



## SAFETY DATA SHEET

### 1. PRODUCT AND COMPANY IDENTIFICATION

**Product Identifier:** INDALLOY WITH RA/RA-F FLUX VEHICLE

**SDS Number:** SDS-IN 360

**Revised Date:** 28 DECEMBER 2017

**Product Use:** Industrial Use - Rosin-based activated solder paste consisting of a flux vehicle blended with an 83-92 % pre-alloyed metal powder.

#### MANUFACTURER:

##### In America:

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## 2. HAZARDS IDENTIFICATION

GHS:

Lead free



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 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)

Lead-containing:



Signal Word: Warning

Hazard statement(s)

H303 May be harmful if swallowed  
 H317 May cause an allergic skin reaction  
 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)  
 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
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P305 + 351	IF IN EYES: Rinse continuously with water for several minutes (15 mins)

Classification:

Carcinogenicity (Category 2) (lead)  
 Reproductive toxicity (Category 2 ) (lead)  
 Skin sensitizer-Category 1B  
 Respiratory sensitizer-Category 1B  
 Acute toxicity, oral- Category 5  
 Specific target organ toxicity- repeated exposure (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

**CARCINOGEN LISTED IN:**

NTP      IARC      OSHA      \*Not Listed

**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:** Contains metal alloy and organic chemicals. May be harmful if swallowed. May cause irritation.

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

**Skin Contact:** May cause skin irritation. ANTIMONY has been known to cause dermatitis.

**Chronic:** **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.

**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.

**BISMUTH:** Can cause kidneys damage.

**WARNING:** This product contains a chemical known to the State of California to cause cancer and/or birth defects (or other reproductive harm). (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 #	PEL mg/m <sup>3</sup>	TLV-TWA mg/m <sup>3</sup>	TLV-STEL mg/m <sup>3</sup>
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<b>TIN</b>	*	7440-31-5 (US)	2	2	N.E.
		(EU)	N.E.	2	4
		(Canada)	N.E.	2	4
<b>LEAD</b>	*	7439-92-1 (US)	0.05	0.05	N.E.
		(EU)	N.E.	0.15	N.E.
		(Canada)	0.05	0.05	N.E.
<b>SILVER</b>	*	7440-22-4 (US)	0.01	0.1	N.E.
		(EU)	N.E.	0.1	N.E.
		(Canada)	N.E.	0.1	0.3
<b>BISMUTH</b>	*	7440-69-9	N.E.	N.E.	N.E.
<b>ANTIMONY</b>	*	7440-36-0(US)	0.5	0.5	N.E.
		(EU)	0.5	N.E.	N.E.
		(Canada)	N.E.	0.5	1.5
<b>ROSIN</b>	3.0-5.0	65997-05-9 (US)	N.E.	N.E.	N.E.
		(EU)	0.05	N.E.	0.15 (sensitiser)
		(Canada)	N.E.	N.E.	N.E.
<b>POLYGLYCOL ETHER</b>	4.0-9.0	9038-95-3	N.E.	N.E.	N.E.

N.E. = Not established      EU = European Union Occupational Exposure Limits      \* See alloy table

**ALLOY TABLE**

INDALLOY	RoHS 2 Compliance	%BISMUTH Bi	%TIN Sn	ANTIMONY Sb	%SILVER Ag	%LEAD Pb
<b>104</b> Sn62/36Pb/2Ag	No	-	51.9-57.5	-	1.2-1.8	29.9-33.2
<b>106</b> (Sn63/Pb37)	No	-	52.3-58	-	-	30.7-34
<b>97</b> (43Sn/43Pb/14Bi)	No	11.6-12.9	35.7-39.6	-	-	35.7-39.6
<b>121</b> (96.5Sn/3.5Ag)	Yes	-	79.8-88.8	-	2.9-3.2	-
<b>133</b> (95Sn/5Sb)	Yes	-	78.9-87.4	4.2-4.6	-	-

<b>233</b> (85Pb/10Sb/5Sn)	No	-	4.2-4.6	8.3-9.2	-	70.6-78.2
<b>281</b> (58Bi/42Sn)	Yes	33.2-36.8	49.8-55.2	-	-	-

RoHS 2 = Restriction of Hazardous Substance EU Directive 2011/65/EU (review applicable exemption that may apply)

#### 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.

#### 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. 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.

**Other:** Lab coat, eyewash 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

**Appearance:** Grey colored paste.

**Boiling Point:** Not applicable.

**Odor:** Mild characteristic odor.

**Melting Point:** Not applicable

**Specific Gravity:** Not applicable.

**pH:** Not applicable

**Vapor Pressure:** Not applicable.

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

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

## 10. STABILITY AND REACTIVITY

**General:** Stable.

**Conditions to Avoid:** Not established.

**Incompatible Materials:** Avoid contact with acids, bases or oxidizing agents.

**Hazardous Decomposition / Combustion:** Harmful organic fumes and toxic oxide fumes may form at elevated temperatures.

**Hazardous Polymerization:** Will not occur.

## 11. TOXICOLOGICAL INFORMATION

**Carcinogenicity:** NTP: No

OSHA: No

IARC: Yes Lead and lead compounds are listed as possible carcinogens.

**LD50:** Not established.

**LC50:** 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 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 by US Department of Transportation. Non hazardous under shipping regulations.

UN- None

Non-hazardous- ground/IATA/IMDG

**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: D2A-Materials Causing Other Toxic Effects-Very Toxic Material (Chronic) (lead).

D2B Materials Causing Other Toxic Effects -irritant

This product has been classified in accordance with the guidelines set by the Dept. of Industrial Health of the Republic of Singapore.

California PROP 65: WARNING:

This product contains a chemical known to the State of California to cause cancer and/or birth defects (or other reproductive harm). (Lead CAS# 7439-92-1)

SARA 313 Listing - 40 CFR 372.65

Lead CAS# 7439-92-1 Silver CAS# 7440-22-4 2- Proprietary Ingredients <1% listed & <2% listed  
Antimony CAS# 7440-36-0

EPA 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 Mexican regulations NOM-0180STPS-2015 and NOM-010-STPS-2014.

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 Limit for Hazardous Agents in the Workplace, GBZ2-2007.

This product has been classified in accordance with: Malaysian – OCCUPATIONAL SAFETY AND HEALTH (CLASSIFICATION, LABELING AND SAFETY DATA SHEET OF HAZARDOUS CHEMICALS) REGULATION OCT

## 16. OTHER INFORMATION

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

**Revised Date:** 28 DECEMBER 2017

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

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

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