# SAFETY DATA SHEET

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

## Section 1 - Identification

**Product Identifier**

**Product Name** **n-Butyllithium, 2.2M in hexane**

**Molecular Formula** C4 H9 Li
**Molecular Weight** 64.06

**Recommended Use** Laboratory chemicals.
**Uses advised against** No Information available

| | |
|---|---|
| **Product Code** | **44109** |
| **Address** | Thermo Fisher Scientific New Zealand Ltd<br>244 Bush Road, Albany,<br>Auckland, New Zealand |
| **Emergency Tel.** | **CHEMTREC®**<br>**09 980 6780 or +64 9 980 6780** |
| **Telephone / Fax Numbers** | Tel: 09 980 6700<br>Fax: 09 980 6788 |
| **E-mail address** | ANZinfo@thermofisher.com |

## 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 |
| Pyrophoric liquids | Category 1 |

**Health hazards**

| | |
|---|---|
| Aspiration Toxicity | Category 1 |
| Skin Corrosion/Irritation | Category 1 B |
| Serious Eye Damage/Eye Irritation | Category 1 |
| 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 2 |

**Label Elements**

**Signal Word** **Danger**

**Hazard Statements**
H225 - Highly flammable liquid and vapor
H250 - Catches fire spontaneously if exposed to air
H260 - In contact with water releases flammable gases which may ignite spontaneously
H304 - May be fatal if swallowed and enters airways
H314 - Causes severe skin burns and eye damage
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
H411 - Toxic to aquatic life with long lasting effects

**Precautionary Statements**
**Prevention**
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
P222 - Do not allow contact with air
P223 - Do not allow contact with water
P231 + P232 - Handle and store contents under inert gas. Protect from moisture
P233 - Keep container tightly closed
P240 - Ground and bond container and receiving 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
P271 - Use only outdoors or in a well-ventilated area
P280 - Wear protective gloves/protective clothing/eye protection/face protection
P273 - Avoid release to the environment
**Response**
P302 + P334 - IF ON SKIN: Immerse in cool water or wrap in wet bandages
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
P370 + P378 - In case of fire: Use dry sand, dry chemical or alcohol-resistant foam to extinguish
P391 - Collect spillage
**Storage**
P402 + P404 - Store in a dry place. Store in a closed container
P422 - Store contents under inert gas
**Disposal**
P501 - Dispose of contents/ container to an approved waste disposal plant

**Other hazards which do not result in classification**

Reacts violently with water

# Section 3 - Composition and Information on Ingredients

| Component | CAS No | Weight % |
|---|---|---|
| Hexane | 110-54-3 | 49.4 |
| Butyl lithium | 109-72-8 | 24.0 |
| 3-Methylpentane | 96-14-0 | 19.0 |
| 2-Methylpentane | 107-83-5 | 3.8 |
| Methylcyclopentane | 96-37-7 | 3.7992 |
| Benzene | 71-43-2 | 0.0008 |

# 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.

**New Zealand Emergency Tel.**
CHEMTREC®
09 980 6780 or +64 9 980 6780

**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. Risk of serious damage to the lungs (by aspiration).

**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. Call a physician or poison control center immediately. If vomiting occurs naturally, have victim lean forward.

**Self-Protection of the First Aider**
No special precautions required.

**First Aid Facilities**
Eyewash, safety shower and washroom.

**Most important symptoms and effects**
Causes burns by all exposure routes. Difficulty in breathing. Inhalation of high vapor concentrations may cause symptoms like 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

**Notes to Physician**
Treat symptomatically.

# Section 5 - Fire Fighting Measures

**Suitable Extinguishing Media**
Dry sand. Carbon dioxide ($CO_2$). Powder. Do not use water or foam. $CO_2$, 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. Reacts violently with water. 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 ($CO_2$), Lithium oxide, Butane.

**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

**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**
Do not flush into surface water or sanitary sewer system. Should not be released into the environment. Do not allow material to contaminate ground water system.

**Methods for Containment and Clean Up**
Soak up with inert absorbent material. Keep in suitable, closed containers for disposal. Do not expose spill to water. Remove all sources of ignition. Use spark-proof tools and explosion-proof equipment.

**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. Do not allow contact with water. 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**
Corrosives area. Keep away from water or moist air. Keep containers tightly closed in a dry, cool and well-ventilated place. Keep away from heat, sparks and flame.

