



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

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.

## SAFETY DATA SHEET

### 1. PRODUCT AND COMPANY IDENTIFICATION

**Product Identifier:** Indalloy with Indium 5.7LT Flux Vehicle

**SDS Number:** SDS-5348

**Revised Date:** 26 MARCH 2015

**Product Use:** Industrial Use - Solder paste consisting of a flux vehicle blended with 83-92 weight percent pre-alloyed metal powder. Solder applications. (mixture). See alloy table for all possible alloy mixtures.

#### MANUFACTURER:

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## 2. HAZARDS IDENTIFICATION

GHS:



applicable to lead containing products

Signal Word: Warning

### **Hazard statement(s)**

H303	May be harmful if swallowed
H315	Causes skin irritation
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)
EUH208	Contains rosin. May produce an allergic reaction
EUH201A	Warning! Contains lead (applicable only to the products listed that contain lead) Review listing

### **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 irritant- Category 2

Specific target organ toxicity- repeated exposure – Category 2

Carcinogenicity (Category 2) (lead)

Reproductive toxicity (Category 2 ) (lead)

Acute aquatic toxicity – Category 1 for lead containing products (H400)

Chronic aquatic toxicity – Category 1 for lead containing products (H410)

**PRIMARY ROUTES OF ENTRY:**

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

**Carcinogen listed in**

**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 contains metal alloy powders and organic chemicals. Harmful if swallowed. May cause burns to the digestive tract.

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

BISMUTH: May cause kidney damage.

LEAD: 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.

INDIUM: May cause damage to respiratory or kidney system. May be harmful if inhaled.

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

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

**WARNING:** This product may contain lead. Lead may be harmful to your health. US Federal law prohibits the use of leaded solders in making joints or fittings in any private or public water supply system. Keep out of the reach of children.

**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>
TIN	*	7440-31-5/231-141-8  (US)	2	2	-

			(EU)	-	2	4
			(Canada)	-	2	4
<b>SILVER</b>	*	7440-22-4/231-131-3	(Singapore)	2	-	-
			(US)	0.01	0.1	-
			(EU)	-	0.1	-
			(Canada)	-	0.1	0.3
			(Mexico)	-	0.1	-
			(Singapore)	0.1	-	-
<b>LEAD</b>	*	7439-92-1/231-100-4				
			(US)	0.05	0.05	-
			(EU)	N.E.	0.15	N.E.
			(Canada)	0.05	0.05	N.E.
			(Singapore)	0.15	-	-
			(Mexico)	0.15	-	-
			(China)	-	0.05(dust) 0.03(fume)	-
<b>INDIUM</b>	*	7440-74-6/231-180-0				
			(US)	0.1	0.1	-
			(EU)	-	0.1	0.3
			(Canada)	-	0.1	0.3
			(Singapore)	0.1	-	-
			(Mexico)	-	0.1	0.3
			(China)	-	0.1	0.3
<b>BISMUTH</b>	*	7440-69-9/231-177-4		N.E.	N.E.	N.E.
<b>ROSIN</b>	4.0-8.0	65997-05-9		N.E.	N.E.	N.E.
			(EU)	0.05	N.E.	0.15 (sensitiser)
<b>POLYGLYCOL ETHER</b>	3.0 – 6.0	9038-95-3		N.E.	N.E.	N.E.
<b>PROPRIETARY ACTIVATORS NON HAZARDOUS</b>	1.0 – 3.0	-		N.E.	N.E.	N.E.
N.E. = Not established						

\* See Alloy Table

**ALLOY TABLE**

## Metal mixed with flux

Indalloy (metal mixture)	%TIN Sn	%BISMUTH Bi	%LEAD Pb	%SILVER Ag	%INDIUM In	RoHS 2 Compliance
27 (54Bi/29.7In/16.3Sn)	13.5-15	44.8-50	-	-	24.7-27	Yes
42 (46Bi/34Sn/20Pb)	28-31	38.2-42	16.6-18.4	-	-	NO
53 (67Bi/33In)	-	55.6-61.6	-	-	27.4-30.4	YES
97 (43Sn/43Pb/14Bi)	35.7-40	11.6-12.9	35.7-40	-	-	NO
139 (95Bi/5Sn)	4.2-4.6	78.9-87.4	-	-	-	YES
240 (46Sn/46Pb/8Bi)	38.2-42.3	6.6-7.4	38.2-42.3	-	-	NO
281 (58Bi/42Sn)	34.9-38.6	48.1-53.4	-	-	-	YES
282 (57Bi/42Sn/1Ag)	34.9-38.6	47-52	-	0.83-0.92	-	YES
281-338 (60Sn/40Bi)	49.8-55.2	33.2-36.8	-	-	-	YES

RoHS 2 (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.

## 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 any permissible exposure limits are not exceeded. Use exhaust ventilation.

### 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 for handling paste.

**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 applicable follow proper lead work practices.

## 9. PHYSICAL AND CHEMICAL PROPERTIES

**Appearance:** Grey colored paste.

**Boiling Point:** Not applicable.

**Odor:** Mild characteristic odor.

**Melting Point:** Not applicable

**Specific Gravity:** 1 g/cc

**pH:** 4-8 (flux)

**Vapor Pressure:** Not applicable.

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

**Vapor Density:** (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> 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. Lead can cause potential harm to the developing fetus.			

**12. ECOLOGICAL INFORMATION**

Product not tested.

An environmental hazard cannot be eliminated in the event of mishandling, misuse or disposal of this material. If applicable lead containing products are harmful to the environment.

**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 under shipping requirements (ground/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.).

This product has been classified in accordance with the hazard criteria of the Canadian Controlled Products Regulation (CPR).



Canadian WHMIS: Class D2B Materials Causing Other Toxic Effects – irritant and D2A-Materials Causing Other Toxic Effects-Very Toxic Material (Chronic) (lead)

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-2000 and NOM-010-STPS-1999.

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

SARA 313 Listing - 40 CFR 372.65

Silver 3-6% Proprietary glycol ether , Lead

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

All ingredients are listed on the USEPA TSCA Inventory.

EC Classification, Packaging and Labeling Requirements:

Symbol and Hazard Classification of Product

**Risk Phrases:**

- R42/43 May cause sensitization by inhalation or by skin contact
- R36/37/38 Irritating to eyes, respiratory system and skin
- R50/53 Very toxic to aquatic organisms, may cause long term adverse effects in the aquatic environment(lead)
- R33 Danger of cumulative effects (lead)
- R40 Limited evidence of carcinogenic effect (lead)
- R48 Danger of serious damage to health by prolonged exposure (lead)
- R61 May cause harm to the unborn child (lead)

**Safety Phrases:**

- S20/21 When using do not eat, drink or smoke
- S23 Do not breathe fumes
- S24/25 Avoid contact with skin and eyes
- S27 Take off immediately all contaminated clothing
- S28 After contact with skin wash immediately with plenty of soap and water
- S36/37/39 Wear suitable protective clothing, gloves and eye/face protection
- S62 If swallowed, do not induce vomiting seek medical advice immediately and show container or label
- S7 Keep container tightly closed



**16. OTHER INFORMATION**

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

**Revised Date:** 26 MARCH 2015

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

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

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