Butyllithium (ca. 15% in Hexane, ca. 1.6mol/L)

sc-300312

Material Safety Data Sheet

Hazard Alert Code Key: EXTREME HIGH MODERATE LOW

Section 1 - CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

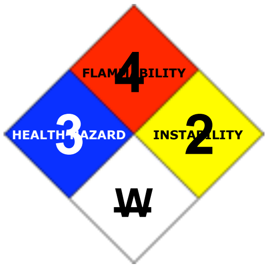
PRODUCT NAME

Butyllithium (ca. 15% in Hexane, ca. 1.6mol/L)

STATEMENT OF HAZARDOUS NATURE

CONSIDERED A HAZARDOUS SUBSTANCE ACCORDING TO OSHA 29 CFR 1910.1200.

NFPA



SUPPLIER

Company: Santa Cruz Biotechnology, Inc.
Address:
2145 Delaware Ave
Santa Cruz, CA 95060
Telephone: 800.457.3801 or 831.457.3800
Emergency Tel: CHEMWATCH: From within the US and Canada: 877-715-9305
Emergency Tel: From outside the US and Canada: +800 2436 2255 (1-800-CHEMCALL) or call +613 9573 3112

PRODUCT USE

Laboratory reagent; polymerises isoprene and butadiene; intermediate in the preparation of lithium hydride; component of rocket fuel; metalating agent.

SYNONYMS

C4-H9-Li, CH3(CH2)3Li, "butyl lithium", n-butyllithium, n-butyllithium, "lithium 1-butanide", "lithium 1-butanide"

Section 2 - HAZARDS IDENTIFICATION

CANADIAN WHMIS SYMBOLS

EMERGENCY OVERVIEW

RISK

Spontaneously flammable in air.
Causes severe burns.
Risk of serious damage to eyes.
Reacts violently with water liberating extremely flammable gases.

May cause fire.

POTENTIAL HEALTH EFFECTS

ACUTE HEALTH EFFECTS

SWALLOWED

- The material can produce severe chemical burns within the oral cavity and gastrointestinal tract following ingestion.
- Considered an unlikely route of entry in commercial/industrial environments.
- Lithium, in large doses, can cause dizziness and weakness. If a low salt diet is in place, kidney damage can result. There may be dehydration, weight loss, skin effects and thyroid disturbances. Central nervous system effects include slurred speech, blurred vision, numbness, inco-ordination and convulsions. Repeated exposure can cause diarrhea, vomiting, tremor, muscle jerks and very brisk reflexes.

EYE

- The material can produce severe chemical burns to the eye following direct contact. Vapors or mists may be extremely irritating.
- If applied to the eyes, this material causes severe eye damage.

SKIN

- The material can produce severe chemical burns following direct contactwith the skin.

INHALED

- If inhaled, this material can irritate the throat andlungs of some persons.
- Inhalation of quantities of liquid mist may be extremely hazardous, even lethal due to spasm, extreme irritation of larynx and bronchi, chemical pneumonitis and pulmonary edema.

CHRONIC HEALTH EFFECTS

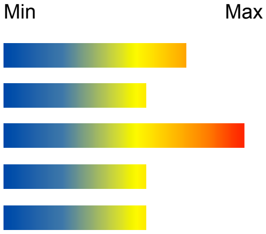
- Principal routes of exposure are by accidental skin and eye contact and by inhalation of vapors especially at higher temperatures.

Lithium compounds can affect the nervous system and muscle. This can cause tremor, inco-ordination, spastic jerks and very brisk reflexes. They may cause birth defects and should not be used when pregnancy is suspected. They are effective in treating manic episodes of bipolar disorder. Restricting sodium in the diet increases the risks of taking lithium.

