

Australian statement of hazardous nature : Classified as hazardous according to criteria of Safe Work Australia

## Section 1 - Identification

**Product Name** M-Bond Curing Agent - Type 10

<b>Product Code</b>	<b>VMMMMF006848/VMMMMF015578</b>
<b>Address</b>	ThermoFisher Scientific Australia Pty Ltd 5 Caribbean Drive, Scoresby VICTORIA 3179, Australia
<b>Emergency Tel.</b>	<b>CHEMTREC®</b> <b>03 9757 4559 or +613 9757 4559</b>
<b>Telephone / Fax Numbers</b>	Tel: 1300 735 292 Fax: 1800 067 639
<b>E-mail address</b>	ANZinfo@thermofisher.com

**Recommended Use** Laboratory chemicals.

**Uses advised against** This product does not contain any substance(s) on the Illicit Drug Precursors/Reagents list. This product does not contain any substance(s) subject to Prohibition, Authorization or Restriction. This product does not contain any substance(s) listed on the voluntary National Code of Practice for Chemicals of Security Concern.

## Section 2 - Hazard(s) Identification

### Classification under Safe Work Australia

Classified as hazardous according to criteria of Safe Work Australia

#### Physical hazards

No hazards identified

#### Health hazards

Acute Oral Toxicity	Category 4
Acute Dermal Toxicity	Category 4
Acute Inhalation Toxicity - Vapors	Category 4
Skin Corrosion/Irritation	Category 1 B
Serious Eye Damage/Eye Irritation	Category 1
Skin Sensitization	Category 1
Reproductive Toxicity	Category 1B

#### Environmental hazards

Chronic aquatic toxicity	Category 3
--------------------------	------------

#### Label Elements



Exclamation Mark



Health Hazard



Corrosion

**Signal Word****Danger****Hazard Statements**

H302 + H312 + H332 - Harmful if swallowed, in contact with skin or if inhaled

H314 - Causes severe skin burns and eye damage

H317 - May cause an allergic skin reaction

H360 - May damage fertility or the unborn child

H412 - Harmful to aquatic life with long lasting effects

**Precautionary Statements**

P201 - Obtain special instructions before use

P202 - Do not handle until all safety precautions have been read and understood

P264 - Wash face, hands and any exposed skin thoroughly after handling

P270 - Do not eat, drink or smoke when using this product

P271 - Use only outdoors or in a well-ventilated area

P272 - Contaminated work clothing should not be allowed out of the workplace

P280 - Wear protective gloves/protective clothing/eye protection/face protection

P273 - Avoid release to the environment

P303 + P361 + P353 - IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water or shower

P304 + P340 - IF INHALED: Remove person to fresh air and keep comfortable for breathing

P305 + P351 + P338 - IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing

P310 - Immediately call a POISON CENTER or doctor

P330 - Rinse mouth

P331 - Do NOT induce vomiting

P363 - Wash contaminated clothing before reuse

P403 + P233 - Store in a well-ventilated place. Keep container tightly closed

P501 - Dispose of contents/ container to an approved waste disposal plant

**Other information**

Toxic to terrestrial vertebrates

This product does not contain any known or suspected endocrine disruptors

## Section 3 - Composition and Information on Ingredients

Component	CAS No	Weight %
Triethylene tetramine	112-24-3	<98
Aminoethylethanolamine	111-41-1	<1.6
1-(2-Aminoethyl) piperazine	140-31-8	<1.3
Tetraethylenepentamine	112-57-2	<1.1
Diethylene triamine	111-40-0	<0.6

