SECTION 1: Identification of the substance/mixture and of the company/undertaking

1.1. Product identifier

Product form : Substance
Physical state : Liquid
Substance name : BIS(TRI-n-BUTYL Tin)OXIDE
Product code : SNB1800
Formula : C_{24}H_{54}OSn_{2}
Synonyms : HEXABUTYLDISTANNOXANE; TRIBUTYLTIN OXIDE; OXYBIS(TRIBUTYLTIN)
Chemical family : ORGANOTIN

1.2. Relevant identified uses of the substance or mixture and uses advised against

Use of the substance/mixture : Chemical intermediate
For research and industrial use only

1.3. Details of the supplier of the safety data sheet

GELEST, INC.
11 East Steel Road
Morrisville, PA 19067
USA
T 215-547-1015 - F 215-547-2484 - (M-F): 8:00 AM - 5:30 PM EST
info@gelest.com - www.gelest.com

1.4. Emergency telephone number

Emergency number : CHEMTREC: 1-800-424-9300 (USA); +1 703-527-3887 (International)

SECTION 2: Hazards identification

2.1. Classification of the substance or mixture

Classification (GHS-US)
Acute Tox. 3 (Oral) H301
Acute Tox. 3 (Dermal) H311
Skin Irrit. 2 H315
Eye Irrit. 2A H319
STOT SE 3 H335
STOT RE 1 H372
Aquatic Acute 1 H400

Full text of H-phrases: see section 16

2.2. Label elements

GHS-US labeling
Hazard pictograms (GHS-US) :

Signal word (GHS-US) : Danger
Hazard statements (GHS-US) : H301+H311 - Toxic if swallowed or in contact with skin
H315 - Causes skin irritation
H319 - Causes serious eye irritation
H335 - May cause respiratory irritation
H372 - Causes damage to organs through prolonged or repeated exposure
H400 - Very toxic to aquatic life

Precautionary statements (GHS-US) :
P280 - Wear protective gloves/protective clothing/eye protection/face protection
P264 - Wash hands thoroughly after handling
P270 - Do not eat, drink or smoke when using this product
P271 - Use only outdoors or in a well-ventilated area
P273 - Avoid release to the environment
P330 - Rinse mouth
P301+P310 - If swallowed: Immediately call a doctor
P302+P352 - If on skin: Wash with plenty of soap and water
P332+P313 - If skin irritation occurs: Get medical advice/attention
P304+P340 - If inhaled: Remove person to fresh air and keep comfortable for breathing
2.3. Other hazards
No additional information available

2.4. Unknown acute toxicity (GHS US)
No data available

SECTION 3: Composition/information on ingredients

3.1. Substance

<table>
<thead>
<tr>
<th>Substance type</th>
<th>Mono-constituent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Name</td>
<td>Bis(tributyltin) oxide</td>
</tr>
<tr>
<td>CAS No</td>
<td>56-35-9</td>
</tr>
<tr>
<td>EC no</td>
<td>200-268-0</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Name</th>
<th>Product identifier</th>
<th>%</th>
<th>Classification (GHS-US)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bis(tributyltin) oxide</td>
<td>(CAS No) 56-35-9</td>
<td>&gt; 95</td>
<td>Acute Tox. 3 (Oral), H301</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Acute Tox. 3 (Dermal), H311</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Skin Irrit. 2, H315</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Eye Irrit. 2A, H319</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>STOT SE 3, H335</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>STOT RE 1, H372</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Aquatic Acute 1, H400</td>
</tr>
</tbody>
</table>

3.2. Mixture
Not applicable

SECTION 4: First aid measures

4.1. Description of first aid measures

First-aid measures general: Remove contaminated clothing and shoes. In case of accident or if you feel unwell, seek medical advice immediately (show the label where possible). If possible show this sheet; if not available show packaging or label.

First-aid measures after inhalation: Remove victim to fresh air and keep at rest in a position comfortable for breathing. If you feel unwell, seek medical advice.

First-aid measures after skin contact: Wash with plenty of soap and water. Get medical advice/attention.

First-aid measures after eye contact: Immediately flush eyes thoroughly with water for at least 15 minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Get medical advice/attention.