Section 3 - COMPOSITION / INFORMATION ON INGREDIENTS

HAZARD RATINGS

Flammability:	3
Toxicity:	2
Body Contact:	4
Reactivity:	2
Chronic:	2



Min/Nil=0
Low=1
Moderate=2
High=3
Extreme=4

NAME	CAS RN	%
butyllithium	109-72-8	>98
commercial product is often supplied		
C5-C7 hydrocarbons (eg cyclohexane or hexanes)		
under nitrogen		
lithium hydride	7580-67-8	
may precipitate during long-term storage		

Section 4 - FIRST AID MEASURES

SWALLOWED

- If poisoning occurs, contact a doctor or Poisons Information Center.
- If swallowed do NOT induce vomiting.
- If vomiting occurs, lean patient forward or place on left side (head-down position, if possible) to maintain open airway and prevent aspiration.
- Observe the patient carefully.
- Never give liquid to a person showing signs of being sleepy or with reduced awareness; i.e. becoming unconscious
- Give water to rinse out mouth, then provide liquid slowly and as much as casualty can comfortably drink.
- Seek medical advice.

EYE

- If this product comes in contact with the eyes:
- Immediately hold eyelids apart and flush the eye continuously with running water.
- Ensure complete irrigation of the eye by keeping eyelids apart and away from eye and moving the eyelids by occasionally lifting the upper and lower lids.
- Continue flushing until advised to stop by the Poisons Information Center or a doctor, or for at least 15 minutes.

- Transport to hospital or doctor without delay.
- Removal of contact lenses after an eye injury should only be undertaken by skilled personnel.

SKIN

• If skin or hair contact occurs:

- Quickly but gently, wipe material off skin with a dry, clean cloth.
- Immediately remove all contaminated clothing, including footwear.
- Wash skin and hair with running water. Continue flushing with water until advised to stop by the Poisons Information Center.
- Transport to hospital, or doctor.

INHALED

•

- If fumes or combustion products are inhaled remove from contaminated area.
- Lay patient down. Keep warm and rested.
- Prostheses such as false teeth, which may block airway, should be removed, where possible, prior to initiating first aid procedures.
- Apply artificial respiration if not breathing, preferably with a demand valve resuscitator, bag-valve mask device, or pocket mask as trained. Perform CPR if necessary.
- Transport to hospital, or doctor.

NOTES TO PHYSICIAN

• Clinical effects of lithium intoxication appear to relate to duration of exposure as well as to level.

- Lithium produce a generalized slowing of the electroencephalogram; the anion gap may increase in severe cases.
- Emesis (or lavage if the patient is obtunded or convulsing) is indicated for ingestions exceeding 40 mg (Li)/Kg.
- Overdose may delay absorption; decontamination measures may be more effective several hours after cathartics.
- Charcoal is not useful. No clinical data are available to guide the administration of catharsis.
- Haemodialysis significantly increases lithium clearance; indications for hemodialysis include patients with serum levels above 4 mEq/L 6.There are no antidotes.

[Ellenhorn and Barceloux: Medical Toxicology].

Section 5 - FIRE FIGHTING MEASURES

Upper Explosive Limit (%):	Not available
Specific Gravity (water=1):	Not available
Lower Explosive Limit (%):	Not available
Relative Vapor Density (air=1):	>1

EXTINGUISHING MEDIA

•

- Foam.
- Dry chemical powder.
- DO NOT use water.

FIRE FIGHTING

•

- Alert Emergency Responders and tell them location and nature of hazard.
- May be violently or explosively reactive.
- Wear full body protective clothing with breathing apparatus.
- Prevent, by any means available, spillage from entering drains or water course. Consider evacuation.
- DO NOT use water on fires.

Caution: If only water available, use flooding quantities of water or withdraw personnel.

- DO NOT allow water to enter containers.
- DO NOT approach containers suspected to be hot.
- Cool fire exposed containers with water spray from a protected location.
- If safe to do so, remove containers from path of fire.
- If fire gets out of control withdraw personnel and warn against entry.
- Equipment should be thoroughly decontaminated after use.

