



## SAFETY DATA SHEET

### SECTION 1. IDENTIFICATION OF THE SUBSTANCE/MIXTURE AND OF THE COMPANY/UNDERTAKING

1.1 **Product Identifier:** INDALLOY WITH LV1000 FLUX

**SDS Number:** SDS-57361

**Revised Date:** 22 JUNE 2018

1.2 **Relevant identified uses of the substance or mixture and uses advised against**

**Product Use:** Industrial Use (Mixture) – Flux coated preform, ribbon or wire with 0.4-3% flux coating. See alloy table for metal mixtures using the same flux.

1.3 **Details of the supplier of the safety data sheet**

#### **MANUFACTURER/SUPPLIER/IMPORTER:**

##### **In America:**

**The Indium Corporation of America®.**

34 Robinson Rd., Clinton, NY 13323

Information: (315) 853-4900

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Corporation web page: <http://www.indium.com>

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##### **In Asia:**

Indium Corporation of America

Asia-Pacific Operations-Singapore

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Singapore 628908

Information: +65 6268-8678

**1.4 Emergency telephone number**

**FOR CHEMICAL EMERGENCY ONLY PHONE \*:**

**CHEMTREC 24 hrs.**

**USA: 1 (800) 424-9300**

**Outside USA: +1 (703) 527-3887**

**China Emergency: 86+ 4008417580**

**\* Used only for spill/leak/fire/exposure/accident**

**ALL OTHER INQUIRIES: TOLL FREE: +1-800-448-9240 Indium Corporation**

**SECTION 2. HAZARDS IDENTIFICATION**

**PRIMARY ROUTES OF ENTRY:**

Eye    Inhalation    Skin    Ingestion    NTP    IARC    OSHA    Not Listed

**Carcinogen listed in**

**2.1 Classification:**

**2.2 Label elements**

Labeling according to Regulation (EC) No. 1272/2008

GHS:

Lead free products



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
- 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 +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)

Lead containing products



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
H335	May cause respiratory irritation
H351	Suspected of causing cancer
H361	Suspected of damaging fertility or the unborn child
H373	May cause damage to organs through prolonged or repeated exposure
H410	Very toxic to aquatic life with long lasting effects
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:

Carcinogenicity (Category 2) (lead)

Reproductive toxicity (Category 2 ) (lead)

Skin sensitizer-Category 1B

Respiratory sensitizer-Category 1B

Eye irritation-Category 2A

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

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

**2.3 OTHER HAZARDS:**

**POTENTIAL HEALTH EFFECTS:**

**Eye Contact:** Irritating to the eyes and if not removed may result in serious injury. Contact with fume from molten metal may cause irritation.

**Ingestion:** This product contains metal and organic chemicals. May cause irritation.

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

**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. Signs and symptoms of exposure – anemia. Possible carcinogenic to humans.

**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.

**INDIUM:** May cause damage to respiratory system.

## SECTION 3. COMPOSITION / INFORMATION ON INGREDIENTS

### 3.2 Mixture:

Components	% wt	CAS Registry #/ EINECS#
TIN	*	7440-31-5/231-141-8
SILVER	*	7440-22-4/231-131-3
INDIUM	*	7440-74-6/231-180-0
LEAD	*	7439-92-1/231-100-4
ANTIMONY	*	7440-36-0/231-146-5
COPPER	*	7440-50-8/231-159-6
ROSIN MIX	0.5-3.0	65997-05-9

N.E. = Not established

\* See Alloy Table for breakdown of percentages of alloy mixtures

<http://www.indium.com>

## ALLOY TABLE

### 0.4-3% flux

Product	%TIN Sn	%SILVER Ag	%COPPER Cu	%LEAD Pb	%INDIUM In	%ANTIMONY Sb	RoHS Compliance* Directive (2011/65/EU) RoHS2/3
Indalloy 7 (50In/50Pb)	-	-	-	48.5-49.8	48.5-49.8	-	No
Indalloy 104 (Sn62/Pb36/Ag2)	60-61.7	1.94-1.99	-	34.9-35.8	-	-	No
Indalloy 106 (Sn63/Pb37)	59.9-62.7	-	-	35-36.8	-	-	No
121 (96.5Sn/3.5Ag)	93.6-96.1	3.4-3.49	-	-	-	-	Yes
159 90Pb/10Sn	9.7-9.96	-	-	87.3-89.6	-	-	Yes
Indalloy 241 SAC 387 (95.5Sn/3.8Ag/0.7Cu)	92.6-95.1	3.7-3.78	0.68-0.697	-	-	-	Yes

