

1. IDENTIFICATION

Product Name	Monobutyltin trichloride (MBTC)
Other Names	Butyltin trichloride; Mono-n-butyltin trichloride
Uses	Industrial use; Laboratory chemicals; Catalyst; Intermediate; Stabiliser. NOT recommended for biocidal products or water treatment chemicals.
Chemical Family	No Data Available
Chemical Formula	C ₄ H ₉ Cl ₃ Sn
Chemical Name	Stannane, butyltrichloro-
Product Description	No Data Available

Contact Details of the Supplier of this Safety Data Sheet

Organisation	Location	Telephone
Redox Pty Ltd	2 Swettenham Road Minto NSW 2566 Australia	+61-2-97333000
Redox Pty Ltd	11 Mayo Road Wiri Auckland 2104 New Zealand	+64-9-2506222
Redox Inc.	3960 Paramount Boulevard Suite 107 Lakewood CA 90712 USA	+1-424-675-3200
Redox Chemicals Sdn Bhd	Level 2, No. 8, Jalan Sapir 33/7 Seksyen 33, Shah Alam Premier Industrial Park 40400 Shah Alam Sengalor, Malaysia	+60-3-5614-2111

Emergency Contact Details

For emergencies only; DO NOT contact these companies for general product advice.

Organisation	Location	Telephone
Poisons Information Centre	Westmead NSW	1800-251525 131126
Chemcall	Australia	1800-127406 +64-4-9179888
Chemcall	Malaysia	+64-4-9179888
Chemcall	New Zealand	0800-243622 +64-4-9179888
National Poisons Centre	New Zealand	0800-764766
CHEMTREC	USA & Canada	1-800-424-9300 CN723420 +1-703-527-3887

2. HAZARD IDENTIFICATION

Poisons Schedule (Aust) Not Scheduled

Globally Harmonised System

Hazard Classification	Hazardous according to the criteria of the Globally Harmonised System of Classification and Labelling of Chemicals (GHS)
Hazard Categories	Skin Corrosion/Irritation - Category 1C Serious Eye Damage/Irritation - Category 1 Specific Target Organ Toxicity (Single Exposure) - Category 3 Acute Hazard To The Aquatic Environment - Category 1 Long-term Hazard To The Aquatic Environment - Category 1

Pictograms



Signal Word Danger

Hazard Statements	H314	Causes severe skin burns and eye damage.		
	H335	May cause respiratory irritation.		
	H410	Very toxic to aquatic life with long lasting effects.		
	AUH071	Corrosive to the respiratory tract		
Precautionary Statements	Prevention	P260	Do not breathe mist/vapour/spray.	
		P280	Wear protective gloves/protective clothing/eye protection/face protection.	
		P273	Avoid release to the environment.	
		P271	Use only outdoors or in a well-ventilated area.	
	Response	P303 + P361 + P353	IF ON SKIN (or hair): Remove/take off immediately all contaminated clothing. Rinse skin with water/shower.	
		P310	Immediately call a POISON CENTER or doctor/physician.	
		P305 + P351 + P338	IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.	
		P301 + P330 + P331	IF SWALLOWED: Rinse mouth. Do NOT induce vomiting.	
		P363	Wash contaminated clothing before reuse.	
		P391	Collect spillage.	
		P304 + P340	IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing.	
		Storage	P403 + P233	Store in a well-ventilated place. Keep container tightly closed.
			P405	Store locked up.
	Disposal		P501	Dispose of contents/container in accordance with local / regional / national / international regulations.

National Transport Commission (Australia)

Australian Code for the Transport of Dangerous Goods by Road & Rail (ADG Code)

Dangerous Goods Classification Dangerous Goods according to the criteria of the Australian Code for the Transport of Dangerous Goods by Road & Rail (ADG Code)

Environmental Protection Authority (New Zealand)

Hazardous Substances and New Organisms Amendment Act 2015

HSNO Classifications	Health Hazards	8.2C	Substances that are corrosive to dermal tissue UN PGIII
		8.3A	Substances that are corrosive to ocular tissue

3. COMPOSITION/INFORMATION ON INGREDIENTS

Ingredients

Chemical Entity	Formula	CAS Number	Proportion
Monobutyltin trichloride	C ₄ H ₉ Cl ₃ Sn	1118-46-3	<=100 %