GENERAL FIRE HAZARDS/HAZARDOUS COMBUSTIBLE PRODUCTS

•

- Severe fire hazard when exposed to heat, flame or oxidizers.
- Vapor may travel a considerable distance to a source of ignition.
- Heating may cause expansion or decomposition leading to violent rupture of containers.
- May emit acrid, poisonous or corrosive fumes.

PERSONAL PROTECTION

Glasses:
Safety Glasses.
Gloves:
Respirator:
Type A-P Filter of sufficient capacity

Section 6 - ACCIDENTAL RELEASE MEASURES

MINOR SPILLS

•

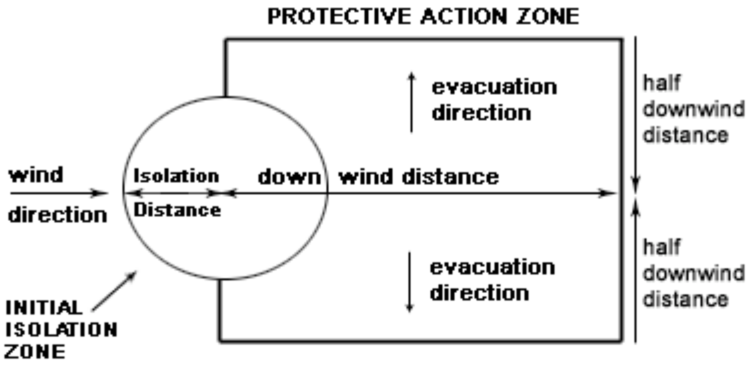
- Remove all ignition sources.
- Clean up all spills immediately.
- Avoid breathing vapors and contact with skin and eyes.
- Control personal contact by using protective equipment.
- Contain and absorb spill with sand, earth, inert material or vermiculite.
- Wipe up.
- Place in a suitable labeled container for waste disposal.

MAJOR SPILLS

•

- Clear area of personnel and move upwind.
- Alert Emergency Responders and tell them location and nature of hazard.
- May be violently or explosively reactive.
- Wear full body protective clothing with breathing apparatus.
- Prevent spillage from entering drains or water courses.
- Consider evacuation.
- DO NOT use water on spill.
- No smoking, flames or ignition sources.
- Increase ventilation.
- Contain with DRY sand, earth or other clean, dry inert material.
- NEVER use organic absorbents such as sawdust, paper, cloth or wet materials.
- Use spark-free and explosion-proof equipment.
- Collect recoverable product in labeled containers for possible recycling.
- To avoid risk of contamination, DO NOT mix recovered with fresh material.
- Absorb remaining product with dry sand, earth or vermiculite.
- Collect residues and seal in labeled drums for disposal.
- Use flooding quantities of water to wash area.
- Prevent runoff into drains.
- If contamination of drains or waterways occurs advise emergency services.

PROTECTIVE ACTIONS FOR SPILL



From IERG (Canada/Australia)	
Isolation Distance	50 meters
Downwind Protection Distance	250 meters

FOOTNOTES

1 PROTECTIVE ACTION ZONE is defined as the area in which people are at risk of harmful exposure. This zone assumes that random changes in wind direction confines the vapour plume to an area within 30 degrees on either side of the predominant wind direction, resulting in a crosswind protective action distance equal to the downwind protective action distance.

2 PROTECTIVE ACTIONS should be initiated to the extent possible, beginning with those closest to the spill and working away from the site in the downwind direction. Within the protective action zone a level of vapour concentration may exist resulting in nearly all unprotected persons becoming incapacitated and unable to take protective action and/or incurring serious or irreversible health effects.

3 INITIAL ISOLATION ZONE is determined as an area, including upwind of the incident, within which a high probability of localised wind reversal may expose nearly all persons without appropriate protection to life-threatening concentrations of the material.

4 SMALL SPILLS involve a leaking package of 200 litres (55 US gallons) or less, such as a drum (jerrican or box with inner containers). Larger packages leaking less than 200 litres and compressed gas leaking from a small cylinder are also considered "small spills". LARGE SPILLS involve many small leaking packages or a leaking package of greater than 200 litres, such as a cargo tank, portable tank or a "one-tonne" compressed gas cylinder.