First-aid measures after ingestion: Never give anything by mouth to an unconscious person. Get medical advice/attention.

4.2. Most important symptoms and effects, both acute and delayed


Symptoms/injuries after skin contact: Causes skin irritation. Harmful in contact with skin.

Symptoms/injuries after eye contact: Causes serious eye irritation.

Symptoms/injuries after ingestion: Toxic if swallowed. Swallowing a small quantity of this material will result in serious health hazard.

4.3. Indication of any immediate medical attention and special treatment needed

Note to physician: Application of corticosteroid creams has been effective in treating severe skin irritation. If blisters develop, they may require abrasion to promote healing.

SECTION 5: Firefighting measures

5.1. Extinguishing media


Unsuitable extinguishing media: None known.

5.2. Special hazards arising from the substance or mixture

Fire hazard: Irritating fumes and organic acid vapors may develop when material is exposed to elevated temperatures or open flame.
5.3. Advice for firefighters
Firefighting instructions: Exercise caution when fighting any chemical fire. Use water spray to cool exposed surfaces.
Protection during firefighting: Do not enter fire area without proper protective equipment, including respiratory protection. Avoid all eye and skin contact and do not breathe vapor and mist.

SECTION 6: Accidental release measures
6.1. Personal precautions, protective equipment and emergency procedures
6.1.1. For non-emergency personnel
Protective equipment: Wear protective equipment as described in Section 8.
Emergency procedures: Evacuate unnecessary personnel.

6.1.2. For emergency responders
Protective equipment: Do not attempt to take action without suitable protective equipment. Equip cleanup crew with proper protection. For further information refer to section 8: "Exposure controls/personal protection".

6.2. Environmental precautions
Prevent entry to sewers and public waters. Notify authorities if liquid enters sewers or public waters.

6.3. Methods and material for containment and cleaning up
Methods for cleaning up: Clean up any spills as soon as possible, using an absorbent material to collect it. Sweep or shovel spills into appropriate container for disposal.

6.4. Reference to other sections
See Heading 8. Exposure controls and personal protection.

SECTION 7: Handling and storage
7.1. Precautions for safe handling
Precautions for safe handling: Avoid all eye and skin contact and do not breathe vapor and mist. Use only outdoors or in a well-ventilated area. The use of this material for bioactive purposes is prohibited.
Hygiene measures: Wash hands and other exposed areas with mild soap and water before eating, drinking or smoking and when leaving work. Wash contaminated clothing before reuse.

7.2. Conditions for safe storage, including any incompatibilities
Storage conditions: Keep container tightly closed. Keep away from food.
Storage area: Store in a well-ventilated place. Store away from heat.

7.3. Specific end use(s)
No additional information available

SECTION 8: Exposure controls/personal protection
8.1. Control parameters
<table>
<thead>
<tr>
<th>Bis(tributyltin) oxide (56-35-9)</th>
</tr>
</thead>
<tbody>
<tr>
<td>USA ACGIH</td>
</tr>
<tr>
<td>USA OSHA</td>
</tr>
</tbody>
</table>

8.2. Exposure controls
Appropriate engineering controls: Provide local exhaust or general room ventilation.
Personal protective equipment: Avoid all unnecessary exposure. Emergency eye wash fountains and safety showers should be available in the immediate vicinity of any potential exposure.
Hand protection: Neoprene or nitrile rubber gloves.
Eye protection: Chemical goggles. Contact lenses should not be worn.
Skin and body protection: Wear suitable protective clothing.
Respiratory protection: Where exposure through inhalation may occur from use, respiratory protection equipment is recommended. NIOSH-certified dust and mist (orange cartridge) respirator.

