

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

# **Section 1 - Identification**

Product Name Tetrahydrofuran

**CAS No** 109-99-9

Synonyms THF

Product Code T/0700/08, T/0700/17, T/0700/21, T/0700/25, T/0700/27, T/0700/25SS, T/0700/27SS,

T/0700/PB17, T/0700/PC21, T/0700/21RSS, T/0700/24RSS, T/0700/25RSS,

T/0700/34RSS, T/0700/27RSS, T/0700/21S, T/0700/25A;

Address ThermoFisher Scientific Australia Pty Ltd

5 Caribbean Drive, Scoresby VICTORIA 3179, Australia

Emergency Tel. CHEMTREC®

03 9757 4559 or +613 9757 4559

Telephone / Fax Numbers Tel: 1300 735 292

Fax: 1800 067 639

E-mail address ANZinfo@thermofisher.com

Recommended Use Laboratory chemicals.

Uses advised against

This product contains one or more substance(s) on the Illicit Drug Precursors/Reagents list.

Verify requirements related to using, handling and storing these substances. 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

Flammable liquids Category 2

**Health hazards** 

Acute Oral Toxicity

Serious Eye Damage/Eye Irritation

Category 2

Carcinogenicity

Category 2

Specific target organ toxicity - (single exposure)

Category 3

Environmental hazards
No hazards identified

Label Elements

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Flame

**Exclamation Mark** 

Signal Word

#### Danger

#### **Hazard Statements**

H225 - Highly flammable liquid and vapor

H302 - Harmful if swallowed

H319 - Causes serious eye irritation

H335 - May cause respiratory irritation

H336 - May cause drowsiness or dizziness

H351 - Suspected of causing cancer

AUH019 - May form explosive peroxides

## **Precautionary Statements**

P201 - Obtain special instructions before use

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

P210 - Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking

P233 - Keep container tightly closed

P240 - Ground and bond container and receiving equipment

P241 - Use explosion-proof electrical/ ventilating/ lighting equipment

P242 - Use non-sparking tools

P243 - Take action to prevent static discharges

P260 - Do not breathe dust/fume/gas/mist/vapors/spray

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

P280 - Wear eye protection/ face protection

P301 + P312 - IF SWALLOWED: Call a POISON CENTER or doctor if you feel unwell

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

P308 + P313 - IF exposed or concerned: Get medical advice/attention

P330 - Rinse mouth

P370 + P378 - In case of fire: Use dry sand, dry chemical or alcohol-resistant foam to extinguish

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

# Section 3 - Composition and Information on Ingredients

Component	CAS No	Weight %
Tetrahydrofuran	109-99-9	>95
2,6-Di-tert-butyl-p-cresol	128-37-0	0.025

# Section 4 - First Aid Measures

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**Inhalation** Remove to fresh air. If breathing is difficult, give oxygen. Get medical attention.

**Ingestion** Do NOT induce vomiting. Call a physician or poison control center immediately.

Skin Contact Wash off immediately with plenty of water for at least 15 minutes. Get medical attention

immediately if symptoms occur.

Eye Contact Rinse immediately with plenty of water, also under the eyelids, for at least 15 minutes. Get

medical attention.

General Advice If symptoms persist, call a physician.

Self-Protection of the First Aider Ensure that medical personnel are aware of the material(s) involved, take precautions to

protect themselves and prevent spread of contamination.

First Aid Facilities Eyewash, safety shower and washroom.

Most important symptoms and

effects

Difficulty in breathing. Symptoms of overexposure may be headache, dizziness, tiredness,

nausea and vomiting: Causes central nervous system depression

Notes to Physician Treat symptomatically. Symptoms may be delayed.

# Section 5 - Fire Fighting Measures

## **Suitable Extinguishing Media**

Water spray, carbon dioxide (CO2), dry chemical, alcohol-resistant foam. Water mist may be used to cool closed containers.

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

Do not use a solid water stream as it may scatter and spread fire.

## **Hazardous Decomposition Products**

Carbon monoxide (CO), Carbon dioxide (CO2), peroxides.

## **Specific Hazards Arising from the Chemical**

Flammable. Containers may explode when heated. Vapors may form explosive mixtures with air. Vapors may travel to source of ignition and flash back. May form explosive peroxides. Thermal decomposition can lead to release of irritating gases and vapors. Keep product and empty container away from heat and sources of ignition.

## 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.

## Section 6 - Accidental Release Measures

## **Emergency procedures**

Use personal protective equipment as required. Ensure adequate ventilation. Remove all sources of ignition. Take precautionary measures against static discharges. Avoid contact with skin and eyes. Keep people away from and upwind of spill/leak.

## **Environmental Precautions**

Should not be released into the environment.