4. FIRST AID MEASURES

Description of necessary measures according to routes of exposure

Swallowed	IF SWALLOWED: Rinse mouth, then drink plenty of water. Do NOT induce vomiting. Immediately call a Poison Centre or doctor/physician.
Eye	IF IN EYES: Immediately flush eyes with running water for several minutes, holding eyelids open and occasionally lifting the upper and lower lids. Remove contact lenses if present and easy to do. Continue rinsing for at least 15 minutes. Immediately call a Poison Centre or doctor/physician.
Skin	IF ON SKIN (or hair): Remove contaminated clothing and shoes immediately. Flush skin with running water for at least 15 minutes. For minor skin contact, avoid spreading material onto unaffected skin. Immediately call a Poison Centre or doctor/physician. Wash contaminated clothing before reuse.
Inhaled	IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing. Immediately call a Poison Centre or doctor/physician. Apply resuscitation if victim is not breathing - Do not use direct mouth-to-mouth method if victim ingested or inhaled the substance; use alternative respiratory method or proper respiratory device; Administer oxygen if breathing is difficult.
Advice to Doctor	Treat symptomatically. Keep victim calm and warm - Obtain immediate medical care. Ensure that attending medical personnel are aware of the identity and nature of the product(s) involved, and take precautions to protect themselves.
Medical Conditions Aggravated by Exposure	No information available.

5. FIRE FIGHTING MEASURES

General Measures	If safe to do so, move undamaged containers from fire area. Cool containers with water spray until well after fire is out. Avoid getting water inside containers.
Flammability Conditions	May burn but does not ignite readily. - Ignition temperature: 560 °C
Extinguishing Media	Use dry chemical, Carbon dioxide, (alcohol-resistant) foam or water spray for extinction - Do not use water jets. Use fire extinguishing methods suitable to surrounding conditions.
Fire and Explosion Hazard	Product does not present an explosion hazard. Containers may explode when heated.
Hazardous Products of Combustion	Fire or heat will produce irritating, toxic and/or corrosive gases, including Carbon monoxide, Carbon dioxide, Hydrogen chloride (HCl).
Special Fire Fighting Instructions	Contain runoff from fire control or dilution water - Runoff may be toxic and/or corrosive and may pollute waterways.
Personal Protective Equipment	Liquid-tight chemical protective clothing (splash suit) in combination with self-contained breathing apparatus (SCBA) should be used.
Flash Point	No Data Available
Lower Explosion Limit	No Data Available
Upper Explosion Limit	No Data Available
Auto Ignition Temperature	No Data Available
Hazchem Code	2X

6. ACCIDENTAL RELEASE MEASURES

General Response Procedure	Ensure adequate ventilation - Ventilate enclosed spaces before entering. ELIMINATE all ignition sources (no smoking,
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flares, sparks or flames). Do not touch or walk through spilled material. Do not breathe fumes and prevent contact with eyes, skin and clothing.

Clean Up Procedures	Absorb with earth, sand or other non-combustible material and transfer to a suitable container for disposal (see SECTION 13).
Containment	Stop leak if safe to do so – Prevent entry into waterways, drains or confined areas.
Decontamination	Use neutralising agent.
Environmental Precautionary Measures	Spillages and decontamination runoff should be prevented from entering drains and watercourses.
Evacuation Criteria	Spill or leak area should be isolated immediately. Keep unauthorised personnel away. Keep upwind and to higher ground.
Personal Precautionary Measures	Do not touch damaged containers or spilled material unless wearing appropriate protective clothing (see SECTION 8).

7. HANDLING AND STORAGE

Handling	Safety showers and eyewash facilities should be provided within the immediate work area for emergency use. Ensure adequate ventilation - Use only outdoors or in a well ventilated area. Handle in accordance with good industrial hygiene and safety practice. Prevent formation of aerosols. Do not breathe fumes/aerosols and prevent contact with eyes, skin and clothing. Wear protective gloves/protective clothing/eye protection/face protection; In case of inadequate ventilation, wear respiratory protection (see SECTION 8).
Storage	Store in a cool, dry and well-ventilated place. Protect from sunlight (store in the dark). Keep container tightly closed. Keep away from incompatible materials (strong oxidising agents). Store locked up.
Container	Keep ONLY in the original container.