## Section 4 - First Aid Measures

**Inhalation**

If not breathing, give artificial respiration. Remove from exposure, lie down. Do not use mouth-to-mouth method if victim ingested or inhaled the substance; give artificial respiration

	with the aid of a pocket mask equipped with a one-way valve or other proper respiratory medical device. Call a physician immediately.
<b>Ingestion</b>	Do NOT induce vomiting. Clean mouth with water. Never give anything by mouth to an unconscious person. Call a physician immediately.
<b>Skin Contact</b>	Wash off immediately with plenty of water for at least 15 minutes. Remove and wash contaminated clothing and gloves, including the inside, before re-use. Call a physician immediately.
<b>Eye Contact</b>	Rinse immediately with plenty of water, also under the eyelids, for at least 15 minutes. Immediate medical attention is required.
<b>General Advice</b>	Show this safety data sheet to the doctor in attendance. Immediate medical attention is required.
<b>Self-Protection of the First Aider</b>	Ensure that medical personnel are aware of the material(s) involved, take precautions to protect themselves and prevent spread of contamination.
<b>First Aid Facilities</b>	Eyewash, safety shower and washroom.
<b>Most important symptoms and effects</b>	Causes burns by all exposure routes. May cause allergic skin reaction. Product is a corrosive material. Use of gastric lavage or emesis is contraindicated. Possible perforation of stomach or esophagus should be investigated: Ingestion causes severe swelling, severe damage to the delicate tissue and danger of perforation: Symptoms of allergic reaction may include rash, itching, swelling, trouble breathing, tingling of the hands and feet, dizziness, lightheadedness, chest pain, muscle pain or flushing
<b>Notes to Physician</b>	Treat symptomatically.

## Section 5 - Fire Fighting Measures

### Suitable Extinguishing Media

CO<sub>2</sub>, dry chemical, dry sand, alcohol-resistant foam.

### Extinguishing media which must not be used for safety reasons

No information available.

### Specific Hazards Arising from the Chemical

Thermal decomposition can lead to release of irritating gases and vapors. The product causes burns of eyes, skin and mucous membranes.

### Special protective equipment and precautions for fire fighters

As in any fire, wear self-contained breathing apparatus pressure-demand, MSHA/NIOSH (approved or equivalent) and full protective gear. Thermal decomposition can lead to release of irritating gases and vapors.

## Section 6 - Accidental Release Measures

### Emergency procedures

Use personal protective equipment as required. Ensure adequate ventilation. Evacuate personnel to safe areas. Keep people away from and upwind of spill/leak.

### Environmental Precautions

Do not flush into surface water or sanitary sewer system.

### Methods for Containment and Clean Up

#### Clean-up methods - small spillage

Soak up with inert absorbent material. Keep in suitable, closed containers for disposal.

**Clean-up methods - large spillage**

Typically only supplied in small quantities as packaged goods.

If extremely toxic or used in larger quantities ensure a spillage action plan is in place. Evacuate area. Control the source and/or contain the spill if safe and able to do so. Use temporary diking, sand bags, dry sand, earth or proprietary booms/absorbent pads if available. Obtain advice on containment, neutralisation and clean-up from local emergency responders.

**Reference to Other Sections**

Refer to protective measures listed in Sections 8 and 13.

## Section 7 - Handling and Storage

**Precautions for Safe Handling**

Wear personal protective equipment/face protection. Do not get in eyes, on skin, or on clothing. Use only under a chemical fume hood. Do not breathe mist/vapors/spray. Do not ingest. If swallowed then seek immediate medical assistance.

**Conditions for Safe Storage, Including any Incompatibilities**

Keep containers tightly closed in a dry, cool and well-ventilated place. Corrosives area.

AS/NZS 2243.10:2004, Safety in laboratories - Storage of chemicals

## Section 8 - Exposure Controls and Personal Protection

**Exposure limits**

**AUS** - Exposure Standards for Atmospheric Contaminants in the Occupational Environment - Guidance Note on the Interpretation of Exposure Standards for Atmospheric Contaminants in the Occupational Environment [NOHSC:3008(1995)]

Adopted National Exposure Standards for Atmospheric Contaminants in the Occupational Environment [NOHSC:1003(1995)] updated in August, 2005. Safe Work Australia

**ACGIH** - Threshold Limit Values - Ceiling (TLV-C) guidelines by the American Conference of Governmental Industrial Hygienists (ACGIH) for controlling worker exposure to airborne chemical concentrations in the workplace.