**Incompatible Materials**
Oxidizing agent.

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

| Component | New Zealand WEL | Australia | ACGIH TLV | The United Kingdom |
|---|---|---|---|---|
| Hexane | TWA: 20 ppm<br>TWA: 72 mg/m³ | TWA: 20 ppm<br>TWA: 72 mg/m³ | TWA: 50 ppm<br>Skin | TWA: 72 mg/m³<br>TWA: 20 ppm<br>STEL: 60 ppm<br>STEL: 216 mg/m³ |
| 3-Methylpentane | | | TWA: 500 ppm<br>STEL: 1000 ppm | |
| 2-Methylpentane | | | TWA: 500 ppm<br>STEL: 1000 ppm | |
| Benzene | TWA: 0.05 ppm<br>TWA: 0.16 mg/m³<br>Skin | TWA: 1 ppm<br>TWA: 3.2 mg/m³ | TWA: 0.5 ppm<br>STEL: 2.5 ppm<br>Skin | STEL: 3 ppm 15 min<br>STEL: 9.75 mg/m³ 15 min<br>TWA: 1 ppm 8 hr<br>TWA: 3.25 mg/m³ 8 hr<br>Carc.<br>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 |
|---|---|---|---|---|
| Hexane | 5 mg/L (urine) end of shift (2,5-Hexanedione) | | 0.5 mg/L<br>Medium: urine<br>Time: end of shift<br>Determinant: 2,5-Hexanedione without hydrolysis | |
| Benzene | 2 µg/g creatinine (urine) end of shift (S-Phenylmercapturic acid) | | 25 µg/g creatinine<br>Medium: urine<br>Time: end of shift<br>Determinant: S-Phenylmercapturic acid<br>500 µg/g creatinine<br>Medium: urine<br>Time: end of shift<br>Determinant: t,t-Muconic acid | |

## Appropriate engineering controls

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

| | | |
|---|---|---|
| **Physical State** | Liquid | |
| **Appearance** | Colorless - Light yellow | |
| **Odor** | Petroleum distillates | |
| **Odor Threshold** | No data available | |
| **pH** | No information available | |
| **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** | -21 °C / -5.8 °F | **Method -** No information available |
| **Autoignition Temperature** | No data available | |
| **Decomposition Temperature** | No data available | |
| **Viscosity** | No data available | |
| **Water Solubility** | Immiscible | |
| **Solubility in other solvents** | No information available | |

**Partition Coefficient (n-octanol/water)**

| **Component** | **log Pow** |
|---|---|
| Hexane | 4.11 |
| Methylcyclopentane | 3.37 |
| Benzene | 2.13 |

| | | |
|---|---|---|
| **Vapor Pressure** | 23 hPa @ 20 °C | |
| **Density / Specific Gravity** | No data available | |
| **Bulk Density** | Not applicable | Liquid |
| **Vapor Density** | No data available | (Air = 1.0) |
| **Particle characteristics** | Not applicable (liquid) | |

**Other information**

| | |
|---|---|
| **Molecular Formula** | C4 H9 Li |
| **Molecular Weight** | 64.06 |
| **Explosive Properties** | Vapors may form explosive mixtures with air |
| **Substances/mixtures which, in contact with water, emit flammable gases** | Emitted gas ignites spontaneously<br>Gas(es) = Butane |

# Section 10 - Stability and Reactivity

| | |
|---|---|
| **Reactivity** | Yes |
| **Stability** | Air sensitive. Moisture sensitive. |
| **Sensitivity to Mechanical Impact** | No information available |
| **Sensitivity to Static Discharge** | No information available |
| **Hazardous Polymerization** | No information available. |
| **Hazardous Reactions** | None under normal processing. Reacts violently with water. |
| **Conditions to Avoid** | Exposure to moist air or water, Exposure to moisture, Keep away from open flames, hot surfaces and sources of ignition. |
| **Incompatible Materials** | Oxidizing agent. |
| **Hazardous Decomposition Products** | Carbon monoxide (CO). Carbon dioxide ($CO_2$). Lithium oxide. Butane. |

# Section 11 - Toxicological Information

**Acute Effects**

**Information on likely routes of exposure**

**Product Information**

| | |
|---|---|
| **Inhalation** | Not an expected route of exposure. |
| **Eyes** | Avoid contact with eyes. Corrosive to the eyes and may cause severe damage including blindness. Risk of serious damage to eyes. |
| **Skin** | Avoid contact with skin. Causes burns. Skin Corrosion/Irritation. Contact with moist skin may cause skin burns. |
| **Ingestion** | May be harmful if swallowed. Harmful if swallowed. Potential for aspiration if swallowed. |

