



**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 known as Indium 5.1. A table is provided that lists all metal groupings. To better serve all of our customers Indium Corporation has generated one MSDS, 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 INDIUM5.1 FLUX VEHICLE

**SDS Number:** SDS-4122

**Revised Date:** 8 APRIL 2016

**Product Use:** Industrial Use - solder paste consisting of a flux vehicle blended with an 83-92 % 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

**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:



Signal Word: Warning

### Hazard statement(s)

H317            May cause an allergic skin reaction  
 H319            Causes serious eye irritation  
 H334            May cause allergy or asthma symptoms or breathing difficulties if inhaled  
 H335            May cause respiratory irritation  
 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:

Skin sensitization- Category 1B

Respiratory sensitization- 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 eye irritation.

**Ingestion:**        May cause irritation. Large doses may cause intestinal problems or harm.

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

**Skin Contact:**    May cause skin irritation. Rosin may cause contact dermatitis. Antimony contact may cause skin irritation.

**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. Chronic exposure to tin dusts and fume may result in “stannosis” a mild form of pneumoconiosis.

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

**WARNING:** 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 listed metals (lead))

**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
		(Singapore)	2	-	-
		(Canada)	N.E.	2	4
<b>SILVER</b>	*	7440-22-4/231-131-3			
		(US)	0.01	0.1	-
		(EU)	-	0.1	-
		(Canada)	-	0.1	0.3
		(Singapore)	0.1	-	-
(Mexico)	0.1	-	-		
<b>COPPER</b>	*	7440-50-8/231-159-6			
		(US)	0.1	0.2	-
		(EU)	-	0.2(fume)	-
		(Canada)	-	0.2	0.6
		(Singapore)	0.2	-	-
		(Mexico)	-	0.2	2
(China)	-	0.2(fume)	0.6		
<b>ANTIMONY</b>	*	7440-36-0/231-146-5			

		(US)	0.5	0.5	-
		(EU)	0.5	-	-
		(Canada)	N.E.	0.5	1.5
		(Singapore)	0.5	-	-
		(Mexico)	0.5	-	-
		(China)	-	0.5	-
<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>	2.0-5.0	9038-95-3	N.E.	N.E.	N.E.
<b>ORGANIC AMINE</b>	0.2-0.5	(US)	-	5	-
		(Singapore)	5	-	-
<b>PROPRIETARY ACTIVATORS</b>	1.8-5.5		N.E.	N.E.	N.E.

\* See Alloy Table  
 N.E. = Not established      EU = European Union Occupational Exposure Limits

**ALLOY TABLE**

%Metal mix with flux

INDALLOY (METAL)	%COPPER Cu	%TIN Sn	%Antimony Sb	%SILVER Ag	*RoHS Compliance
121 (96.5Sn/3.5Ag)	-	80.1-88.8	-	2.9-3.2	Yes
133 (95Sn/5Sb)	-	78.9-87.4	4.2-4.6	-	Yes
241 (95.5Sn/3.8Ag/0.7Cu)	0.58-0.64	79.3-87.9	-	3.2-3.5	Yes
252 (95.5Sn/3.9Ag/0.6Cu)	0.50-0.55	79.3-87.9	-	3.2-3.6	Yes
256 (96.5Sn/3Ag/0.5Cu)	0.42-0.46	80.1-88.8	-	2.5-2.8	Yes

\*RoHS 2 = Restriction of Hazardous Substances (review for any applicable exemptions that may apply) (2011/65/EU)

#### 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. May have reclaim value.

#### 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 (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.

<b>Respirator:</b>	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 plate instead of a ventilated re-low furnace) where airborne concentrations are expected to be elevated or exceed exposure limits.
<b>Skin:</b>	Compatible chemical resistant gloves.
<b>Other:</b>	Lab coat, eyewash fountain in work area. Avoid the use of contact lenses in high fume areas.
<b>Work/Hygienic Practices:</b>	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>	Not applicable
<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

<b>Carcinogenicity:</b>	<b>NTP:</b> No		
	<b>OSHA:</b> No		
	<b>IARC:</b> No		
<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.

## 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 regulations and requirements. Not regulated (Department of Transportation).

Non hazardous under shipping regulations.

Non hazardous for ground, IATA, ocean

## 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: WARNING: California Safe Drinking Water Regulation

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 CAS# 7440-22-4 Copper CAS# 7440-50-8 Organic amine

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: Class D2 Materials Causing Other Toxic Effects (irritation/sensitizer)

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 regulations, 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).

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 under the Chinese Occupational Exposure Limit for hazardous Agents in the Workplace, GBZ2-2002.

RoHS 2 = Restriction of Hazardous Substances EU directive 2011/65/EU

**16. OTHER INFORMATION**

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

**Revised Date:** 8 APRIL 2016

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

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

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