**UK** - EH40/2005 Work Exposure Limits, Fourth edition. Published 2020.

**NZ** - Workplace Exposure Standards and Biological Exposure Indices (6th edition). New Zealand Department of Labor

Component	Australia	New Zealand WEL	ACGIH TLV	The United Kingdom	Germany
Aminoethylethanolamine	TWA: 0.1 mg/m <sup>3</sup>			STEL: 0.15 mg/m <sup>3</sup> 15 min TWA: 0.05 mg/m <sup>3</sup> 8 hr Resp. Sens.	
Diethylene triamine	TWA: 1 ppm TWA: 4.2 mg/m <sup>3</sup>	TWA: 1 ppm TWA: 4.2 mg/m <sup>3</sup> Skin	TWA: 1 ppm Skin	STEL: 3 ppm 15 min STEL: 12.9 mg/m <sup>3</sup> 15 min TWA: 1 ppm 8 hr TWA: 4.3 mg/m <sup>3</sup> 8 hr Skin	

**Biological limit values**

This product, as supplied, does not contain any hazardous materials with biological limits established by the region specific regulatory bodies

**Exposure Controls****Engineering Measures**

Ensure that eyewash stations and safety showers are close to the workstation location.

Wherever possible, engineering control measures such as the isolation or enclosure of the process, the introduction of process or equipment changes to minimise release or contact, and the use of properly designed ventilation systems, should be adopted to control hazardous materials at source

**Personal protective equipment****Eye Protection**

Goggles (Australian/New Zealand Standard AS/NZS 1337 - Eye protectors for Industrial applications)

**Hand Protection**

Protective gloves

Glove material	Breakthrough time	Glove thickness	AUS/NZ Standard	Glove comments
Disposable gloves	See manufacturers recommendations	-	AS/NZS 2161	(minimum requirement)

Inspect gloves before use.

Please observe the instructions regarding permeability and breakthrough time which are provided by the supplier of the gloves.

(Refer to manufacturer/supplier for information)

Ensure gloves are suitable for the task: Chemical compatibility, Dexterity, Operational conditions, User susceptibility, e.g. sensitisation effects, also take into consideration the specific local conditions under which the product is used, such as the danger of cuts, abrasion.

Remove gloves with care avoiding skin contamination.

**Skin and body protection**

Long sleeved clothing

**Respiratory Protection**

Use an AS/NZS 1716 approved respirator if exposure limits are exceeded or if irritation or other symptoms are experienced. To protect the wearer, respiratory protective equipment must be the correct fit and be used and maintained in line with AS/NZS 1715 on the use and maintenance of respiratory protective devices (or AUS/NZ equivalent)  
When RPE is used a face piece Fit Test should be conducted

**Hygiene Measures**

Handle in accordance with good industrial hygiene and safety practice.

**Environmental exposure controls**

Prevent product from entering drains. Do not allow material to contaminate ground water system.

## Section 9 - Physical and Chemical Properties

### Information on basic physical and chemical properties

<b>Appearance</b>	Yellow	
<b>Physical State</b>	Liquid	
<b>Odor</b>	No information available	
<b>Odor Threshold</b>	No data available	
<b>pH</b>	Not applicable	
<b>Melting Point/Range</b>	No data available	
<b>Softening Point</b>	No data available	
<b>Boiling Point/Range</b>	227 °C / 440.6 °F	
<b>Flash Point</b>	148 °C / 298.4 °F	<b>Method -</b> No information available
<b>Evaporation Rate</b>	No data available	
<b>Flammability (solid,gas)</b>	Not applicable	Liquid
<b>Explosion Limits</b>	No data available	
<b>Vapor Pressure</b>	No data available	
<b>Vapor Density</b>	No data available	(Air = 1.0)
<b>Specific Gravity / Density</b>	No data available	
<b>Bulk Density</b>	Not applicable	Liquid
<b>Water Solubility</b>	Completely soluble	
<b>Solubility in other solvents</b>	No information available	
<b>Partition Coefficient (n-octanol/water)</b>		
<b>Component</b>	<b>log Pow</b>	
Triethylene tetramine	-1.4	
Aminoethylethanolamine	-1.46	
1-(2-Aminoethyl) piperazine	-1.48	
Tetraethylenepentamine	1	
Diethylene triamine	-1.3	
<b>Autoignition Temperature</b>	No data available	
<b>Decomposition Temperature</b>	No data available	
<b>Viscosity</b>	No data available	
<b>Explosive Properties</b>	No information available	
<b>Oxidizing Properties</b>	No information available	

