1. PRODUCT AND COMPANY IDENTIFICATION

Product Identifier: NICKEL PLATED WITH INDIUM

SDS Number: SDS-5207
Revised Date: 25 MARCH 2015

Product: INDUSTRIAL USE

MANUFACTURER:

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

In Europe:
Indium Corporation of Europe
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Kingston, Milton Keynes, UK, MK 10 OAG
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

EMERGENCY PHONE:
CHEMTREC 24 hrs.
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. 14C
Jiangsu Province, China 215126
Information: 86-512-6283-4900

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2. HAZARDS IDENTIFICATION

PRIMARY ROUTES OF ENTRY: 

- Eye
- Inhalation
- Skin
- Ingestion

Carcinogen Listed In:

- NTP
- IARC
- OSHA
- Not Listed

GHS:

Signal word: Danger
Hazard statement(s): 
H317 May cause an allergic skin reaction
H351 Suspected of causing cancer
H373 Causes damage to organs through prolonged or repeated exposure
H412 Harmful to aquatic life with long lasting effects

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
P301 + P314 IF SWALLOWED: Get Medical advice/attention if you feel unwell
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)
P501 Dispose of in accordance with applicable local/state and federal regulations. Consider recycling.

Classification:

- Skin sensitization- Category 1
- Carcinogenicity- Category 2
- Specific target organ toxicity-repeated exposure- Category 1
- Acute aquatic toxicity- Category 3 (H402)
- Chronic aquatic toxicity- Category 3 (H412)

POTENTIAL HEALTH EFFECTS:

Eye Contact: Contact with fume from molten metal may cause irritation. Severe eye damage may result from hot molten metal being splashed into the eyes. Wear safety glasses and face shield when working with molten metal. Dusts are irritating to eyes.

Ingestion: Ingestion of dust and fume may cause irritation. May be harmful.

Inhalation: Inhalation of fume or dust may cause local irritation to the respiratory system. Nickel may be toxic to upper respiratory tract. May be harmful.

Skin Contact: Normal handling should not cause any adverse health effects. May cause skin irritation or sensitization. Hot molten metal may cause burns to the skin. Wear protective equipment when handling molten
metal. Nickel may cause skin sensitivity or dermatitis.

**Chronic:**

**INDIUM:** May cause damage to the respiratory system.

**NICKEL:** May cause a form of dermatitis known as nickel itch. Intestinal irritation, which may cause disorders, convulsions and asphyxia.

**WARNING:** This product contains a chemical(s) known to the State of California to cause cancer and/or birth defects (or other reproductive harm). (trace levels of lead), nickel

**NOTE:** The Indium Corporation does not recommend, manufacturer, 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/ #EINECS#</th>
<th>PEL mg/m³</th>
<th>TLV-TWA mg/m³</th>
<th>TLV-STEL mg/m³</th>
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</thead>
<tbody>
<tr>
<td><strong>INDIUM</strong></td>
<td>trace -2</td>
<td>7440-74-6</td>
<td>(US) 0.1</td>
<td>0.1</td>
<td>-</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>(EU) -</td>
<td>0.1</td>
<td>0.3</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>(Canada) -</td>
<td>0.1</td>
<td>0.3</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>(Singapore) 0.1</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>(Mexico) -</td>
<td>0.1</td>
<td>0.3</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>(China) -</td>
<td>0.1</td>
<td>0.3</td>
</tr>
<tr>
<td><strong>NICKEL</strong></td>
<td>98-99+</td>
<td>7440-02-0</td>
<td>(US) 1</td>
<td>0.015</td>
<td>-</td>
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<tr>
<td></td>
<td></td>
<td></td>
<td>(Canada) -</td>
<td>1</td>
<td>2</td>
</tr>
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<td></td>
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<td></td>
<td>(Singapore) 1</td>
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<td></td>
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<td>(Mexico) 1</td>
<td>-</td>
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</tr>
</tbody>
</table>

**Symbol:** T  
**Risk Phrases:** R40, R43  
**N.E. = Not established**  
**EU = European Union Occupational Exposure Limits**

### 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: Do not induce vomiting. 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 flammable
Method: Not established.

Auto-ignition Temperature: Not applicable.

Flammable Limits: Limits not established. Massive metal is not flammable; however dust or powder may be combustible.

Extinguishing Media: Use extinguishers appropriate for the surrounding fire conditions. Water spray, dry powder, alcohol resistant foam.

Special Fire Fighting Procedures: Firefighters must wear NIOSH approved self-contained breathing apparatus and full protective clothing.

6. ACCIDENTAL RELEASE MEASURES

Spill or Leak Procedures: Contain spill. If molten, cool to allow metal to solidify. If a solid metal, wear gloves, pick up and return to process. If dust, wear recommended personal protective equipment including respiratory protection. DO NOT SWEEP. Use a vacuum, place in barrels and return to process if applicable. Use proper ventilation. Do not allow to enter drains, sewers or waterways. Otherwise, dispose of following all Federal, State and Local regulations. Metal may have reclaim value.