5 Guide 135 is taken from the US DOT emergency response guide book.

6 IERG information is derived from CANUTEC - Transport Canada.

ACUTE EXPOSURE GUIDELINE LEVELS (AEGL) (in ppm)

AEGL 1: The airborne concentration of a substance above which it is predicted that the general population, including susceptible individuals, could experience notable discomfort, irritation, or certain asymptomatic nonsensory effects. However, the effects are not disabling and are transient and

reversible upon cessation of exposure.
AEGL 2: The airborne concentration of a substance above which it is predicted that the general population, including susceptible individuals, could experience irreversible or other serious, long-lasting adverse health effects or an impaired ability to escape.
AEGL 3: The airborne concentration of a substance above which it is predicted that the general population, including susceptible individuals, could experience life-threatening health effects or death.

Section 7 - HANDLING AND STORAGE

PROCEDURE FOR HANDLING

•

- Avoid all personal contact, including inhalation.
- Wear protective clothing when risk of exposure occurs.
- Use in a well-ventilated area.
- Prevent concentration in hollows and sumps.
- DO NOT enter confined spaces until atmosphere has been checked.
- DO NOT allow material to contact humans, exposed food or food utensils.
- Avoid contact with incompatible materials.
- When handling, DO NOT eat, drink or smoke.
- Keep containers securely sealed when not in use.
- Avoid physical damage to containers.
- Always wash hands with soap and water after handling.
- Work clothes should be laundered separately.
- Launder contaminated clothing before re-use.
- Use good occupational work practice.
- Observe manufacturer's storing and handling recommendations.
- Atmosphere should be regularly checked against established exposure standards to ensure safe working conditions are maintained.

RECOMMENDED STORAGE METHODS

• Packaging as recommended by manufacturer.

- Check that containers are clearly labele

Glass container.
Plastic container.
Polylined drum.

STORAGE REQUIREMENTS

• Observe manufacturer's storing and handling recommendations.
Store in original containers in approved flame-proof area.

- Keep containers securely sealed
- No smoking, naked lights, heat or ignition sources.

Store in a cool area and away from sunlight.
Store in a cool, dry and well-ventilated area.
Store away from incompatible materials.

- Outside or detached storage is preferred.
- Keep storage area free of debris, waste and combustibles.

Protect containers against physical damage.
Check regularly for spills and leaks.

SAFE STORAGE WITH OTHER CLASSIFIED CHEMICALS

+ + + + X +

X: Must not be stored together
O: May be stored together with specific preventions
+: May be stored together

Section 8 - EXPOSURE CONTROLS / PERSONAL PROTECTION

EXPOSURE CONTROLS

Source	Material	TWA ppm	TWA mg/m³	STEL ppm	STEL mg/m³	Peak ppm	Peak mg/m³	TWA F/CC	Notes

