



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

MATERIAL SAFETY DATA SHEET

1. PRODUCT AND COMPANY IDENTIFICATION

Product Identifier: INDIUM TRIFLUORIDE

MSDS Number: MSDS-IB008

Revised Date: 28 APRIL 2005

Product Use: Indium Trifluoride InF_3

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

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 # | PEL mg/m ³ | TLV-TWA mg/m ³ | TLV-STEL mg/m ³ |
|--------------------|------|----------------|--------------------------|------------------------------|-------------------------------|
| INDIUM TRIFLUORIDE | 100 | 14166-78-0 | 0.1 (as Indium*) | 0.1 | N.E. |
| | | (EU) | N.E. | 0.1 (as Indium) | 0.3 |
| | | (Canada) | N.E. | 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 |

N.E. = Not established EU = EUROPEAN EXPOSURE LIMITS SYMBOL: Xi RISK PHRASES: 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. Do not breathe dust.
- 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 state 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. Emits toxic fumes under fire condition.
- Extinguishing Media:** Use dry chemical 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: For liquids: Isolate spill and remove with absorbent. Place in proper container.
 For solids: 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 or other compatible 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 has some reclaim value.

7. HANDLING AND STORAGE

Handling: Keep containers tightly closed when not in use. Use care to avoid spills. Wear appropriate personal protective equipment. Always thoroughly wash your hands after handling this product. DO NOT touch or rub eyes until hands are washed. Keep dust away from sources of ignition.

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 air contaminants and reduce exposures.

Personal protection:

Eyes: Wear chemical safety glasses/goggles.

Respirator: A NIOSH approved air-purifying respirator with a particulate filter is recommended under certain circumstances where airborne concentrations are expected to be elevated.

Skin: Rubber gloves are recommended when handling solids and liquids.

Other: Lab coat, apron, eyewash fountain in work area. Avoid the use of contact lenses.

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: | Colorless | Boiling Point: | >1200 C (2192 F) |
| Odor: | Odorless | Melting Point: | 1170 + 10 C (50 F) |
| Specific Gravity: | 4.39 (H ₂ O=1) | pH: | Not applicable |
| Vapor Pressure: | Not applicable. | Solubility in Water: | Soluble 0.40 gm/100 mls at 22 C |
| Vapor Density: | Not applicable | | |

10. STABILITY AND REACTIVITY

General: Stable.

Conditions to Avoid: Not established.

Incompatible Materials: Acids and protect from moisture (hygroscopic).

| | |
|----------------------------------|--|
| Hazardous Decomposition / | Toxic fumes may form at elevated temperatures. |
| Combustion: | Deliquescent, hydrolyzes to form $\text{In}(\text{OH})_3$. Hydrogen fluoride. |
| 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 |
|------------------------|-----------------|-----------------------|-----------------|

To the best of our knowledge, the chemical, physical and toxicological properties have not been thoroughly investigated.

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. Non hazardous classification.

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 in accordance with Mexican regulations NOM-018-STPS-2000 and NOM-010-STPS-1999.

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

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 listed metals)

SARA 313 listing - 40 CFR 372.65: None

All ingredients are listed on the 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

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: | 0 |
| | Reactivity: | 1 |

Revised Date: 28 APRIL 2005

Prepared by: Nancy Swarts, Indium Corporation of America

Approved by: Nancy Swarts, Indium Corporation of America

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