

## SAFETY DATA SHEET

|                                |   |
|--------------------------------|---|
| Current Revision: 2, 6/27/2017 | Prepared By: Ben Ward, Product Engineer |
|--------------------------------|---|

### I. IDENTIFICATION

|  |   |
|--|---|
| <b>EMERGENCY PHONE:</b><br><p style="text-align: center;"><b>CHEMTREC- (800) 424-9300</b><br/><b>CCN 19481</b></p> | Salem Fabrication Supplies<br>5901 Gun Club Road<br>Winston-Salem, NC 27103<br>Information: <b>(800) 234-1982</b> |
| <b>PRODUCT NAME:</b> Salem Ultra-Pure 141° Alloy   |   |
| <b>SYNONYMS:</b> Bismuth, indium, and tin alloy  |   |

**Recommended Use:**

Base metal alloys for optical lens manufacturing.

**Restrictions:**

N/A

### II. HAZARD IDENTIFICATION

**Classification (§1910.1200):**

N/A

**Signal Word/Symbols:**

WARNING



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PPE

**H**

**Hazard Statement:**

EYES: Possible irritation from dust.  
SKIN: Possible irritation from dust.  
INGESTION: Tin may cause fever, stomach cramps, nausea, or diarrhea in large doses. No adverse effects with either metallic Indium or Bismuth.  
INHALATION: Possible lung damage and chronic respiratory distress upon exposure to Indium Oxide. Stannosis – a benign pneumoconiosis may result from excessive Tin exposure.

**Precautionary Statement:**

N/A

**Miscellaneous Hazards:**

N/A

**Unknown Acute Toxicity Statement:**

N/A

**III.COMPOSITION**

| CHEMICAL NAME: | COMMON NAMES: | CAS:      | % BY WEIGHT: |
|----------------|---------------|-----------|--------------|
| Indium         |               | 7440-74-6 | 51           |
| Bismuth        |               | 7440-69-9 | 32.5         |
| Tin            |               | 7440-31-5 | 16.5         |

**Classified Impurities and Additives:**

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N/A

## IV. FIRST AID MEASURES

### Inhalation:

Remove subject from source of contamination and into fresh air immediately. Seek immediate medical assistance.

### Skin Contact:

Flush with water. Seek medical assistance if irritation develops or persists.

### Eye Contact:

Flush opened eye for several minutes under running water. Seek medical assistance if irritation develops or persists.

### Ingestion:

Induce vomiting in conscious individual. Seek medical assistance.

### Symptoms/Effects:

EYES: Possible irritation from dust.

SKIN: Possible irritation from dust.

INGESTION: Tin may cause fever, stomach cramps, nausea, or diarrhea in large doses. No adverse effects with either metallic Indium or Bismuth.

INHALATION: Possible lung damage and chronic respiratory distress upon exposure to Indium Oxide. Stannosis – a benign pneumoconiosis may result from excessive Tin exposure.

### Level Of Medical Attention Needed:

Seek medical attention if exposed.

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## V. FIRE-FIGHTING MEASURES

### Suitable Extinguishing Media:

Extinguish with Class D Extinguisher: Dry Powder Type, Sand, Carbon Dioxide, and Foam.

### Unsuitable Extinguishing Media:

DO NOT use water to extinguish if possible.

### Specific Hazards:

Finely divided dust generated in grinding operations may present a fire or explosion hazard when mixed with air and exposed to heat or flame.

### Special Protective Equipment:

Wear NIOSH/MSHA approved self-contained respirator and fully protective impervious suit.

## VI. ACCIDENTAL RELEASE MEASURES

### Personal Precautions:

Clean up any spill with any method which keeps dust to a minimum.

### Protective Equipment:

Use NIOSH/MSHA approved if possibility of dust/fume exposure exists.

### Emergency Procedures:

N/A

### Methods for Cleanup/Removal:

Collect and save for reclaim.

## VII. HANDLING AND STORAGE

### Handling Precautions:

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Follow usual precautions for handling chemicals. Do not use near any type of food, feed, tobacco, or beverage. Remove all soiled and contaminated clothing prior to leaving work. Wash hands before eating, smoking, or using bathroom facilities, before breaks and at the end of work.

**Safe Storage Conditions:**

Keep in closed container and store in a cool, dry place. When melting the temperature should be kept as low as possible.

**Incompatibilities:**

Bismuth is incompatible with aluminum, BrF<sub>3</sub>, Acids, NOF, Ammonium Nitrate, HClO<sub>x</sub>, Chlorine, IF<sub>3</sub>, Nitric Acid, HClO<sub>4</sub>. Tin is incompatible with Bromine and Chlorine plus heat, sodium, and potassium peroxides, and with perchloric acid which may react with incandescence, heat, or explosion.

**VIII.EXPOSURE CONTROLS AND PROTECTIVE EQUIPMENT**

| OSHA PEL: | ACGIH TLV:   | OTHER EXPOSURE LIMITS: |
|-----------|--|------------------------|
| N/A       | TWA<br>Tin: 2 mg/m <sup>3</sup><br>Indium: 0.1 mg/m <sup>3</sup> | N/A                    |

**Appropriate Engineering Controls:**

Local/Mechanical Exhaust required for melting or grinding operations where dust may be generated.