Canada - Alberta Occupational Exposure Limits	lithium hydride (Lithium hydride)		0.025			
Canada - British Columbia Occupational Exposure Limits	lithium hydride (Lithium hydride)		0.025			
Canada - Ontario Occupational Exposure Limits	lithium hydride (Lithium hydride)		0.025			
US OSHA Permissible Exposure Levels (PELs) - Table Z1	lithium hydride (Lithium hydride)		0.025			
US ACGIH Threshold Limit Values (TLV)	lithium hydride (Lithium hydride)		0.025			TLV Basis: skin, eye & upper respiratory tract irritation
US NIOSH Recommended Exposure Limits (RELs)	lithium hydride (Lithium hydride)		0.025			
US - Tennessee Occupational Exposure Limits - Limits For Air Contaminants	lithium hydride (Lithium hydride)		0.025			
US - Vermont Permissible Exposure Limits Table Z-1-A Transitional Limits for Air Contaminants	lithium hydride (Lithium hydride)		0.025			
US - Vermont Permissible Exposure Limits Table Z-1-A Final Rule Limits for Air Contaminants	lithium hydride (Lithium hydride)		0.025			
US - Minnesota Permissible Exposure Limits (PELs)	lithium hydride (Lithium hydride)		0.025			
US - California Permissible Exposure Limits for Chemical Contaminants	lithium hydride (Lithium hydride)		0.025			
US - Idaho - Limits for Air Contaminants	lithium hydride (Lithium hydride)		0.025			
US - Hawaii Air Contaminant Limits	lithium hydride (Lithium hydride)		0.025			
US - Alaska Limits for Air Contaminants	lithium hydride (Lithium hydride)		0.025			
US - Michigan Exposure Limits for Air Contaminants	lithium hydride (Lithium hydride)		0.025			
Canada - Yukon Permissible Concentrations for Airborne Contaminant Substances	lithium hydride (Lithium hydride)	-	0.025	-	0.025	
US - Washington Permissible exposure limits of air contaminants	lithium hydride (Lithium hydride)		0.025		0.075	
Canada - Saskatchewan Occupational Health and Safety Regulations - Contamination Limits	lithium hydride (Lithium hydride)		0.025		0.075	
Canada - Prince Edward Island Occupational Exposure Limits	lithium hydride (Lithium hydride)		0.025			TLV Basis: skin, eye & upper respiratory tract irritation
US - Wyoming Toxic and Hazardous Substances Table Z1 Limits for Air Contaminants	lithium hydride (Lithium hydride)		0.025			
Canada - Quebec Permissible Exposure Values for Airborne Contaminants (English)	lithium hydride (Lithium hydride)		0.025			

US - Oregon Permissible Exposure Limits (Z1)	lithium hydride (Lithium hydride)	0.025		
Canada - Northwest Territories Occupational Exposure Limits (English)	lithium hydride (Lithium hydride)	0.025	0.075	
Canada - Nova Scotia Occupational Exposure Limits	lithium hydride (Lithium hydride)	0.025		TLV Basis: skin, eye & upper respiratory tract irritation

EMERGENCY EXPOSURE LIMITS

Material	Revised IDLH Value (mg/m3)	Revised IDLH Value (ppm)
lithium hydride	0.5	

MATERIAL DATA

BUTYLLITHIUM:

• No exposure limits set by NOHSC or ACGIH.

LITHIUM HYDRIDE:

• For lithium hydride:

The recommended TLV-TWA is thought to minimise the potential for ocular, dermal and nasal irritation which are due to the alkali produced when it is hydrolysed in body mucous fluids. The TLV-TWA is lower than that recommended for sodium, potassium and caesium hydroxides reflecting the additional toxicity produced by the reducing action of lithium hydride and the higher pHs produced by an equivalent quantity of lithium ion.

PERSONAL PROTECTION

Consult your EHS staff for recommendations

EYE

•

- Safety glasses.
- Safety glasses with side shields.
- Chemical goggles.
- Contact lenses pose a special hazard; soft lenses may absorb irritants and all lenses concentrate them.

HANDS/FEET

•

- PVC gloves
- Neoprene gloves

Protective footwear.

OTHER

• Overalls.

- Impervious protective clothing
- Eyewash unit.

Ensure there is ready access to a safety shower.

The local concentration of material, quantity and conditions of use determine the type of personal protective equipment required.

Use appropriate NIOSH-certified respirator based on informed professional judgement. In conditions where no reasonable estimate of exposure can be made, assume the exposure is in a concentration IDLH and use NIOSH-certified full face pressure demand SCBA with a minimum service life of 30 minutes, or a combination full facepiece pressure demand SAR with auxiliary self-contained air supply. Respirators provided only for escape from IDLH atmospheres shall be NIOSH-certified for escape from the atmosphere in which they will be used.

