



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

## 1. PRODUCT AND COMPANY IDENTIFICATION

**Product Identifier:** LTTF-7888

**MSDS Number:** MSDS-4826

**Revised Date:** 6 MARCH 2009

**Product Use:** Solar Metallization Paste

### MANUFACTURER:

**In America:**

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

**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

**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:**

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

## 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>
SILVER (flake)	70-80	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>DIPROPYLENE GLYCOL MONOMETHYL ETHER</b>	17 – 24	34590-94-8/252-104-2	(US)	600	606	909
			(EU)	-	308	-
			(Canada)	-	606	909
			(Singapore)	606	-	909
			(China)	-	600	900
<b>PROPRIETARY POLYMER RESIN</b>	3-6	-		N.E.	N.E.	N.E.

Product does not contain any EU Substances of Very High Concern (SVHC)

Symbol: Xi

Risk Phrases: R36/37/38 R42/43

N.E. = Not established

EU = European Union Occupational Exposure Limits

Complies with RoHS. RoHS = Restriction of Hazardous Substances (review for any applicable exemptions that may apply)

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

<http://www.pbfree.com>

### 3. HAZARDS IDENTIFICATION

#### PRIMARY ROUTES OF ENTRY:

Eye   
Inhalation   
Skin   
Ingestion   
NTP   
**Carcinogen listed in**  
IARC    OSHA    Not Listed

#### POTENTIAL HEALTH EFFECTS:

**Eye Contact:** May cause eye irritation.

**Ingestion:** May cause irritation. May be harmful if swallowed.

**Inhalation:** Vapors or fumes from this material may be harmful. May cause irritation. May cause sensitization.

**Skin Contact:** May cause skin irritation. May cause sensitization

#### Chronic:

**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.

**Dipropylene glycol monomethyl ether** – target organ = liver/kidneys/nerves

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

**NOTE:** The Indium Corporation does not recommend, manufacture, 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:** 92C (197F)      **Method:** Not available
- Auto-ignition Temperature:** Not established.
- Flammable Limits:** Limits not established.
- 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:** Using a spatula, scoop up paste and place in a plastic or glass jar and tightly cap. Remove traces of paste residue using cloth rags or paper towels moistened with ethyl or isopropyl alcohol. Dispose contaminated cloth rags or paper towels following all Federal, State and Local regulations. In the EU refer to the Special Waste Regulations. May have metal reclaim value.

#### 7. HANDLING AND STORAGE

- Handling Precautions:** Keep containers tightly closed when not in use. Use care to avoid spills. Use only with production equipment specifically designed for the application. Wear appropriate personal protective equipment when working or handling solder paste. Always thoroughly wash your hands after handling this product. DO NOT touch or rub eyes until hands are washed. Product contains silver flake and aluminum powder mixed with chemicals.
- Storage Precautions:** Store product in tightly capped original containers in a cool, dry area. Refer to product label for specific storage temperature requirements. Rotate stock to ensure use before expiration date on the label.

#### 8. EXPOSURE CONTROLS / PERSONAL PROTECTION

- Engineering Controls:** Control concentration of all components so that the exposure levels are not exceeded. Utilize ventilation exhaust to keep exposures to as low as possible.

**Personal protection:**

<b>Eyes:</b>	Chemical safety glasses/goggles.
<b>Respirator:</b>	A NIOSH approved or EU compliant CE marked air-purifying respirator with a fume/organic chemical cartridge is recommended under certain circumstances where airborne concentrations are expected to be elevated or exceed exposure limits.
<b>Skin:</b>	Compatible chemical resistant gloves.
<b>Other:</b>	Lab coat, eyewash 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>	Grey colored paste	<b>Boiling Point:</b>	Not applicable.
<b>Odor:</b>	Mild characteristic odor.	<b>Melting Point:</b>	Not applicable
<b>Specific Gravity:</b>	0.9 g/cc	<b>pH:</b>	4 - 8
<b>Vapor Pressure:</b>	Not applicable.	<b>Solubility in Water:</b>	Insoluble (paste)
<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 acids, bases or oxidizing agents.
<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:</b>	<b>NTP:</b> No		
	<b>OSHA:</b> No		
	<b>IARC:</b> No		
<b>LD50:</b>	Not established.	<b>LC50:</b>	Not established.
CAS# 34590-94-8 LD50 Oral rat 5400 ul/kg, LD50 Skin rabbit 10 ml/kg			
Proprietary polymer resin LD50 Oral rat >4,000 mg/kg			

**12. ECOLOGICAL INFORMATION**

Product not tested.

CAS# 34590-94-8 LC50 fish >10,000 mg/l

### 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.

### 14. TRANSPORT INFORMATION

Transport in accordance with applicable regulations and requirements. Not regulated (Department of Transportation).  
Non hazardous under shipping regulations.

### 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).



Canadian WHMIS: D2B –Material Causing Other Toxic Effects – irritation

GHS



Warning Word: Warning

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 under the Chinese Occupational Exposure Limit for hazardous Agents in the Workplace, GBZ2-2002.

California PROP 65: WARNING: California Safe Drinking Water Regulation

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

SARA 313 Listing - 40 CFR 372.65  
Silver CAS# 7440-22-4

RoHS = Restriction of Hazardous Substances EU directive 2002/95/EC

All ingredients are listed on the US EPA TSCA Inventory.

EC Classification, Packaging and Labeling Requirements:

Symbol and Hazard Classification of Product

Xi

**Risk Phrases:**

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

R42/43 May cause sensitization by inhalation and skin contact

**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

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

S7 Keep container tightly closed

## 16. OTHER INFORMATION

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

**Revised Date:** 6 MARCH 2009

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

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

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