<b>Product</b>	<b>%TIN Sn</b>	<b>%SILVER Ag</b>	<b>%COPPER Cu</b>	<b>%LEAD Pb</b>	<b>%INDIUM In</b>	<b>%ANTIMONY Sb</b>	<b>RoHS Compliance* Directive (2011/65/EU) RoHS2/3</b>
Indalloy 246 (SAC405) (95.5Sn/4Ag/0.5Cu)	92.6-95	3.88-3.98	0.485-0.498	-	-	-	Yes
Indalloy 256 SAC 305 (96.5Sn/3Ag/0.5Cu)	93.6-96.1	2.91-2.99	0.485-0.498	-	-	-	Yes
Indalloy 258 (SACM0510) (98.5Sn/0.5Ag/1Cu)	97.5-98	0.485-0.498	0.97-0.996	-	-	-	Yes
Indalloy 259 (90Sn/10Sb)	87.3-89.6	-	-	-	-	9.7-9.96	Yes
96.3Sn/3.7Ag	93.4-95.9	3.59-3.69	-	-	-	-	Yes

\* Review any exemption that may apply. Exemptions applied are based on the customers uses and not determined by the Indium Corporation.

**\*RoHS 2 = Restriction of Hazardous Substances (2011/65/EU)**

**\*RoHS 3- products do not contain any listed phthalates**

**SECTION 4. FIRST AID MEASURES**

**4.1 Description of first aid measures:**

**Eye Contact:** Hold eyelids apart and flush eyes with plenty of tepid water for at least 15 minutes. Causes eye damage therefore seek medical advice.

**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.

**4.2 Most important symptoms and effect, both acute and delayed:**

Skin contact may cause irritation. Long term contact may cause dermatitis. Inhalation of decomposed rosin fume may cause irritation or occupational asthma. Exposure to metal fumes may cause irritation to the respiratory system. Long term exposure by inhalation to metal fumes may cause illness such as metal fume fever. Exposure to lead fume may cause harm. Sign of overexposure is anemia.

**4.3 Indication of any immediate medical attention and special treatment needed:**

No specific special treatment information is available on this mixture. Review data provided in this document to understand the hazards when working with the product. No other information is available at this time.

## SECTION 5. FIRE FIGHTING MEASURES

5.1 **Extinguishing Media:** Use extinguishers appropriate for the surrounding fire conditions. Water, CO2, foam media.

5.2 **Special hazards arising from the substance or mixture:**  
May produce toxic fumes of carbon monoxide if burning or metal oxide fumes.

5.3 **Advice for Firefighters** Fire-fighters must wear approved self-contained breathing apparatus and full protective clothing.

Material product is not flammable. No other information is available.

## SECTION 6. ACCIDENTAL RELEASE MEASURES

### **6.1 Personal precautions, protective equipment and emergency procedures:**

#### **For non-emergency personnel:**

Keep away from the spill. Remove sources of ignition. Keep exhaust ventilation system running. In the event of a fire evacuate area.

#### **For emergency responders:**

Wear safety glasses, gloves when cleaning up any spill. Other equipment may be necessary based on the immediate area and other chemicals unrelated to the product that may be in use. Adequate ventilation should be available. Keep unnecessary personnel away from area during clean up.

**6.2 Environmental Precautions:** Material may have reclaim value. Material is non - hazardous. It however does contain metals and organic chemicals which may not be suited for release to any body of water including drains. Contains a substance that is harmful to aquatic life with long lasting effects. Follow applicable lead worker procedures, when applicable.

### **6.3 Methods and material for containment and cleaning up:**

Spill or leak procedures: Pick up metal and if possible put back into process or send off site for re-melting and re-use. Molten metal wait to cool before picking up. Place into metal container.

