

1. IDENTIFICATION

Product Name	2-Mercaptobenzothiazole
Other Names	Benzothiazole-2-thiol; MBT
Uses	Vulcanisation accelerator for rubber.
Chemical Family	No Data Available
Chemical Formula	C7H5NS2
Chemical Name	2(3H)-Benzothiazolethione
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

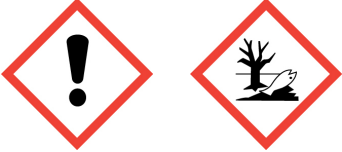
For emergencies only; DO NOT contact these companies for general product advice.

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	Sensitisation (Skin) - Category 1 Acute Hazard To The Aquatic Environment - Category 1 Long-term Hazard To The Aquatic Environment - Category 1		
Pictograms			
Signal Word	Warning		
Hazard Statements	H317	May cause an allergic skin reaction.	
	H410	Very toxic to aquatic life with long lasting effects.	
Precautionary Statements	Prevention	P280	Wear protective gloves.
		P261	Avoid breathing dusts or mists.
		P273	Avoid release to the environment.
		P272	Contaminated work clothing should not be allowed out of the workplace.
	Response	P302 + P352	IF ON SKIN: Wash with plenty of soap and water.
		P333 + P313	If skin irritation or rash occurs: Get medical advice/attention.
		P363	Wash contaminated clothing before reuse.
		P391	Collect spillage.
	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 NOT 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	6.5B	Substances that are contact sensitisers
	Environmental Hazards	9.1A	Substances that are very ecotoxic in the aquatic environment

3. COMPOSITION/INFORMATION ON INGREDIENTS

Ingredients

Chemical Entity	Formula	CAS Number	Proportion
2-Mercaptobenzothiazole	C7H5NS2	149-30-4	<=100 %

4. FIRST AID MEASURES

Description of necessary measures according to routes of exposure

Swallowed	IF SWALLOWED: Rinse mouth, then give small quantities of water to drink. Do not induce vomiting unless directed to do so by medical personnel. Get medical advice/attention if you feel unwell. Never give anything by mouth to an unconscious person.
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. If eye irritation persists, get medical advice/attention.
Skin	IF ON SKIN: Wash with plenty of soap and water. Take off contaminated clothing and wash before reuse. If skin irritation or rash occurs, get medical advice/attention.
Inhaled	IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing. If respiratory symptoms persist, get medical advice/attention. Apply resuscitation if victim is not breathing; Administer oxygen if breathing is difficult.
Advice to Doctor	Treat symptomatically and supportively. 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.
Flammability Conditions	May burn but does not ignite readily. Combustible in contact with open flame.
Extinguishing Media	Use dry chemical, Carbon dioxide (CO ₂), foam or water spray for extinction - Do not use water jets.
Fire and Explosion Hazard	Combustible dust; may form explosive mixtures with air.
Hazardous Products of Combustion	Fire may produce irritating, toxic and/or corrosive fumes, including oxides of Carbon, oxides of Nitrogen, oxides of Sulphur.
Special Fire Fighting Instructions	Contain runoff from fire control or dilution water - Runoff may pollute waterways.
Personal Protective Equipment	Wear self-contained breathing apparatus (SCBA) in combination with normal firefighting clothing (full fire kit).
Flash Point	200 - 252 °C
Lower Explosion Limit	15 %
Upper Explosion Limit	No Data Available
Auto Ignition Temperature	465 °C
Hazchem Code	No Data Available

6. ACCIDENTAL RELEASE MEASURES

General Response Procedure	Ensure adequate ventilation. ELIMINATE all ignition sources. Do not touch or walk through spilled material. Avoid dust formation. Avoid breathing dust and contact with eyes, skin and clothing.
Clean Up Procedures	Collect material (sweep or vacuum up) and place it in suitable, properly labelled containers for disposal (see SECTION 13).
Containment	Stop leak if safe to do so - Prevent entry into waterways, drains or confined areas. Prevent dust cloud.
Decontamination	No information available.
Environmental Precautionary Measures	Spillages and decontamination runoff should be prevented from entering drains and watercourses. Inform the relevant authorities if the product has caused environmental pollution.
Evacuation Criteria	Spill or leak area should be isolated immediately. Keep unauthorised personnel away. Keep upwind and to higher ground.
Personal Precautionary Measures	Use personal protective equipment as required (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. Handle in accordance with good industrial hygiene and safety practices. Avoid dust formation. Avoid breathing dust and contact with eyes, skin and clothing. Do not ingest. Use personal protective equipment as required (see SECTION 8). Combustible dust: Keep away from heat and all sources of ignition - No smoking. Take precautionary measures against static discharge. Avoid release to the environment; Collect spillage (see SECTION 6).
Storage	Store in a cool, dry and well-ventilated place, out of direct sunlight. Keep container tightly closed. Keep away from heat and all sources of ignition - No smoking. Keep away from incompatible materials (see SECTION 10).
Container	Keep in the original container.

