



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

To better serve all of our customers Indium Corporation has generated one MSDS for this single 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. See alloy table for product listing.

### 1. PRODUCT AND COMPANY IDENTIFICATION

**Product Identifier:** INDALLOY WITH TIN AND LEAD

**MSDS Number:** MSDS-IN 039

**Revised Date:** 15 MAY 2013

**Product Use:** INDUSTRIAL USE (mixture) - METAL ALLOYS CONSISTING OF ONLY TIN AND LEAD

#### MANUFACTURER:

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## 2. HAZARDS IDENTIFICATION

### PRIMARY ROUTES OF ENTRY:

☒Eye    ☒Inhalation    ☒Skin    ☒Ingestion

### CARCINOGEN LISTED IN:

NTP    IARC    OSHA    ☒Not Listed

GHS:



Signal Word: Warning

### Hazard statement(s)

H302 Harmful if swallowed  
 H315 Causes skin irritation  
 H335 May cause respiratory irritation  
 H332 Harmful if inhaled  
 H351 Suspected of causing cancer (lead)  
 H360 May damage fertility or the unborn child (lead)  
 H373 May cause damage to organs through prolonged or repeated exposure (lead)  
 H400+H413 Very toxic to aquatic life, may cause long lasting harmful effects to aquatic life  
 EUH201A Warning! Contains lead

### 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 + P312 IF SWALLOWED: Call a POISON CENTER or doctor/physician 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)  
 P501 Dispose of contents by recycling if possible otherwise dispose of via a approved waste handler.

## POTENTIAL HEALTH EFFECTS:

- Eye Contact:** Contact with powdered metal alloy or fume from molten metal may cause irritation. Severe eye damage may result from hot molten metal being splashed into the eyes. Wear safety glasses and face shield when working with molten metal.
- Ingestion:** Ingestion of dust may cause headache, nausea, abdominal pain, fatigue and pain in the legs, arms and joints. May be harmful.
- Inhalation:** Inhalation of fume or dust may cause local irritation to the respiratory system. Inhalation of fume or dust may cause headache, nausea, abdominal pain, fatigue and pain in the legs, arms and joints. Inhalation can be harmful.
- Skin Contact:** Normal handling of solid metal should not cause any adverse health effects. Hot molten metal may cause burns to the skin. Wear protective equipment when handling molten metal. Protect skin when grinding/cutting, may cause irritation.

**Chronic:** TIN: Has been shown to increase incidence of sarcoma in animal tests. Chronic exposure may result in "stannosis" a mild form of pneumoconiosis.

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.

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.

**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, manufacturer, market or endorse any of its products for human consumption.

**WARNING:** This product contains 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#
TIN	*	7440-31-5/231-141-8
LEAD	*	7439-92-1/231-100-4

**DOES NOT CONTAIN ANY EU SUBSTANCES OF VERY HIGH CONCERN (SVHC)**

Symbol: X<sub>n</sub>

N.E. = Not established

Risk Phrases: R20/22, R36/37/38, R33, R40, R48, R50/53, R61

\* See alloy table

**ALLOY TABLE - Mixture**

INDALLOY (METAL)	%TIN Sn	%LEAD Pb	RoHS* Compliance	LIQUIDUS °C/°F	SOLIDUS °C/°F	DENSITY (gm/cm <sup>3</sup> )
106(Sn63)	63	37	NO	183C/361F	183C/361F	8.4
107	65	35	NO	184C/363F	183C/361F	8.33
108	70	30	NO	186C/367F	183C/361F	8.16
109	60	40	NO	191C/376F	183C/361F	8.5
110	75	25	NO	192C/378F	183C/361F	8.00
112	80	20	NO	199C/390F	183C/361F	7.85
113	55	45	NO	200C/392F	183C/361F	8.68
114	85	15	NO	205C/401F	183C/361F	7.70
116	50	50	NO	212C/414F	183C/361F	8.87
118	90	10	NO	213C/415F	183C/361F	7.55
120	48	52	NO	218C/424F	183C/361F	8.95
122	95	5	NO	222C/432F	183C/361F	7.42
125	45	55	NO	227C/441F	183C/361F	9.07
130	40	60	NO	238C/460F	183C/361F	9.28
135	35	65	NO	247C/477F	183C/361F	9.50
141	30	70	NO	257C/495F	183C/361F	9.72
145	25	75	NO	268C/514F	183C/361F	9.96
INDALLOY (METAL)	%TIN Sn	%LEAD Pb	RoHS* Compliance	LIQUIDUS °C/°F	SOLIDUS °C/°F	DENSITY (gm/cm <sup>3</sup> )
149	20	80	NO	280C/536F	183C/361F	10.21
153	15	85	NO	288C/550F	183C/361F	10.48
159	10	90	YES	302C/576F	275C/527F	10.75
171	5	95	YES	312C/594F	308C/586F	11.06
213	62	38	NO	183C/362F	182.7C/361F	8.43
242	10.50	89.50	NO	302C/576F	275C/527F	10.75
<b>Non Standard Alloy Mixture</b>						
Non-Standard	2	98	YES	-	-	8.40
Non-Standard	3	97	YES	-	-	11.20
Non-Standard	61.9	38.1	NO	-	-	8.43

\*RoHS = Restriction on Hazardous Substances (Review for any applicable exemptions that may apply)

#### 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 established.
- Flammable Limits:** Limits not established. Massive metal is not flammable; however dust or powder may be flammable.
- Extinguishing Media:** Use extinguishers appropriate for the surrounding fire conditions. Never add water to molten metal.
- 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:** Contain spill. If molten, cool to allow metal to solidify. If a solid metal, wear gloves, pick up and return to process. If dust, wear recommended personal protective equipment. DO NOT SWEEP, avoid generation of dust. Ventilation required. Use a vacuum, place in barrels and return to process if applicable. Otherwise, dispose of following all Federal, State and Local regulations. In the EU refer to the Special Waste Regulations. Metal has reclaim value.

