

Butyltin tris(2-ethylhexanoate)

sc-234251

Material Safety Data Sheet



The Power is Question

Hazard Alert Code Key: **EXTREME** **HIGH** **MODERATE** **LOW**

Section 1 - CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

PRODUCT NAME

Butyltin tris(2-ethylhexanoate)

STATEMENT OF HAZARDOUS NATURE

CONSIDERED A HAZARDOUS SUBSTANCE ACCORDING TO OSHA 29 CFR 1910.1200.

NFPA



SUPPLIER

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EMERGENCY:

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

PRODUCT USE

Intermediate.

SYNONYMS

C28-H54-O6-Sn, (CH₃CH₂)₃CH(C₂H₅)CO₂)₃Sn(CH₂)₃CH₃

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

- There is some evidence to suggest that this material can cause eye irritation and damage in some persons.
- Organotin compounds may be strong irritants, and acute conjunctivitis may result from eye splashes, even when followed by immediate lavage; corneal opacities have also been observed.

SKIN

- Skin contact with the material may damage the health of the individual; systemic effects may result following absorption.
- There is some evidence to suggest that this material can cause inflammation of the skin on contact in some persons.
- Irritation following contact with organotin compounds may be delayed, in certain cases chemical burns and dermatitis may result. Rate of absorption may be increased if product is in solution.
- 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 vapors, fumes or aerosols, especially for prolonged periods, may produce respiratory discomfort and occasionally, distress.
- Inhalation of vapors or aerosols (mists, fumes), 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 found by 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 (DOT) 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 µg Sn (kg Bw and d)⁻¹.

Section 3 - COMPOSITION / INFORMATION ON INGREDIENTS

NAME	CAS RN	%
butyltin tris(2-ethylhexanoate)	23850-94-4	>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

■ Treat symptomatically.

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

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Section 5 - FIRE FIGHTING MEASURES

Vapour Pressure (mmHG):	Not available
Upper Explosive Limit (%):	Not available
Specific Gravity (water=1):	1.105
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 full body protective clothing with breathing apparatus.
When any large container (including road and rail tankers) is involved in a fire, consider evacuation by 800 metres in all directions.

GENERAL FIRE HAZARDS/HAZARDOUS COMBUSTIBLE PRODUCTS

■ May emit clouds of acrid smoke.
· Combustible.
· Slight fire hazard when exposed to heat or flame.
Combustion products include: carbon dioxide (CO₂), 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.

PERSONAL PROTECTION

Glasses:
Chemical goggles.
Gloves:
Respirator:

Section 6 - ACCIDENTAL RELEASE MEASURES

MINOR SPILLS

· Remove all ignition sources.
· Clean up all spills immediately.

MAJOR SPILLS

· Clear area of personnel and move upwind.
· 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.
· DO NOT allow clothing wet with material to stay in contact with skin.

RECOMMENDED STORAGE METHODS

■ Glass container.
· Lined metal can, Lined metal pail/drum
· Plastic pail.

STORAGE REQUIREMENTS

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

Section 8 - EXPOSURE CONTROLS / PERSONAL PROTECTION

EXPOSURE CONTROLS

Source	Material	TWA ppm	TWA mg/m ³	STEL ppm	STEL mg/m ³	Peak ppm	Peak mg/m ³	TWA F/CC	Notes
US - Alaska Limits for Air Contaminants	butyltin tris(2-ethylhexanoate) (Tin oxide (as Sn))		2						
Canada - Northwest Territories Occupational Exposure Limits (English)	butyltin tris(2-ethylhexanoate) (Tin, inorganic compounds, except SnH and SnO (as Sn))		2		4				
Canada - Yukon Permissible Concentrations for Airborne Contaminant Substances	butyltin tris(2-ethylhexanoate) (Tin, inorganic compounds, (as Sn) (except SnH ₄ and SnO ₂))	-	2	-	4				
US - Minnesota Permissible Exposure Limits (PELs)	butyltin tris(2-ethylhexanoate) (Tin, organic compounds (as Sn))		0.1						
US NIOSH Recommended Exposure Limits (RELs)	butyltin tris(2-ethylhexanoate) (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 tris(2-ethylhexanoate) (Tin, organic compounds (as Sn))		0.1						
US - Idaho - Limits for Air Contaminants	butyltin tris(2-ethylhexanoate) (Tin (organic compounds) as (Sn))		0.1						
US - Vermont Permissible Exposure Limits Table Z-1-A Final Rule Limits for Air Contaminants	butyltin tris(2-ethylhexanoate) (Tin, organic compounds (as Sn))		0.1						
US - Vermont Permissible Exposure Limits Table Z-1-A Transitional Limits for Air Contaminants	butyltin tris(2-ethylhexanoate) (Tin, organic compounds (as Sn))		0.1						
US - Tennessee Occupational Exposure Limits - Limits For Air Contaminants	butyltin tris(2-ethylhexanoate) (Tin, organic compounds (as Sn))		0.1						
Canada - Saskatchewan Occupational Health and Safety Regulations - Contamination Limits	butyltin tris(2-ethylhexanoate) (Tin, (as Sn): organic compounds)		0.1		0.2				Skin