SECTION 9: Physical and chemical properties
9.1. Information on basic physical and chemical properties
Physical state: Liquid
Appearance: Clear liquid.
Molecular mass: 596.08 g/mol
Color: Clear to pale yellow.
Odor: No data available
Odor threshold: No data available
BIS(TRI-n-BUTYLTIN)OXIDE
Safety Data Sheet

Refractive index : 1.4864
pH : No data available
Relative evaporation rate (butyl acetate=1) : No data available
Melting point : No data available
Freezing point : -45 °C
Boiling point : 180 °C @ 2 mm Hg
Flash point : 168 °C
Auto-ignition temperature : No data available
Decomposition temperature : No data available
Flammability (solid, gas) : No data available
Vapor pressure : 1.1 x 10^-5 mm Hg @ 20°C
Relative vapor density at 20 °C : No data available
Relative density : 1.17
VOC content : < 2 %
Solubility : Water: < 0.1 %
Log Pow : No data available
Log Kow : No data available
Viscosity, kinematic : 4.8 cSt @ 25°C
Viscosity, dynamic : No data available
Explosive properties : No data available
Oxidizing properties : No data available
Explosion limits : No data available

9.2. Other information
No additional information available

SECTION 10: Stability and reactivity

10.1. Reactivity
No additional information available

10.2. Chemical stability
Stable.

10.3. Possibility of hazardous reactions
No additional information available

10.4. Conditions to avoid
No additional information available

10.5. Incompatible materials
No additional information available

10.6. Hazardous decomposition products
Organic acid vapors. Tin oxides.

SECTION 11: Toxicological information

11.1. Information on toxicological effects
Acute toxicity : Oral: Toxic if swallowed. Dermal: Toxic in contact with skin.

**BIS(TRI-n-BUTYLTIN)OXIDE (56-35-9)**

<table>
<thead>
<tr>
<th>Route</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>ATE US (oral)</td>
<td>155.789 mg/kg body weight</td>
</tr>
<tr>
<td>ATE US (dermal)</td>
<td>636.842 mg/kg body weight</td>
</tr>
</tbody>
</table>

Acute toxicity additional information: Liver and kidney pathology have been observed.

**Bis(tributyltin) oxide (56-35-9)**

<table>
<thead>
<tr>
<th>Route</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>LD50 oral rat</td>
<td>148 - 234 mg/kg</td>
</tr>
<tr>
<td>LD50 dermal rat</td>
<td>605 mg/kg</td>
</tr>
<tr>
<td>LC50 inhalation rat (mg/l)</td>
<td>64 μL/m³ (Exposure time: 4 h)</td>
</tr>
<tr>
<td>LCLo inhalation rat</td>
<td>200 mg/m³ guinea pig</td>
</tr>
<tr>
<td>ATE US (oral)</td>
<td>148.000 mg/kg body weight</td>
</tr>
<tr>
<td>ATE US (dermal)</td>
<td>605.000 mg/kg body weight</td>
</tr>
</tbody>
</table>

Skin corrosion/irritation : Causes skin irritation.
Skin irritation score = 75/110 (severely irritating)
BIS(TRI-n-BUTYL Tin)OXIDE
Safety Data Sheet

Serious eye damage/irritation: Causes serious eye irritation. 
Eye irritation score = 3/8 (slightly to moderately irritating)

Respiratory or skin sensitization: Not classified
Germ cell mutagenicity: Not classified
Carcinogenicity: Not classified
Reproductive toxicity: Not classified
Specific target organ toxicity (single exposure): May cause respiratory irritation.
Specific target organ toxicity (repeated exposure): Causes damage to organs through prolonged or repeated exposure.

Aspiration hazard: Not classified
Symptoms/injuries after skin contact: Causes skin irritation. Harmful in contact with skin.
Symptoms/injuries after eye contact: Causes serious eye irritation.
Symptoms/injuries after ingestion: Toxic if swallowed. Swallowing a small quantity of this material will result in serious health hazard.

