-66-2	30-45	0-1.2	40-59	-	0-0.45	0-0.45	0-0.45	Yes
841-69-1	30-45	0-1	40-59	-	0-0.45	0-0.45	-	Yes
841-69-3	30-45	0-0.9	40-59	-	0-0.45	0-0.45	-	Yes
870-8-1	41-58	0.75-1.5	30-45	-	-	0-0.2	-	Yes
841-63-3	30-45	0-0.9	40-59	-	0-0.45	0-0.45	-	Yes

#### 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.

## 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>	1 g/cc (flux)	<b>pH:</b>	4 – 8 (flux)
<b>Vapor Pressure:</b>	Not applicable.	<b>Solubility in Water:</b>	Insoluble (paste)
<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

**Carcinogenicity:** NTP: No  
OSHA: No  
IARC: No

**LD50:** Not established. **LC50:** Not established.

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

## 12. ECOLOGICAL INFORMATION

Product not 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 international regulations and requirements. Not regulated under US DOT (United States Department of Transportation/IATA/IMDG).

Non - hazardous under shipping requirements, all shipping modes.

UN – none                      Marine Pollutant: No

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.).



**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](http://www.P65Warnings.ca.gov)

SARA 313 Listing - 40 CFR 372.65  
Silver Copper 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.

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.

## 16. OTHER INFORMATION

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

**Revised Date:** 1 OCTOBER 2019

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

**Approved by:** 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.**