

**BIS(TRI-n-BUTYL TIN)OXIDE**

Safety Data Sheet SNB1800

Date of issue: 08/06/2015

Version: 1.0

SECTION 1: Identification**1.1. Identification**

Product name	: BIS(TRI-n-BUTYL TIN)OXIDE
Product code	: SNB1800
Product form	: Substance
Physical state	: Liquid
Formula	: C ₂₄ H ₅₄ O ₂ Sn ₂
Synonyms	: HEXABUTYLDISTANNOXANE; TRIBUTYL TIN OXIDE; OXYBIS(TRIBUTYL TIN)
Chemical family	: ORGANOTIN

1.2. Recommended use and restrictions on use

Recommended use : Chemical intermediate

1.3. Supplier**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: Hazard(s) identification**2.1. Classification of the substance or mixture****GHS-US classification**

Acute toxicity (oral) Category 3	H301 Toxic if swallowed
Acute toxicity (dermal) Category 3	H311 Toxic in contact with skin
Skin corrosion/irritation Category 2	H315 Causes skin irritation
Serious eye damage/eye irritation Category 2A	H319 Causes serious eye irritation
Specific target organ toxicity (single exposure) Category 3	H335 May cause respiratory irritation
Specific target organ toxicity (repeated exposure) Category 1	H372 Causes damage to organs through prolonged or repeated exposure
Hazardous to the aquatic environment - Acute Hazard Category 1	H400 Very toxic to aquatic life
Full text of H statements : see section 16	

2.2. GHS Label elements, including precautionary statements**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.
P260 - Do not breathe mist.
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
P305+P351+P338 - IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing
P337+P313 - If eye irritation persists: Get medical advice/attention.

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P312 - Call a doctor if you feel unwell
P314 - Get medical advice/attention if you feel unwell.
P321 - Specific treatment (see first aid instructions on this label)
P362+P364 - Take off contaminated clothing and wash it before reuse.
P391 - Collect spillage.
P403+P233 - Store in a well-ventilated place. Keep container tightly closed.
P405 - Store locked up.
P501 - Dispose of contents/container to licensed waste disposal facility.

2.3. Hazards not otherwise classified (HNOC)

No additional information available

2.4. Unknown acute toxicity (GHS US)

Not applicable

SECTION 3: Composition/Information on ingredients

3.1. Substances

Substance type : Mono-constituent
Name : BIS(TRI-n-BUTYLTIN)OXIDE
CAS-No. : 56-35-9

Name	Product identifier	%	GHS-US classification
Bis(tributyltin) oxide	(CAS-No.) 56-35-9	> 95	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 hazard classes and H-statements : see section 16

3.2. Mixtures

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 (acute and delayed)

Symptoms/effects after inhalation : May cause irritation to the respiratory tract. Overexposure may cause: Cough. Headache. Nausea.
Symptoms/effects after skin contact : Causes skin irritation. Harmful in contact with skin.
Symptoms/effects after eye contact : Causes serious eye irritation.
Symptoms/effects after ingestion : Toxic if swallowed. Swallowing a small quantity of this material will result in serious health hazard.

4.3. Immediate medical attention and special treatment, if necessary

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: Fire-fighting measures

5.1. Suitable (and unsuitable) extinguishing media

Suitable extinguishing media : Carbon dioxide. Foam. Water spray.
Unsuitable extinguishing media : None known.

5.2. Specific hazards arising from the chemical

Fire hazard : Irritating fumes and organic acid vapors may develop when material is exposed to elevated temperatures or open flame.

5.3. Special protective equipment and precautions for fire-fighters

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.

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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.

SECTION 8: Exposure controls/personal protection

8.1. Control parameters

Bis(tributyltin) oxide (56-35-9)		
ACGIH	ACGIH TWA (mg/m ³)	0.1 mg/m ³ as tin (skin)
OSHA	OSHA PEL (TWA) (mg/m ³)	0.1 mg/m ³ as tin

8.2. Appropriate engineering controls

- Appropriate engineering controls : Provide local exhaust or general room ventilation.