SECTION 12: Ecological information

12.1. Toxicity
Ecology - general: This material is acutely toxic to aquatic life if released to open waters.

<table>
<thead>
<tr>
<th>Bis(tributyltin) oxide (56-35-9)</th>
</tr>
</thead>
<tbody>
<tr>
<td>LC50 fish 1</td>
</tr>
<tr>
<td>0.0024 - 0.003 mg/l (Exposure time: 96 h - Species: Pimephales promelas [flow-through])</td>
</tr>
<tr>
<td>EC50 Daphnia 1</td>
</tr>
<tr>
<td>0.0046 mg/l (Exposure time: 48 h - Species: Daphnia magna)</td>
</tr>
<tr>
<td>LC50 fish 2</td>
</tr>
<tr>
<td>0.0046 - 0.0069 mg/l (Exposure time: 96 h - Species: Oncorhynchus mykiss [static])</td>
</tr>
<tr>
<td>EC50 Daphnia 2</td>
</tr>
<tr>
<td>0.0036 - 0.0052 mg/l (Exposure time: 48 h - Species: Daphnia magna [Flow through])</td>
</tr>
</tbody>
</table>

12.2. Persistence and degradability
No additional information available

12.3. Bioaccumulative potential

<table>
<thead>
<tr>
<th>Bis(tributyltin) oxide (56-35-9)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Log Pow</td>
</tr>
<tr>
<td>3.2</td>
</tr>
</tbody>
</table>

12.4. Mobility in soil
No additional information available

12.5. Other adverse effects
Effect on ozone layer: No additional information available
Effect on the global warming: No known ecological damage caused by this product.

SECTION 13: Disposal considerations

13.1. Waste treatment methods
Waste treatment methods: Do not contaminate by cleaning of equipment or disposal of wastes.
Waste disposal recommendations: Dispose of solid materials or residues at a licensed site. Dispose in a safe manner in accordance with local/national regulations. Dispose of contents/container to licensed waste disposal facility.

Ecology - waste materials: Avoid release to the environment.

SECTION 14: Transport information

14.1. UN number
UN-No.(DOT): 2788
DOT NA no.: UN2788

14.2. UN proper shipping name
Proper Shipping Name (DOT): Organotin compounds, liquid, n.o.s. (BIS(TRI-n-BUTYL Tin)OXIDE)
BIS(TRI-n-BUTYLTIN)OXIDE
Safety Data Sheet

<table>
<thead>
<tr>
<th>Hazard labels (DOT)</th>
<th>6.1 - Poison</th>
</tr>
</thead>
<tbody>
<tr>
<td>Packing group (DOT)</td>
<td>III - Minor Danger</td>
</tr>
<tr>
<td>DOT Packaging Exceptions (49 CFR 173.xxx)</td>
<td>153</td>
</tr>
<tr>
<td>DOT Packaging Non Bulk (49 CFR 173.xxx)</td>
<td>203</td>
</tr>
<tr>
<td>DOT Packaging Bulk (49 CFR 173.xxx)</td>
<td>241</td>
</tr>
</tbody>
</table>

### Additional information

**Other information**

No supplementary information available.

### Transport by sea

**DOT Vessel Stowage Location**

A - The material may be stowed “on deck” or “under deck” on a cargo vessel and on a passenger vessel.

**DOT Vessel Stowage Other**

40 - Slow “clear of living quarters”

### Air transport

**DOT Quantity Limitations Passenger aircraft/rail (49 CFR 173.27)**

60 L

**DOT Quantity Limitations Cargo aircraft only (49 CFR 175.75)**

220 L

## SECTION 15: Regulatory information

### 15.1. US Federal regulations

**Bis(tributyltin) oxide (56-35-9)**

Listed on the United States TSCA (Toxic Substances Control Act) inventory

Listed on United States SARA Section 313

SARA Section 313 - Emission Reporting

1.0 %

### 15.2. International regulations

**Bis(tributyltin) oxide (56-35-9)**

Listed on the AICS (Australian Inventory of Chemical Substances)

Listed on the Canadian DSL (Domestic Substances List)

Listed on IECSC (Inventory of Existing Chemical Substances Produced or Imported in China)

Listed on the EEC inventory EINECS (European Inventory of Existing Commercial Chemical Substances)

Listed on the Japanese ENCS (Existing & New Chemical Substances) inventory

Listed on the Korean ECL (Existing Chemicals List)

Listed on NZIoC (New Zealand Inventory of Chemicals)

Listed on PICCS (Philippines Inventory of Chemicals and Chemical Substances)

Japanese Poisonous and Deleterious Substances Control Law

Japanese Pollutant Release and Transfer Register Law (PRTR Law)

