



SAFETY DATA SHEET

1. IDENTIFICATION OF THE SUBSTANCE/PREPARATION AND OF THE COMPANY/UNDERTAKING

1.1 Product Identifier: INDALLOY TIN AND LEAD ONLY

SDS Number: SDS-IN 039

Revised Date: 17 NOVEMBER 2020

1.2 Relevant Identified uses of the substance or mixture and uses advised against

Product Use: Industrial Use (Mixture) – Metal Perform for industrial applications. Review alloy table for exact product identification. Note: this SDS covers various metal mixtures.

See alloy table for listing of products included under this SDS.

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, New York 13323
Technical & Safety Information: (315) 853-4900 (8AM-5PM, EST)
Safety & SDS Information: nswarts@indium.com
Corporation web page: <http://www.indium.com>

In Europe:

Indium Corporation of Europe(European Operations)
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Kingston, Milton Keynes, UK, MK 10 OAG
Information: (normal business hours) +44 [0] 1908 580400
EU Contact: aday@indium.com

In China:

Indium Corporation (Suzhou) Co., Ltd.
No. 428 Xinglong Street
Suzhou Industrial Park
Suchun Industrial Square
Unit No. 14-C
Jiangsu Province, China 215126
Information: (86) 512-6283-4900

In Asia:

Indium Corporation of America
Asia-Pacific Operations-Singapore
29 Kian Teck Avenue
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
*** Used only for spill/leak/fire/exposure/accident**
France: 33-975181407
In France emergency information (French poison center): INRS (ORFILA) +33 (0) 1 45 42 59 59
Germany: toll free- 0800-181-7059 or (Frankfurt) 49-69643508409
Italy: toll free- 800-789-767
Poland: (Warsaw) 48-223988029
Portugal: 351-308801773
Hungary: (Budapest) 36-18088425
Romania: 40-37-6300026
United Kingdom: (London) 44-870-8200418 and 44-2038073798

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

2. HAZARDS IDENTIFICATION

PRIMARY ROUTES OF ENTRY:

Eye Inhalation Skin Ingestion NTP IARC OSHA Not Listed

Carcinogen listed in

2.1 Classification:

Repr. 1A: H360FD; Lact.: H362,* STOT RE 1; H372

2.2 Labeling

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



Signal Word: Danger

Hazard statement(s)

H360FD May damage fertility or the unborn child
 H362 May cause harm to breast-fed children
 H372 Causes damage to organs through prolonged or repeated exposure

Precautionary statement(s)

P233 Keep container tightly closed
 P261 Avoid breathing dust/fume/gas/mist/vapors/spray
 P263 Avoid contact during pregnancy/while nursing.
 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 + 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

IF IN EYES: Rinse continuously with water for several minutes (15 mins)
Dispose of contents by recycling if possible otherwise dispose of via an approved waste handler.

2.3 OTHER HAZARDS:

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.

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.

3. COMPOSITION / INFORMATION ON INGREDIENTS

3.2 Mixture:

Components	% wt	CAS Registry #/ EINECS#
TIN	*	7440-31-5/231-141-8
LEAD	*	7439-92-1/231-100-4

* See Alloy Table for breakdown of percentages of alloy mixtures

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ALLOY TABLE - Mixture

INDALLOY (METAL)	%TIN Sn	%LEAD Pb	RoHS 2/3* Compliance	LIQUIDUS °C/°F	SOLIDUS °C/°F	DENSITY (gm/cm ³)
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
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
INDALLOY (METAL)	%TIN Sn	%LEAD Pb	RoHS 2/3* Compliance	LIQUIDUS °C/°F	SOLIDUS °C/°F	DENSITY (gm/cm ³)
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
Non Standard Alloy Mixture						
Non-Standard	2	98	YES	-	-	8.40
Non-Standard	3	97	YES	-	-	11.20
Non-Standard	61.9	38.1	NO	-	-	8.43
Non-Standard	4	96	YES	-	-	11.1

Non Standard = non - standard alloy mixture

***RoHS 2 = Restriction on Hazardous Substances (review applicable exemptions that may apply)**

***RoHS 3 – products do not contain any listed phthalates**

(2011/65/EU) NOTE: (check any exemptions that may apply.

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. 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.

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

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.

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:

Firefighters must wear approved self-contained breathing apparatus and full protective clothing.

Material product is not flammable. Metal dust in air could pose a flammable issue. No other information is available.

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. Solid metal can easily be cleaned up. Do not sweep. Vacuum solids and avoid creating dust in air.

