Monobutyltin Oxide

sc-301167

Material Safety Data Sheet

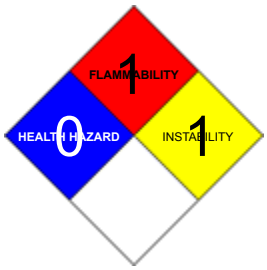
Hazard Alert Code Key:	EXTREME	HIGH	MODERATE	LOW

Section 1 - CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

PRODUCT NAME
Monobutyltin Oxide

STATEMENT OF HAZARDOUS NATURE
CONSIDERED A HAZARDOUS SUBSTANCE ACCORDING TO OSHA 29 CFR 1910.1200.

NFPA



SUPPLIER
Santa Cruz Biotechnology, Inc.
2145 Delaware Avenue
Santa Cruz, California 95060
800.457.3801 or 831.457.3800

EMERGENCY
ChemWatch
Within the US & Canada: 877-715-9305
Outside the US & Canada: +800 2436 2255
(1-800-CHEMCALL) or call +613 9573 3112

SYNONYMS
C4-H10-O2-Sn, CH3(CH2)3SnO2H, "stannane, butylhydroxyoxo-", "1-butanestannonic acid", "butylhydroxytin oxide", "butylstannoic acid", "organotin compound"

Section 2 - HAZARDS IDENTIFICATION

CHEMWATCH HAZARD RATINGS

		Min	Max
Flammability	1		
Toxicity	2		
Body Contact	2		
Reactivity	1		
Chronic	2		

Min/Nil=0
Low=1
Moderate=2
High=3
Extreme=4

CANADIAN WHMIS SYMBOLS

EMERGENCY OVERVIEW

RISK

Harmful to aquatic organisms.

POTENTIAL HEALTH EFFECTS

ACUTE HEALTH EFFECTS

SWALLOWED

■ Accidental ingestion of the material may be damaging to the health of the individual.

■ Subchronic exposures to mono-, di- and tri- and tetra-substituted organotin compounds may elicit toxic response in the central nervous, immune and renal systems, the liver and bile duct and the skin.

EYE

■ Although the material is not thought to be an irritant, direct contact with the eye may cause transient discomfort characterized by tearing or conjunctival redness (as with windburn).

Slight abrasive damage may also result.

SKIN

■ The material is not thought to be a skin irritant (as classified using animal models).

Abrasive damage however, may result from prolonged exposures.

■ Skin contact with the material may damage the health of the individual; systemic effects may result following absorption.

■ Open cuts, abraded or irritated skin should not be exposed to this material.

■ Entry into the blood-stream, through, for example, cuts, abrasions or lesions, may produce systemic injury with harmful effects.

Examine the skin prior to the use of the material and ensure that any external damage is suitably protected.

INHALED

■ The material is not thought to produce respiratory irritation (as classified using animal models).

Nevertheless inhalation of dusts, or fume, especially for prolonged periods, may produce respiratory discomfort and occasionally, distress.

■ Inhalation of dusts, generated by the material during the course of normal handling, may be damaging to the health of the individual.

■ The acute toxicity of inhaled organotin compounds resembles that foundby other means of exposure.

CHRONIC HEALTH EFFECTS

■ Limited evidence suggests that repeated or long-term occupational exposure may produce cumulative health effects involving organs or biochemical systems.

Both tributyltins (TBT) and dibutyltins (DBT) have negative effects on the reproductive system in mammals. In line with these facts, TBT and TPT were given the highest category in a European review of endocrine disrupting chemicals (BKH, 2000) “Evidence for endocrine disruption in living organisms”. TBT was also classified as “Evidence of potential to cause endocrine disruption in humans”.

Organotins are also toxic by other mechanisms. For instance, several organotins are strongly immunosuppressive, display developmental and reproductive effects and are neurotoxic

TPT is classified as category 3 carcinogenic in the EU, but as category 2 (probable human carcinogenic) by the USEPA (EFSA, 2004). DBT may actually be more toxic than TBT to certain enzyme systems. Immunotoxic and developmental effects in mammals may also be more sensitive to DBT than to TB. Both TBT and TPT may be classified as Persistent, Bioaccumulative and Toxic (PBT) and very Persistent,very Bioaccumulative (vPvB) substances according to certain, whereas DBT and dioctyl tin (DO)T may be classified as PBT

For human health, there are no epidemiological studies on chronic low level exposure available It has been suggested that toxicity was equal for DBT, TBT, DOT and TPT for humans, and proposed a group TDI of 0.1 ìg Sn (kg Bw and d)-1.