Other information**Section 10 - Stability and Reactivity**

<b>Reactivity</b>	None known, based on information available
<b>Stability</b>	Stable under normal conditions.
<b>Conditions to Avoid</b>	Incompatible products, Excess heat.
<b>Incompatible Materials</b>	None known.
<b>Hazardous Decomposition Products</b>	None under normal use conditions.
<b>Hazardous Polymerization</b>	Hazardous polymerization does not occur.

**Section 11 - Toxicological Information****Information on Toxicological Effects****Product Information****(a) acute toxicity;**

<b>Oral</b>	Category 4
<b>Dermal</b>	Category 4
<b>Inhalation</b>	Category 4

Component	LD50 Oral	LD50 Dermal	LC50 Inhalation
Triethylene tetramine	LD50 = 1861.9 mg/kg (rat) OECD 401	550 mg/kg ( Rabbit )	
Aminoethylethanolamine	LD50 = 2000 mg/kg ( Rat )	LD50 > 2000 mg/kg ( Rat )	
1-(2-Aminoethyl) piperazine	LD50 = 2140 µL/kg ( Rat )	LD50 = 866 mg/kg ( Rabbit )	
Tetraethylenepentamine	LD50 = 3990 mg/kg ( Rat )	LD50 = 660 µL/kg ( Rabbit )	
Diethylene triamine	LD50 = 1080 mg/kg ( Rat )	LD50 = 672 mg/kg ( Rabbit )	0.3 mg/L/4h (Rat)

**(b) skin corrosion/irritation;** Category 1 B

**(c) serious eye damage/irritation;** Category 1

**(d) respiratory or skin sensitization;**

**Respiratory** Based on available data, the classification criteria are not met  
**Skin** Category 1

**Sensitization** No information available

**(e) germ cell mutagenicity;** Based on available data, the classification criteria are not met

**(f) carcinogenicity;** Based on available data, the classification criteria are not met  
 There are no known carcinogenic chemicals in this product

**(g) reproductive toxicity;** Category 1B

(h) STOT-single exposure; Based on available data, the classification criteria are not met

(i) STOT-repeated exposure; Based on available data, the classification criteria are not met

Target Organs None known.

(j) aspiration hazard; Based on available data, the classification criteria are not met

**Symptoms / effects, both acute and delayed** Product is a corrosive material. Use of gastric lavage or emesis is contraindicated. Possible perforation of stomach or esophagus should be investigated: Ingestion causes severe swelling, severe damage to the delicate tissue and danger of perforation: Symptoms of allergic reaction may include rash, itching, swelling, trouble breathing, tingling of the hands and feet, dizziness, lightheadedness, chest pain, muscle pain or flushing

## Section 12 - Ecological Information

### Ecotoxicity effects

Contains a substance which is: The product contains following substances which are hazardous for the environment. Toxic to aquatic organisms.