**Numerical measures of toxicity**

**(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 |

**Toxicology data for the components**

| Component | LD50 Oral | LD50 Dermal | LC50 Inhalation |
|---|---|---|---|
| Hexane | LD50 = 25 g/kg ( Rat ) | LD50 = 3000 mg/kg ( Rabbit ) | LC50 = 48000 ppm ( Rat ) 4 h |
| Benzene | LD50 = 810 mg/kg ( Rat ) | LD50 > 8200 mg/kg ( Rabbit ) | LC50 = 44.66 mg/L ( Rat ) 4 h |

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

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

**(d) respiratory or skin sensitization;**
**Respiratory** No data available
**Skin** No data available

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

**(f) carcinogenicity;** No data available

The table below indicates whether each agency has listed any ingredient as a carcinogen

| Component | New Zealand | Australia | New South Wales | Western Australia | IARC | EU | UK | Germany |
|---|---|---|---|---|---|---|---|---|
| Benzene | Confirmed carcinogen | Notifiable Carcinogen | Notifiable | Requires Approval for Use | Group 1 | Carc Cat. 1A | | Cat. 1 |

**(g) reproductive toxicity;** Category 2

**(h) STOT-single exposure;** Category 3

**Results / Target organs** Central nervous system (CNS)
Respiratory system

**(i) STOT-repeated exposure;** Category 2

**Target Organs** Central nervous system (CNS), Peripheral Nervous System (PNS).

**(j) aspiration hazard;** Category 1

**Symptoms / effects,both acute and delayed**
Inhalation of high vapor concentrations may cause symptoms like 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.

# Section 12 - Ecological Information

**Ecotoxicity**

**Aquatic ecotoxicity** Toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment. The product contains following substances which are hazardous for the environment. May cause long-term adverse effects in the environment. Do not allow material to contaminate ground water system.

| Component | Freshwater Fish | Water Flea | Freshwater Algae | Microtox |
|---|---|---|---|---|
| Hexane | LC50: 2.1 - 2.98 mg/L, 96h flow-through (Pimephales promelas) | EC50: 3.87 mg/L/48h | | |
| Benzene | LC50: = 5.3 mg/L, 96h flow-through (Oncorhynchus mykiss) LC50: 10.7 - 14.7 mg/L, 96h flow-through (Pimephales promelas) | EC50: = 10 mg/L, 48h (Daphnia magna) EC50: 8.76 - 15.6 mg/L, 48h Static (Daphnia magna) | EC50: = 29 mg/L, 72h (Pseudokirchneriella subcapitata) | |

| | | | | |
|---|---|---|---|---|
| | LC50: 70000 - 142000 µg/L, 96h static (Lepomis macrochirus) LC50: = 22.49 mg/L, 96h static (Lepomis macrochirus) LC50: = 28.6 mg/L, 96h static (Poecilia reticulata) LC50: 22330 - 41160 µg/L, 96h static (Pimephales promelas) | | | |

**Terrestrial ecotoxicity**

| Component | Earthworm | Avian | Honeybees |
|---|---|---|---|
| Benzene | Acute toxicity: LC50 = 0.098 mg/cm2 (Eisenia foetida, 48 h, filter paper) Acute toxicity: LC50 0.1 - 1 mg/cm2 (Eisenia foetida, 48 h, filter paper) | | |

**Persistence and Degradability** Product contains heavy metals. Discharge into the environment must be avoided. Special pre-treatment is necessary

**Persistence** Immiscible with water, May persist.

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

**Bioaccumulative Potential** May have some potential to bioaccumulate Product has a high potential to bioconcentrate

| Component | log Pow | Bioconcentration factor (BCF) |
|---|---|---|
| Hexane | 4.11 | No data available |
| Methylcyclopentane | 3.37 | No data available |
| Benzene | 2.13 | 3.5 - 4.4 dimensionless |

**Mobility** Spillage unlikely to penetrate soil. Is not likely mobile in the environment due its low water solubility.

**Other adverse effects**

**Endocrine Disruptor Information** This product does not contain any known or suspected endocrine disruptors
**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 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** 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. Dispose of this container to hazardous or special waste collection point.

