

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

## Section 1 - Identification

Product Name Toluene  
 CAS No 108-88-3  
 Synonyms Tol; Methylbenzene

Product Code **T313-4; T313SK-4**  
 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

Aspiration Toxicity

Category 1

Skin Corrosion/Irritation

Category 2

Reproductive Toxicity

Category 2

Specific target organ toxicity - (single exposure)

Category 3

Specific target organ toxicity - (repeated exposure)

Category 2

#### Environmental hazards

Chronic aquatic toxicity

Category 3

#### Label Elements



Flame



Exclamation Mark



Health Hazard

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

H225 - Highly flammable liquid and vapor  
 H304 - May be fatal if swallowed and enters airways  
 H315 - Causes skin irritation  
 H336 - May cause drowsiness or dizziness  
 H361 - Suspected of damaging fertility or the unborn child  
 H373 - May cause damage to organs through prolonged or repeated exposure  
 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  
 P210 - Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking  
 P233 - Keep container tightly closed  
 P243 - Take action to prevent static discharges  
 P260 - Do not breathe dust/fume/gas/mist/vapors/spray  
 P240 - Ground and bond container and receiving equipment  
 P241 - Use explosion-proof electrical/ ventilating/ lighting equipment  
 P242 - Use non-sparking tools  
 P264 - Wash face, hands and any exposed skin thoroughly after handling  
 P280 - Wear eye protection/ face protection  
 P271 - Use only outdoors or in a well-ventilated area  
 P301 + P310 - IF SWALLOWED: Immediately call a POISON CENTER or doctor  
 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  
 P331 - Do NOT induce vomiting  
 P332 + P313 - If skin irritation occurs: Get medical advice/attention  
 P363 - Wash contaminated clothing before reuse  
 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 %
Toluene	108-88-3	<=100

## Section 4 - First Aid Measures

<b>Inhalation</b>	Remove to fresh air. If not breathing, give artificial respiration. Get medical attention if symptoms occur. Risk of serious damage to the lungs (by aspiration).
<b>Ingestion</b>	Clean mouth with water and drink afterwards plenty of water. Do NOT induce vomiting. Call a physician or poison control center immediately. If vomiting occurs naturally, have victim lean forward.
<b>Skin Contact</b>	Wash off immediately with plenty of water for at least 15 minutes. If skin irritation persists, call a physician.
<b>Eye Contact</b>	Rinse immediately with plenty of water, also under the eyelids, for at least 15 minutes. Get medical attention.
<b>General Advice</b>	If symptoms persist, call a physician.
<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>	Difficulty in breathing. Causes central nervous system depression: Inhalation of high vapor concentrations may cause symptoms like headache, dizziness, tiredness, nausea and vomiting
<b>Notes to Physician</b>	Treat symptomatically. Smallest quantities reaching the lungs through swallowing or subsequent vomiting may result in lung edema or pneumonia. Symptoms may be delayed.

## Section 5 - Fire Fighting Measures

### Suitable Extinguishing Media

Water spray, carbon dioxide (CO<sub>2</sub>), 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 water jetstream.

### Hazardous Decomposition Products

Carbon monoxide (CO), Carbon dioxide (CO<sub>2</sub>).

### 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.

### 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.

### 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. Remove all sources of ignition. Use

spark-proof tools and explosion-proof equipment.

#### 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. Avoid ingestion and inhalation. Ensure adequate ventilation. 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.

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

Keep containers tightly closed in a dry, cool and well-ventilated place. Flammables area. Keep away from heat, sparks and flame.

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
Toluene	STEL: 150 ppm STEL: 574 mg/m <sup>3</sup> TWA: 50 ppm TWA: 191 mg/m <sup>3</sup>	TWA: 20 ppm TWA: 75 mg/m <sup>3</sup> STEL: 100 ppm STEL: 377 mg/m <sup>3</sup> Skin	TWA: 20 ppm	STEL: 100 ppm 15 min STEL: 384 mg/m <sup>3</sup> 15 min TWA: 50 ppm 8 hr TWA: 191 mg/m <sup>3</sup> 8 hr Skin	TWA: 50 ppm (8 Stunden). AGW - exposure factor 2 TWA: 190 mg/m <sup>3</sup> (8 Stunden). AGW - exposure factor 2 TWA: 50 ppm (8 Stunden). MAK TWA: 190 mg/m <sup>3</sup> (8 Stunden). MAK Höhepunkt: 100 ppm Höhepunkt: 380 mg/m <sup>3</sup> Haut

