1. PRODUCT AND COMPANY IDENTIFICATION

Product Identifier: INDIUM SULFATE HEXAHYDRATE

MSDS Number: MSDS-IB4419 Revised Date: 05 DECEMBER 2006

Product Use: Indium Sulfate \((\text{In}_2\ (\text{SO}_4)_3)\)

MANUFACTURER:

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

In Europe:
Indium Corporation of Europe
7 Newmarket Ct.
Kingston, Milton Keynes, UK, Mk 10 OAG
Information: +44 (0) 1908 580400

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Singapore 628908
Information: +65 6268-8678

EMERGENCY PHONE:
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USA: 1 (800) 424-9300
Outside USA: 1 (703) 527-3887

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. 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>
</thead>
<tbody>
<tr>
<td>INDIUM SULFATE</td>
<td>100</td>
<td>13464-82-9</td>
<td>0.1 (as Indium*)</td>
<td>0.1</td>
<td>N.E.</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></td>
<td>0.1 (as Indium)</td>
<td>0.3</td>
<td></td>
</tr>
<tr>
<td>(Mexico)</td>
<td>0.1</td>
<td></td>
<td>-</td>
<td>0.3</td>
<td></td>
</tr>
<tr>
<td>(Singapore)</td>
<td>0.1</td>
<td></td>
<td>-</td>
<td>-</td>
<td></td>
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<tr>
<td>(China)</td>
<td></td>
<td></td>
<td>0.1 (as indium)</td>
<td>0.3</td>
<td></td>
</tr>
</tbody>
</table>
3. HAZARDS IDENTIFICATION

PRIMARY ROUTES OF ENTRY: CARCINOGEN LISTED IN:

- Eye
- Inhalation
- Skin
- Ingestion

NTP    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. 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.

Warning: 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 impurities: listed state 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.
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/Hygiene: 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: Pale gray/white solid
Boiling Point: Not established
Odor: Odorless
Melting Point: Not established
Specific Gravity: 3.44 (H₂O=1)
PH: Not applicable
Vapor Pressure: Not applicable.
Solubility in Water: Soluble/ 53.92 gm/100 gm solution @ 20C
Vapor Density: Not applicable
Molecular Weight: 517.81

10. STABILITY AND REACTIVITY
General: Stable.
Conditions to Avoid: Not established.
Incompatible Materials: Strong acids
Hazardous Decomposition / Combustion: Toxic fumes (SO₂) 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: 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
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.

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 is classified in accordance with the Mexican regulations, NOM-018-STPS-2000 and NOM-010-STPS-1999.

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 impurities state listed metals).

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.

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: 0
Reactivity: 1

Revised Date: 05 DECEMBER 2006

Prepared by: Nancy Swarts, Indium Corporation of America

Approved by: Nancy Swarts, Indium Corporation of America

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