8. EXPOSURE CONTROLS / PERSONAL PROTECTION

General	No specific exposure standards are available for this product. For Tin, organic compounds: - Safe Work Australia Exposure Standard: TWA = 0.1 mg/m ³ ; STEL = 0.2 mg/m ³ (as Sn); Absorption through the skin may be a significant source of exposure (Sk). - New Zealand WES: TWA = 0.1 mg/m ³ ; STEL = 0.2 mg/m ³ (as Sn); Skin absorption (skin).
Exposure Limits	No Data Available
Biological Limits	Derived no-effect levels (DNELs): - Workers (Industrial/professional) Dermal (long-term, systemic effects): 1 mg/kg bw/day. - Workers (Industrial/professional) Dermal (short-term, systemic effects): 1 mg/kg bw/day. - Workers (Industrial/professional) Inhalative (long-term, local effects): 0.10 mg/m ³ . - Workers (Industrial/professional) Inhalative (long-term, systemic effects): 0.11 mg/m ³ . - Workers (Industrial/professional) Inhalative (short-term, local effects): 4.83 mg/m ³ . - Workers (Industrial/professional) Inhalative (short-term, systemic effects): 2.11 mg/m ³ . Predicted no-effect concentrations (PNECs): - Freshwater: 0.00031 mg/L - Marine water: 0.000031 mg/L - Intermittent release: 0.0031 mg/L - STP: 1.345 mg/L - Freshwater sediment: 0.0024 mg/kg dw. - Marine water sediment: 0.00024 mg/kg dw. - Soil: 0.00035 mg/kg dw.
Engineering Measures	A system of local and/or general exhaust is recommended to keep employee exposures as low as possible. Local exhaust ventilation is generally preferred because it can control the emissions of the contaminant at its source, preventing dispersion of it into the general work area.
Personal Protection Equipment	Respiratory protection: In case of brief exposure or low pollution, use respiratory filter device. In case of intensive or longer exposure, use self-contained respiratory protective device. Recommended filter type: A/P (organic vapour + particulate). Eye/face protection: Wear appropriate eye protection to prevent eye contact. Recommended: Tightly sealed goggles. Hand protection: Wear protective gloves. Recommended: The glove material has to be impermeable and resistant to the product/substance/preparation; Selection of the glove material on consideration of the penetration times, rates of diffusion and degradation. Skin/body protection: Wear appropriate personal protective clothing to prevent skin contact. Recommended: Protective work clothing.
Special Hazards Precautions	No information available.

Work Hygienic Practices

Do not eat, drink, smoke or sniff while working. Keep away from foodstuffs, beverages and feed. Immediately remove all soiled and contaminated clothing. Wash contaminated clothing before storage or reuse.

9. PHYSICAL AND CHEMICAL PROPERTIES

Physical State	Liquid
Appearance	Liquid
Odour	Characteristic
Colour	Yellow-brown
pH	No Data Available
Vapour Pressure	0.111 hPa (@ 20 °C)
Relative Vapour Density	No Data Available
Boiling Point	196 °C
Melting Point	-63 °C
Freezing Point	-63 °C
Solubility	Not miscible/difficult to mix with water
Specific Gravity	No Data Available
Flash Point	No Data Available
Auto Ignition Temp	No Data Available
Evaporation Rate	No Data Available
Bulk Density	No Data Available
Corrosion Rate	No Data Available
Decomposition Temperature	>210 °C
Density	1.69 g/cm ³
Specific Heat	No Data Available
Molecular Weight	No Data Available
Net Propellant Weight	No Data Available
Octanol Water Coefficient	log Pow: 1.145
Particle Size	No Data Available
Partition Coefficient	No Data Available
Saturated Vapour Concentration	No Data Available
Vapour Temperature	No Data Available
Viscosity	No Data Available
Volatile Percent	No Data Available
VOC Volume	No Data Available
Additional Characteristics	No information available.
Potential for Dust Explosion	Not applicable.
Fast or Intensely Burning Characteristics	No information available.
Flame Propagation or Burning Rate of Solid Materials	No information available.
Non-Flammables That Could Contribute Unusual Hazards to a Fire	No information available.
Properties That May Initiate or Contribute to Fire Intensity	May burn but does not ignite readily.
Reactions That Release Gases or Vapours	Fire or heat will produce irritating, toxic and/or corrosive gases, including Carbon monoxide, Carbon dioxide, Hydrogen chloride (HCl).
Release of Invisible Flammable Vapours and Gases	No information available.

