



## SAFETY DATA SHEET

### 1. PRODUCT AND COMPANY IDENTIFICATION

**Product Identifier:** SOLAR TABBING RIBBON  
(copper with a mix of other metals) (see alloy table for actual products)

**SDS Number:** SDS-4812 **Revised Date:** 20 MARCH 2018

**Product Use:** INDUSTRIAL USE - METAL ALLOY MIX: COPPER WITH OTHER METAL ALLOYS

#### MANUFACTURER:

##### In America:

The Indium Corporation of America®.  
34 Robinson Rd., Clinton, NY 13323  
Information: (315) 853-4900  
[nswarts@indium.com](mailto:nswarts@indium.com)

#### EMERGENCY PHONE:

**CHEMTREC 24 hrs.**  
**USA: 1 (800) 424-9300**  
**Outside USA: +1 (703) 527-3887**

##### In Europe:

The Indium Corporation of America® (European Operations)  
7 Newmarket Ct  
Kingston, Milton Keynes, UK, MK 10 OAG  
Information: +44 [0] 1908 580400

##### 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

## 2. HAZARDS IDENTIFICATION

### PRIMARY ROUTES OF ENTRY:

√ Eye    √ Inhalation    √ Skin    √ Ingestion

### CARCINOGEN LISTED IN:

NTP    IARC    OSHA    √Not Listed

GHS:

Lead free products



Signal Word: Warning

#### **Hazard statement(s)**

H335                    May cause respiratory irritation

H332                    Harmful if inhaled

#### **Precautionary statement(s)**

P233                    Keep container tightly closed

P261                    Avoid breathing dust/fume/gas/mist/vapours/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

H335                    May cause respiratory irritation

H332                    Harmful if inhaled

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

EUH201A              Warning! Contains lead. Review listing.

#### **Precautionary statement(s)**

P233                    Keep container tightly closed

P261                    Avoid breathing dust/fume/gas/mist/vapours/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:**

Acute toxicity, oral- Category 5  
 Carcinogenicity (Category 2) (lead)  
 Reproductive toxicity (Category 2 ) (lead)  
 Acute aquatic toxicity – Category 1 for lead containing products  
 Chronic aquatic toxicity – Category 1 for lead containing products

**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 nausea. May be harmful.

**Inhalation:** Inhalation of fume or dust may cause local irritation to the respiratory system.

**Skin Contact:** Normal handling should not cause any adverse health effects. Hot molten metal may cause burns to the skin. Wear protective equipment when handling molten metal. Exposure to copper dust may cause a greenish-black skin discoloration.

**Chronic:** **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.

**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.

**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.

**BISMUTH:** May cause kidney damage.



**WARNING:** This product can expose you to chemicals including [lead] which is known to the State of California to cause cancer and/or birth defects (or other reproductive harm). For more information go to [www.P65Warnings.ca.gov](http://www.P65Warnings.ca.gov)

**NOTE:** The Indium Corporation does not recommend, manufacturer, 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. Not intended for household use.

**3. COMPOSITION / INFORMATION ON INGREDIENTS**

<b>Components</b>	<b>% wt</b>	<b>CAS Registry #</b>	<b>PEL mg/m<sup>3</sup></b>	<b>TLV-TWA mg/m<sup>3</sup></b>	<b>TLV-STEL mg/m<sup>3</sup></b>
<b>TIN</b>	*	7440-31-5 (US)	2	2	-
		(EU)	-	2	4
		(Canada)	-	2	4
		(Singapore)	2	-	-
<b>COPPER</b>	*	7440-50-8 (US)	0.1	0.1	-
		(EU)	-	0.1	-
		(Canada)	-	0.2	0.6
		(Singapore)	0.2(fume)	1(dust)	-
		(Mexico)	-	0.2(fume) 1(dust)	2
		(China)	-	1(dust) 0.2(fume)	2.5 0.6
<b>LEAD</b>	*	7439-92-1 (US)	0.05	0.05	-
		(EU)	-	0.15	-
		(Canada)	0.05	0.05	-
		(Singapore)	0.15	-	-
		(Mexico)	N.E.	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
		(Singapore)	0.1	-	-
(Mexico)	0.1	-	-		
<b>BISMUTH</b>	*	7440-69-9/231-177-4	N.E.	N.E.	N.E.
<b>ZINC</b>	*	7440-66-6/231-175-3	N.E.	N.E.	N.E.