ENGINEERING CONTROLS

• General exhaust is adequate under normal operating conditions. Local exhaust ventilation may be required in special circumstances. If risk of overexposure exists, wear an approved respirator An approved respirator (supplied air type) may be required in special circumstances. Correct fit is essential to ensure adequate protection. Provide adequate ventilation in warehouses and enclosed storage areas.

Air contaminants generated in the workplace possess varying "escape" velocities which, in turn, determine the "capture velocities" of fresh circulating air required to effectively remove the contaminant.

Type of Contaminant:	Air Speed:
solvent, vapors, degreasing etc., evaporating from tank (in still air).	0.25-0.5 m/s (50-100 f/min)
aerosols, fumes from pouring operations, intermittent container filling, low speed conveyer transfers, welding, spray drift, plating acid fumes, pickling (released at low velocity into zone of active generation)	0.5-1 m/s (100-200 f/min.)

direct spray, spray painting in shallow booths, drum filling, conveyer loading, crusher dusts, gas discharge (active generation into zone of rapid air motion)	1-2.5 m/s (200-500 f/min.)
grinding, abrasive blasting, tumbling, high speed wheel generated dusts (released at high initial velocity into zone of very high rapid air motion)	2.5-10 m/s (500-2000 f/min.)

Within each range the appropriate value depends on:

Lower end of the range	Upper end of the range
1: Room air currents minimal or favorable to capture	1: Disturbing room air currents
2: Contaminants of low toxicity or of nuisance value only.	2: Contaminants of high toxicity
3: Intermittent, low production.	3: High production, heavy use
4: Large hood or large air mass in motion	4: Small hood-local control only

Simple theory shows that air velocity falls rapidly with distance away from the opening of a simple extraction pipe. Velocity generally decreases with the square of distance from the extraction point (in simple cases). Therefore the air speed at the extraction point should be adjusted, accordingly, after reference to distance from the contaminating source. The air velocity at the extraction fan, for example, should be a minimum of 1-2 m/s (200-400 f/min) for extraction of solvents generated in a tank 2 meters distant from the extraction point. Other mechanical considerations, producing performance deficits within the extraction apparatus, make it essential that theoretical air velocities are multiplied by factors of 10 or more when extraction systems are installed or used.

Section 9 - PHYSICAL AND CHEMICAL PROPERTIES

PHYSICAL PROPERTIES

Liquid.

State	Liquid	Molecular Weight	64.06
Melting Range (°F)	Not available	Boiling Range (°F)	Not available
Solubility in water (g/L)	Reacts violently	Flash Point (°F)	Flammable.
pH (1% solution)	Not applicable	Decomposition Temp (°F)	Not available
pH (as supplied)	Not available	Autoignition Temp (°F)	Not available
Vapour Pressure (mmHG)	Not available	Upper Explosive Limit (%)	Not available
Specific Gravity (water=1)	Not available	Lower Explosive Limit (%)	Not available
Relative Vapor Density (air=1)	>1	Volatile Component (%vol)	Not available
Evaporation Rate	Not available		

APPEARANCE

Clear colourless liquid. Ignites on exposure to air. Reacts violently in contact with water, acids, halogens, alcohols and amines.

Section 10 - CHEMICAL STABILITY

CONDITIONS CONTRIBUTING TO INSTABILITY

•

- Presence of incompatible materials.
- Product is considered stable.
- Hazardous polymerization will not occur.

STORAGE INCOMPATIBILITY

- Avoid contamination with strong oxidizing agents as violent reaction may occur, with spontaneous decomposition or explosion.
- Contact with moisture or water may generate heat causing ignition
- Contact with acids produces toxic fumes

For incompatible materials - refer to Section 7 - Handling and Storage.

Section 11 - TOXICOLOGICAL INFORMATION

butyllithium

TOXICITY AND IRRITATION

- No significant acute toxicological data identified in literature search.