**Reference to other sections:** See Section 8 for exposure levels.

## SECTION 7. HANDLING AND STORAGE

**7.1 Precautions For Safe Handling:** Keep containers tightly closed when not in use. Use care to avoid spills. Wear appropriate personal protective equipment when working or handling. Always thoroughly wash your hands after handling this product. DO NOT touch or rub eyes until hands are washed. Do not eat, drink or smoke when handling this product. Utilize exhaust ventilation when heating product. Emissions may contain metal fumes, rosin and organic compounds. Follow when applicable lead worker practices.

### **7.2 Conditions for Safe Storage, including any incompatibilities:**

**Storage Precautions:** Store product in tightly capped original containers in a cool, dry area. Refer to product label and product data sheet for specific storage temperature requirements. Rotate stock to ensure use before expiration date.

**7.3 Specific End Use(s):** Soldering applications

**SECTION 8. EXPOSURE CONTROLS / PERSONAL PROTECTION**

**8.1 Control Parameters:**

		<u>CAS#/EINECS#</u>	<u>TWA</u> mg/m3	<u>STEL</u> mg/m3
<b>TIN</b>	*	7440-31-5/231-141-8		
		(UK)	2	4
		(Belgium)	2	-
		(Germany)	2	-
		(Netherlands)	2	-
		(Spain)	2	-
		(Poland)	2	-
<b>SILVER</b>	*	7440-22-4/231-131-3		
		(UK)	0.1	0.3
		(Belgium)	0.1	-
		(France)	0.1	-
		(Germany)	0.1	-
		(Netherlands)	0.1	-
		(Spain)	0.1	-
	(Poland)	0.05	-	
<b>LEAD</b>	*	7439-92-1/231-100-4		
		(UK)	0.15	-
		(France)	0.1	-
		(Spain)	0.15	-
		(Italy)	0.15	-
		(Portugal)	0.05	-
		(Finland)	0.1	-
		(Denmark)	0.05	-
		(Austria)	0.1	0.4
		(Switzerland)	0.1	0.8
		(Poland)	0.05	-
	(Norway)	0.05	-	
	(Ireland)	0.15	-	

<b>ANTIMONY</b>	*	7440-36-0/231-146-5		
		(UK)	0.5	-
		(France)	0.5	-
		(Belgium)	0.5	-
		(Spain)	0.5	-
		(Portugal)	0.5	-
		(The Netherlands)	0.5	-
		(Finland)	0.5	-
		(Denmark)	0.5	-
		(Austria)	0.5	5
		(Switzerland)	0.5	-
		(Poland)	0.5	-
		(Norway)	0.5	-
		(Ireland)	0.5	-
<b>COPPER</b>	*	7440-50-8 /231-159-6		
		(UK)	0.2 (fume)	0.6(fume)
		(France)	2	0.2(fume)
		(Belgium)	1	-
			0.2(fume)	
		(Spain)	1	-
			0.2(fume)	
		(Portugal)	1	0.2(fume)
		(Netherlands)	0.1	-
		(Finland)	1	-
			0.1	
		(Denmark)	1	-
			0.1	
		(Austria)	1	4
			0.1(fume)	0.4
		(Switzerland)	0.1	0.2
		(Norway)	1	0.1
		(Ireland)	1	2
			0.2 (fume)	



		(Poland)	0.2	-
<b>INDIUM</b>	*	7440-74-6/231-180-0		
		(UK)	0.1	0.3
		(Belgium)	0.1	-
		(Spain)	0.1	-
		(Portugal)	0.1	-
		(Finland)	0.1	-
		(Denmark)	0.1	-
		(Austria)	0.1	0.2
		(Switzerland)	0.1	-
		(Norway)	0.1	-
		(Ireland)	0.1	0.3
<b>ROSIN MIX</b>	0.5- 3.0	65997-05-9		
		(EU)	0.05	N.E. 0.15 (sensitiser)

N.E. = Not established

TWA= time weighted average

STEL= short term exposure limit

**Exposure Controls:**

**8.2 Engineering Controls:** Use only with adequate exhaust ventilation and other safety features. Control concentration of all components with established exposure limits so they are not exceeded. Use exhaust ventilation when heating product. Air emission control equipment may be necessary based on the local governmental requirements for contaminants entering the atmosphere. Emissions may contain metal fume, rosin and chemicals.

