1. PRODUCT AND COMPANY IDENTIFICATION

Product Identifier: INDIUM MONOCHLORIDE

SDS Number: SDS-IB018

Revised Date: 5 DECEMBER 2018

Product Use: Indium Monochloride

MANUFACTURER:

In America:
The Indium Corporation of America®,
34 Robinson Rd., Clinton, NY 13323
Information: (315) 853-4900
nswarts@indium.com

EMERGENCY PHONE:
CHEMTREC 24 hrs.
USA: 1 (800) 424-9300
Outside USA: +1 (703) 527-3887
In China: Emergency 86+ 4008417580

In Europe:
The Indium Corporation of America® (European Operations)
7 Newmarket Ct
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Information: +44 [0] 1908 580400

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

http://www.indium.com

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
2. HAZARDS IDENTIFICATION

PRIMARY ROUTES OF ENTRY:  CARCINOGEN LISTED IN:

- Eye  √Inhalation  √Skin  √Ingestion  NTP  IARC  OSHA  √Not Listed

GHS:

Signal Word: Warning

Hazard statement(s)

H315  Causes skin irritation
H319  Causes serious eye irritation
H335  May cause respiratory irritation

Precautionary statement(s)

P261  Avoid breathing dust/fume/gas/mist/vapors/spray
P264  Wash hands thoroughly after handling
P271  Use only outdoors or in well-ventilated area
P280  Wear protective gloves/protective clothing/eye protection/face protection
P332 +P313  If skin irritation occurs: Get medical advice/attention
P337 + P313  If eye irritation persists: Get medical advice/attention
P362 + P364  Take off contaminated clothing and wash before reuse
P302 + P352  IF ON SKIN: Wash with plenty of soap and water
P304 + P340  IF INHALED: Remove person to fresh air and keep comfortable for breathing
P305 +P351 +P338  IF IN EYES: Rinse continuously with water for several minutes (15 mins). Remove contact lenses, if present and easy to do. Continue rinsing.
P403 + 233  Store in a well-ventilated place
P405  Store locked up
P501  Dispose of content/container to an approved waste handler or recycle if possible

Classification:

Skin irritation (Category 2)
Eye irritation (Category 2A)
Specific target organ toxicity-single exposure (Category 3), respiratory system

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.

Notes:  The Indium Corporation does not recommend, manufacture, market or endorse any of its products for human consumption.
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>
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<tbody>
<tr>
<td>INDIUM MONOCHLORIDE</td>
<td>100</td>
<td>13465-10-6</td>
<td>0.1 (as Indium*)</td>
<td>0.1</td>
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<td>(Canada)</td>
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<td>0.1 (as Indium)</td>
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<td>(Mexico)</td>
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<td>(Singapore)</td>
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<td>(China)</td>
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<td>0.1 (as indium)</td>
<td>0.3</td>
<td>-</td>
</tr>
</tbody>
</table>

N.E. = Not established    * Indium CAS# 7440-74-6

4. FIRST AID MEASURES

- **Eye Contact:** Hold eyelids apart and flush eyes with plenty of tepid 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.

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.

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

Appearance: Red flakes

Boiling Point: 600°C (1112°F) volatile

Odor: Odorless

Melting Point: 586°C (1087°F) (sublimes @ 300°C (572°F))

Specific Gravity: 3.46 (H₂O=1)

pH: Not applicable

Vapor Pressure: Not applicable.

Solubility in Water: Soluble

Vapor Density: Not applicable

Molecular Weight: 221.18

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
LD50: No information available
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
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 international regulations and requirements. Not regulated under the Department of Transportation.
UN- None
Non-hazardous under shipping
Marine Pollutant- No
North American Emergency Guide Book – Not applicable

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.
WARNING: This product can expose you to chemicals including [trace amounts of lead] which is known to the State of California to cause cancer, and birth defects or other reproductive harm. For more information go to www.P65Warnings.ca.gov

Swiss Poison Class: 4

Malaysia:
This product has been classified in accordance with: Malaysian – OCCUPATIONAL SAFETY AND HEALTH (CLASSIFICATION, LABELING AND SAFETY DATA SHEET OF HAZARDOUS CHEMICALS) REGULATION OCTOBER 2013 – (CLASS). (GHS)

In China:
Decree No. 591: Regulations on the Control over Safety of Hazardous Chemicals
GB 30000.2-29-2013, Rules for classification and labeling of chemicals. (GHS)
GB/T 16483-2008, GB/T 17517-2013
This product has been classified using the Chinese Occupational Limit for Hazardous Agents in the Workplace, GBZ2-2007

This product has been classified in accordance with the Mexican regulations NOM-018-STPS-2015 and NOM-010-STPS-2014.

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

SARA 313 listing - 40 CFR 372.65: None

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

16. OTHER INFORMATION

<table>
<thead>
<tr>
<th>HMIS Hazard Rating:</th>
<th>Health: 2</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fire: 0</td>
<td></td>
</tr>
<tr>
<td>Reactivity: 0</td>
<td></td>
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</tbody>
</table>

Revised Date: 5 DECEMBER 2018

Prepared by: Nancy Swarts, Indium Corporation of America

Approved by: Nancy Swarts, Indium Corporation of America

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