

Tributyl(vinyl)stannane

sc-253737

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

Tributyl(vinyl)stannane

STATEMENT OF HAZARDOUS NATURE

CONSIDERED A HAZARDOUS SUBSTANCE ACCORDING TO OSHA 29 CFR 1910.1200.

NFPA



SUPPLIER

Santa Cruz Biotechnology, Inc.
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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

C14-H30-Sn, (CH₃(CH₂)₃)₃SnCH=CH₂, "tributyltin, vinyl-"

Section 2 - HAZARDS IDENTIFICATION

CHEMWATCH HAZARD RATINGS

		Min	Max
Flammability:	1		
Toxicity:	3		
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 in contact with skin.

Toxic if swallowed.

Toxic: danger of serious damage to health by prolonged exposure through inhalation and if swallowed.

Irritating to eyes and skin.

Very toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment.

POTENTIAL HEALTH EFFECTS

ACUTE HEALTH EFFECTS

SWALLOWED

■ Toxic effects may result from the accidental ingestion of the material; animal experiments indicate that ingestion of less than 40 gram may be fatal or may produce serious damage 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.

■ Some trialkyl organotin compounds cause damage to the central nervous system, consisting of swelling through the white matter. Lighter functional groups cause a more potent response.

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EYE

■ 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 be harmful; systemic effects may result following absorption.

■ This material can cause inflammation of the skin on contact in some persons.

■ The material may accentuate any pre-existing dermatitis condition.

■ 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.

■ Trialkyl organotin compounds are well absorbed through the skin; healing is slow and skin burns result. The lower abdomen, thighs and groin are most often affected due to absorption by clothing.

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 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

■ Toxic: danger of serious damage to health by prolonged exposure through inhalation and if swallowed.

This material can cause serious damage if one is exposed to it for long periods. It can be assumed that it contains a substance which can produce severe defects.

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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	%
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Section 4 - FIRST AID MEASURES

SWALLOWED

· IF SWALLOWED, REFER FOR MEDICAL ATTENTION, WHERE POSSIBLE, WITHOUT DELAY. · Where Medical attention is not immediately available or where the patient is more than 15 minutes from a hospital or unless instructed otherwise:

EYE

■ If this product comes in contact with the eyes: · Immediately hold eyelids apart and flush the eye continuously with 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.

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Section 5 - FIRE FIGHTING MEASURES

Vapour Pressure (mmHG):	Not available
Upper Explosive Limit (%):	Not available
Specific Gravity (water=1):	1.085
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

· Combustible.
· Slight fire hazard when exposed to heat or flame.
Combustion products include: carbon dioxide (CO₂), other pyrolysis products typical of burning organic material.
May emit clouds of acrid smoke.
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:
Type A Filter of sufficient capacity

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

- DO NOT allow clothing wet with material to stay in contact with skin.
- Avoid all personal contact, including inhalation.
- Wear protective clothing when risk of exposure occurs.

RECOMMENDED STORAGE METHODS

- Glass container.
- Lined metal can, Lined metal pail/drum
- Plastic pail.

For low viscosity materials

- Drums and jerricans must be of the non-removable head type.
- Where a can is to be used as an inner package, the can must have a screwed enclosure.