Long term exposure to high dust concentrations may cause changes in lung function i.e. pneumoconiosis; caused by particles less than 0.5 micron penetrating and remaining in the lung.

Section 3 - COMPOSITION / INFORMATION ON INGREDIENTS

NAME	CAS RN	%
butyltin hydroxide oxide	2273-43-0	>98

Section 4 - FIRST AID MEASURES

SWALLOWED

- If swallowed do NOT induce vomiting.
- If vomiting occurs, lean patient forward or place on left side (head-down position, if possible) to maintain open airway and prevent aspiration.

EYE

If this product comes in contact with the eyes

- Wash out immediately with fresh running water.
- Ensure complete irrigation of the eye by keeping eyelids apart and away from eye and moving the eyelids by occasionally lifting the upper and lower lids.

SKIN

If skin contact occurs

- Immediately remove all contaminated clothing, including footwear
- Flush skin and hair with running water (and soap if available).

INHALED

- If fumes or combustion products are inhaled remove from contaminated area.
- Lay patient down. Keep warm and rested.

NOTES TO PHYSICIAN

■ Scanty animal data indicate that BAL may be useful against dialkyl but not trialkyl organotin compounds. D-penicillamine is thought to be inactive.

Section 5 - FIRE FIGHTING MEASURES

Vapour Pressure (mmHG)	Negligible
Upper Explosive Limit (%)	Not available.
Specific Gravity (water=1)	Not available
Lower Explosive Limit (%)	Not available

EXTINGUISHING MEDIA

- Foam.
- Dry chemical powder.

FIRE FIGHTING

- Alert Emergency Responders and tell them location and nature of hazard.
- Wear breathing apparatus plus protective gloves.

GENERAL FIRE HAZARDS/HAZARDOUS COMBUSTIBLE PRODUCTS

- Combustible solid which burns but propagates flame with difficulty.
- Avoid generating dust, particularly clouds of dust in a confined or unventilated space as dusts may form an explosive mixture with air, and any source of ignition, i.e. flame or spark, will cause fire or explosion. Dust clouds generated by the fine grinding of the solid are a particular hazard; accumulations of fine dust may burn rapidly and fiercely if ignited.

Combustion products include carbon monoxide (CO), carbon dioxide (CO_2), metal oxides, other pyrolysis products typical of burning organic material.

May emit poisonous fumes.

FIRE INCOMPATIBILITY

Avoid contamination with oxidizing agents i.e. nitrates, oxidizing acids,chlorine bleaches, pool chlorine etc. as ignition may result.

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Section 6 - ACCIDENTAL RELEASE MEASURES

MINOR SPILLS

- Remove all ignition sources.
- Clean up all spills immediately.
- Avoid contact with skin and eyes.
- Control personal contact by using protective equipment.
- Use dry clean up procedures and avoid generating dust.
- Place in a suitable, labelled container for waste disposal.

MAJOR SPILLS

Moderate hazard.

- CAUTION Advise personnel in area.
- Alert Emergency Responders and tell them location and nature of hazard.

Section 7 - HANDLING AND STORAGE

PROCEDURE FOR HANDLING

- Avoid all personal contact, including inhalation.
- Wear protective clothing when risk of exposure occurs.

RECOMMENDED STORAGE METHODS

- Polyethylene or polypropylene container.
- Check all containers are clearly labelled and free from leaks.

STORAGE REQUIREMENTS

- Store in original containers.
- Keep containers securely sealed.

