

## Classified as hazardous in accordance with the criteria of EPA New Zealand

## **Section 1 - Identification**

**Product Identifier** 

Product Name Lithium aluminium hydride, 2.4M solution in THF

**Synonyms** LAH; Lithium tetrahydridoaluminate; Lithiumalanate.

Recommended Use Laboratory chemicals. Uses advised against No Information available

Product Code 377320000; 377321000; 377328000

Address Thermo Fisher Scientific New Zealand Ltd

244 Bush Road, Albany, Auckland, New Zealand

Emergency Tel. CHEMTREC®

09 980 6780 or +64 9 980 6780

Telephone / Fax Numbers Tel: 09 980 6700

Fax: 09 980 6788

E-mail address <u>ANZinfo@thermofisher.com</u>

## Section 2 - Hazard(s) Identification

## Classification under Work Safe New Zealand

Classified as hazardous in accordance with the criteria of EPA New Zealand

## **GHS Classification**

Physical hazards

Flammable liquids Category 2

Substances/mixtures which, in contact with water, emit flammable gases Category 1

**Health hazards** 

Acute Oral Toxicity

Acute Inhalation Toxicity - Vapors

Skin Corrosion/Irritation

Category 1

Category 1 A

Serious Eye Damage/Eye Irritation Category 1
Carcinogenicity Category 2
Specific target organ toxicity - (single exposure) Category 3

**Environmental hazards** 

Chronic aquatic toxicity Category 4

**Label Elements** 

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Signal Word

Danger

## **Hazard Statements**

- H314 Causes severe skin burns and eye damage
- H225 Highly flammable liquid and vapor
- H260 In contact with water releases flammable gases which may ignite spontaneously
- H302 Harmful if swallowed
- H335 May cause respiratory irritation
- H336 May cause drowsiness or dizziness
- H351 Suspected of causing cancer
- H330 Fatal if inhaled
- H413 May cause long lasting harmful effects to aquatic life

### **Precautionary Statements**

### Prevention

- P201 Obtain special instructions before use
- P202 Do not handle until all safety precautions have been read and understood
- P223 Do not allow contact with water
- P231 + P232 Handle and store contents under inert gas. Protect from moisture
- P233 Keep container tightly closed
- P210 Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking
- P260 Do not breathe dust/fume/gas/mist/vapors/spray
- P240 Ground and bond container and receiving equipment
- P242 Use non-sparking tools
- P243 Take action to prevent static discharges
- 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 protective gloves/protective clothing/eye protection/face protection

#### Response

- P363 Wash contaminated clothing before reuse
- P370 + P378 In case of fire: Use dry sand, dry chemical or alcohol-resistant foam to extinguish
- 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
- P302 + P335 + P334 IF ON SKIN: Brush off loose particles from skin. Immerse in cool water

#### Storage

P402 + P404 - Store in a dry place. Store in a closed container

## Disposal

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

## Other hazards which do not result in classification

Toxic to terrestrial vertebrates

May form explosive peroxides

## **Section 3 - Composition and Information on Ingredients**

Component	CAS No	Weight %
Tetrahydrofuran	109-99-9	90

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Lithium aluminum h	ydride	16853-85-3	10

## **Section 4 - First Aid Measures**

Description of first aid measures

**General Advice** Show this safety data sheet to the doctor in attendance. Immediate medical attention is

required.

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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.

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

Immediate medical attention is required.

**Skin Contact** 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.

**Ingestion** Do NOT induce vomiting. Clean mouth with water. Never give anything by mouth to an

unconscious person. Call a physician immediately.

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

Causes burns by all exposure routes. Symptoms of overexposure may be headache, dizziness, tiredness, nausea and vomiting: 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: Inhalation of high vapor concentrations may cause symptoms like 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

CO<sub>2</sub>, dry chemical, dry sand, alcohol-resistant foam. Water mist may be used to cool closed containers.

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

Water.

## **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. Flammable. Containers may explode when heated. Vapors may form explosive mixtures with air. Vapors may travel to source of ignition and flash back.

## **Hazardous Combustion Products**

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

### 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

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protective gear. Thermal decomposition can lead to release of irritating gases and vapors.

## **Section 6 - Accidental Release Measures**

## Personal Precautions, Protective Equipment and Emergency Procedures

#### **Emergency procedures**

Ensure adequate ventilation. Use personal protective equipment as required. Evacuate personnel to safe areas. Keep people away from and upwind of spill/leak. Remove all sources of ignition. Take precautionary measures against static discharges.