8. EXPOSURE CONTROLS / PERSONAL PROTECTION

General	No specific exposure standards are available for this product. For dusts from solid substances without specific occupational exposure standards: - Safe Work Australia Exposure Standard (Nuisance dusts): 8 hr TWA = 10 mg/m ³ , measured as inhalable dust. - New Zealand WES (Particulates not otherwise classified): TWA = 10 mg/m ³ ; TWA = 3 mg/m ³ (respirable).
Exposure Limits	No Data Available
Biological Limits	No information available.
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: Wear respiratory protection in case of inadequate ventilation or if an inhalation risk exists. Recommended: Dust mask/particulate respirator (e.g. Type P1) for nuisance exposures. For higher level protection, use combination type or ABEK-P2 respirator cartridges. - Eye/face protection: Wear appropriate eye protection to avoid eye contact. Recommended: Safety glasses with side-shields or if operating conditions cause high dust concentrations to be produced, wear chemical goggles. - Hand protection: Wear protective gloves. Recommended: Impervious gloves, e.g. polyvinyl chloride (PVC), nitrile rubber (NBR) or polychloroprene (CR). - Skin/body protection: Wear appropriate personal protective clothing to avoid skin contact. Recommended: Overalls, safety shoes.
Special Hazards Precautions	No information available.
Work Hygienic Practices	Do not eat, drink or smoke when using this product. Wash hands before breaks and at the end of workday. Take off contaminated clothing and wash before reuse. Contaminated work clothing should not be allowed out of the workplace.

9. PHYSICAL AND CHEMICAL PROPERTIES

Physical State	Solid
Appearance	Crystalline powder or granules
Odour	Slight to pungent
Colour	White to yellow
pH	No Data Available
Vapour Pressure	Negligible (<0.00000253 hPa) (@ 25 °C)
Relative Vapour Density	No Data Available
Boiling Point	No Data Available
Melting Point	170 - 182 °C
Freezing Point	No Data Available
Solubility	118 mg/L water 25°C
Specific Gravity	1.3 - 1.42
Flash Point	200 - 252 °C
Auto Ignition Temp	465 °C
Evaporation Rate	No Data Available

Bulk Density	670 - 700 kg/m ³ (25°C)
Corrosion Rate	No Data Available
Decomposition Temperature	No Data Available
Density	1.3 - 1.42 g/cm ³
Specific Heat	No Data Available
Molecular Weight	No Data Available
Net Propellant Weight	No Data Available
Octanol Water Coefficient	2.42 (log Pow)
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	Combustible dust; may form explosive mixtures with air.
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. Combustible in contact with open flame.
Reactions That Release Gases or Vapours	Fire/thermal decomposition may produce irritating, toxic and/or corrosive fumes, including oxides of Carbon, oxides of Nitrogen, oxides of Sulphur.
Release of Invisible Flammable Vapours and Gases	No information available.

10. STABILITY AND REACTIVITY

General Information	No known hazardous reactions under normal conditions of use.
Chemical Stability	Stable under recommended storage and handling conditions.
Conditions to Avoid	Avoid dust formation. Keep away from heat and all sources of ignition. Take precautionary measures against static discharge.
Materials to Avoid	Incompatible/reactive with strong oxidising agents.
Hazardous Decomposition Products	Fire/thermal decomposition may produce irritating, toxic and/or corrosive fumes, including oxides of Carbon, oxides of Nitrogen, oxides of Sulphur.
Hazardous Polymerisation	No information available.

11. TOXICOLOGICAL INFORMATION

General Information	<ul style="list-style-type: none"> - Acute toxicity: Low toxicity based on results from animal tests following oral, dermal and inhalation exposure. - Skin corrosion/irritation: Slightly irritating to the skin. - Eye damage/irritation: Slightly irritating to the eyes. - Respiratory/skin sensitisation: May cause an allergic skin reaction. Positive response in skin sensitisation tests (GPMT). - Germ cell mutagenicity: Not considered to be genotoxic. - Carcinogenicity: Insufficient data to classify. 2-Mercaptobenzothiazole (CAS No. 149-30-4) is listed in Group 2A of the IARC Monographs: Probably carcinogenic to humans (Year of publication in print: 2018). - Reproductive toxicity: Does not show specific reproductive or developmental toxicity.
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- STOT (single exposure): Insufficient data to classify.
- STOT (repeated exposure): Insufficient data to classify.
- Aspiration toxicity: Insufficient data to classify.