10. STABILITY AND REACTIVITY

General Information	No dangerous reactions known.
Chemical Stability	Stable if used and stored according to specifications.
Conditions to Avoid	Protect from sunlight. Prevent formation of aerosols.
Materials to Avoid	Incompatible/reactive with oxidising agents.
Hazardous Decomposition Products	No decomposition if used and stored according to specifications. Fire or heat will produce irritating, toxic and/or corrosive gases, including Carbon monoxide, Carbon dioxide, Hydrogen chloride (HCl).
Hazardous Polymerisation	No information available.

11. TOXICOLOGICAL INFORMATION

General Information	Acute toxicity: Based on available data, the classification criteria are not met. Skin corrosion/irritation: Causes severe skin burns. Eye damage/irritation: Causes serious eye damage. Respiratory/skin sensitisation: Based on available data, the classification criteria are not met. Germ cell mutagenicity: Based on available data, the classification criteria are not met. Carcinogenicity: Based on available data, the classification criteria are not met. Reproductive toxicity: Based on available data, the classification criteria are not met. STOT - single exposure: May cause respiratory irritation; Corrosive to the respiratory tract. STOT - repeated exposure: Based on available data, the classification criteria are not met. Aspiration toxicity: Based on available data, the classification criteria are not met.
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Acute

Ingestion	Acute toxicity (Oral): - LD50, Rat: >2,000 mg/kg
Carcinogen Category	None

12. ECOLOGICAL INFORMATION

Ecotoxicity	Aquatic toxicity: - LC50, Fish (Danio rerio): >100 mg/L (96 h) [OECD Guideline 203, semi-static]. - EC50, Crustacea (Daphnia magna): 83 mg/L (48 h) [OECD Guideline 202, static]. - EC50, Algae (Desmodesmus subspicatus): 0.31 mg/L (72 h) [OECD Guideline 201, static]. - NOEC, Algae (Desmodesmus subspicatus): 0.012 mg/L (72 h) [OECD Guideline 201, static].
Persistence/Degradability	Not readily biodegradable (0 %, 28 d) [OECD Guideline 301 F].
Mobility	No information available.
Environmental Fate	Very toxic to aquatic life with long lasting effects - Avoid release to the environment; Prevent entry into drains and waterways.
Bioaccumulation Potential	Does not accumulate in organisms.
Environmental Impact	No Data Available

13. DISPOSAL CONSIDERATIONS

General Information	Dispose of contents/container in accordance with local/regional/national regulations.
Special Precautions for Land Fill	No information available.

14. TRANSPORT INFORMATION

Land Transport (Australia)

ADG Code

Proper Shipping Name	CORROSIVE LIQUID, ACIDIC, ORGANIC, N.O.S (Monobutyltin trichloride)
Class	8 Corrosive Substances
Subsidiary Risk(s)	No Data Available
EPG	37 Toxic And/Or Corrosive Substances Non-Combustible
UN Number	3265
Hazchem	2X
Pack Group	III
Special Provision	No Data Available

Land Transport (Malaysia)

ADR Code

Proper Shipping Name	CORROSIVE LIQUID, ACIDIC, ORGANIC, N.O.S (Monobutyltin trichloride)
Class	8 Corrosive Substances
Subsidiary Risk(s)	No Data Available
EPG	37 Toxic And/Or Corrosive Substances Non-Combustible
UN Number	3265
Hazchem	2X
Pack Group	III
Special Provision	No Data Available

Land Transport (New Zealand)

NZS5433

Proper Shipping Name	CORROSIVE LIQUID, ACIDIC, ORGANIC, N.O.S (Monobutyltin trichloride)
Class	8 Corrosive Substances
Subsidiary Risk(s)	No Data Available
EPG	37 Toxic And/Or Corrosive Substances Non-Combustible
UN Number	3265
Hazchem	2X
Pack Group	III
Special Provision	No Data Available

Land Transport (United States of America)

US DOT

Proper Shipping Name	CORROSIVE LIQUID, ACIDIC, ORGANIC, N.O.S (Monobutyltin trichloride)
Class	8 Corrosive Substances
Subsidiary Risk(s)	No Data Available
ERG	153 Substances - Toxic and/or Corrosive (Combustible)
UN Number	3265
Hazchem	2X
Pack Group	III
Special Provision	No Data Available