#### 7. HANDLING AND STORAGE

- Handling Precautions:** Only dry metals should be added to molten bath. If working with molten metals, or exposed to fume or dust, use appropriate personal protective equipment.
- Storage Precautions:** Store product in a cool, dry area away from incompatible materials.

### 8. EXPOSURE CONTROLS / PERSONAL PROTECTION

		CAS/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
		(Canada)	-	2	4
		(Singapore)	2	-	-
		(Germany)	-	2	-
<b>LEAD</b>	*	7439-92-1/231-100-4			
		(US)	0.05	0.05	-
		(EU)	-	0.15	-
		(Canada)	-	0.05	-
		(China)	-	0.05(dust)	-
			-	0.03(fume)	-
		(Mexico)	0.15	-	-
		(Singapore)	0.15	-	-
	(Germany)	-	0.05	-	

Symbol: X<sub>n</sub>

N.E. = Not established

Risk Phrases: R20/22, R36/37/38, R33, R40, R48, R50/53, R61

\* See alloy table

Lead and Tin: Immediately Dangerous to Life and Health: 100 mg/m<sup>3</sup> (Pb)

**Engineering Controls:** Exhaust ventilation is required to control any air contaminants containing lead. Control concentration of all components so that their permissible exposure limits are not exceeded.

**Personal protection:**

**Eyes:** Chemical safety glasses/goggles and face shield with molten metal.

**Respirator:** An authority approved or compliant marked air-purifying respirator with a fume/dust chemical cartridge is recommended under certain circumstances where airborne concentrations are expected to be elevated or if in powder form. Avoid inhalation of lead dust. Additional respiratory protection may be required based on the work conditions.

**Skin:** Gloves-leather or impervious (vinyl) type. Heat resistant gloves if handling hot metal. Safety type boots. Personal protective equipment is recommended when working with molten metal to avoid burns.

**Other:** Lab coat, safety shower and 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. 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 as established under

governmental regulations.

## 9. PHYSICAL AND CHEMICAL PROPERTIES

<b>Appearance:</b>	Silver grey solid metal	<b>Boiling Point:</b>	Not applicable.
<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 applicable.	<b>Solubility in Water:</b>	Insoluble
<b>Vapor Density:</b>	(air=1) Not applicable.	<b>Flash point:</b>	Not applicable

## 10. STABILITY AND REACTIVITY

<b>General:</b>	Stable.
<b>Conditions to Avoid:</b>	Not established.
<b>Incompatible Materials:</b>	Avoid contact with mineral acids.
<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: National Toxicity Program (NTP):</b>	No
<b>Occupational Safety &amp; Health Administration (OSHA):</b>	No
<b>U.N. International Agency for Research on Cancer (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: Lead can cause potential harm to the developing fetus.	
<b>Irritancy of Product:</b>	Not established
<b>Mutagenicity:</b>	Not established
<b>Sensitization to Product:</b>	Not established
<b>Teratogenicity:</b>	Not established
<b>Reproductive Toxicity:</b>	No specific data is available
<b>Synergistic Products:</b>	Not established

RTECS# :Lead – OF7525000 RTECS#: Tin – XP7320000 (Registry of Toxic Effects of Chemical Substances)

## 12. ECOLOGICAL INFORMATION

Product mixture not tested.

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  
 Avoid release to 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. Avoid release to the environment.

### 14. TRANSPORT INFORMATION

Transport in accordance with applicable regulations and requirements. Not regulated under US DOT (United States Department of Transportation).

Not hazardous under shipping modes/ regulations.

UN - none

North American Emergency Guide Book – Not classified

### 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.).

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).

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-2000 and NOM-010-STPS-1999.

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

California PROP 65(Safe Drinking Water Standard): WARNING : This product contains a chemical known to the State of California to cause cancer and/or birth defects (or other reproductive harm). (lead)

SARA 313 Listing - 40 CFR 372.65: Lead CAS# 7439-92-1

All ingredients are listed on the EPA TSCA Inventory.

Most of the ingredients are listed on the Canadian Domestic Substance List.

EPA Genetic Toxicology Program - Lead CAS# 7439-92-1

EC Classification, Packaging and Labeling Requirements:

Symbol and Hazard Classification of Product

X<sub>n</sub>



**Risk Phrases:**

R20/22	Harmful by inhalation and if swallowed
R36/37/38	Irritating to eyes, respiratory system and skin
R33	Danger of cumulative effects (lead)
R40	Limited evidence of carcinogenic effect (lead)
R48	Danger of serious damage to health by prolonged exposure (lead)
R50/53	Very toxic to aquatic environment and may cause long-term adverse effects in the aquatic environment
R61	May cause harm to the unborn child (lead)

**Safety Phrases:**

S20/21	When using do not eat, drink or smoke
S22	Do not breathe dust
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**

**HMIS Hazard Rating:**

<b>Health:</b>	2
<b>Fire:</b>	1
<b>Reactivity:</b>	0

**Revised Date:** 15 MAY 2013

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

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

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