



**INDIUM CORPORATION OF AMERICA ®\EUROPE®\ASIA-PACIFIC®/INDIUM CORPORATION (SUZHOU) ®**

## MATERIAL SAFETY DATA SHEET

### 1. PRODUCT AND COMPANY IDENTIFICATION

**Product Identifier:** COPPER COATED WITH TIN AND LEAD

**MSDS Number:** MSDS-4080

**Revised Date:** 10 JANUARY 2005

**Product Use:** METAL ALLOY MIX SOLDER PREFORM

#### MANUFACTURER:

##### In America:

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

##### EMERGENCY PHONE:

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

##### In Europe:

Indium Corporation of Europe  
7 Newmarket Ct.  
Kingston, Milton Keynes, UK, MK 10 OAG  
Information: +44 [0] 1908 580400

Indium Corporation(Suzhou) Co., Ltd.

No. 428 Xinglong Street  
Suzhou Industrial Park  
Suchun Industrial Square  
Unit No. 14-C

##### In Asia:

Asia-Pacific Operations-Singapore  
29 Kian Teck Avenue  
Singapore 628908  
Information: +65 6268-8678

Jiangsu Province, China 215126  
Information: (86) 512-6283-4900

### 2. COMPOSITION / INFORMATION ON INGREDIENTS

Components	% wt	CAS Registry #	PEL mg/m <sup>3</sup>	TLV-TWA mg/m <sup>3</sup>	TLV-STEL mg/m <sup>3</sup>
TIN	0-1	7440-31-5 (US)	2	2	-
		(EU)	-	2	4
		(Canada)	-	2	4
		(Singapore)	2	-	-
LEAD	0-1	7439-92-1 (US)	0.05	0.05	-
		(EU)	-	0.15	-

			(Canada)	-	0.05	-
			(Singapore)	-	0.15	-
			(Mexico)	-	0.15	-
			(China)	-	0.05(dust) 0.03(fume)	-
<b>COPPER</b>	99	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

Symbol: X<sub>n</sub>

Risk Phrases: R36/37/38

N.E. = Not established

EU = European Union Occupational Exposure Limits

### 3. HAZARDS IDENTIFICATION

#### PRIMARY ROUTES OF ENTRY:

✓✓ Eye   ✓✓ Inhalation   ✓✓ Skin   ✓✓ Ingestion

NTP

#### CARCINOGEN LISTED IN:

✓✓ IARC   OSHA   Not Listed

#### POTENTIAL HEALTH EFFECTS:

**Eye Contact:** Contact with powered 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.

**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. 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.

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

#### 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.
- 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. 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.
- Storage Precautions:** Store product in a cool, dry area away from incompatible materials.

#### 8. EXPOSURE CONTROLS / PERSONAL PROTECTION

<b>Engineering Controls:</b>	Local exhaust ventilation is recommended to control any air contaminants. Control concentration of all components so that their exposure levels are not exceeded.
<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 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 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>	8.95	<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
<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: Chronic Toxicity:</b>	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

## 12. ECOLOGICAL INFORMATION

This section is subject to future development.

**Biodegradability:** Data not established.

**Aquatic Toxicity:** 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).

North America Emergency Guide Book – Not applicable

## 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).

WHMIS: D2A - Materials Causing Other Toxic Effects - Very Toxic Material (Chronic).

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

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

This product has been classified in accordance with the Mexican regulations NOM-018-STPS-2000 and NOM-010-STPS-1999.

California PROP 65: 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 CAS# 7439-92-1      Copper CAS# 7440-50-8

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:**

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

**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

## 16. OTHER INFORMATION

**HMIS Hazard Rating:**

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

**Revised Date:** 10 JANUARY 2005

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

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

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