Sea Transport

IMDG Code

Proper Shipping Name	CORROSIVE LIQUID, ACIDIC, ORGANIC, N.O.S (Monobutyltin trichloride)
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Class	8 Corrosive Substances
Subsidiary Risk(s)	No Data Available
UN Number	3265
Hazchem	2X
Pack Group	III
Special Provision	No Data Available
EMS	F-A, S-B
Marine Pollutant	Yes

Air Transport

IATA DGR

Proper Shipping Name	CORROSIVE LIQUID, ACIDIC, ORGANIC, N.O.S (Monobutyltin trichloride)
Class	8 Corrosive Substances
Subsidiary Risk(s)	No Data Available
UN Number	3265
Hazchem	2X
Pack Group	III
Special Provision	No Data Available

National Transport Commission (Australia)

Australian Code for the Transport of Dangerous Goods by Road & Rail (ADG Code)

Dangerous Goods Classification	Dangerous Goods according to the criteria of the Australian Code for the Transport of Dangerous Goods by Road & Rail (ADG Code)
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15. REGULATORY INFORMATION

General Information	No Data Available
Poisons Schedule (Aust)	Not Scheduled

Environmental Protection Authority (New Zealand)

Hazardous Substances and New Organisms Amendment Act 2015

Approval Code	HSR007186
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National/Regional Inventories

Australia (AICS)	Listed
Canada (DSL)	Not Determined
Canada (NDSL)	Not Determined
China (IECSC)	Not Determined
Europe (EINECS)	214-263-6
Europe (REACH)	Not Determined
Japan (ENCS/METI)	Not Determined

Korea (KECI)	Not Determined
Malaysia (EHS Register)	Not Determined
New Zealand (NZIoC)	Listed
Philippines (PICCS)	Not Determined
Switzerland (Giftliste 1)	Not Determined
Switzerland (Inventory of Notified Substances)	Not Determined
Taiwan (NCSR)	Not Determined
USA (TSCA)	Not Determined

16. OTHER INFORMATION

Related Product Codes	BUTYTR1000, BUTYTR2000, BUTYTR3000, BUTYTR3001, BUTYTR5000
Revision	3
Revision Date	26 Jun 2017
Key/Legend	<p>< Less Than > Greater Than AICS Australian Inventory of Chemical Substances atm Atmosphere CAS Chemical Abstracts Service (Registry Number) cm² Square Centimetres CO₂ Carbon Dioxide COD Chemical Oxygen Demand deg C (°C) Degrees Celcius EPA (New Zealand) Environmental Protection Authority of New Zealand deg F (°F) Degrees Farenheit g Grams g/cm³ Grams per Cubic Centimetre g/l Grams per Litre HSNO Hazardous Substance and New Organism IDLH Immediately Dangerous to Life and Health immiscible Liquids are insoluable in each other. inHg Inch of Mercury inH₂O Inch of Water K Kelvin kg Kilogram kg/m³ Kilograms per Cubic Metre lb Pound LC50 LC stands for lethal concentration. LC50 is the concentration of a material in air which causes the death of 50% (one half) of a group of test animals. The material is inhaled over a set period of time, usually 1 or 4 hours. LD50 LD stands for Lethal Dose. LD50 is the amount of a material, given all at once, which causes the death of 50% (one half) of a group of test animals. ltr or L Litre m³ Cubic Metre mbar Millibar mg Milligram mg/24H Milligrams per 24 Hours mg/kg Milligrams per Kilogram mg/m³ Milligrams per Cubic Metre Misc or Miscible Liquids form one homogeneous liquid phase regardless of the amount of either component present. mm Millimetre mmH₂O Millimetres of Water mPa.s Millipascals per Second N/A Not Applicable NIOSH National Institute for Occupational Safety and Health NOHSC National Occupational Health and Safety Commission OECD Organisation for Economic Co-operation and Development Oz Ounce PEL Permissible Exposure Limit</p>

Pa Pascal
ppb Parts per Billion
ppm Parts per Million
ppm/2h Parts per Million per 2 Hours
ppm/6h Parts per Million per 6 Hours
psi Pounds per Square Inch
R Rankine
RCP Reciprocal Calculation Procedure
STEL Short Term Exposure Limit
TLV Threshold Limit Value
tne Tonne
TWA Time Weighted Average
ug/24H Micrograms per 24 Hours
UN United Nations
wt Weight