**Personal protection:**

**Eyes:** Chemical safety glasses/goggles. Face shield for splash hazards.

**Respiratory:** An approved or EU compliant CE marked air-purifying respirator with a fume/organic chemical cartridge is recommended under certain circumstances where airborne concentrations are expected to be elevated or exceed exposure limits.

**Skin:** Compatible chemical resistant gloves or hot gloves. Recommend a nitrile disposable or other chemical glove. Hot gloves for molten metal.

**Other:** Lab coat, eye-wash fountain in work area. Avoid the use of contact lenses in high fume areas.

**Work/Hygienic** Maintain good housekeeping. Clean up spills immediately. 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. Follow standard lead work practices, if and when applicable.

**SECTION 9. PHYSICAL AND CHEMICAL PROPERTIES****9.1 Information on basic physical and chemical properties:**

<b>Appearance:</b>	Metal	<b>Boiling Point/Range:</b>	Not determined
<b>Odor:</b>	Odorless	<b>Melting Point/Freezing Point:</b>	Not applicable
<b>Odor Threshold:</b>	Not established	<b>Evaporation Rate:</b>	Not applicable
<b>Specific Gravity:</b>	Not applicable.	<b>pH:</b>	Not applicable
<b>Vapour Pressure:</b>	Not applicable.	<b>Solubility in Water:</b>	Insoluble
<b>Vapour Density:</b>	(air=1) Not applicable.	<b>Partition coefficient:</b>	Not established
<b>Relative Density:</b>	Not established	<b>Flammability:</b>	Not applicable
<b>Flash Point:</b>	Not applicable	<b>Method:</b>	Not applicable
<b>Auto-ignition Temperature:</b>	Not applicable	<b>Flammable Limits:</b>	Limits not established
<b>UEL/LEL Limits:</b>	Not applicable	<b>Decomposition Temp:</b>	Not applicable
<b>Viscosity:</b>	Not established	<b>Explosive properties:</b>	Not applicable
<b>Oxidizing Properties:</b>	Not established		

**9.2 Other Information:** Above data for the whole mixture.

**SECTION 10. STABILITY AND REACTIVITY**

- 10.1 Reactivity:** Stable.
- 10.2 Chemical Stability:** Stable
- 10.3 Possibility of Hazardous Reactions:** Not established
- 10.4 Conditions To Avoid:** None known
- 10.5 Incompatible Materials:** Avoid contact with acids, bases or oxidizing agents.
- 10.6 Hazardous Decomposition** Harmful organic fumes and toxic oxide fumes may form at elevated temperatures. Metal oxide fumes.
- 10.7 Hazardous Polymerization:** Will not occur.

**SECTION 11. TOXICOLOGICAL INFORMATION****11.1 Information on toxicological effects:**

<b>Acute toxicity:</b>	Not established	<b>Mutagenicity:</b>	Not established
<b>Irritation:</b>	Not established	<b>Toxicity for Reproduction:</b>	Not Established
<b>Corrosivity:</b>	Not applicable	<b>Absence of specific data:</b>	None available (not tested)
<b>Sensitization:</b>	Not available		

**Repeated dose toxicity:** Not established

**Carcinogenicity:** Not established

**Likely Routes of Entry:** eyes (irritation) /skin (irritation or sensitization) /inhalation (irritation/sensitization) ingestion (may be harmful)

**Interactive effects:** None known

**11.2 Symptoms related to the physical, chemical and toxicological characteristics:**

May cause irritation or sensitization by skin and inhalation. Causes serious eye irritation.

### **11.3 Delayed and immediate effects as well as chronic effects from short and long-term exposure:**

Exposure to rosin fume has been known to cause occupational asthma. Exposure to lead fume, if applicable, may cause harm by inhalation and ingestion. Chronic exposures to lead fume, if applicable, can cause potential harm to the developing fetus. Lead exposure can be toxic.

**Mixture verses substance information:** None known

#### **Other Information:**

**Carcinogenicity:** NTP: No (National Toxicity Program)

**Listing** OSHA: No (US Occupational Safety & Health Administration)

IARC: Yes - Lead and lead compounds are listed as possible carcinogens. (International Agency for Research on Cancer).

