



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

To better serve all of our customers Indium Corporation has generated one MSDS, for this 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. Unless otherwise stated the health and safety information provided within is applicable to all.

MATERIAL SAFETY DATA SHEET

1. PRODUCT AND COMPANY IDENTIFICATION

Product Identifier: INDIUM TIN OXIDE

MSDS Number: MSDS-IB011

Revised Date: 03 MAY 2006

Product Use: Indium Tin Oxide, $In_2O_3 - SnO_2$

MANUFACTURER:

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2. COMPOSITION / INFORMATION ON INGREDIENTS

Components	% wt	CAS Registry #	PEL mg/m ³	TLV-TWA mg/m ³	TLV-STEL mg/m ³
*INDIUM TIN OXIDE	100				
INDIUM OXIDE		1312-43-2(US)	0.1 (as Indium**)	0.1	N.E.
		(EU)	-	0.1 (as Indium)	0.3
		(Canada)	-	0.1 (as Indium)	0.3

	(Singapore)	0.1(as indium)	-	-
	(Mexico)	-	0.1(as indium)	0.3
	(China)	-	0.1(as indium)	0.3
TIN OXIDE	18282-10-5(US)	2(as tin)	2(as tin)	-
	(EU)	-	2(as tin)	4
	(Canada)	-	2(as tin)	4
	(Singapore)	2(as tin)	-	-

*(Mix of Indium Oxide CAS# 1312-43-2 and Tin Oxide CAS# 18282-10-5)

N.E. = Not established SYMBOL: X_n RISK PHRASES: R20/21/22, R36/37/38
** Indium CAS# 7440-74-6

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 severe irritation and possible burns.

Ingestion: Harmful if swallowed. May cause burns to the gastrointestinal tract. Kidney and liver damage from injected indium compounds has been reported based on limited animal testing.

Inhalation: May cause respiratory irritation. Severe exposure could cause pulmonary damage. Mild benign pneumoconiosis may result from chronic long term exposure to tin dust and fumes.

Skin Contact: May cause skin irritation or burns.

Chronic: Kidney and liver damage from injecting indium compounds has been reported based on limited animal testing but no systematic effects from human exposure has been reported.

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

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 listed metals).**

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. Not flammable. Will not burn.		
Extinguishing Media:	Use extinguishers appropriate for the surrounding fire conditions.		
Special Fire Fighting Procedures:	Firefighters must wear NIOSH approved or equivalent self-contained breathing apparatus and full protective clothing.		

6. ACCIDENTAL RELEASE MEASURES

Spill or Leak Procedures:	Isolate spill and clean up with vacuum. Avoid conditions, which create fumes or fine dust. DO NOT SWEEP SOLIDS. Do not raise dust levels. Place material in proper waste container. An approved air purifying respirator with particulate cartridge and other personal protective equipment such as gloves is recommended. Dispose of in accordance with Federal, State and Local regulations. In Europe dispose of following the Special Waste Regulations. Indium may have reclaim value.
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7. HANDLING AND STORAGE

Handling:	Keep containers tightly closed when not in use. Use care to avoid spills. Wear appropriate personal protective equipment including recommended respiratory protection. Always thoroughly wash your hands after handling this product. DO NOT touch or rub eyes until hands are washed.
Storage Precautions:	Store product in tightly capped original containers in a cool, well ventilated and dry area.

8. EXPOSURE CONTROLS / PERSONAL PROTECTION

Engineering Controls:	Local and/or Mechanical (general) exhaust ventilation is recommended to control any airborne contaminants and to reduce potential exposure.
Personal protection:	
Eyes:	Wear chemical safety glasses/goggles.
Respirator:	A NIOSH approved air-purifying respirator with a particulate filter or HEPA dust mask is recommended under certain circumstances where airborne concentrations are expected to be elevated or when ventilation is not available. Avoid breathing dust.
Skin:	Gloves are recommended when handling solids.
Other:	Lab coat, apron, eyewash fountain in work area. Avoid the use of contact lenses in high fume or dusty 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.

9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance:	Yellow-green powder	Boiling Point:	Sublimes @982 C (1800 F)
Odor:	Odorless	Melting Point:	1910 C + 10 C (3470 F + 50 F)

Specific Gravity:	7.16 (H ₂ O=1)	pH:	Not applicable
Vapor Pressure:	Not applicable	Solubility in Water:	Insoluble
Vapor Density:	Not applicable		

10. STABILITY AND REACTIVITY

General:	Stable.
Conditions to Avoid:	Not established.
Incompatible Materials:	Not established
Hazardous Decomposition / Combustion:	Toxic fumes may form at elevated temperatures.
Hazardous Polymerization:	Will not occur.

11. TOXICOLOGICAL INFORMATION

Carcinogenicity:	National Toxicology Program (NTP):	No	
	Occupational Safety & Health Administration (OSHA):	No	
	U.N. International Agency for Research on Cancer (IARC):	No	
LD50:	Not established.	LC50:	Not established.
Irritancy of Product:	May be an irritant	Mutagenicity:	Not established
Sensitization to Product:	Not established	Teratogenicity:	Not established
Reproductive Toxicity:	Not established	Synergistic Products:	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 indium metal may have some 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 the 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: Insufficient data available at this time.

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 using the Chinese Occupational Exposure Limit of Hazardous Agents in the Workplace, GBZ2-2002.

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

This product complies with EU Directive 2002/95/EC, Restriction of Hazardous Substances (RoHS).

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). (Trace levels of other listed metals).

SARA 313 listing - 40 CFR 372.65: None

All ingredients are listed on the EPA TSCA Inventory and Canadian Domestic Substance List.

EC Classification, Packaging and Labeling Requirements:

Symbol and Hazard Classification of Product X_n

Risk Phrases:

R20/21/22 Harmful by inhalation, in contact with skin and if swallowed

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

Safety Phrases:

S20/21 When using do not eat, drink or smoke

S24/25 Avoid contact with skin and eyes

S36/37/39 Wear suitable protective clothing, gloves and eye/face protection

16. OTHER INFORMATION

HMIS Hazard Rating: **Health:** 2
 Fire: 1 (dust)
 Reactivity: 0

Revised Date: 03 MAY 2006

Prepared by: Nancy Swarts, Indium Corporation of America

Approved by: Nancy Swarts, Indium Corporation of America

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