US - Washington Permissible exposure limits of air contaminants	butyltin tris(2-ethylhexanoate) (Tin as Sn) - Organic compounds)		0.1		0.3	
Canada - Yukon Permissible Concentrations for Airborne Contaminant Substances	butyltin tris(2-ethylhexanoate) (Tin, organic compounds (as Sn) - Skin)	-	0.1	-	0.2	
US - Hawaii Air Contaminant Limits	butyltin tris(2-ethylhexanoate) (Tin, organic compounds (as Sn))		0.1		0.2	
Canada - Nova Scotia Occupational Exposure Limits	butyltin tris(2-ethylhexanoate) (Tin - Organic compounds (as Sn))		0.1		0.2	
Canada - Northwest Territories Occupational Exposure Limits (English)	butyltin tris(2-ethylhexanoate) (Tin, organic4 compounds2 (as Sn) - Skin)		0.1		0.2	
US - Alaska Limits for Air Contaminants	butyltin tris(2-ethylhexanoate) (Tin, organic compounds (as Sn))		0.1			
Canada - British Columbia Occupational Exposure Limits	butyltin tris(2-ethylhexanoate) (Tin - Organic compounds, as Sn)		0.1		0.2	Skin
Canada - Alberta Occupational Exposure Limits	butyltin tris(2-ethylhexanoate) (Tin, as Sn: Organic compounds)		0.1		0.2	
US - California Permissible Exposure Limits for Chemical Contaminants	butyltin tris(2-ethylhexanoate) (Tin, organic compounds, as Sn)		0.1		0.2	
Canada - Ontario Occupational Exposure Limits	butyltin tris(2-ethylhexanoate) (Tin, as Sn Organic compounds, as Sn)		0.1			Skin (organic compounds)
US ACGIH Threshold Limit Values (TLV)	butyltin tris(2-ethylhexanoate) (Tin - Organic compounds (as Sn))		0.1		0.2	
Canada - Prince Edward Island Occupational Exposure Limits	butyltin tris(2-ethylhexanoate) (Tin - Organic compounds (as Sn))		0.1		0.2	
US - Oregon Permissible Exposure Limits (Z-1)	butyltin tris(2-ethylhexanoate) (Tin (organic compounds))		0.1			

Canada - Quebec Permissible Exposure Values for Airborne Contaminants (English)	butyltin tris(2-ethylhexanoate) (Tin: Organic compounds (as Sn))	0.1	0.2
US - Wyoming Toxic and Hazardous Substances Table Z1 Limits for Air Contaminants	butyltin tris(2-ethylhexanoate) (Tin, organic compounds (as Sn))	0.1	

ENDOELTABLE

PERSONAL PROTECTION



RESPIRATOR

Consult your EHS staff for recommendations

EYE

- Safety glasses with side shields.
- Chemical goggles.

HANDS/FEET

- Wear chemical protective gloves, eg. PVC.

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

- 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).

- 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) 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) 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.
- Eyewash unit.

The local concentration of material, quantity and conditions of use determine the type of personal protective equipment required.

Use appropriate NIOSH-certified respirator based on informed professional judgement. In conditions where no reasonable estimate of exposure can be made, assume the exposure is in a concentration IDLH and use NIOSH-certified full face pressure demand SCBA with a minimum service life of 30 minutes, or a combination full facepiece pressure demand SAR with auxiliary self-contained air supply. Respirators provided only for escape from IDLH atmospheres shall be NIOSH-certified for escape from the atmosphere in which they will be used.

ENGINEERING CONTROLS

- Local exhaust ventilation usually required. If risk of overexposure exists, wear an approved respirator.

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Section 9 - PHYSICAL AND CHEMICAL PROPERTIES

PHYSICAL PROPERTIES

Liquid.

Does not mix with water.

Sinks in water.

State	Liquid	Molecular Weight	605.43
Melting Range (°F)	Not available	Viscosity	Not Available
Boiling Range (°F)	Not available	Solubility in water (g/L)	Immiscible

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)	Not available
Upper Explosive Limit (%)	Not available	Specific Gravity (water=1)	1.105
Lower Explosive Limit (%)	Not available	Relative Vapor Density (air=1)	>1.0
Volatile Component (%vol)	Not available	Evaporation Rate	Not available

APPEARANCE

Viscous colourless liquid; 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.
- Avoid reaction with oxidizing agents.