Component	Freshwater Fish	Water Flea	Freshwater Algae	Microtox
Triethylene tetramine	LC50: = 495 mg/L, 96h (Pimephales promelas) LC50: = 570 mg/L, 96h semi-static (Poecilia reticulata)	EC50: 31.1 mg/L/48h (Daphnia magna)	EC50: 2.5 mg/L/72h EC50: 20 mg/L/72h EC50: 2.5 mg/L/72h	
Aminoethylethanolamine	LC50: = 728 mg/L, 96h (Pimephales promelas)	EC50: = 22 mg/L, 48h (Daphnia magna)	EC50: = 210 mg/L, 72h (Desmodesmus subspicatus)	EC50 = 135 mg/L 17 h
1-(2-Aminoethyl) piperazine	LC50: > 1000 mg/L, 96h semi-static (Poecilia reticulata) LC50: >= 100 mg/L, 96h semi-static (Oncorhynchus mykiss) LC50: 1950 - 2460 mg/L, 96h flow-through (Pimephales promelas)	EC50: = 32 mg/L, 48h (Daphnia magna)	EC50: = 495 mg/L, 72h (Pseudokirchneriella subcapitata)	EC50 > 10000 mg/L 17 h
Tetraethylenepentamine	LC50: = 420 mg/L, 96h static (Poecilia reticulata)	EC50: = 24.1 mg/L, 48h (Daphnia magna)	EC50: = 2.1 mg/L, 72h (Pseudokirchneriella subcapitata)	
Diethylene triamine	LC50: 248 mg/L/96h (Leuciscus idus)	EC50: = 16 mg/L, 48h (Daphnia magna)	EC50: = 592 mg/L, 96h (Desmodesmus subspicatus) EC50: = 345.6 mg/L, 96h (Pseudokirchneriella subcapitata) EC50: = 1164 mg/L, 72h (Pseudokirchneriella subcapitata)	EC50 = 2000 mg/L 1 h EC50 = 96 mg/L 17 h

### Persistence and Degradability

#### Persistence

Persistence is unlikely.

#### Degradation in sewage treatment plant

Contains substances known to be hazardous to the environment or not degradable in waste water treatment plants.

#### Bioaccumulative Potential

Bioaccumulation is unlikely

Component	log Pow	Bioconcentration factor (BCF)
Triethylene tetramine	-1.4	No data available
Aminoethylethanolamine	-1.46	2.1 - <3.7 dimensionless

1-(2-Aminoethyl) piperazine	-1.48	No data available
Tetraethylenepentamine	1	No data available
Diethylene triamine	-1.3	>2.8 - <=6.3 dimensionless

**Mobility** The product is water soluble, and may spread in water systems. Will likely be mobile in the environment due to its water solubility Highly mobile in soils

**Endocrine Disruptor Information**

Component	EU - Endocrine Disruptors Candidate List	EU - Endocrine Disruptors - Evaluated Substances	Japan - Endocrine Disruptor Information
Triethylene tetramine	Group III Chemical		

**Persistent Organic Pollutant** This product does not contain any known or suspected substance

**Ozone Depletion Potential** This product does not contain any known or suspected substance

## Section 13 - Disposal Considerations

**Waste from Residues/Unused Products** Do not allow into drains or watercourses or dispose of where ground or surface waters may be affected. Wastes, including emptied containers, are controlled wastes and should be disposed of in accordance with all federal, E.P.A., state and local regulations. Assure conformity with all applicable regulations.

**Contaminated Packaging** Dispose of this container to hazardous or special waste collection point.

**Other Information** Chemical wastes should be disposed through a licensed commercial waste collection service. Do not flush to sewer. Waste codes should be assigned by the user based on the application for which the product was used. Do not empty into drains. Large amounts will affect pH and harm aquatic organisms. Do not let this chemical enter the environment.

## Section 14 - Transport Information

**IMDG/IMO**

UN-No UN2259  
 Proper Shipping Name TRIETHYLENETETRAMINE  
 Technical Shipping Name M BOND AE-10 (Corrosive)  
 Hazard Class 8  
 Packing Group II

**ADG**

UN-No UN2259  
 Proper Shipping Name TRIETHYLENETETRAMINE  
 Technical Shipping Name M BOND AE-10 (Corrosive)  
 Hazard Class 8  
 Packing Group II

Component	Hazchem Code
Triethylene tetramine 112-24-3 ( <98 )	2X
1-(2-Aminoethyl) piperazine 140-31-8 ( <1.3 )	2X
Tetraethylenepentamine 112-57-2 ( <1.1 )	2X
Diethylene triamine 111-40-0 ( <0.6 )	2X