7. HANDLING AND STORAGE

Handling Precautions: Only dry metals should be added to molten bath. If working with molten metals, or exposed to fume or dust, use appropriate personal protective equipment. Do not eat, drink or smoke.

Storage Precautions: Store product in a cool, dry area away from incompatible materials.

8. EXPOSURE CONTROLS / PERSONAL PROTECTION

Engineering Controls: Exhaust ventilation is recommended to control any air contaminants. Control concentration of all components so that their exposure levels are not exceeded. Use ventilation for safety purposes. Avoid dust generation. Avoid exposure to dust & fume.

Personal Protection:
Eyes: Chemical safety glasses/goggles and face shield with molten metal.

Respirator: An authority approved or compliant marked air-purifying respirator with a fume/dust chemical cartridge is recommended under certain circumstances where airborne concentrations are expected to be elevated. Additional respiratory protection may be required based on the work performed and the area in which the work is performed. Avoid inhalation of fume and dust.
Skin: Gloves-leather or impervious (vinyl) type. Heat resistant gloves if handling hot metal. Safety type boots. Personal protective equipment is recommended when working with molten metal to avoid burns. Avoid skin contact.

Other: Lab coat, safety shower and eye-wash fountain in work area. Avoid the use of contact lenses in high fume/dusty areas.

Work/Hygienic Practices: Maintain good housekeeping. Clean up spills immediately. Good personal hygiene is essential. Avoid skin contact.

9. PHYSICAL AND CHEMICAL PROPERTIES

<table>
<thead>
<tr>
<th>Property</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Appearance</td>
<td>Metallic solid</td>
</tr>
<tr>
<td>Boiling Point</td>
<td>2730°C (4946°F) nickel</td>
</tr>
<tr>
<td>Odor</td>
<td>Odorless</td>
</tr>
<tr>
<td>Melting Point</td>
<td>1455°C (2651°F)</td>
</tr>
<tr>
<td>Specific Gravity</td>
<td>8.9 (nickel)</td>
</tr>
<tr>
<td>pH</td>
<td>Not applicable</td>
</tr>
<tr>
<td>Vapor Pressure</td>
<td>Not available</td>
</tr>
<tr>
<td>Solubility in Water</td>
<td>Insoluble</td>
</tr>
<tr>
<td>Vapor Density</td>
<td>(air=1) Not applicable</td>
</tr>
</tbody>
</table>

10. STABILITY AND REACTIVITY

<table>
<thead>
<tr>
<th>Condition</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>General</td>
<td>Stable.</td>
</tr>
<tr>
<td>Conditions to Avoid</td>
<td>Reactive with oxidizing agents, combustible materials, acids</td>
</tr>
<tr>
<td>Hazardous Decomposition /</td>
<td>Toxic oxide fumes may form at elevated temperatures</td>
</tr>
<tr>
<td>Hazardous Polymerization</td>
<td>Will not occur.</td>
</tr>
</tbody>
</table>

11. TOXICOLOGICAL INFORMATION

Carcinogenicity:
National Toxicity Program (NTP): Reasonably anticipated to be carcinogenic (nickel)
Occupational Safety & Health Administration (OSHA): No

RTECS QR5950000, for additional information (nickel)
RTECS NL 1050000 for additional information (indium)

May cause damage to kidneys, lungs, liver, upper respiratory system

12. ECOLOGICAL INFORMATION

This section is subject to future development. Product not tested.
Toxicity to fish: LC50 – Cyprinus carpio – 1.30 mg/l – 96h

13. DISPOSAL CONSIDERATION
14. TRANSPORT INFORMATION

Transport in accordance with applicable regulations and requirements. Not regulated under US DOT (United States Department of Transportation). Not hazardous under shipping regulations. UN- None

Not regulated under (ground/IATA/IMDG)

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).

Canadian WHMIS: Class D-2A  Material causing other toxic effects (VERY TOXIC)

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 for 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.

California PROP 65 (Safe Drinking Water Standard): WARNING : This product contains a chemical (s) known to the State of California to cause cancer and/or birth defects (or other reproductive harm). (trace levels of lead), nickel

SARA 313 Listing – 40 CFR 372.65:  Nickel

All ingredients are listed on the EPA TSCA Inventory.

All ingredients are listed on the Canadian Domestic Substance List.

EC Classification, Packaging and Labeling Requirements:

Symbol and Hazard Classification of Product

Risk Phrases:
R40 Limited evidence of carcinogenic effects
R43 May cause sensitization by skin contact

Safety Phrases:
S20/21 When using do not eat, drink or smoke
S22 Do not breathe dust
S23 Do not breathe fumes
S24/25 Avoid contact with skin and eyes
S27 Take off immediately all contaminated clothing
S28 After contact with skin wash immediately with plenty of soap and water
S36/37/39 Wear suitable protective clothing, gloves and eye/face protection
S62 If swallowed, do not induce vomiting seek medical advice immediately and show container or label

16. OTHER INFORMATION

HMIS Hazard Rating:
- Health: 2
- Fire: 0
- Reactivity: 0

Revised Date: 25 MARCH 2015
Prepared by: Nancy Swarts, Indium Corporation of America
Approved by: Nancy Swarts, Indium Corporation of America

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