



**INDIUM CORPORATION OF AMERICA®\EUROPE®\ASIA-PACIFIC®  
INDIUM CORPORATION (SUZHOU)®  
MATERIAL SAFETY DATA SHEET**

### 1. PRODUCT AND COMPANY IDENTIFICATION

**Product Identifier:** INDALLOY WITH R FLUX COATING

**MSDS Number:** MSDS- 4224

**Revised Date:** 4 JANUARY 2008

**Product Use:** Flux Coated Preform

#### MANUFACTURER:

##### In America:

The Indium Corporation of America  
1676 Lincoln Ave., Utica NY 13502  
Information: (315) 853-4900

##### EMERGENCY PHONE:

**CHEMTREC 24 hrs.**  
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**Outside USA: 1 (703) 527-3887**

##### In Europe:

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7 Newmarket Ct.  
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Suchun Industrial Square  
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##### In Asia:

Asia-Pacific Operations-Singapore  
29 Kian Teck Avenue  
Singapore 628908  
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### 2. 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
		(Singapore)	2	-	-

<b>LEAD</b>	*	7439-92-1/231-100-4	(US)	0.05	0.05	-
			(EU)	-	0.15	-
			(Canada)	-	0.05	-
			(Mexico)	0.15	-	-
			(Singapore)	0.15	-	-
			(China )	-	0.05(dust)	-
						0.03(fume)
<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>COPPER</b>	0.42-0.46	7440-50-8	(US)	0.1 (fume)	0.2 (fume)	-
			(EU)	-	0.2 (fume)	-
			(Canada)	-	0.2 (fume)	0.6 (fume)
			(Mexico)	-	0.2(fume)	2
			(Singapore)	0.2	-	-
			(China)	-	1(dust)	2.5
			0.2(fume)	0.6		
<b>ROSIN</b>	1-3	65997-05-9	N.E	N.E.	N.E	
			(EU)	0.05	-	0.15

Symbol: X<sub>n</sub>

N.E. = Not established

Risk Phrases: R20/21/22, R36/37/38, R42

\*See table

EU = European Exposure Limits

### 3. HAZARDS IDENTIFICATION

#### PRIMARY ROUTES OF ENTRY:

⊕Eye    ⊕Inhalation    ⊕Skin    ⊕Ingestion    NTP    IARC    OSHA    ⊕Not Listed  
**See Section 11**

#### POTENTIAL HEALTH EFFECTS:

**Eye Contact:** Moderately to severely irritating to the eyes and if not removed promptly, may result in serious injury. Do not allow material to come in contact with eyes. Contact with fume from molten metal may cause irritation.

- Ingestion:** Harmful if swallowed.
- Inhalation:** Inhalation of fume or dust may cause local irritation to the respiratory system. May cause headache. Rosin may cause irritation and occupational asthma.
- Skin Contact:** Normal handling should not cause any adverse health effects. May cause skin irritation. Hot molten metal may cause burns to the skin. Wear protective equipment when handling molten metal. Rosin may be irritating to skin and may cause dermatitis.
- Chronic:** **TIN:** Has been shown to increase incidence of sarcoma in animal tests.
- LEAD:** Prolonged exposure to vapors and/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. Lead may cause harm to the unborn child.
- 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.
- COPPER:** Overexposure to fumes of copper 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).
- Note:** The Indium Corporation does not recommend, manufacture, market or endorse any of its products for human consumption.
- 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.

#### 4. FIRST AID MEASURES

- Eye Contact:** Hold eyelids apart and flush eyes with plenty of 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 applicable
- Flammable Limits:** Flammable in the form of dust when exposed to heat or flame.

<b>Extinguishing Media:</b>	Use extinguishers appropriate for the surrounding fire conditions. Use water spray, carbon dioxide, or foam. Do not allow water run-off to enter sewers or waterways.
<b>Special Fire Fighting Procedures:</b>	Firefighters wear an approved self-contained breathing apparatus and full protective clothing.

## 6. ACCIDENTAL RELEASE MEASURES

<b>Spill or Leak Procedures:</b>	Wear HEPA (high efficiency particulate filter) filter respirator and other personal protective clothing. (See Exposure Controls/Personal Protection Section). Clean up spill without generating or dispersing dust into the air. Vacuum solids instead of sweeping. Reduce airborne dust and prevent scattering by moistening with water. Place spilt material in a container and dispose of in accordance with applicable regulations. Do not sweep lead containing dust. Avoid putting lead into air.
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## 7. HANDLING AND STORAGE

<b>Handling Precautions:</b>	Avoid breathing vapors from heated material and dusts from powder form. Avoid contact with eyes, skin and clothing. Follow routine safe handling procedures. Use with adequate ventilation. Protect from exposure to lead containing dusts.
<b>Storage Precautions:</b>	Keep away from heat and flame. Store in suitable, tightly capped, and labeled containers in cool dry, well-ventilated area. Empty containers may be hazardous as they contain product residue.