**IATA**

UN-No UN2259  
 Proper Shipping Name TRIETHYLENETETRAMINE  
 Technical Shipping Name M BOND AE-10 (Corrosive)  
 Hazard Class 8



<b>Packing Group</b>	II
<b>Environmental hazards</b>	No hazards identified
<b>Special Precautions</b>	No special precautions required
<b>Additional information</b>	None known

## Section 15 - Regulatory Information

### Safety, health and environmental regulations/legislation specific for the substance or mixture

#### National Regulations      **Australia**

See section 8 for national exposure control parameters.

#### **Standard for the Uniform Scheduling of Medicines and Poisons**

Classified as a scheduled poison according to the Standard for Uniform Scheduling of Medicines and Poisons.

Component	Standard for the Uniform Scheduling of Medicines and Poisons
Triethylene tetramine - 112-24-3	Schedule 4 listed - present

#### **Australian Industrial Chemicals Introduction Scheme (AICIS)**

Component	Australian Industrial Chemicals Introduction Scheme (AICIS)	Additional information
Triethylene tetramine - 112-24-3	Present	-
Aminoethylethanolamine - 111-41-1	Present	-
1-(2-Aminoethyl) piperazine - 140-31-8	Present	-
Tetraethylenepentamine - 112-57-2	Present	-
Diethylene triamine - 111-40-0	Present	-

#### **Australian - Illicit Drug Precursors/Reagents Substance List**

This product does not contain any substance(s) on the Illicit Drug Precursors/Reagents list.

#### **Chemicals of Security Concern**

This product does not contain any substance(s) listed on the voluntary National Code of Practice for Chemicals of Security Concern

#### **National pollutant inventory**      Not applicable

#### **Prohibition or notification/licensing requirements**

Shown below are details of specific prohibition/notifications or licensing requirements when they apply.

This product does not contain any substance(s) subject to Prohibition, Authorization or Restriction.

#### **International Inventories**

Component	AICS	NZIoC	EINECS	ELINCS	TSCA	DSL	NDSL	PICCS	ENCs	ISHL	IECSC	KECL
Triethylene tetramine	X	X	203-950-6	-	X	X	-	X	X	X	X	KE-02911
Aminoethylethanolamine	X	X	203-867-5	-	X	X	-	X	X	X	X	KE-01366
1-(2-Aminoethyl)	X	X	205-411-0	-	X	X	-	X	X	X	X	KE-28762

piperazine												
Tetraethylenepentamine	X	X	203-986-2	-	X	X	-	X	X	X	X	KE-01347
Diethylene triamine	X	X	203-865-4	-	X	X	-	X	X	X	X	KE-01357

**Legend:** X - Listed. '-' - Not Listed. **KECL** - NIER number or KE number (<http://ncis.nier.go.kr/en/main.do>)

### International Regulations

**Ozone Depletion Potential** This product does not contain any known or suspected substance

**Persistent Organic Pollutant** This product does not contain any known or suspected substance

**Rotterdam Convention (PIC)** Not applicable

**Basel convention on the control of transboundary movements of hazardous wastes and their disposal**  
Not applicable.

Component	CAS No	OECD HPV	Restriction of Hazardous Substances (RoHS)	Seveso III Directive (2012/18/EC) - Qualifying Quantities for Major Accident Notification	Seveso III Directive (2012/18/EC) - Qualifying Quantities for Safety Report Requirements
Triethylene tetramine	112-24-3	Listed	Not applicable	Not applicable	Not applicable
Aminoethylethanolamine	111-41-1	Listed	Not applicable	Not applicable	Not applicable
1-(2-Aminoethyl) piperazine	140-31-8	Listed	Not applicable	Not applicable	Not applicable
Tetraethylenepentamine	112-57-2	Listed	Not applicable	Not applicable	Not applicable
Diethylene triamine	111-40-0	Listed	Not applicable	Not applicable	Not applicable