Section 8 - EXPOSURE CONTROLS / PERSONAL PROTECTION

EXPOSURE CONTROLS

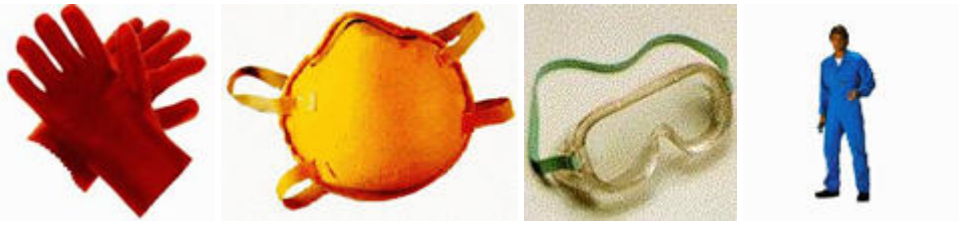
Source	Material	TWA ppm	TWA mg/m³	STEL ppm	STEL mg/m³	Peak ppm	Peak mg/m³	TWA F/CC	Notes

US - Alaska Limits for Air Contaminants	butyltin hydroxide oxide (Tin oxide (as Sn))		2				
Canada - Northwest Territories Occupational Exposure Limits (English)	butyltin hydroxide oxide (Tin, inorganic compounds, except SnH and SnO (as Sn))		2		4		
Canada - Yukon Permissible Concentrations for Airborne Contaminant Substances	butyltin hydroxide oxide (Tin, inorganic compounds, (as Sn) (except SnH4 and SnO2))	-	2	-	4		
US - Minnesota Permissible Exposure Limits (PELs)	butyltin hydroxide oxide (Tin, organic compounds (as Sn))		0.1				
US NIOSH Recommended Exposure Limits (RELs)	butyltin hydroxide oxide (Tin (organic compounds, as Sn))		0.1				[*Note The REL applies to all organic tin compounds except Cyhexatin.]; [skin]
US OSHA Permissible Exposure Levels (PELs) - Table Z1	butyltin hydroxide oxide (Tin, organic compounds (as Sn))		0.1				
US - Idaho - Limits for Air Contaminants	butyltin hydroxide oxide (Tin (organic compounds) as (Sn))		0.1				
US - Vermont Permissible Exposure Limits Table Z-1-A Final Rule Limits for Air Contaminants	butyltin hydroxide oxide (Tin, organic compounds (as Sn))		0.1				
US - Vermont Permissible Exposure Limits Table Z-1-A Transitional Limits for Air Contaminants	butyltin hydroxide oxide (Tin, organic compounds (as Sn))		0.1				
US - Tennessee Occupational Exposure Limits - Limits For Air Contaminants	butyltin hydroxide oxide (Tin, organic compounds (as Sn))		0.1				
Canada - Saskatchewan Occupational Health	butyltin hydroxide oxide (Tin, (as Sn) organic		0.1		0.2		Skin

and Safety Regulations - Contamination Limits	compounds)						
US - Washington Permissible exposure limits of air contaminants	butyltin hydroxide oxide (Tin (as Sn) - Organic compounds)		0.1		0.3		
Canada - Yukon Permissible Concentrations for Airborne Contaminant Substances	butyltin hydroxide oxide (Tin, organic compounds (as Sn) - Skin)	-	0.1	-	0.2		
US - Hawaii Air Contaminant Limits	butyltin hydroxide oxide (Tin, organic compounds (as Sn))		0.1		0.2		
Canada - Nova Scotia Occupational Exposure Limits	butyltin hydroxide oxide (Tin - Organic compounds (as Sn))		0.1		0.2		
Canada - Northwest Territories Occupational Exposure Limits (English)	butyltin hydroxide oxide (Tin, organic4 compounds2 (as Sn) - Skin)		0.1		0.2		
US - Alaska Limits for Air Contaminants	butyltin hydroxide oxide (Tin, organic compounds (as Sn))		0.1				
Canada - British Columbia Occupational Exposure Limits	butyltin hydroxide oxide (Tin - Organic compounds, as Sn)		0.1		0.2		Skin
Canada - Alberta Occupational Exposure Limits	butyltin hydroxide oxide (Tin, as Sn Organic compounds)		0.1		0.2		
US - California Permissible Exposure Limits for Chemical Contaminants	butyltin hydroxide oxide (Tin, organic compounds, as Sn)		0.1		0.2		
Canada - Ontario Occupational Exposure Limits	butyltin hydroxide oxide (Organic compounds, as Sn / Composés organiques, en Sn)		0.1				Skin (organic compounds) / Peau (composés organiques)

