SAFETY DATA SHEET

1. PRODUCT AND COMPANY IDENTIFICATION

Product Identifier:  TIN (IV) OXIDE
SDS Number:  SDS- 5389
Revised Date:  5 JULY 2018
Product Use:  Industrial Use - Alloy Metal with Tin
Formula = O₂Sn. Also known as stannic oxide, tin oxide

MANUFACTURER:

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

Indium Corporation of America
Chicago Materials Division
80 Scott Street
Elk Grove Village, Illinois  60007
Information:  (847) 439-9135

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

In Asia:
Indium Corporation of America
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. 14-C
Jiangsu Province, China  215126
Information: (86)  512-6283-4900

http://www.indium.com
2. HAZARDS IDENTIFICATION

PRIMARY ROUTES OF ENTRY: Carcinogen listed in

- Eye
- Inhalation
- Skin
- Ingestion

GHS:
Not dangerous according to GHS.

Precautionary statement(s)
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 +P364 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 + P341 IF INHALED: If breathing is difficult, remove victim to fresh air and keep at rest in a position comfortable for breathing
P305 + P351 IF IN EYES: Rinse continuously with water for several minutes (15 mins)

POTENTIAL HEALTH EFFECTS:

Eye Contact: May cause irritation.
Ingestion: May be harmful if swallowed.
Inhalation: May be harmful if inhaled. May cause respiratory tract irritation or sensitization.
Skin Contact: May be harmful if absorbed through the skin. May cause skin irritation.
Target Organs: Lungs

- Tin – prolonged inhalation of dust or fume may result in irritation of the lungs.

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

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 can cause birth defects or other reproductive harm. For more information go to www.P65Warnings.ca.gov

Inorganic tin salts are poorly absorbed into the body. Tin oxide inhaled as a dust or fume can lead to a benign pneumoconiosis with no sign of interference with pulmonary function. Ingestion produces vomiting due to gastric irritation from the activity and astringency of tin compounds. Injection of inorganic tin salts produces diarrhea, muscle paralysis and twitching.

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-STEI mg/m³</th>
</tr>
</thead>
<tbody>
<tr>
<td>TIN OXIDE</td>
<td>100</td>
<td>18282-10-5/242-159-0</td>
<td>NA</td>
<td>2</td>
<td>NA</td>
</tr>
</tbody>
</table>

(Stannic dioxide/stannic oxide/white tin oxide) N.E. = not established
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 applicable

Flammable Limits: Fine dusts and powders could be a potential explosion hazard.

Extinguishing Media: Use extinguishers appropriate for the surrounding fire conditions. Use water spray, alcohol-resistant foam, dry chemical or carbon dioxide.

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

6. ACCIDENTAL RELEASE MEASURES

Spill or Leak Procedures: Wear respirator and other personal protective clothing. (See Exposure Controls/Personal Protection Section). Ventilate area. Vacuum solids instead of sweeping using a grounded unit. Reduce airborne dust and prevent scattering by moistening with water. Place spilt material in a container and dispose of in accordance with applicable regulations.

7. HANDLING AND STORAGE

Handling Precautions: Avoid breathing vapors from heated material and dusts. Avoid contact with eyes, skin and clothing. Follow routine safe handling procedures. Use with adequate ventilation.

Storage Precautions: Keep away from heat and flame. Store in suitable, tightly capped, and labeled containers in cool dry, well-ventilated area. Empty containers may be hazardous as they contain product residue.

8. EXPOSURE CONTROLS / PERSONAL PROTECTION

Engineering Controls: Local exhaust ventilation or point source exhaust ventilation is recommended to control any air contaminants or potential exposure. Keep exposures below regulatory limits. Avoid dust generation.

Personal protection: Eyes: Chemical safety glasses/goggles. Face shield for any splash/dust hazards.

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. Warning: Air purifying respirators do not protect the worker in oxygen-deficient atmospheres.

**Skin:** Wear protective gloves. Hot gloves for handling molten metal.

**Other:** Eye-wash fountain/shower in work area. Avoid the use of contact lenses in high fume and dust 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>Solid white</td>
</tr>
<tr>
<td>Boiling Point</td>
<td>1,800-1,900 C at 1,013 hPa (760 mmHg)</td>
</tr>
<tr>
<td>Odor</td>
<td>Odorless</td>
</tr>
<tr>
<td>Melting Point</td>
<td>1,630C (2,966F)</td>
</tr>
<tr>
<td>Specific Gravity</td>
<td>6.95 g/ml at 25C</td>
</tr>
<tr>
<td>pH</td>
<td>Not applicable</td>
</tr>
<tr>
<td>Melting Point</td>
<td></td>
</tr>
<tr>
<td>Solubility in Water</td>
<td>Insoluble</td>
</tr>
<tr>
<td>Vapor Pressure</td>
<td>Not available</td>
</tr>
<tr>
<td>Molecular Weight</td>
<td>150.71 g/mol</td>
</tr>
<tr>
<td>Vapor Density</td>
<td>(air=1) Not applicable.</td>
</tr>
<tr>
<td>Vapor Pressure</td>
<td></td>
</tr>
</tbody>
</table>

### 10. STABILITY AND REACTIVITY

**General:** Stable.

**Conditions to Avoid:** No data available

**Incompatible Materials:** Strong oxidizing agents, strong acids, magnesium, aluminum, potassium, sodium/sodium oxides

**Hazardous Decomposition / Combustion:** Tin/tin oxides

**Hazardous Polymerization:** Will not occur.

### 11. TOXICOLOGICAL INFORMATION

**Carcinogenicity:**

- NTP (National Toxicity Program): No
- OSHA (Occupational Safety & Health Administration): No
- IARC (International Agency for Research on Cancer): No

**Acute:**

- LD50 Oral rat - >20,000 mg/kg

**Other:**

- TIN RTECS# XP7320000
- TIN OXIDE RTECS# XQ4000000

**RTECS = NIOSH Registry of Toxic Effects of Chemical Substances**

### 12. ECOLOGICAL INFORMATION

Product not tested.
13. DISPOSAL CONSIDERATION

Waste Disposal Method: Scrap metal alloy usually has 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 US DOT (United States Department of Transportation). Non-hazardous under shipping modes USDOT/IATA/IMDG.

UN- NONE

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.).

SARA 313 Listing - 40 CFR 372.65 – None

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 can cause birth defects or other reproductive harm. For more information go to www.P65Warnings.ca.gov

Ingredients are listed on the TSCA Inventory.

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

This product has been classified in accordance with the hazard criteria of the Canadian Controlled Products Regulation (CPR).

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

Regulatory Information China:
GB/T 16483-2008, GB/T 17519-2013, Safety Data Sheets for Chemical Products
GB 30000.2-29-2013, Rules for classification and labeling of chemicals (GHS)
Decree No. 591: Regulations on the Control Over Safety of Hazardous Chemicals.
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: Malaysian – OCCUPATIONAL SAFETY AND HEALTH (CLASSIFICATION, LABELLING AND SAFETY DATA SHEET OF HAZARDOUS CHEMICALS) REGULATION OCTOBER 2013 – (CLASS).

Contains ingredients that are listed on the New Jersey Right To Know List.
Ingredients are listed on the China Chemical Inventory.
Ingredients are listed on the Korean Existing Chemical Inventory.
Ingredients are listed on the Philippines Inventory of Chemicals.
Ingredients are listed on the Canadian Domestic Substance List.
16. OTHER INFORMATION

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

Revised Date: 5 JULY 2018

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.