Acute

Ingestion	Acute toxicity (Oral): - LD50, Rat: 3,800 mg/kg
Other	Acute toxicity (Dermal): - LD50, Rabbit: 7,940 mg/kg bw.
Inhalation	Acute toxicity (Inhalation): - LC50, Rat: >1,270 mg/L (4 h).
Carcinogen Category	None

12. ECOLOGICAL INFORMATION

Ecotoxicity	Aquatic toxicity: - LC50, Fish (<i>Salmo gairdneri</i>): 0.73 mg/L (96 h). - EC50, Crustacea (<i>Daphnia magna</i>): 0.71 mg/L (48 h). - EC50, Algae (<i>Selenastrum capricornutum</i>): 0.5 mg/L (72 h).
Persistence/Degradability	MBT is not readily biodegradable (2.5 %, 14 days) and also not inherently biodegradable (2 %, 35 days). MBT and its main metabolites are expected to be non-biodegradable and hence persistent in surface water, sediment and soil.
Mobility	MBT has moderate adsorption potential in soil/sediment. - log Koc: 2.51 - 3.55
Environmental Fate	Very toxic to aquatic life with long lasting effects - Avoid release to the environment; Prevent entry into drains and waterways.
Bioaccumulation Potential	MBT and its main metabolites are not bioaccumulative (aquatic compartment). - BCF (<i>Cyprinus carpio</i> , flow-through): <0.8 (0.1 mg/L) - <8 (0.01 mg/L).
Environmental Impact	No Data Available

13. DISPOSAL CONSIDERATIONS

General Information	Dispose of contents/container via a professional organisation for waste disposal and in accordance with local/regional/national regulations.
Special Precautions for Land Fill	If empty container retains product residues, all label precautions must be observed.

14. TRANSPORT INFORMATION

Land Transport (Australia)

ADG Code

Proper Shipping Name	2-Mercaptobenzothiazole
Class	No Data Available
Subsidiary Risk(s)	No Data Available
EPG	47 Low To Moderate Hazard Substances
UN Number	No Data Available
Hazchem	No Data Available
Pack Group	No Data Available
Special Provision	AU01
Comments	UN#3077: Not regulated as DG when transported by road or rail in packagings that do not incorporate a receptacle exceeding 500 kg(L) or IBCs.

Land Transport (Malaysia)

ADR Code

Proper Shipping Name	ENVIRONMENTALLY HAZARDOUS SUBSTANCE, SOLID, N.O.S. (2-Mercaptobenzothiazole)
Class	9 Miscellaneous Dangerous Goods and Articles
Subsidiary Risk(s)	No Data Available
EPG	47 Low To Moderate Hazard Substances
UN Number	3077
Hazchem	2Z
Pack Group	III
Special Provision	No Data Available

Land Transport (New Zealand)

NZS5433

Proper Shipping Name	ENVIRONMENTALLY HAZARDOUS SUBSTANCE, SOLID, N.O.S. (2-Mercaptobenzothiazole)
Class	9 Miscellaneous Dangerous Goods and Articles
Subsidiary Risk(s)	No Data Available
EPG	47 Low To Moderate Hazard Substances
UN Number	3077
Hazchem	2Z
Pack Group	III
Special Provision	No Data Available

Land Transport (United States of America)

US DOT

Proper Shipping Name	ENVIRONMENTALLY HAZARDOUS SUBSTANCE, SOLID, N.O.S. (2-Mercaptobenzothiazole)
Class	9 Miscellaneous Dangerous Goods and Articles
Subsidiary Risk(s)	No Data Available
ERG	171 Substances (Low to Moderate Hazard)
UN Number	3077
Hazchem	2Z
Pack Group	III
Special Provision	No Data Available

Sea Transport

IMDG Code

Proper Shipping Name	ENVIRONMENTALLY HAZARDOUS SUBSTANCE, SOLID, N.O.S. (2-Mercaptobenzothiazole)
Class	9 Miscellaneous Dangerous Goods and Articles
Subsidiary Risk(s)	No Data Available
UN Number	3077
Hazchem	2Z
Pack Group	III
Special Provision	No Data Available
EMS	F-A, S-F
Marine Pollutant	Yes

Air Transport

IATA DGR

Proper Shipping Name	ENVIRONMENTALLY HAZARDOUS SUBSTANCE, SOLID, N.O.S. (2-Mercaptobenzothiazole)
Class	9 Miscellaneous Dangerous Goods and Articles

Subsidiary Risk(s)	No Data Available
UN Number	3077
Hazchem	2Z
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	NOT 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	HSR005346
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National/Regional Inventories

Australia (AICS)	Listed
Canada (DSL)	Not Determined
Canada (NDSL)	Not Determined
China (IECSC)	Not Determined
Europe (EINECS)	205-736-8
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	MBTAAA1000, MBTAAA1001, MBTAAA1002, MBTAAA1003, MBTAAA1004, MBTAAA1100, MBTAAA1500, MBTAAA1700, MBTAAA2000, MBTAAA2001, MBTAAA2200, MBTAAA2500, MBTAAA3000, MBTAAA3001, MBTAAA3002, MBTAAA3003, MBTAAA3004, MBTAAA3005, MBTAAA3006, MBTAAA3007, MBTAAA3500, MBTAAA3600, MBTAAA4000, MBTAAA4200, MBTAAA4500, MBTAAA4600, MBTAAA5000, MBTAAA6000, MBTAAA7000, MBTAAA8000
Revision	4
Revision Date	01 Aug 2018
Key/Legend	< 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 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