US ACGIH Threshold Limit Values (TLV)	butyltin hydroxide oxide (Tin - Organic compounds (as Sn))	0.1	0.2
Canada - Prince Edward Island Occupational Exposure Limits	butyltin hydroxide oxide (Tin - Organic compounds (as Sn))	0.1	0.2
US - Oregon Permissible Exposure Limits (Z-1)	butyltin hydroxide oxide (Tin (organic - compounds))	0.1	
Canada - Quebec Permissible Exposure Values for Airborne Contaminants (English)	butyltin hydroxide oxide (Tin Organic compounds (as Sn))	0.1	0.2
US - Wyoming Toxic and Hazardous Substances Table Z1 Limits for Air Contaminants	butyltin hydroxide oxide (Tin, organic compounds (as Sn))	0.1	

PERSONAL PROTECTION



RESPIRATOR

•Particulate. (AS/NZS 1716 & 1715, EN 1432000 & 1492001, ANSI Z88 or national equivalent)

EYE

- Safety glasses with side shields
- Chemical goggles.

HANDS/FEET

Experience indicates that the following polymers are suitable as glove materials for protection against undissolved, dry solids, where abrasive particles are not present.

- polychloroprene
- nitrile rubber
- butyl rubber
- fluorocaoutchouc
- polyvinyl chloride

Gloves should be examined for wear and/ or degradation constantly.

Suitability and durability of glove type is dependent on usage. Important factors in the selection of gloves include

- frequency and duration of contact,
- chemical resistance of glove material,
- glove thickness and
- dexterity

Select gloves tested to a relevant standard (e.g. Europe EN 374, US F739, AS/NZS 2161.1 or national equivalent).

- When prolonged or frequently repeated contact may occur, a glove with a protection class of 5 or higher (breakthrough time greater than 240 minutes according to EN 374, AS/NZS 2161.10.1 or national equivalent) is recommended.
- When only brief contact is expected, a glove with a protection class of 3 or higher (breakthrough time greater than 60 minutes according to EN 374, AS/NZS 2161.10.1 or national equivalent) is recommended.
- Contaminated gloves should be replaced.

Gloves must only be worn on clean hands. After using gloves, hands should be washed and dried thoroughly. Application of a non-perfumed moisturiser is recommended.

OTHER

- Overalls.
- P.V.C. apron.
- Barrier cream.
- Skin cleansing cream.
- Eye wash unit.

ENGINEERING CONTROLS

- Local exhaust ventilation is required where solids are handled as powders or crystals; even when particulates are relatively large, a certain proportion will be powdered by mutual friction.
- Exhaust ventilation should be designed to prevent accumulation and recirculation of particulates in the workplace.

Section 9 - PHYSICAL AND CHEMICAL PROPERTIES

PHYSICAL PROPERTIES

Solid.

State	Divided solid	Molecular Weight	208.83
Melting Range (°F)	302 (decomp)	Viscosity	Not Applicable
Boiling Range (°F)	Not available	Solubility in water (g/L)	Reacts
Flash Point (°F)	Not available	pH (1% solution)	Not applicable
Decomposition Temp (°F)	Not available.	pH (as supplied)	Not applicable
Autoignition Temp (°F)	Not available	Vapour Pressure (mmHG)	Negligible
Upper Explosive Limit (%)	Not available.	Specific Gravity (water=1)	Not available
Lower Explosive Limit (%)	Not available	Relative Vapor Density (air=1)	>1
Volatile Component (%vol)	Negligible	Evaporation Rate	Not applicable

APPEARANCE

Fine, hygroscopic powder; does not mix with water.

Section 10 - CHEMICAL STABILITY

CONDITIONS CONTRIBUTING TO INSTABILITY

- Presence of incompatible materials.
- Product is considered stable.

STORAGE INCOMPATIBILITY

- Avoid strong acids, bases.

Segregate from alcohol, water.
Avoid reaction with oxidizing agents.

- Keep dry
- NOTE May develop pressure in containers; open carefully. Vent periodically.

For incompatible materials - refer to Section 7 - Handling and Storage.

Section 11 - TOXICOLOGICAL INFORMATION

butyltin hydroxide oxide

TOXICITY AND IRRITATION
BUTYLTIN HYDROXIDE OXIDE
unless otherwise specified data extracted from RTECS - Register of Toxic Effects of Chemical Substances.