#### Biological limit values

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

Component	Australia	New Zealand	European Union	United Kingdom	Germany
Toluene		0.03 mg/L (urine) end of exposure or end of shift (Toluene) 0.3 mg/g creatinine (urine) end of exposure or end of shift			Toluene: 600 µg/L whole blood (immediately after exposure) Toluene: 75 µg/L urine (end of shift)

		(O-Cresol)			o-Cresol (after hydrolysis): 1.5 mg/L urine (for long-term exposures: at the end of the shift after several shifts ) o-Cresol (after hydrolysis): 1.5 mg/L urine (end of shift )
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**Exposure Controls****Engineering Measures**

Ensure that eyewash stations and safety showers are close to the workstation location. Use explosion-proof electrical/ventilating/lighting equipment. 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**

Wear safety glasses with side shields (or 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
Viton (R)	< 240 minutes	0.30 mm	AS/NZS 2161	Permeation rate 68 µg/cm <sup>2</sup> /min As tested under EN374-3 Determination of Resistance to Permeation by Chemicals
Viton (R)	> 480 minutes	0.70 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 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

**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**

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****Appearance**

Colorless

**Physical State**

Liquid

**Odor**

aromatic

**Odor Threshold**

1.74 ppm

pH	No information available	
Melting Point/Range	-95 °C / -139 °F	
Softening Point	No data available	
Boiling Point/Range	111 °C / 231.8 °F	@ 760 mmHg
Flash Point	4 °C / 39.2 °F	<b>Method -</b> No information available
Evaporation Rate	2.4 (Butyl acetate = 1.0)	
Flammability (solid,gas)	Not applicable	Liquid
Explosion Limits	<b>Lower</b> 1.2 vol% <b>Upper</b> 7 vol%	
Vapor Pressure	29 mbar @ 20 °C	
Vapor Density	3.1	(Air = 1.0)
Specific Gravity / Density	0.866	
Bulk Density	Not applicable	Liquid
Water Solubility	practically insoluble 0.5 g/L @ 20°C	
Solubility in other solvents	No information available	
Partition Coefficient (n-octanol/water)		
Component	<b>log Pow</b>	
Toluene	2.73	
Autoignition Temperature	535 °C / 995 °F	
Decomposition Temperature	No data available	
Viscosity	0.6 mPa.s @ 20 °C	
Explosive Properties	Not explosive	Vapors may form explosive mixtures with air
Oxidizing Properties	Not oxidising	
<b>Other information</b>		
Molecular Formula	C7 H8	
Molecular Weight	92.14	

## Section 10 - Stability and Reactivity

Reactivity	None known, based on information available
Stability	Stable under normal conditions.
Conditions to Avoid	Incompatible products, Excess heat, Keep away from open flames, hot surfaces and sources of ignition.
Incompatible Materials	Strong oxidizing agents, Strong acids, Strong bases, Halogenated compounds.
Hazardous Decomposition Products	Carbon monoxide (CO). Carbon dioxide (CO <sub>2</sub> ).
Hazardous Polymerization	Hazardous polymerization does not occur.

## Section 11 - Toxicological Information

### Information on Toxicological Effects

#### Product Information

##### (a) acute toxicity;

Oral

Based on available data, the classification criteria are not met

Dermal

Based on available data, the classification criteria are not met

Inhalation

Based on available data, the classification criteria are not met

Component	LD50 Oral	LD50 Dermal	LC50 Inhalation
Toluene	> 5000 mg/kg ( Rat )	12000 mg/kg ( Rabbit )	26700 ppm ( Rat ) 1 h

##### (b) skin corrosion/irritation; Test method

Category 2  
OECD 404

**Test species** rabbit  
**Observational endpoint** Irritating to skin

(c) **serious eye damage/irritation;** Based on available data, the classification criteria are not met

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

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

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

Not mutagenic in AMES Test

(f) **carcinogenicity;** Based on available data, the classification criteria are not met

There are no known carcinogenic chemicals in this product

(g) **reproductive toxicity;**

**Reproductive Effects** Category 2  
**Developmental Effects** Experiments have shown reproductive toxicity effects on laboratory animals  
**Teratogenicity** Developmental effects have occurred in experimental animals  
Possible risk of harm to the unborn child

(h) **STOT-single exposure;**

Category 3

**Results / Target organs**

Central nervous system (CNS)

(i) **STOT-repeated exposure;**

Category 2

**Target Organs**

Liver, Kidney, Central nervous system (CNS), Blood, spleen, Neuropsychological effects, Eyes, Ears.