## 8. EXPOSURE CONTROLS / PERSONAL PROTECTION

<b>Engineering Controls:</b>	Local exhaust ventilation is recommended to control any fume or dust air contaminants. Use exhaust to keep personnel exposure to as low as possible.
<b>Personal protection:</b>	
<b>Eyes:</b>	Chemical safety glasses/goggles and face shield with molten metal.
<b>Respirator:</b>	A NIOSH approved or EU compliant CE marked air-purifying respirator with a fume/dust HEPA type Chemical cartridge is recommended under certain circumstances where airborne concentrations are expected to be elevated. Warning: Air purifying respirators do not protect the worker in oxygen-deficient atmospheres.
<b>Skin:</b>	Wear protective gloves, clothing such as lab coat, coveralls, apron and boots.
<b>Other:</b>	Eye-wash fountain/shower in work area. Avoid the use of contact lenses in high fume and dust areas. Regular shower facilities and industry laundry service may be required.
<b>Work/Hygienic</b>	Maintain good housekeeping. Clean up spills immediately. Good personal hygiene is essential. Avoid eating, smoking or drinking in the lead work areas. Wash hands and face thoroughly with soap and water immediately upon leaving the work area and before eating.

## 9. PHYSICAL AND CHEMICAL PROPERTIES

<b>Appearance:</b>	Solid, gray metal	<b>Boiling Point:</b>	Not available
<b>Odor:</b>	Odorless	<b>Melting Point:</b>	See table
<b>Specific Gravity:</b>	See table	<b>pH:</b>	Not applicable

<b>Vapor Pressure:</b>	Not established	<b>Solubility in Water:</b>	Insoluble
<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>	Not established
<b>Hazardous Decomposition / Combustion:</b>	Toxic fumes are emitted at elevated temperatures.
<b>Hazardous Polymerization:</b>	Will not occur.

## 11. TOXICOLOGICAL INFORMATION

<b>Carcinogenicity:</b>	<b>NTP(National Toxicity Program):</b>	No	
	<b>OSHA (Occupational Safety &amp; Health Administration):</b>	No	
	<b>IARC (International Agency for Research on Cancer):</b>	Yes (Lead and its compounds)	
<b>LD50:</b>	Not established.	<b>LC50:</b>	Not established.

Lead may be harmful to the unborn child.

## 12. ECOLOGICAL INFORMATION

This section is subject to future development.  
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 under US DOT (United States Department of Transportation). Non hazardous for shipping.

## 15. REGULATORY INFORMATION

The information in this Material 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.).

The information in this Material Safety Data Sheet meets the requirements of the EU under Chemicals (Hazard Information and Packaging for Supply) Regulations 1994 (CHIP 2) Regulation 6.

This product has been classified in accordance with the hazard criteria of the Commission Directive 91/155/EEC and EH40.

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

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

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

SARA 313 Listing - 40 CFR 372.65 – Lead, Copper and Silver

Ingredient is listed on the EPA TSCA Inventory.

Restriction of Hazardous Substances (RoHS) = EU Directive 2002/95/EC (consult directive for information on high lead content exemptions).

Review web site: <http://www.pbfree.com>

EC Classification, Packaging and Labeling Requirements:

Symbol and Hazard Classification of Product

X<sub>n</sub>

**Risk Phrases:**

R20/21/22 Harmful by inhalation, in contact with skin and if swallowed

R36/37/38 Irritating to eyes, respiratory system and skin

R42 May cause sensitization by inhalation

**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

S36/37/39 Wear suitable protective clothing, gloves and eye/face protection

## 16. OTHER INFORMATION

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

**Revised Date:** 4 JANUARY 2008

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

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

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## TABLE

Alloy mixture, which does not include the flux coating.

Indalloy	%TIN Sn	%LEAD Pb	%COPPER Cu	%SILVER Ag	Specific Gravity	RoHS
106	63	37	-	-	8.40	No
256	96.5	-	0.5	3	7.40	Yes
NS (93.5Pb/5Sn/1.5Ag)	5	93.5	-	1.5	11.03	Yes*

NS = Non Standard

RoHS = Restriction of Hazardous Substances (\*review any exemptions that may apply)

[http://europa.eu.int/comm/environment/waste/weee\\_index.tm](http://europa.eu.int/comm/environment/waste/weee_index.tm)

<http://www.pbfree.com>