N.E. = Not established

\* See alloy table TWA=time weighted average

#### 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. Massive metal is not flammable; however dust or powder may be flammable or pose an explosion hazard.
- 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:** 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. Use a vacuum, place in barrels and return to process if applicable. Avoid dust clouds as they may create an explosion hazard. Secure all sources of ignition when area is dusty. Otherwise, dispose of following all Federal, State and Local regulations. In the EU refer to the Special Waste Regulations. Metal may have 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. Creating the accumulation of metal dusts should be avoided. Secure ignition sources. Store away from heat and flame.
- Storage Precautions:** Store product in a cool, dry area away from incompatible materials. Store away from sources of ignition.

#### 8. EXPOSURE CONTROLS / PERSONAL PROTECTION

- Engineering Controls:** Exhaust ventilation is recommended to control any air contaminants. Control concentration of all components so that their exposure levels are not exceeded.
- Personal protection:**
- Eyes:** Chemical safety glasses/goggles and face shield with molten metal or particulate.
- Respirator:** An 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.

<b>Skin:</b>	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.
<b>Other:</b>	Lab coat, safety shower and eye-wash fountain in work area. Avoid the use of contact lenses in high Fume/splash areas.
<b>Work/Hygienic Practices:</b>	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.

## 9. PHYSICAL AND CHEMICAL PROPERTIES

<b>Appearance:</b>	Silver grey solid metal	<b>Boiling Point:</b>	2595C (copper)
<b>Odor:</b>	Odorless	<b>Melting Point:</b>	1083C (copper)
<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.		

## 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 (29 CFR 1910.1025)
<b>U.N. International Agency for Research on Cancer (IARC):</b>	Yes (Lead)
Lead and lead compounds are listed as possible carcinogens	
<b>LD50:</b>	Not established
<b>LC50:</b>	Not established
<b>Reproductive Toxicity:</b> Lead can cause potential harm to the developing fetus.	

## 12. ECOLOGICAL INFORMATION

<b>Biodegradability:</b>	Data not established.
<b>Aquatic Toxicity:</b>	Data not established.

### 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 all shipping modes.

UN- none

North America Emergency Guide Book – Not applicable

### 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)



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 under the Mexican regulations NOM-018-STPS-2015 and NOM-010-STPS-2014.

In China:

This product has been classified using the Chinese Occupational Limit for Hazardous Agents in the Workplace, GBZ2-2007. Decree No. 591: Regulations on the Control over Safety of Hazardous Chemicals  
GB 30000.2-29-2013, Rules for classification and labeling of chemicals. (GHS)  
GB/T 16483-2008, GB/T 17517-2013

This product has been classified in accordance with: Malaysian – OCCUPATIONAL SAFETY AND HEALTH (CLASSIFICATION, LABELING AND SAFETY DATA SHEET OF HAZARDOUS CHEMICALS) REGULATION OCTOBER 2013 – (CLASS).



**WARNING:** This product can expose you to chemicals including [lead] which is known to the State of California to cause cancer and/or birth defects (or other reproductive harm). For more information go to [www.P65Warnings.ca.gov](http://www.P65Warnings.ca.gov)

SARA 313 Listing - 40 CFR 372.65: Copper, Lead, Silver

All ingredients are listed on the EPA TSCA Inventory.

Ingredients are listed on the Canadian Domestic Substance List.

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