## Methods for Containment and Clean Up

## Clean-up methods - small spillage

Soak up with inert absorbent material. Keep in suitable, closed containers for disposal. Remove all sources of ignition. Use spark-proof tools and explosion-proof equipment.

#### Clean-up methods - large spillage

Typically only supplied is small quantiites as packaged goods.

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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. Ensure adequate ventilation. Avoid ingestion and inhalation. If peroxide formation is suspected, do not open or move container. Keep away from open flames, hot surfaces and sources of ignition. Use only non-sparking tools. To avoid ignition of vapors by static electricity discharge, all metal parts of the equipment must be grounded. Take precautionary measures against static discharges. Handle under an inert atmosphere.

## Conditions for Safe Storage, Including any Incompatibilities

Shelf life 12 months. May form explosive peroxides on prolonged storage. Containers should be dated when opened and tested periodically for the presence of peroxides. Should crystals form in a peroxidizable liquid, peroxidation may have occurred and the product should be considered extremely dangerous. In this instance, the container should only be opened remotely by professionals. Keep containers tightly closed in a dry, cool and well-ventilated place. Keep away from heat, sparks and flame. Flammables area. Store under an inert atmosphere.

AS/NZS 2243.10:2004, Safety in laboratories - Storage of chemicals AS 1940-2004 - The storage and handling of flammable and combustible liquids

# 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. DE - MAK and BAT values of Hazardous Chemical Compounds in the Work Area. Published by German Research Foundation on July 1, 2011

Component	Australia	New Zealand WEL	ACGIH TLV	The United Kingdom	Germany
Tetrahydrofuran	TWA: 100 ppm	TWA: 50 ppm	TWA: 50 ppm	STEL: 100 ppm 15 min	TWA: 50 ppm (8
	TWA: 295 mg/m <sup>3</sup>	TWA: 150 mg/m <sup>3</sup>	STEL: 100 ppm	STEL: 300 mg/m <sup>3</sup> 15	Stunden). AGW -
		STEL: 100 ppm	Skin	min	exposure factor 2
		STEL: 300 mg/m <sup>3</sup>		TWA: 50 ppm 8 hr	TWA: 150 mg/m <sup>3</sup> (8
		Skin		TWA: 150 mg/m <sup>3</sup> 8 hr	Stunden). AGW -
				Skin	exposure factor 2
					TWA: 50 ppm (8
					Stunden). MAK
					TWA: 150 mg/m <sup>3</sup> (8
					Stunden). MAK
					Höhepunkt: 100 ppm
					Höhepunkt: 300 mg/m <sup>3</sup>
					Haut
2,6-Di-tert-butyl-p-cre	TWA: 10 mg/m <sup>3</sup>	TWA: 10 mg/m <sup>3</sup>	TWA: 2 mg/m <sup>3</sup>	STEL: 30 mg/m <sup>3</sup> 15 min	TWA: 10 mg/m <sup>3</sup> (8
sol				TWA: 10 mg/m <sup>3</sup> 8 hr	Stunden). AGW -
					exposure factor 4
					TWA: 10 mg/m <sup>3</sup> (8
					Stunden). MAK can
					occur as vapor and
					aerosol at the same
					time
					Höhepunkt: 40 mg/m <sup>3</sup>

#### **Biological limit values**

NZ - Substances assigned Biological Exposure Indices in the New Zealand Workplace Exposure Standards and Biological

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Exposure Indices (6th edition). New Zealand Department of Labor

	Component	Australia	New Zealand	European Union	United Kingdom	Germany
	Tetrahydrofuran		2 mg/g creatinine (urine)			Tetrahydrofuran: 2 mg/L
			end of exposure or shift,			urine (end of shift)
			within 1 hour of end of			
L			exposure (THF)			

## Exposure Controls

**Engineering Measures** 

Use explosion-proof electrical/ventilating/lighting equipment. Ensure that eyewash stations and safety showers are close to the workstation location. Ensure adequate ventilation, especially in confined areas.

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
Butyl rubber	< 25 minutes	0.6 mm	AS/NZS 2161	Permeation rate 106 µg/cm2/min As tested
				under EN374-3 Determination of
				Resistance to Permeation by Chemicals
Neoprene gloves	< 15 minutes	0.45 mm		•

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 compatability, 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

**Repiratory 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 repiratory protective devices

Recommended Filter type: Organic gases and vapours filter Type A Brown conforming to EN14387 (or AUS/NZ

equivalent)

Recommended half mask:- Valve filtering: EN405 or Half mask: EN140 plus filter, EN 141 (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** No information available.