Listed on the Canadian IDL (Ingredient Disclosure List)

Listed on INSQ (Mexican national Inventory of Chemical Substances)

### 15.3. US State regulations

<table>
<thead>
<tr>
<th>U.S. - California - Proposition 65 - Carcinogens List</th>
<th>No</th>
</tr>
</thead>
<tbody>
<tr>
<td>U.S. - California - Proposition 65 - Developmental Toxicity</td>
<td>No</td>
</tr>
<tr>
<td>U.S. - California - Proposition 65 - Reproductive Toxicity - Female</td>
<td>No</td>
</tr>
<tr>
<td>U.S. - California - Proposition 65 - Reproductive Toxicity - Male</td>
<td>No</td>
</tr>
</tbody>
</table>

**Bis(tributyltin) oxide (56-35-9)**

<table>
<thead>
<tr>
<th>U.S. - California - Proposition 65 - Carcinogens List</th>
<th>U.S. - California - Proposition 65 - Developmental Toxicity</th>
<th>U.S. - California - Proposition 65 - Reproductive Toxicity - Female</th>
<th>U.S. - California - Proposition 65 - Reproductive Toxicity - Male</th>
<th>No significance risk level (NSRL)</th>
</tr>
</thead>
<tbody>
<tr>
<td>No</td>
<td>No</td>
<td>No</td>
<td>No</td>
<td>No</td>
</tr>
</tbody>
</table>
### Abbreviations and acronyms

<table>
<thead>
<tr>
<th>Abbreviation</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>ND</td>
<td>Not Determined, No Data</td>
</tr>
<tr>
<td>NA</td>
<td>Not Applicable</td>
</tr>
<tr>
<td>LD</td>
<td>Lethal Dose</td>
</tr>
<tr>
<td>LC</td>
<td>Lethal Concentration</td>
</tr>
<tr>
<td>TWA</td>
<td>time weighted average</td>
</tr>
<tr>
<td>TLV</td>
<td>threshold limit value</td>
</tr>
<tr>
<td>TG</td>
<td>Test Guideline</td>
</tr>
<tr>
<td>NIOSH</td>
<td>National Institute for Occupational Safety and Health</td>
</tr>
<tr>
<td>IARC</td>
<td>International Agency for Research on Cancer</td>
</tr>
<tr>
<td>NTP</td>
<td>National Toxicology Program</td>
</tr>
<tr>
<td>HMIS</td>
<td>Hazardous Material Information System</td>
</tr>
<tr>
<td>CAS No.</td>
<td>Chemical Abstract Service Registration Number</td>
</tr>
<tr>
<td>EC No.</td>
<td>European Commission Registration Number</td>
</tr>
<tr>
<td>EC Index No.</td>
<td>European Commission Index Number</td>
</tr>
<tr>
<td>OECD</td>
<td>The Organisation for Economic Co-operation and Development</td>
</tr>
</tbody>
</table>

### Full text of H-phrases:

- **Acute Tox. 3 (Dermal)**: Acute toxicity (dermal) Category 3
- **Acute Tox. 3 (Oral)**: Acute toxicity (oral) Category 3
- **Aquatic Acute 1**: Hazardous to the aquatic environment - Acute Hazard Category 1
- **Eye Irrit. 2A**: Serious eye damage/eye irritation Category 2A
- **Skin Irrit. 2**: Skin corrosion/irritation Category 2
- **STOT RE 1**: Specific target organ toxicity (repeated exposure) Category 1
- **STOT SE 3**: Specific target organ toxicity (single exposure) Category 3
- **H301**: Toxic if swallowed
- **H311**: Toxic in contact with skin
- **H315**: Causes skin irritation
- **H319**: Causes serious eye irritation
- **H335**: May cause respiratory irritation
- **H372**: Causes damage to organs through prolonged or repeated exposure
- **H400**: Very toxic to aquatic life

### HMIS III Rating

- **Health**: 3 Serious Hazard - Major injury likely unless prompt action is taken and medical treatment is given
- **Flammability**: 1 Slight Hazard
- **Physical**: 0 Minimal Hazard

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