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

Section 11 - TOXICOLOGICAL INFORMATION

BUTYL TIN TRIS(2-ETHYLHEXANOATE)

TOXICITY AND IRRITATION

BUTYL TIN TRIS(2-ETHYLHEXANOATE):

- No significant acute toxicological data identified in literature search.

SKIN

butyltin tris(2-ethylhexanoate)	US - Tennessee Occupational Exposure Limits - Limits For Air Contaminants - Skin	Skin Designation	X
butyltin tris(2-ethylhexanoate)	US - Vermont Permissible Exposure Limits Table Z-1-A Final Rule Limits for Air Contaminants - Skin	Skin Designation	X
butyltin tris(2-ethylhexanoate)	US - Washington Permissible exposure limits of air contaminants - Skin	Skin	X
butyltin tris(2-ethylhexanoate)	US - Minnesota Permissible Exposure Limits (PELs) - Skin	Skin Designation	X
butyltin tris(2-ethylhexanoate)	US - Hawaii Air Contaminant Limits - Skin Designation	Skin Designation	X
butyltin tris(2-ethylhexanoate)	US OSHA Permissible Exposure Levels (PELs) - Skin	Skin Designation	X
butyltin tris(2-ethylhexanoate)	Canada - Alberta Occupational Exposure Limits - Skin	Substance Interaction	1

Section 12 - ECOLOGICAL INFORMATION

Harmful to aquatic organisms.

This material and its container must be disposed of as hazardous waste.

Section 13 - DISPOSAL CONSIDERATIONS

Disposal Instructions

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

! DO NOT allow wash water from cleaning equipment to enter drains. Collect all wash water for treatment before disposal.

- Recycle wherever possible or consult manufacturer for recycling options.
- Consult Waste Management Authority for disposal.

Legislation addressing waste disposal requirements may differ by country, state and/ or territory. Each user must refer to laws operating in their area. In some areas, certain wastes must be tracked.

A Hierarchy of Controls seems to be common - the user should investigate:

- Reduction
- Reuse
- Recycling
- Disposal (if all else fails)

This material may be recycled if unused, or if it has not been contaminated so as to make it unsuitable for its intended use. If it has been contaminated, it may be possible to reclaim the product by filtration, distillation or some other means. Shelf life considerations should also be applied in making decisions of this type. Note that properties of a material may change in use, and recycling or reuse may not always be appropriate.

Section 14 - TRANSPORTATION INFORMATION

DOT:

Symbols: None Hazard class or Division: 6.1

Identification Numbers: UN2788 PG: III

Label Codes: 6.1 Special provisions: IB3, T7, TP2, TP28

Packaging: Exceptions: 153 Packaging: Non- bulk: 203

Packaging: Exceptions: 153 Quantity limitations: 60 L

Passenger aircraft/rail:

Quantity Limitations: Cargo 220 L Vessel stowage: Location: A aircraft only:

Vessel stowage: Other: 40 S.M.P.: Severe

Hazardous materials descriptions and proper shipping names:

Organotin compounds, liquid, n.o.s.

Air Transport IATA:

ICAO/IATA Class: 6.1 ICAO/IATA Subrisk: None

UN/ID Number: 2788 Packing Group: III

Special provisions: A3

Cargo Only

Packing Instructions: 618 Maximum Qty/Pack: 220 L

Passenger and Cargo Passenger and Cargo

Packing Instructions: 611 Maximum Qty/Pack: 60 L

Passenger and Cargo Limited Quantity Passenger and Cargo Limited Quantity

Packing Instructions: Y611 Maximum Qty/Pack: 2 L

Shipping Name: ORGANOTIN COMPOUND, LIQUID, N.O.S.

*(CONTAINS BUTYLTIN TRIS(2-ETHYLHEXANOATE))

Maritime Transport IMDG:

IMDG Class: 6.1 IMDG Subrisk: P

UN Number: 2788 Packing Group: III

EMS Number: F-A , S-A Special provisions: 43 223 274

Limited Quantities: 5 L

Shipping Name: ORGANOTIN COMPOUND, LIQUID, N.O.S.

Section 15 - REGULATORY INFORMATION

butyltin tris(2-ethylhexanoate) (CAS: 23850-94-4) is found on the following regulatory lists;

"Canada Domestic Substances List (DSL)"; "US Toxic Substances Control Act (TSCA) - Inventory"

Section 16 - OTHER INFORMATION

LIMITED EVIDENCE

- Inhalation, skin contact and/or ingestion may produce health damage*.
- Cumulative effects may result following exposure*.
- May produce discomfort of the eyes and skin*.

* (limited evidence).

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- 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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