### **Environmental Precautions**

Should not be released into the environment.

## Methods for Containment and Clean Up

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

Reacts violently with water: Absorb spill with inert material (e.g. dry sand or earth), then place in a chemical waste container: Keep in suitable, closed containers for disposal

### Precautions to prevent secondary hazards

Clean contaminated objects and areas thoroughly observing environmental regulations

### **Reference to Other Sections**

Refer to protective measures listed in Sections 8 and 13.

## **Section 7 - Handling and Storage**

## **Precautions for Safe Handling**

#### Advice on 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. 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.

### **Hygiene Measures**

Handle in accordance with good industrial hygiene and safety practice. Keep away from food, drink and animal feeding stuffs. Do not eat, drink or smoke when using this product. Remove and wash contaminated clothing and gloves, including the inside, before re-use. Wash hands before breaks and after work.

## Conditions for Safe Storage, Including any Incompatibilities

### **Storage Conditions**

Flammables area. Store under an inert atmosphere. Keep containers tightly closed in a dry, cool and well-ventilated place. Keep away from heat, sparks and flame. Keep away from water or moist air. 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. Corrosives area.

### **Incompatible Materials**

Strong oxidizing agents.

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**

## **Control parameters**

## **Exposure limits**

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

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

**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.

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

Component	New Zealand WEL	Australia	ACGIH TLV	The United Kingdom
Tetrahydrofuran	TWA: 50 ppm	TWA: 100 ppm	TWA: 50 ppm	STEL: 100 ppm 15 min
	TWA: 150 mg/m <sup>3</sup>	TWA: 295 mg/m <sup>3</sup>	STEL: 100 ppm	STEL: 300 mg/m <sup>3</sup> 15 min
	STEL: 100 ppm		Skin	TWA: 50 ppm 8 hr
	STEL: 300 mg/m <sup>3</sup>			TWA: 150 mg/m <sup>3</sup> 8 hr
	Skin			Skin

### **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

**ACGIH** - American Conference of Governmental Industrial Hygienists (ACGIH) TLVs® and BEIs®- Threshold Limit Values for Chemical Substances and Physical Agents & Biological Exposure Indices. 2022 Edition

Component	New Zealand	Australia	ACGIH - Biological Exposure Indices	United Kingdom
Tetrahydrofuran	2 mg/g creatinine (urine) end		2 mg/L	
1			Ü	
	of exposure or shift, within 1		Medium: urine	
	hour of end of exposure		Time: end of shift	
	(THF)		Determinant:	
			Tetrahydrofuran	

## Appropriate engineering controls

### **Engineering Measures**

Use only under a chemical fume hood. 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

## Individual protection measures, such as 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.	See manufacturers	-	AS/NZS 2161	(minimum requirement)
	recommendations			
Neoprene gloves				

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: low boiling organic solvent Type AX Brown conforming to EN371 or Organic gases and

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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

**Physical State** Liquid

**Appearance** Grev **Irritating** Odor

**Odor Threshold** No data available

Hq

Melting Point/Range No data available **Softening Point** No data available **Boiling Point/Range** No information available

Flammability (liquid) Highly flammable On basis of test data

Flammability (solid,gas) Not applicable Liquid

**Explosion Limits** No data available

**Flash Point** -17 °C / 1.4 °F Method - No information available

**Autoignition Temperature** No data available **Decomposition Temperature** No data available No data available **Viscosity** 

Water Solubility Reacts violently with water Solubility in other solvents No information available

Partition Coefficient (n-octanol/water)

Component log Pow Tetrahvdrofuran 0.45

**Vapor Pressure** No data available

Density / Specific Gravity 0.900

**Bulk Density** Not applicable Liquid **Vapor Density** No data available (Air = 1.0)

Particle characteristics Not applicable (liquid)

Other information

**Explosive Properties** Vapors may form explosive mixtures with air

Substances/mixtures which, in Emitted gas ignites spontaneously contact with water, emit flammable Gas(es) = Hydrogen

gases

## **Section 10 - Stability and Reactivity**

Reactivity : Yes Contact with water liberates extremely flammable gases

Stability heat sensitive. Moisture sensitive. May form explosive peroxides.