Environmental Precautions: Metals are not generally suited for release to any body of water including drains. Avoid release to environment.

Methods and material for containment and cleaning up:

Spill or leak procedures: Solid metal can be picked up and placed into metal container. If hot allow to cool then place into metal container. Recycle metal.

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

7. HANDLING AND STORAGE

7.1 Precautions

Keep containers tightly closed when not in use. Use care to avoid spills. Wear appropriate personal protective equipment when working or handling product. 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 contain metal fumes.

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 and other applications.

8. EXPOSURE CONTROLS / PERSONAL PROTECTION

8.1 Control Parameters:

		<u>CAS#/EINECS#</u>	<u>TWA</u> mg/m3	<u>STEL</u> mg/m3
TIN	*	7440-31-5/231-141-8		
		(UK)	2	4
		(Belgium)	2	-
		(Germany)	2	-
		(Netherlands)	2	-
		(Spain)	2	-
		(Poland)	2	-
LEAD	*	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)

(Poland)

(Norway)

(Ireland)

0.05

0.05

0.15

-

-

-

N.E. = Not established

TWA = time weighted average

STEL = short term exposure level

8.2 Exposure Controls:

Engineering Controls: Use with proper equipment with adequate exhaust ventilation and other safety features specifically designed for use with solder applications or other industrial uses. 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 contain metal fumes.

Personal protection:

Eyes: Chemical safety glasses/goggles. Face shield for molten metal.

Respiratory: An approved or EU compliant CE 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. Recommend a nitrile disposable or other chemical glove. Hot gloves for handling 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 as established under governmental guidelines.

9. PHYSICAL AND CHEMICAL PROPERTIES

9.1 Information on basic physical and chemical properties:

Appearance:	Solid metal	Boiling Point/Range:	Not determined
Odor:	None.	Melting Point/Freezing Point:	Not applicable
Odor Threshold:	Not established	Evaporation Rate:	Not applicable
Specific Gravity:	See alloy table	pH:	Not applicable
Vapour Pressure:	Not applicable.	Solubility in Water:	Insoluble
Vapour Density:	(air=1) Not applicable.	Partition coefficient:	Not established
Relative Density:	Not established	Flammability:	Not applicable
Flash Point:	Not applicable	Method:	Not applicable
Auto-ignition Temperature:	Not applicable	Flammable Limits:	Limits not established
UEL/LEL Limits:	Not applicable	Decomposition Temp:	Not applicable
Viscosity:	Not established	Explosive properties:	Not applicable
Oxidizing Properties:	Not established		

9.2 Other Information: Above data for the whole mixture.

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 / Combustion:** Harmful organic fumes and toxic oxide fumes may form at elevated temperatures. Metal oxide fumes.
- 10.7 Hazardous Polymerization:** Will not occur.

11. TOXICOLOGICAL INFORMATION

11.1 Information on toxicological effects:

Acute toxicity:	Contains lead	Mutagenicity:	Not established
Irritation:	Not established	Toxicity for Reproduction:	May damage fertility and the unborn child
Corrosivity:	Not applicable	Absence of specific data:	None available (not tested)
Sensitization:	Not available		
Repeated dose toxicity:	Not established		
Carcinogenicity:	May cause cancer (lead)		
Likely Routes of Entry:	eyes (irritation) /skin (irritation) /inhalation (irritation/harmful) ingestion (harmful)		
Interactive effects:	None known		

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

May cause irritation or harm by inhalation.

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

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

11.4 Other Information:

Carcinogenicity:	NTP: Yes (National Toxicity Program)
Listing	OSHA: Yes (US Occupational Safety & Health Administration)
	IARC: Yes - Lead and lead compounds are listed as possible carcinogens. (International Agency for Research on Cancer)

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

12. ECOLOGICAL INFORMATION

This section is subject to future development. 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

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): Product mixtures do not contain any PBB or PBDT brominated compounds. Note that 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.

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.

Metal Form Only

UN proper shipping name: None

Transport hazard class(s): None

Packing group: None

Environmental hazards: None

Special precautions for user: None

Transport in bulk: Not applicable

Powder form: Only if it meets or exceeds the reportable quantity (RQ) of lead in a single package

RQ, UN 3077, Environmentally Hazardous Substance, Solid, 9, PG III (lead)

Marine Pollutant: No



RQ (lead) = 10 lbs

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.

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.

Chemical safety assessment: None performed for mixture.

16. OTHER INFORMATION

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

Revised Date: 17 NOVEMBER 2020

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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.