Section 12 - ECOLOGICAL INFORMATION

Refer to data for ingredients, which follows:

BUTYLLITHIUM:

Marine Pollutant:	Not Determined

LITHIUM HYDRIDE:

- Metal-containing inorganic substances generally have negligible vapour pressure and are not expected to partition to air. Once released to surface waters and moist soils their fate depends on solubility and dissociation in water. Environmental processes (such as oxidation and the presence of acids or bases) may transform insoluble metals to more soluble ionic forms. Microbiological processes may also transform insoluble metals to more soluble forms. Such ionic species may bind to dissolved ligands or sorb to solid particles in aquatic or aqueous media. A significant proportion of dissolved/ sorbed metals will end up in sediments through the settling of suspended particles. The remaining metal ions can then be taken up by aquatic organisms.

When released to dry soil most metals will exhibit limited mobility and remain in the upper layer; some will leach locally into ground water and/ or surface water ecosystems when soaked by rain or melt ice. Environmental processes may also be important in changing solubilities.
Even though many metals show few toxic effects at physiological pHs, transformation may introduce new or magnified effects.
A metal ion is considered infinitely persistent because it cannot degrade further.
The current state of science does not allow for an unambiguous interpretation of various measures of bioaccumulation.
The counter-ion may also create heath and environmental concerns once isolated from the metal. Under normal physiological conditions the counter-ion may be essentially insoluble and may not be bioavailable.
Environmental processes may enhance bioavailability.

- For lithium (anion):

Environmental fate:
Experiments with experimental animals have shown that lithium can have reprotoxic effects, and increasing consumption might therefore result in adverse effects on health and environment. Lithium has significant bioavailability only when administered as a partially soluble salt such as lithium carbonate. Lithium is not a dietary mineral for plants but it does stimulate plant growth.
Ecotoxicity:
Fish LC50 (28, 35 days) rainbow trout 9.28, 1.4 mg/l (salt)
Fish LC50 (96 h): fathead minnow 42 mg/l; NOEC 13 mg/l (salt)
Daphnia magna EC50 (48 h): 24 mg/l; NOEC 11 mg/l
Lithium is not expected to bioaccumulate in mammals and its human and environmental toxicity are low. Lithium does accumulate in several species of fish, molluscs and crustaceans where it stored in the digestive tract and exoskeleton
Methanogenesis of granular anaerobic sludge (initial COD 5750 mg/l O2, pH 7.2) was stimulated at lithium ion concentration 10-20 mg/l, slightly inhibited at lithium ion concentration 350 mg/l and seriously inhibited at lithium ion concentration > 500 mg/l.
Microinjection of lithium chloride into prospective ventral blastomeres of a 32-cell Xenopus larvis embryo gives rise to duplication of dorsoanterior structures such as the notochord, neural tube and eyes.

- DO NOT discharge into sewer or waterways.

Ecotoxicity

Ingredient	Persistence: Water/Soil	Persistence: Air	Bioaccumulation	Mobility
lithium hydride			LOW	

Section 13 - DISPOSAL CONSIDERATIONS

US EPA Waste Number & Descriptions

A. General Product Information
Reactivity characteristic: use EPA hazardous waste number D003 (waste code R).

Disposal Instructions

All waste must be handled in accordance with local, state and federal regulations.

- Consult Waste Management Authority for disposal.

Treat and neutralize at an effluent treatment plant.
Decontaminate empty containers.
Recycle containers if possible, or dispose of in an authorized landfill.
Bury residue in an authorized landfill.

Section 14 - TRANSPORTATION INFORMATION

NOT REGULATED FOR TRANSPORT OF DANGEROUS GOODS: DOT, IATA, IMDG

Section 15 - REGULATORY INFORMATION

butyllithium (CAS: 109-72-8) is found on the following regulatory lists;

"Canada Toxicological Index Service - Workplace Hazardous Materials Information System - WHMIS (English)","Canada Toxicological Index Service - Workplace Hazardous Materials Information System - WHMIS (French)","OECD Representative List of High Production Volume (HPV) Chemicals","US - New Jersey Right to Know Hazardous Substances","US - Pennsylvania - Hazardous Substance List","US - Rhode Island Hazardous Substance List","US DOE Temporary Emergency Exposure Limits (TEELs)","US EPA High Production Volume Program