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

US - Washington Permissible exposure limits of air contaminants	vinyltributyltin (Tin as Sn) - Organic compounds)	0.1		0.3
Canada - Yukon Permissible Concentrations for Airborne Contaminant Substances	vinyltributyltin (Tin, organic compounds (as - Sn) - Skin)	0.1	-	0.2
US - Hawaii Air Contaminant Limits	vinyltributyltin (Tin, organic compounds (as Sn))	0.1		0.2
Canada - Nova Scotia Occupational Exposure Limits	vinyltributyltin (Tin - Organic compounds (as Sn))	0.1		0.2
Canada - Northwest Territories Occupational Exposure Limits (English)	vinyltributyltin (Tin, organic ⁴ compounds ² (as Sn) - Skin)	0.1		0.2
US - Alaska Limits for Air Contaminants	vinyltributyltin (Tin, organic compounds (as Sn))	0.1		
Canada - Alberta Occupational Exposure Limits	vinyltributyltin (Tin, as Sn: Organic compounds)	0.1		0.2
US ACGIH Threshold Limit Values (TLV)	vinyltributyltin (Tin - Organic compounds (as Sn))	0.1		0.2
US - California Permissible Exposure Limits for Chemical Contaminants	vinyltributyltin (Tin, organic compounds, as Sn)	0.1		0.2
Canada - British Columbia Occupational Exposure Limits	vinyltributyltin (Tin - Organic compounds, as Sn)	0.1		0.2 Skin
Canada - Prince Edward Island Occupational Exposure Limits	vinyltributyltin (Tin - Organic compounds (as Sn))	0.1		0.2
US - Oregon Permissible Exposure Limits (Z-1)	vinyltributyltin (Tin (organic compounds))	0.1		
Canada - Quebec Permissible Exposure Values for Airborne Contaminants (English)	vinyltributyltin (Tin: Organic compounds (as Sn))	0.1		0.2
US - Wyoming Toxic and Hazardous Substances Table Z1 Limits for Air Contaminants	vinyltributyltin (Tin, organic compounds (as Sn))	0.1		

ENDOELTABLE

PERSONAL PROTECTION



RESPIRATOR

Type A Filter of sufficient capacity
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.

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	317.09
Melting Range (°F)	Not available	Viscosity	Not available
Boiling Range (°F)	219.2- 222.8 (3.5 mm)	Solubility in water (g/L)	Immiscible
Flash Point (°F)	>230	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)	1.085
Lower Explosive Limit (%)	Not available	Relative Vapor Density (air=1)	>1.0
Volatile Component (%vol)	Not available	Evaporation Rate	Not available

APPEARANCE

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

VINYLTRIBUTYLTIN

TOXICITY AND IRRITATION

■ No significant acute toxicological data identified in literature search.

SKIN

vinyltributyltin	US - Tennessee Occupational Exposure Limits - Limits For Air Contaminants - Skin	Skin Designation	X
vinyltributyltin	US - Vermont Permissible Exposure Limits Table Z-1-A Final Rule Limits for Air Contaminants - Skin	Skin Designation	X

vinyltributyltin	US - Washington Permissible exposure limits of air contaminants - Skin	Skin	X
vinyltributyltin	US - Minnesota Permissible Exposure Limits (PELs) - Skin	Skin Designation	X
vinyltributyltin	US - Hawaii Air Contaminant Limits - Skin Designation	Skin Designation	X
vinyltributyltin	US OSHA Permissible Exposure Levels (PELs) - Skin	Skin Designation	X
vinyltributyltin	Canada - Alberta Occupational Exposure Limits - Skin	Substance Interaction	1

Section 12 - ECOLOGICAL INFORMATION

Very toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment.

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

Avoid release to the environment.

Refer to special instructions/ safety data sheets.

Section 13 - DISPOSAL CONSIDERATIONS

Disposal Instructions

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

! Puncture containers to prevent re-use and bury at an authorized landfill.

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.

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.

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 VINYLTRIBUTYLtin)

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 Marine Pollutant: Yes
Shipping Name: ORGANOTIN COMPOUND, LIQUID, N.O.S.(contains vinyltributyltin)

Section 15 - REGULATORY INFORMATION



REGULATIONS

vinyltributyltin (CAS: 7486-35-3) is found on the following regulatory lists;

"US - Alaska Limits for Air Contaminants", "US - California Occupational Safety and Health Regulations (CAL/OSHA) - Hazardous Substances List", "US - Minnesota Hazardous Substance List", "US RCRA (Resource Conservation & Recovery Act) - Appendix IX to Part 264 Ground-Water Monitoring List 1", "US RCRA (Resource Conservation & Recovery Act) - List of Hazardous Inorganic and Organic Constituents 1"

Section 16 - OTHER INFORMATION

LIMITED EVIDENCE

- Inhalation may produce health damage*.
 - Cumulative effects may result following exposure*.
- *(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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