(j) **aspiration hazard;**

Category 1

**Symptoms / effects, both acute and delayed**

Causes central nervous system depression: Inhalation of high vapor concentrations may cause symptoms like headache, dizziness, tiredness, nausea and vomiting

## Section 12 - Ecological Information

### Ecotoxicity effects

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

Component	Freshwater Fish	Water Flea	Freshwater Algae	Microtox
Toluene	50-70 mg/L LC50 96 h 5-7 mg/L LC50 96 h 15-19 mg/L LC50 96 h 28 mg/L LC50 96 h 12 mg/L LC50 96 h	EC50: = 11.5 mg/L, 48h (Daphnia magna) EC50: 5.46 - 9.83 mg/L, 48h Static (Daphnia magna)	EC50: = 12.5 mg/L, 72h static (Pseudokirchneriella subcapitata) EC50: > 433 mg/L, 96h (Pseudokirchneriella subcapitata)	EC50 = 19.7 mg/L 30 min

### Persistence and Degradability Persistence

Readily biodegradable  
Persistence is unlikely.

Component	Degradability
Toluene 108-88-3 ( ≤100 )	86% (20d)

### 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)
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Toluene	2.73	90
<b>Mobility</b>	The product contains volatile organic compounds (VOC) which will evaporate easily from all surfaces. Spillage unlikely to penetrate soil. The product is insoluble and floats on water. Is not likely mobile in the environment due its low water solubility	
<b>Endocrine Disruptor Information</b>	This product does not contain any known or suspected endocrine disruptors	
<b>Persistent Organic Pollutant</b>	This product does not contain any known or suspected substance	
<b>Ozone Depletion Potential</b>	This product does not contain any known or suspected substance	

## Section 13 - Disposal Considerations

<b>Waste from Residues/Unused Products</b>	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.
<b>Contaminated Packaging</b>	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.
<b>Other Information</b>	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. Do not let this chemical enter the environment. Do not empty into drains.

## Section 14 - Transport Information

### IMDG/IMO

<b>UN-No</b>	UN1294
<b>Proper Shipping Name</b>	TOLUENE
<b>Hazard Class</b>	3
<b>Packing Group</b>	II

### ADG

<b>UN-No</b>	UN1294
<b>Proper Shipping Name</b>	TOLUENE
<b>Hazard Class</b>	3
<b>Packing Group</b>	II

Component	Hazchem Code
Toluene 108-88-3 ( ≤100 )	3YE

### IATA

<b>UN-No</b>	UN1294
<b>Proper Shipping Name</b>	TOLUENE
<b>Hazard Class</b>	3
<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
Toluene - 108-88-3	<p>Schedule 5 listed - including Kerosene, Diesel [distillate], Mineral turpentine, White petroleum spirit, Toluene, Xylene and light mineral and paraffin oils but except their derivative; except a) Toluene and Xylene when included in Schedule 6, b) Benzene and liquid aromatic hydrocarbons when included in Schedule 7, c) food grade and pharmaceutical grade White mineral oil, d) in solid or semi-solid preparations, e) in preparations containing <math>\leq 25\%</math> of designated solvents, f) in preparations packed in pressurized spray packs, g) in adhesives packed in containers each containing <math>\leq 50</math> grams of adhesive, h) in writing correction fluids and thinners for writing correction fluids packed in containers having a capacity of <math>\leq 20</math> mL, or i) in other preparations when packed in containers with a capacity of <math>\leq 2</math> mL</p> <p>Schedule 6 listed - except its derivatives; except in preparations containing <math>\leq 50\%</math> of Toluene or Toluene and Xylene</p>

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

Component	Australian Industrial Chemicals Introduction Scheme (AICIS)	Additional information
Toluene - 108-88-3	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
Toluene - 108-88-3	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**

Subject to reporting requirements

Component	National pollutant inventory
Toluene - 108-88-3	10 tonne/yr. Threshold category 1

**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.

**International Inventories**

Component	AICS	NZIoC	EINECS	ELINCS	TSCA	DSL	NDSL	PICCS	ENCS	ISHL	IECSC	KECL
Toluene	X	X	203-625-9	-	X	X	-	X	X	X	X	KE-33936

**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

Take note that wastes may be subject to export, import, or transit controls pursuant to the Basel convention and/or local regulations implementing the Basel convention.

Component	Basel Convention (Hazardous Waste)	Australian Hazardous Waste Act - Categories of Wastes to Be Controlled
Toluene - 108-88-3	Annex I - Y42	Y42 except Halogenated solvents

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
Toluene	108-88-3	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)
Toluene	-	Use restricted. See item 48. (see link for restriction details) 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

**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  
**PNEC** - Predicted No Effect Concentration (PNEC)  
**IMO/IMDG** - International Maritime Organization/International Maritime Dangerous Goods Code

Ships

**NZS 5433:2012** - 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)

**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.

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

21-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