Silver – LD50 oral – rat > 5,000 mg/kg

Lead – Suspected human reproductive toxicant. May cause damage to organs through prolonged or repeated exposure. Reproductive toxicity – rat –inhalation, oral/ effects on newborn.

## **SECTION 12. ECOLOGICAL INFORMATION**

Product mixtures not tested.

**12.1 Toxicity:** No information available

**12.2 Persistence and degradability:** No information available

**12.3 Bioaccumulative potential:** No information available

**12.4 Mobility in soil:** No information available

**12.5 Results of PBT and vPvB assessments:** No data is available

**12.6 Other adverse effects:** No information is available for mixture. Avoid release to environment.

Lead – Toxicity to fish – mortality LOEC – rainbow trout – 1.19 mg/l – 96h. Very toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment. Bioaccumulation – Oncorhynchus kisutch – 2 weeks  
Bioconcentration factor (BCF): 12. Fresh fish: 0.44 mg/l LC50 96h/ 1.32 mg/l LC50 96h/water Flea: 600 ug/l EC50 = 48h

Contains substances that are harmful to aquatic life with long lasting effects.

## **SECTION 13. DISPOSAL CONSIDERATION**

**13.1 Waste treatment method:** Scrap metal alloy usually has value. Contact a commercial reclaimer for recycling. Otherwise, dispose of in accordance with environmental regulations. Containerize material and classify according to applicable regulations. No pre-treatment on site is recommended. Do not dispose of down any drain or waterway. Utilize the same personal protective equipment as the user when handling for disposal.

**RoHS (Restriction of Hazardous Substances):** some of the product mixtures are RoHS compliant because they are lead free. Product mixtures do not contain any PBB or PBDB brominated compounds.

RoHS – Note that some of the product mixtures do contain lead and are therefore not compliant with RoHS. Users should review their particular use for any applicable exemptions that may apply. Review alloy table for products.

## **SECTION 14. TRANSPORT INFORMATION**

Transport in accordance with applicable international regulations and requirements.

Not regulated/non - hazardous under US DOT (United States Department of Transportation).

Not regulated/non - hazardous under international shipping requirements.

**14.1 UN number:** None

**14.2 UN proper shipping name:** None

**14.3 Transport hazard class(s):** None

**14.4 Packing group:** None

**14.5 Environmental hazards:** None

**14.6 Special precautions for user:** None

**14.7 Transport in bulk:** Not applicable

Marine Pollutant: No

## SECTION 15. REGULATORY INFORMATION

### **15.1 Safety, health and environmental regulations/legislation specific for the substance or mixture:**

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.).

All ingredients are listed on the USEPA TSCA Inventory.

All ingredients are listed on EINECS. Note Rosin was recently listed under the No Longer Polymer List, Notification of New Chemical Substances in Accordance with Directive 67/548/EEC.

Safety data sheet was developed using EC 1907/2006 amended as of 20 May 2010 EU No 453/2010 and information as stated under regulation EC No 1272/2008 CLP Regulation.

GHS = Global Harmonized System

CLP= Classification, labeling and packaging

Product does not contain any substances ozone depleting substances and therefore not subject to EC 2037/2000.

**15.2 Chemical safety assessment:** None performed for mixture.

## SECTION 16. OTHER INFORMATION

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

**Revised Date:** 22 JUNE 2018

**Prepared by:** Nancy Swarts, The Indium Corporation of America, nswarts@indium.com

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

Changes provided on this SDS were based on the requirements of EU No. 453/2010 of May 20, 2010 regarding amendments to EC No. 1907/2006 of the European Parliament and of the Council on the Registration, Evaluation, Authorization and Restriction of Chemicals (REACH).

The information and recommendations contained herein are, to the best of The Indium Corporation of America's knowledge and belief, accurate and reliable as of the date issued. The Indium Corporation of America does not warrant or guarantee their accuracy or reliability, and The Indium Corporation of America shall not be liable for any loss or damage arising out of the user thereof. The information and recommendations are offered for the user's consideration and examination, and it is the user's responsibility to satisfy itself that they are suitable and complete for its particular use. If buyer repackages this product, legal counsel should be consulted to insure proper health, safety and other necessary information is included on the container.