**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. Do not let this chemical enter the environment.

# Section 14 - Transport Information

| Component | Hazchem Code |
|---|---|
| Methylcyclopentane<br>96-37-7 ( 3.7992 ) | 3YE |
| Benzene<br>71-43-2 ( 0.0008 ) | 3WE |

**NZS 5433:2020**

| | |
|---|---|
| **UN-No** | UN3394 |
| **Proper Shipping Name** | ORGANOMETALLIC SUBSTANCE, LIQUID, PYROPHORIC, WATER-REACTIVE |
| **Technical Shipping Name** | n-butyllithium, Hexanes |
| **Hazard Class** | 4.2 |
| **Subsidiary Hazard Class** | 4.3 |
| **Packing Group** | I |

**IATA**

| | |
|---|---|
| **UN-No** | UN3394 |
| **Proper Shipping Name** | ORGANOMETALLIC SUBSTANCE, LIQUID, PYROPHORIC, WATER-REACTIVE |
| **Technical Shipping Name** | n-butyllithium, Hexanes |
| **Hazard Class** | 4.2 |
| **Subsidiary Hazard Class** | 4.3 |
| **Packing Group** | I |

**IMDG/IMO**

| | |
|---|---|
| **UN-No** | UN3394 |
| **Proper Shipping Name** | ORGANOMETALLIC SUBSTANCE, LIQUID, PYROPHORIC, WATER-REACTIVE |
| **Technical Shipping Name** | n-butyllithium, Hexanes |
| **Hazard Class** | 4.2 |
| **Subsidiary Hazard Class** | 4.3 |
| **Packing Group** | I |

| Component | IMDG Marine Pollutant |
|---|---|
| Hexane<br>110-54-3 ( 49.4 ) | IMDG regulated marine pollutant (Listed in the index) |

| | |
|---|---|
| **Environmental hazards** | Dangerous for the environment<br>Product is a marine pollutant according to the criteria set by IMDG/IMO |
| **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**

Any applicable tolerable exposure limits and environmental exposure limits according to the EPA Controls for Hazardous Substances are listed below

| Component | Tolerable Exposure Limit (TEL) Air | Tolerable Exposure Limit (TEL) Water | Tolerable Exposure Limit (TEL) Surface | Environmental Exposure Limits (EEL) |
|---|---|---|---|---|
| Benzene | 0.01 mg/m³ | 0.01 mg/L | | 2000 µg/L (Water) |

**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 |
|---|---|
| Benzene | Confirmed 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

| Component | Seveso III Directive (2012/18/EC) - Qualifying Quantities for Major Accident Notification | Seveso III Directive (2012/18/EC) - Qualifying Quantities for Safety Report Requirements | IMDG Marine Pollutant |
|---|---|---|---|
| Hexane | | | IMDG regulated marine pollutant (Listed in the index) |

**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) |
|---|---|---|---|
| Hexane | - | Use restricted. See item 75. (see link for restriction details) | - |
| 3-Methylpentane | - | Use restricted. See item 75. (see link for restriction details) | - |
| 2-Methylpentane | - | Use restricted. See item 75. (see link for restriction details) | - |
| Benzene | - | Use restricted. See item 72. (see link for restriction details) Use restricted. See item 5. (see link for restriction details) Use restricted. See item 28. (see link for restriction details) Use restricted. See item 29. (see link for restriction details) 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 (ENCS), Japan (ISHL), Canada (DSL/NDSL), Philippines (PICCS). US EPA (TSCA) - Toxic Substances Control Act, (40 CFR Part 710)

| Component | CAS No | NZIoC | AICS | EINECS | ELINCS | NLP | KECL | IECSC | TCSI |
|---|---|---|---|---|---|---|---|---|---|

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| Hexane | 110-54-3 | X | X | 203-777-6 | 438-390-3 | - | KE-18626 | X | X |
| Butyl lithium | 109-72-8 | X | X | 203-698-7 | - | - | KE-04320 | X | X |
| 3-Methylpentane | 96-14-0 | X | X | - | 438-390-3 | - | KE-24700 | X | X |
| 2-Methylpentane | 107-83-5 | X | X | 203-523-4 | 438-390-3 | - | KE-24699 | X | X |
| Methylcyclopentane | 96-37-7 | X | X | - | - | - | KE-23724 | X | X |
| Benzene | 71-43-2 | X | X | - | - | - | KE-02150 | X | X |

| Component | CAS No | TSCA | TSCA Inventory notification - Active-Inactive | DSL | NDSL | PICCS | ISHL | ENCS |
|---|---|---|---|---|---|---|---|---|
| Hexane | 110-54-3 | X | ACTIVE | X | - | X | X | X |
| Butyl lithium | 109-72-8 | X | ACTIVE | X | - | X | X | X |
| 3-Methylpentane | 96-14-0 | X | ACTIVE | X | - | X | X | X |
| 2-Methylpentane | 107-83-5 | X | ACTIVE | X | - | X | X | X |
| Methylcyclopentane | 96-37-7 | X | ACTIVE | X | - | X | X | X |
| Benzene | 71-43-2 | X | ACTIVE | X | - | X | X | X |

**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** | On basis of test data |
| **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.

| | |
|---|---|
| **Revision Date** | 22-Mar-2023 |
| **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