**Sensitivity to Mechanical Impact** No information available

No information available Sensitivity to Static Discharge

**Hazardous Polymerization** Hazardous polymerization does not occur.

**Hazardous Reactions** None under normal processing.

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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.

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

## **Section 11 - Toxicological Information**

### **Acute Effects**

## Information on likely routes of exposure

#### **Product Information**

**Inhalation** Avoid breathing vapors or mists.

Eyes Avoid contact with eyes. Corrosive to the eyes and may cause severe damage including

blindness. Vapor may cause irritation.

**Skin** Avoid contact with skin. Causes burns. Skin Corrosion/Irritation. Prolonged skin contact

may defat the skin and produce dermatitis.

**Ingestion** May be harmful if swallowed.

### Numerical measures of toxicity

(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

### Toxicology data for the components

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

(b) skin corrosion/irritation; Category 1 A

(c) serious eye damage/irritation; Category 1

(d) respiratory or skin sensitization;

**Respiratory Skin**No data available
No data available

Component	Test method	Test species	Study result
Tetrahydrofuran	Local Lymph Node Assay OECD	mouse	non-sensitising
109-99-9 ( 90 )	Test Guideline 429		_

## (e) germ cell mutagenicity; No data available

L	Component	Test method	Test species	Study result
Γ	Tetrahydrofuran	OECD Test Guideline 476	in vivo	negative
1	109-99-9 ( 90 )	Gene cell mutation	Mammalian	Ţ.
1		OECD Test Guideline 473		
		Chromosomal aberration assay	in vitro	negative
		-	Mammalian	_

(f) carcinogenicity; Category 2

Limited evidence of a carcinogenic effect The table below indicates whether each agency

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has listed any ingredient as a carcinogen

Component	New Zealand	Australia	New South Wales	Western Australia	IARC	EU	UK	Germany
Tetrahydrofuran	Suspected				Group 2B			
	carcinogen							

(g) reproductive toxicity; No data available

Component	Test method	Test species / Duration	Study result
Tetrahydrofuran	OECD Test Guideline 416	Rat 2 Generation	NOAEL = 3,000 ppm
109-99-9 ( 90 )			

(h) STOT-single exposure; Category 3

Results / Target organs Respiratory system

Central nervous system (CNS)

(i) STOT-repeated exposure; No data available

Target Organs No information available.

(j) aspiration hazard; No data available

## Symptoms / effects,both acute and delayed

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

## Section 12 - Ecological Information

### **Ecotoxicity**

Aquatic ecotoxicity

Reacts with water so no ecotoxicity data for the substance is available.

	Component	Freshwater Fish	Water Flea	Freshwater Algae	Microtox
Γ	Tetrahydrofuran	2160 mg/l LC50 = 96 h			
ı		' '	EC50: >10000 mg/L/24h		
ı		Leuciscus idus: LC50:			
		2820 mg/L/48h			

**Terrestrial ecotoxicity**There is no data for this product

Persistence and Degradability

Persistence Persistence is unlikely, based on information available.

Degradability

Reacts with water.

Degradation in sewage treatment

Reacts violently with water.

plant

Bioaccumulative Potential Bioaccumulation is unlikely Product does not bioaccumulate due to reaction with water

Component	log Pow	Bioconcentration factor (BCF)
Tetrahydrofuran	0.45	No data available

**Mobility**The product is water soluble, and may spread in water systems. Reacts violently with water.

Will likely be mobile in the environment due to its water solubility. Is not likely mobile in the

environment. Highly mobile in soils

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### Other adverse effects

**Endocrine Disruptor Information** 

	Component	EU - Endocrine Disrupters Candidate List	EU - Endocrine Disruptors - Evaluated Substances	Japan - Endocrine Disruptor Information		
I	Tetrahydrofuran	Group III Chemical				
ī	Paraistant Organia Pollutant	This product does not contain	any known or suspected subs	tance		

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 treatment methods

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

Disposal agencies or waste contractors must comply with the New Zealand Hazardous Substances (Disposal) Regulations . 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 empty into drains. Large amounts will affect pH and harm aquatic organisms.