### Authorisation/Restrictions according to EU REACH

Component	REACH (1907/2006) - Annex XIV - Substances Subject to Authorization	REACH (1907/2006) - Annex XVII - Restrictions on Certain Dangerous Substances	REACH Regulation (EC 1907/2006) article 59 - Candidate List of Substances of Very High Concern (SVHC)
Triethylene tetramine	-	Use restricted. See item 75. (see link for restriction details)	-
Aminoethylethanolamine	-	Use restricted. See item 30. (see link for restriction details) Use restricted. See item 75. (see link for restriction details)	-
1-(2-Aminoethyl) piperazine	-	Use restricted. See item 75. (see link for restriction details)	-
Tetraethylenepentamine	-	Use restricted. See item 75. (see link for restriction details)	-
Diethylene triamine	-	Use restricted. See item 75. (see link for restriction details)	-

<https://echa.europa.eu/substances-restricted-under-reach>

## Section 16 - Other Information

### Legend

**AICS** - Australian Inventory of Chemical Substances  
**TSCA** - United States Toxic Substances Control Act Section 8(b)

**NZIoC** - New Zealand Inventory of Chemicals

## Inventory

**DSL/NDL** - Canadian Domestic Substances List/Non-Domestic Substances List

**IECSC** - Chinese Inventory of Existing Chemical Substances

**PICCS** - Philippines Inventory of Chemicals and Chemical Substances

**TWA** - Time Weighted Average

**IARC** - International Agency for Research on Cancer

**ICAO/IATA** - International Civil Aviation Organization/International Air Transport Association

**MARPOL** - International Convention for the Prevention of Pollution from Ships

**NZS 5433:2020** - Transport of Dangerous Goods on Land

**LD50** - Lethal Dose 50%

**EC50** - Effective Concentration 50%

**WEL** - Workplace Exposure Limit

**DNEL** - Derived No Effect Level

**POW** - Partition coefficient Octanol:Water

**vPvB** - very Persistent, very Bioaccumulative

**VOC** - (Volatile Organic Compound)

**EINECS/ELINCS** - European Inventory of Existing Commercial Chemical Substances/EU List of Notified Chemical Substances

**ENCS** - Japanese Existing and New Chemical Substances

**KECL** - Korean Existing and Evaluated Chemical Substances

**CAS** - Chemical Abstracts Service

**ACGIH** - American Conference of Governmental Industrial Hygienists  
Predicted No Effect Concentration (PNEC)

**IMO/IMDG** - International Maritime Organization/International Maritime Dangerous Goods Code

**ADG** - Australian Code for the Transport of Dangerous Goods by Road and Rail

**OECD** - Organisation for Economic Co-operation and Development

**LC50** - Lethal Concentration 50%

**ATE** - Acute Toxicity Estimate

**RPE** - Respiratory Protective Equipment

**NOEC** - No Observed Effect Concentration

**BCF** - Bioconcentration factor

**PBT** - Persistent, Bioaccumulative, Toxic

**Key literature references and sources for data**

<https://echa.europa.eu/information-on-chemicals>

Suppliers safety data sheet, Chemadvisor - LOLI, Merck index, RTECS

**Training Advice**

Chemical hazard awareness training, incorporating labelling, Safety Data Sheets (SDS), Personal Protective Equipment (PPE) and hygiene.

**Revision Date**

29-Aug-2023

**Revision Summary**

SDS sections updated.

**This Safety Data Sheet (SDS) is prepared in accordance to and complies with the requirements of Safe Work Australia - Work Health and Safety Regulations (WHS Regulations).**

**Disclaimer**

The information provided in this Safety Data Sheet is correct to the best of our knowledge, information and belief at the date of its publication. The information given is designed only as a guidance for safe handling, use, processing, storage, transportation, disposal and release and is not to be considered a warranty or quality specification. The information relates only to the specific material designated and may not be valid for such material used in combination with any other materials or in any process, unless specified in the text

**End of Safety Data Sheet**