**Personal Protective Measures:**

- RESPIRATORY PROTECTION: Use NIOSH/MSHA approved respiratory protection if possibility of dust/fume exposure exists.
- EYE PROTECTION: Safety glasses
- SKIN PROTECTION: Canvas or leather protective gloves.
- OTHER PROTECTIVE CLOTHING OR EQUIPMENT: Safety Shoes.

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## IX. PHYSICAL AND CHEMICAL PROPERTIES

**Appearance:**

Silver metallic solid

|   |   |  |
|---|---|--|
| <b>Odor:</b><br>None                                    | <b>Odor Threshold:</b><br>None  | <b>Ph:</b> N/A   |
| <b>Melting/Freezing Point:</b><br>140° F (60° C)        | <b>Boiling Point:</b><br>4100° F (2260° C)                              | <b>Boiling Range:</b><br>N/A                             |
| <b>Flash Point:</b><br>N/A                              | <b>Evaporation Rate:</b><br>N/A   | <b>Flammability (Solid, Gas):</b><br>N/A                 |
| <b>Upper/Lower Flammability/Explosive Limit:</b><br>N/A | <b>Vapor Pressure:</b><br>Bismuth 10 <sup>-5</sup> (mm Hg): @<br>855° F | <b>Vapor Density:</b><br>N/A                             |
| <b>Relative Density:</b><br>8.1 g/cm <sup>3</sup>       | <b>Solubility (ies):</b><br>Insoluble in water                          | <b>Partition Coefficient:<br/>NOctanol/Water:</b><br>N/A |
| <b>Auto Ignition Temperature:</b><br>N/A                | <b>Decomposition Temperature:</b><br>N/A                                | <b>Viscosity:</b><br>N/A                                 |

## X. STABILITY AND REACTIVITY

**Reactivity:**

Will react violently with strong oxidizing agents

**Chemical Stability:**

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Stable under normal temperature conditions and recommended use.

**Possibility of Hazardous Reactions:**

N/A

**Conditions to Avoid: Static Discharge, Shock, Vibrations, Etc.**

Incompatible materials.

**Incompatible Materials:**

Bismuth is incompatible with aluminum,  $\text{BrF}_3$ , Acids, NOF, Ammonium Nitrate,  $\text{HClO}_x$ , Chlorine,  $\text{IF}_3$ , Nitric Acid,  $\text{HClO}_4$ . Tin is incompatible with Bromine and Chlorine plus heat, sodium, and potassium peroxides, and with perchloric acid which may react with incandescence, heat, or explosion.

**Hazardous Decomposition Products:**

Bismuth can react with Acid or Acid Fumes to emit toxic fumes.

**XI. TOXICOLOGICAL INFORMATION**

**Possible Exposure Routes (Inhalation Etc.):**

Eyes, Respiratory system, and skin.

**Symptoms Related To Toxicological Characteristics:**

Possible lung damage and chronic respiratory distress upon exposure to Indium Oxide.

**Delayed, Immediate, and Chronic Effects:**

N/A

**Numerical Toxicity Measurements:**

N/A

**NTP/LARC/OSHA Known Carcinogen:**

N/A

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**XII.ECOLOGICAL INFORMATION**

**Ecotoxicity:**

N/A

**Persistence and Degradability:**

N/A

**Bioaccumulative Potential:**

N/A

**Soil Mobility:**

N/A

**Other Adverse Effects:**

Do not allow material to be released to the environment without proper governmental permits.

**XIII.DISPOSAL CONSIDERATIONS**

**Waste Residue and Disposal:**

Recover and reclaim or recycle, if practical. Dispose of waste and residues in accordance with local, state, and national authority requirements. Do not introduce back into environment or wastewater system. When handling waste, consideration should be made to the safety precautions applying to handling of the product.

**XIV. TRANSPORT INFORMATION**

|                                  |  |  |
|----------------------------------|--|--|
| <p><b>UN Number:</b><br/>N/A</p> | <p><b>UN Proper Shipping Name:</b><br/>N/A</p> | <p><b>Transport Hazard Class (es):</b><br/>N/A</p> |
|----------------------------------|--|--|

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|                              |                                      |  |
|------------------------------|--------------------------------------|--|
| <b>Packing Group:</b><br>N/A | <b>Environmental Hazards:</b><br>N/A | <b>Transport in Bulk (Annex LI<br/>MARPOL 73/78 and IBC Code)</b><br>N/A |
|------------------------------|--------------------------------------|--|

**Special Precautions:**

N/A

**XV. REGULATORY INFORMATION**

**Environmental/ Health/ Safety:**

TSCA (TOXIC SUBSTANCE CONTROL ACT): All components of this product are listed in the U.S. Environmental Protection Agency Toxic Substances Control Act Chemical Substance Inventory.

**XVI. OTHER INFORMATION**

This information is furnished without warranty, express or implied, except that it is accurate to the best knowledge of Salem Fabrication Supplies. It relates only to the specific material designated herein, and does not relate to use in combination with any other material or in any process. Salem Fabrication Supplies assumes no legal responsibility for use of or reliance upon this information.

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