SAFETY DATA SHEET

1. PRODUCT AND COMPANY IDENTIFICATION

Product Identifier: INDIUM TRICHLORIDE (PENTAHYDRATE/TETRAHYDRATE/PD HYDRATE)

SDS Number: SDS-4426

Revised Date: 24 APRIL 2015

Product Use: Industrial Use - Indium Trichloride (InCl₃) with varying parts of water (H₂O)

MANUFACTURER:

In America:
The Indium Corporation of America
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Information: (315) 853-4900
nswarts@indium.com

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In Asia:
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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:

**Signal Word:** Warning

**Hazard statement(s):**
- H303 May be harmful if swallowed
- H319 Causes serious eye irritation
- H335 May cause respiratory irritation

**Precautionary statement(s):**
- P233 Keep container tightly closed
- P261 Avoid breathing dust/fume/gas/mist/vapors/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 Take off contaminated clothing and wash before reuse
- 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)

### POTENTIAL HEALTH EFFECTS:

**Eye Contact:** May cause severe irritation and possible burns.

**Ingestion:** May be 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. Inhalation may cause lung edema. The symptoms may be aggravated by physical effort.

**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.

**Other:** Hygiene practices should be in place when handling this product. Avoid breathing dust. Pregnant women should take measures to avoid exposure.

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

**Warning:** Applicable only within the State of California - 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).
3. COMPOSITION / INFORMATION ON INGREDIENTS

<table>
<thead>
<tr>
<th>Components</th>
<th>% wt</th>
<th>CAS Registry #</th>
<th>PEL mg/m³</th>
<th>TLV-TWA mg/m³</th>
<th>TLV-STEL mg/m³</th>
</tr>
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<tbody>
<tr>
<td>INDIUM TRICHLORIDE</td>
<td>100</td>
<td>10025-82-8</td>
<td>0.1 (as Indium*)</td>
<td>0.1</td>
<td>-</td>
</tr>
<tr>
<td>(EU)</td>
<td>-</td>
<td>-</td>
<td>0.1 (as Indium)</td>
<td>0.3</td>
<td></td>
</tr>
<tr>
<td>(Canada)</td>
<td>-</td>
<td>0.1 (as Indium)</td>
<td>0.3</td>
<td>0.3</td>
<td></td>
</tr>
<tr>
<td>(Singapore)</td>
<td>0.1</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td></td>
</tr>
<tr>
<td>(Mexico)</td>
<td>-</td>
<td>0.1 (as indium)</td>
<td>0.3</td>
<td></td>
<td></td>
</tr>
<tr>
<td>(China)</td>
<td>-</td>
<td>0.1 (as indium)</td>
<td>0.3</td>
<td></td>
<td></td>
</tr>
<tr>
<td>WATER</td>
<td>PARTS</td>
<td>7732-18-5</td>
<td>.N.E.</td>
<td>N.E.</td>
<td>N.E.</td>
</tr>
</tbody>
</table>

N.E. = Not established  Xc C  RISK PHRASES: R22, R36/37/38  * Indium CAS# 7440-74-6

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.

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.

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.

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.

Personal protection:
Eyes: Wear chemical safety glasses/goggles. Face shield for splash hazards.
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: Gloves are recommended when handling solids. Latex gloves not recommended. Use nitril/neoprene.
Other: Lab coat, apron, eyewash fountain in work area. Avoid the use of contact lenses in high fume 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

<table>
<thead>
<tr>
<th>Property</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Appearance</td>
<td>White flakes/powder</td>
</tr>
<tr>
<td>Odor</td>
<td>Odorless</td>
</tr>
<tr>
<td>Boiling Point</td>
<td>600°C (1112°F) volatile</td>
</tr>
<tr>
<td>Melting Point</td>
<td>586°C (1087°F) (sublimes @ 300°C (572°F))</td>
</tr>
<tr>
<td>Specific Gravity</td>
<td>3.46 (H₂O=1)</td>
</tr>
<tr>
<td>pH</td>
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</tr>
<tr>
<td>Solubility in Water</td>
<td>Soluble</td>
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<tr>
<td>Vapor Pressure</td>
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<tr>
<td>Vapor Density</td>
<td>Not applicable.</td>
</tr>
<tr>
<td>Molecular Weight</td>
<td>221.18</td>
</tr>
</tbody>
</table>

10. STABILITY AND REACTIVITY

General: Stable.
Conditions to Avoid: Not established.
Incompatible Materials: Strong acids
Hazardous Decomposition / Combustion: Toxic fumes may form at elevated temperatures. Deliquescent, hydrolyzes to form In (OH)₃
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

Irritancy of Product: May be an irritant

12. ECOLOGICAL INFORMATION

Product not tested.

13. DISPOSAL CONSIDERATION

Waste Disposal Method:
Scrap indium metal may have some value. Contact a commercial reclamer 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.

UN3260, Corrosive Solid, Acidic, Inorganic, N.O.S., 8, PG II Note: (indium trichloride pentahydrate/indium trichloride tetrahydrite/indium trichloride pd hydrite as applicable)

North America Emergency Guide Book – 154

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).

WHMIS: Insufficient data available at this time.

This product complies with EU Directive 2002/95/EC, Restriction of Hazardous Substances (RoHS).
Applicable only in the State of California - 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 lead levels).

Swiss Poison Class: 4

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 the Mexican regulations NOM-018-STPS-2000 and NOM-010-STPS-1999.

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  Xn C

Risk Phrases:
R22  Harmful 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:  

<table>
<thead>
<tr>
<th>Health:</th>
<th>Fire:</th>
<th>Reactivity:</th>
</tr>
</thead>
<tbody>
<tr>
<td>2</td>
<td>0</td>
<td>1</td>
</tr>
</tbody>
</table>

Revised Date: 24 APRIL 2015
Prepared by: Nancy Swarts, Indium Corporation of America
Approved by: Nancy Swarts, Indium Corporation of America

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