# Section 9 - Physical and Chemical Properties

Information on basic physical and chemical properties

Appearance Colorless
Physical State Liquid

Odor Petroleum distillates
Odor Threshold No data available

**pH** 7-8 20% aq. solution

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Melting Point/Range-108.4 °C / -163.1 °FSoftening PointNo data availableBoiling Point/Range66 °C / 150.8 °F

Flash Point -21 °C / -5.8 °F Method - No information available

Evaporation Rate > 1 (Ether = 1.0) (Butyl Acetate = 1.0)

Flammability (solid,gas) Not applicable Liquid Explosion Limits Lower 1.5 vol%

Vapor Pressure Upper 12 vol% 170 mbar @ 20 °C

Vapor Density 2.5 (Ether = 1.0) (Air = 1.0)

 Specific Gravity / Density
 0.880

 Bulk Density
 Not applicable

 Water Solubility
 Miscible

Solubility in other solvents No information available

Partition Coefficient (n-octanol/water)

Componentlog PowTetrahydrofuran0.452,6-Di-tert-butyl-p-cresol5.1

Autoignition Temperature 215 - °C / 419 - °F Decomposition Temperature No data available

Viscosity 0.456 mPas @ 20°C Dynamic

Explosive Properties Vapors may form explosive mixtures with air

Oxidizing Properties No information available

Other information

Molecular FormulaC4 H8 OMolecular Weight72.11

# Section 10 - Stability and Reactivity

**Reactivity** Yes. May form explosive peroxides

**Stability** May form explosive peroxides. Hygroscopic.

Conditions to Avoid Incompatible products, Excess heat, Keep away from open flames, hot surfaces and

sources of ignition, Exposure to moist air or water.

Incompatible Materials Strong oxidizing agents, Acids.

Hazardous Decomposition Products Carbon monoxide (CO). Carbon dioxide (CO2). peroxides.

**Hazardous Polymerization** Hazardous polymerization may occur.

## Section 11 - Toxicological Information

## Information on Toxicological Effects

## **Product Information**

(a) acute toxicity;

Oral Category 4

DermalBased on available data, the classification criteria are not metInhalationBased on available data, the classification criteria are not met

Component	LD50 Oral	LD50 Dermal	LC50 Inhalation
Tetrahydrofuran	1650 mg/kg ( Rat )	> 2000 mg/kg (Rabbit)	180 mg/L (Rat) 1 h
			53.9 mg/L (Rat) 4 h
2,6-Di-tert-butyl-p-cresol	> 6 g/kg ( Rat )	> 2 g/kg ( Rat )	

(b) skin corrosion/irritation; Based on available data, the classification criteria are not met

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(c) serious eye damage/irritation; Category 2

(d) respiratory or skin sensitization;

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

Component	Test method	Test species	Study result
Tetrahydrofuran	Local Lymph Node Assay OECD	mouse	non-sensitising
109-99-9 ( >95 )	Test Guideline 429		_

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

Component	Test method	Test species	Study result
Tetrahydrofuran	OECD Test Guideline 476	in vivo	negative
109-99-9 ( >95 )	Gene cell mutation	Mammalian	_
	OECD Test Guideline 473		
	Chromosomal aberration assay	in vitro	negative
		Mammalian	_

Category 2 (f) carcinogenicity;

Limited evidence of a carcinogenic effect

Component	Australia	New Zealand	New South Wales	Western Australia	IARC	EU	UK	Germany
Tetrahydrofuran		Suspected carcinogen			Group 2B			
(g) reproductive toxicity;		Based on ava	ailable data, t	he classificat	ion criteria ar	e not met		•
Component		Test	method	Test	species / Dura	ation	Study	result
Tetrahydrofurar	1	OECD Tes	t Guideline 416	6 F	Rat 2 Generatio	n	NOAEL =	3,000 ppm
109-99-9 ( >95	)							

(h) STOT-single exposure; Category 3

Results / Target organs Respiratory system

Central nervous system (CNS)

(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

**Other Adverse Effects** Tumorigenic effects have been reported in experimental animals.

delayed

Symptoms / effects, both acute and Symptoms of overexposure may be headache, dizziness, tiredness, nausea and vomiting:

Causes central nervous system depression

# Section 12 - Ecological Information

**Ecotoxicity effects** Do not empty into drains. .

Component	Freshwater Fish	Water Flea	Freshwater Algae	Microtox
Tetrahydrofuran	2160 mg/l LC50 = 96 h	EC50 48 h 3485 mg/l		
	Pimephales promelas	EC50: >10000 mg/L/24h		
	Leuciscus idus: LC50:	_		
	2820 mg/L/48h			
2,6-Di-tert-butyl-p-cresol	LC50 = 0.199  mg/L  96h	EC50 >0.31 mg/L 48h	EC50 = 0.758  mg/L  96h	EC50 = 7.82 mg/L 5 min
	_	_	EC50 = 6 mg/L 72 h	EC50 = 8.57 mg/L 15
			_	min
				EC50 = 8.98 mg/L 30

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\_\_\_\_\_ min

Persistence and Degradability

Persistence Persistence is unlikely, based on information available.