TOXICITY	IRRITATION
Intravenous (mouse) LD50 180 mg/kg	Nil Reported

CARCINOGEN

Tin - Organic compounds (as Sn)	US ACGIH Threshold Limit Values (TLV) - Carcinogens	Carcinogen Category	A4
butyltin hydroxide oxide	US - Rhode Island Hazardous Substance List	IARC	
TWAPPM~	US - Maine Chemicals of High Concern List	Carcinogen	A4

SKIN

butyltin hydroxide oxide	US - Washington Permissible exposure limits of air contaminants - Skin	Skin	X
butyltin hydroxide oxide	US ACGIH Threshold Limit Values (TLV) - Skin	Skin Designation	Yes
butyltin hydroxide oxide	US AIHA Workplace Environmental Exposure Levels (WEELs) - Skin	Notes	
butyltin hydroxide oxide	US NIOSH Recommended Exposure Limits (RELs) - Skin	Skin	Yes
butyltin hydroxide oxide	US - California OEHHA/ARB - Acute Reference Exposure Levels and Target Organs (RELs) - Skin	Skin	X
butyltin hydroxide oxide	US - California OEHHA/ARB - Chronic Reference Exposure Levels and Target Organs (CRELs) - Skin	Skin	X
butyltin hydroxide oxide	US - Tennessee Occupational Exposure Limits - Limits For Air Contaminants - Skin	Skin Designation	X
butyltin hydroxide oxide	Canada - British Columbia Occupational Exposure Limits - Skin	Notation	Skin
butyltin hydroxide oxide	US - Minnesota Permissible Exposure Limits (PELs) - Skin	Skin Designation	X
butyltin hydroxide oxide	US - Hawaii Air Contaminant Limits - Skin Designation	Skin Designation	X
butyltin hydroxide oxide	US OSHA Permissible Exposure Levels (PELs) - Skin	Skin Designation	X
butyltin hydroxide oxide	US - Oregon Permissible Exposure Limits (Z2) - Skin	Skin	X
butyltin hydroxide oxide	US - California Permissible Exposure Limits for Chemical Contaminants - Skin	Skin	X
butyltin hydroxide oxide	US - California Permissible Exposure Limits for Chemical Contaminants - Skin	Skin	S
butyltin hydroxide oxide	Canada - Alberta Occupational Exposure Limits - Skin	Substance Interaction	1

Section 12 - ECOLOGICAL INFORMATION

Harmful to aquatic organisms.

Section 13 - DISPOSAL CONSIDERATIONS

Disposal Instructions
All waste must be handled in accordance with local, state and federal regulations.

- Recycle wherever possible.
- Consult manufacturer for recycling options or consult Waste Management Authority for disposal if no suitable treatment or disposal facility can be identified.

Section 14 - TRANSPORTATION INFORMATION

NOT REGULATED FOR TRANSPORT OF DANGEROUS GOODS: DOT, IATA, IMDG

Section 15 - REGULATORY INFORMATION

butyltin hydroxide oxide (CAS: 2273-43-0) is found on the following regulatory lists;
"Canada Domestic Substances List (DSL)","US Toxic Substances Control Act (TSCA) - Chemical Substance Inventory"

Section 16 - OTHER INFORMATION

LIMITED EVIDENCE
■ Inhalation, skin contact and/or ingestion may produce health damage*.
■ Cumulative effects may result following exposure*.
* (limited evidence).

Reasonable care has been taken in the preparation of this information, but the author makes no warranty of merchantability or any other warranty, expressed or implied, with respect to this information. The author makes no representations and assumes no liability for any direct, incidental or consequential damages resulting from its use. For additional technical information please call our toxicology department on +800 CHEMCALL.

■ Classification of the preparation and its individual components has drawn on official and authoritative sources as well as independent review by the Chemwatch Classification committee using available literature references.
A list of reference resources used to assist the committee may be found at:
www.chemwatch.net/references.

■ The (M)SDS is a Hazard Communication tool and should be used to assist in the Risk Assessment. Many factors determine whether the reported Hazards are Risks in the workplace or other settings. Risks may be determined by reference to Exposures Scenarios. Scale of use, frequency of use and current or available engineering controls must be considered.

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