8.3. Individual protection measures/Personal protective equipment

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

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Color	: Clear to pale yellow.
Odor	: No data available
Odor threshold	: No data available
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
% Volatiles	: < 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 : Not classified

BIS(TRI-n-BUTYLTIN)OXIDE (56-35-9)	
ATE US (oral)	155.789 mg/kg body weight
ATE US (dermal)	636.842 mg/kg body weight
Acute toxicity additional information	Liver and kidney pathology have been observed.
Bis(tributyltin) oxide (56-35-9)	
LD50 oral rat	148 - 234 mg/kg
LD50 dermal rat	605 mg/kg
LC50 inhalation rat (mg/l)	64 µL/m ³ (Exposure time: 4 h)
LCLo inhalation rat	200 mg/m ³ guinea pig
ATE US (oral)	148 mg/kg body weight
ATE US (dermal)	605 mg/kg body weight

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Skin corrosion/irritation	: Causes skin irritation. Skin irritation score = 75/110 (severely irritating)
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/effects after inhalation	: May cause irritation to the respiratory tract. Overexposure may cause: Cough. Headache. Nausea.
Symptoms/effects after skin contact	: Causes skin irritation. Harmful in contact with skin.
Symptoms/effects after eye contact	: Causes serious eye irritation.
Symptoms/effects 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.

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

12.2. Persistence and degradability

No additional information available

12.3. Bioaccumulative potential

Bis(tributyltin) oxide (56-35-9)	
Log Pow	3.2

12.4. Mobility in soil

No additional information available

12.5. Other adverse effects

Effect on the ozone layer : No additional information available

SECTION 13: Disposal considerations

13.1. Disposal methods

Waste treatment methods	: Do not contaminate by cleaning of equipment or disposal of wastes.
Product/Packaging 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

Transport document description	: UN2788 Organotin compounds, liquid, n.o.s. (BIS(TRI-n-BUTYLTIN)OXIDE), 6.1, III
Proper Shipping Name (DOT)	: Organotin compounds, liquid, n.o.s. (BIS(TRI-n-BUTYLTIN)OXIDE)
Class (DOT)	: 6.1 - Class 6.1 - Poisonous materials 49 CFR 173.132
Packing group (DOT)	: III - Minor Danger

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Hazard labels (DOT) : 6.1 - Poison



Dangerous for the environment : Yes

Marine pollutant : Yes



DOT Packaging Non Bulk (49 CFR 173.xxx) : 203

DOT Packaging Bulk (49 CFR 173.xxx) : 241

DOT Packaging Exceptions (49 CFR 173.xxx) : 153

14.3. Additional information

Emergency Response Guide (ERG) Number : 153

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 - Stow "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
Subject to reporting requirements of United States SARA Section 313

SARA Section 313 - Emission Reporting	1 %
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15.2. International regulations

CANADA

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

Listed on the Canadian DSL (Domestic Substances List)

WHMIS Classification	Class D Division 1 Subdivision B - Toxic material causing immediate and serious toxic effects Class D Division 2 Subdivision B - Toxic material causing other toxic effects Class E - Corrosive Material
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EU-Regulations

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

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

National regulations

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

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

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15.3. US State regulations

California Proposition 65 - This product does not contain any substances known to the state of California to cause cancer, developmental and/or reproductive harm

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

U.S. - Massachusetts - Right To Know List

U.S. - New Jersey - Right to Know Hazardous Substance List

SECTION 16: Other information

Full text of H-phrases::

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

Abbreviations and acronyms

: Abbreviations: ND: Not Determined, No Data; NA: Not Applicable; LD: Lethal Dose; LC: Lethal Concentration; ATE: Acute Toxicity Estimates; H: hour; °: °C unless otherwise stated; mm: millimeters Hg, torr; PEL: permissible exposure level; TWA: time weighted average; TLV: threshold limit value; TG: Test Guideline; NIOSH: National Institute for Occupational Safety and Health; IARC: International Agency for Research on Cancer; NTP: National Toxicology Program; HMIS: Hazardous Material Information System; CAS No.: Chemical Abstract Service Registration Number; EC No.: European Commission Registration Number; EC Index No.: European Commission Index Number; OECD: The Organisation for Economic Co-operation and Development; GHS: The Globally Harmonized System of Classification and Labelling; APF: Assigned Protection Factor.

Hazard Rating

Health : 3 Serious Hazard - Major injury likely unless prompt action is taken and medical treatment is given

Flammability : 1 Slight Hazard - Materials that must be preheated before ignition will occur. Includes liquids, solids and semi solids having a flash point above 200 F. (Class IIIB)

Physical : 0 Minimal Hazard - Materials that are normally stable, even under fire conditions, and will NOT react with water, polymerize, decompose, condense, or self-react. Non-Explosives.

Prepared by safety and environmental affairs.

Date of issue: 08/06/2015 Version: 1.0

SDS US (GHS HazCom 2012) - Custom

According to Federal Register / Vol. 77, No. 58 / Monday, March 26, 2012 / Rules and Regulations

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