Bioaccumulative Potential Bioaccumulation is unlikely

Component	log Pow	Bioconcentration factor (BCF)
Tetrahydrofuran	0.45	No data available
2,6-Di-tert-butyl-p-cresol	5.1	230 - 2500 dimensionless

Mobility

The product contains volatile organic compounds (VOC) which will evaporate easily from all surfaces. Will likely be mobile in the environment due to its volatility. Disperses rapidly in air

**Endocrine Disruptor Information** 

Component	EU - Endocrine Disrupters Candidate List	EU - Endocrine Disruptors - Evaluated Substances	Japan - Endocrine Disruptor Information
Tetrahydrofuran	Group III Chemical		

Persistent Organic Pollutant Ozone Depletion Potential This product does not contain any known or suspected substance 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. Empty containers retain product residue, (liquid and/or vapor), and can be dangerous. Keep product and empty container away from heat and sources of ignition.

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. Can be landfilled or incinerated, when in compliance with local regulations.

# Section 14 - Transport Information

## IMDG/IMO

UN-No UN2056

Proper Shipping Name TETRAHYDROFURAN

Hazard Class 3
Packing Group ||

ADG

UN-No UN2056

Proper Shipping Name TETRAHYDROFURAN

Hazard Class 3
Packing Group

Component	Hazchem Code
Tetrahydrofuran	2YE
109-99-9 ( >95 )	

## <u>IATA</u>

UN-No UN2056

Proper Shipping Name TETRAHYDROFURAN

Hazard Class 3
Packing Group ||

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Environmental hazards No hazards identified

Special Precautions No special precautions required

Additional information 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

No poison schedule number allocated.

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

	Component	Australian Industrial Chemicals Introduction Scheme (AICIS)	Additional information
	Tetrahydrofuran - 109-99-9	Present	-
Ī	2,6-Di-tert-butyl-p-cresol - 128-37-0	Present	-

## Australian - Illicit Drug Precursors/Reagents Substance List

This product contains one or more substance(s) on the Illicit Drug Precursors/Reagents list. Verify requirements related to using, handling and storing these substances.

## **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

Component	Australian - Illicit Drug Precursors/Reagents Substance List	Chemicals of Security Concern
Tetrahydrofuran - 109-99-9	Category 3	

#### Legend

Category 3 - Chemicals and apparatus that may be used in the illicit production of drugs. Purchases from this list should alert companies or organizations to seek further indicators of any suspicious orders or enquiries. No official reporting is required for items on this list unless considered warranted

National pollutant inventory Not applicable

## Prohibition or notification/licensing requirements

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

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

Component	Australia	New South Wales	Western Australia	New Zealand
Tetrahydrofuran - 109-99-9				Suspected carcinogen

### **International Inventories**

Component AICS NZIOC EINECS ELINCS TSCA DSL NDSL PICCS ENCS ISHL IECSC KECL	Component	AICS	NZIoC	EINECS	ELINCS	TSCA	DSL	NDSL	PICCS	<b>ENCS</b>	ISHL	IECSC	KECL
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Tetrahydrofuran	Х	Х	203-726-8	-	Х	Х	-	Х	Х	Х	Х	KE-33454
2,6-Di-tert-butyl-p-cres	X	X	204-881-4	-	Х	Х	-	Х	Х	Х	Х	KE-03079
ol												

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 dispoal 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
Tetrahydrofuran	109-99-9	Listed	Not applicable	Not applicable	Not applicable
2,6-Di-tert-butyl-p-cresol	128-37-0	Listed	Not applicable	Not applicable	Not applicable

## Authorisation/Restrictions according to EU REACH

Component		REACH (1907/2006) - Annex XVII - Restrictions on Certain Dangerous Substances	
Tetrahydrofuran	-	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) Inventory

**DSL/NDSL** - 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 5433:2012 - Transport of Dangerous Goods on Land

LD50 - Lethal Dose 50%

EC50 - Effective Concentration 50%

NZIoC - New Zealand Inventory of Chemicals

**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

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WEL - Workplace Exposure Limit RPE - Respiratory Protective Equipment

**DNEL** - Workplace Exposure Limit

NOEC - No Observed Effect Concentration

POW - Partition coefficient Octanol:Water vPvB - very Persistent, very Bioaccumulative PBT - Persistent, Bioaccumulative, Toxic

VOC - (Volatile Organic Compound)

#### 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.

Use of personal protective equipment, covering appropriate selection, compatibility, breakthrough thresholds, care, maintenance, fit and standards.

First aid for chemical exposure, including the use of eye wash and safety showers.

Fire prevention and fighting, identifying hazards and risks, static electricity, explosive atmospheres posed by vapours and dusts. Chemical incident response training.

Revision Date 18-Nov-2022 Revision Summary Not applicable.

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**

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