## **Section 14 - Transport Information**

Component	Hazchem Code
Tetrahydrofuran	2YE
109-99-9 ( 90 )	
Lithium aluminum hydride	4W
16853-85-3 ( 10 )	4WE

### NZS 5433:2020

UN-No UN1411

Proper Shipping Name LITHIUM ALUMINIUM HYDRIDE, ETHEREAL

Hazard Class 4.3 Subsidiary Hazard Class 3 Packing Group

**IATA** 

UN-No UN1411

Proper Shipping Name LITHIUM ALUMINIUM HYDRIDE, ETHEREAL

Hazard Class 4.3 Subsidiary Hazard Class 3 Packing Group 1

IMDG/IMO

UN-No UN1411

Proper Shipping Name LITHIUM ALUMINIUM HYDRIDE, ETHEREAL

Hazard Class 4.3 Subsidiary Hazard Class 3

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Packing Group

Environmental hazards No hazards identified

Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code

Not applicable, packaged goods

Special Precautions No special precautions required. Please refer to the applicable dangerous goods

regulations for additional information.

Additional information None known

## **Section 15 - Regulatory Information**

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

## **National Regulations**

There are no applicable tolerable exposure limits or environmental exposure limits according to the EPA Controls for Hazardous Substances

### Certified handlers, tracking and controlled substance license requirements

Certified handlers are required for some substances. This includes substances requiring a controlled substance license, and most explosives, vertebrates toxic agents, and certain fumigants. Acutely toxic substances which are a Category 1 or 2, such as pesticides also require Certified handlers. Please check the Health and Safety at Work Act 2015 for further information. Tracking is required for some highly hazardous substances. These substances need to be under the control of an appropriately trained person or appropriately secured. Please check the Health and Safety at Work Act 2015 for further information.

## Prohibition or notification/licensing requirements

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

Component	New Zealand			
Tetrahydrofuran	Suspected carcinogen			

#### **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

# Authorisation/Restrictions according to EU REACH

Component	REACH (1907/2006) - Annex XIV -	REACH (1907/2006) - Annex XVII -	REACH Regulation (EC		
	Substances Subject to	Substances Subject to Restrictions on Certain Dangerous			
	Authorization	Substances	List of Substances of Very High		
			Concern (SVHC)		
Tetrahydrofuran	-	Use restricted. See item 75.	-		
		(see link for restriction details)			
Lithium aluminum hydride	-	Use restricted. See item 75.	-		
		(see link for restriction details)			

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

## **International Inventories**

New Zealand (NZIoC), Australia (AICS), Europe (EINECS/ELINCS/NLP), Korea (KECL), China (IECSC), Taiwan (TCSI), Japan (ISHL), Canada (DSL/NDSL), Philippines (PICCS). US EPA (TSCA) - Toxic Substances Control Act, (40 CFR Part 710)

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Component	CAS No	NZIoC	AICS	EINECS	ELINCS	NLP	KECL	IECSC	TCSI
Tetrahydrofuran	109-99-9	Х	Х	203-726-8	-	-	KE-33454	X	Х
Lithium aluminum hydride	16853-85-3	Х	Χ	240-877-9	-	-	KE-00990	Х	Х

Component	CAS No	TSCA TSCA Inventory notification - Active-Inactive		DSL	NDSL	PICCS	ISHL	ENCS
Tetrahydrofuran	109-99-9	X	ACTIVE	X	Ī	X	X	X
Lithium aluminum hydride	16853-85-3	Х	ACTIVE	-	Х	Х	X	Х

Legend: X - Listed '-' - Not Listed

KECL - NIER number or KE number (http://ncis.nier.go.kr/en/main.do)

## **Section 16 - Other Information**

# This safety data sheet complies with the requirements of the EPA Hazardous Substances (Hazard Classification) Notice 2020 and WorkSafe New Zealand Regulations

### Legend

NZIoC - New Zealand Inventory of Chemicals

**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

NZS 5433:2020 - Transport of Dangerous Goods on Land

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

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

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)

AICS - Australian Inventory of Chemical Substances

**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

**OECD** - Organisation for Economic Co-operation and Development **IMO/IMDG** - International Maritime Organization/International Maritime Dangerous Goods Code

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

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

HSNO classifications provided in the New Zealand Chemical Classification Information Database (CCID).

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

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

EPA Guide to classifying hazardous substances in New Zealand

EPA - Assigning a product to an existing HSNO approval guide

### Classification and procedure used to derive the classification for mixtures according to Regulation (EC) 1272/2008 [CLP]:

Physical hazards
Health Hazards
Calculation method
Environmental hazards
Calculation method

## **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.

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Revision Summary

Not applicable

## 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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