Chemical List","US Toxic Substances Control Act (TSCA) - Inventory"
Regulations for ingredients

lithium hydride (CAS: 7580-67-8) is found on the following regulatory lists;

"Canada - Alberta Occupational Exposure Limits","Canada - British Columbia Occupational Exposure Limits","Canada - Northwest Territories Occupational Exposure Limits (English)","Canada - Nova Scotia Occupational Exposure Limits","Canada - Ontario Occupational Exposure Limits","Canada - Prince Edward Island Occupational Exposure Limits","Canada - Quebec Permissible Exposure Values for Airborne Contaminants (English)","Canada - Saskatchewan Occupational Health and Safety Regulations - Contamination Limits","Canada - Yukon Permissible Concentrations for Airborne Contaminant Substances","Canada Ingredient Disclosure List (SOR/88-64)","Canada Non-Domestic Substances List (NDSL)","Canada Toxicological Index Service - Workplace Hazardous Materials Information System - WHMIS (English)","Canada Toxicological Index Service - Workplace Hazardous Materials Information System - WHMIS (French)","US - Alaska Limits for Air Contaminants","US - California Occupational Safety and Health Regulations (CAL/OSHA) - Hazardous Substances List","US - California Permissible Exposure Limits for Chemical Contaminants","US - Connecticut Hazardous Air Pollutants","US - Hawaii Air Contaminant Limits","US - Idaho - Limits for Air Contaminants","US - Massachusetts Oil & Hazardous Material List","US - Michigan Exposure Limits for Air Contaminants","US - Minnesota Hazardous Substance List","US - Minnesota Permissible Exposure Limits (PELs)","US - Oregon Permissible Exposure Limits (Z1)","US - Pennsylvania - Hazardous Substance List","US - Rhode Island Hazardous Substance List","US - Tennessee Occupational Exposure Limits - Limits For Air Contaminants","US - Vermont Permissible Exposure Limits Table Z-1-A Final Rule Limits for Air Contaminants","US - Vermont Permissible Exposure Limits Table Z-1-A Transitional Limits for Air Contaminants","US - Washington Permissible exposure limits of air contaminants","US - Wyoming Toxic and Hazardous Substances Table Z1 Limits for Air Contaminants","US ACGIH Threshold Limit Values (TLV)","US DOE Temporary Emergency Exposure Limits (TEELs)","US List of Lists - Consolidated List of Chemicals Subject to the Emergency Planning and Community Right-to-Know Act (EPCRA) and Section 112(r) of the Clean Air Act","US NIOSH Recommended Exposure Limits (RELs)","US OSHA Permissible Exposure Levels (PELs) - Table Z1","US SARA Section 302 Extremely Hazardous Substances","US Toxic Substances Control Act (TSCA) - Inventory"

Section 16 - OTHER INFORMATION

LIMITED EVIDENCE

- Ingestion may produce health damage*.
- Cumulative effects may result following exposure*.
- Possible risk of harm to breastfed babies*.

* (limited evidence).

Reasonable care has been taken in the preparation of this information, but the author makes no warranty of merchantability or any other warranty, expressed or implied, with respect to this information. The author makes no representations and assumes no liability for any direct, incidental or consequential damages resulting from its use. For additional technical information please call our toxicology department on +800 CHEMCALL.

- Classification of the mixture and its individual components has drawn on official and authoritative sources as well as independent review by the Chemwatch Classification committee using available literature references.

A list of reference resources used to assist the committee may be found at:
www.chemwatch.net/references.

- The (M)SDS is a Hazard Communication tool and should be used to assist in the Risk Assessment. Many factors determine whether the reported Hazards are Risks in the workplace or other settings. Risks may be determined by reference to Exposures Scenarios. Scale of use, frequency of use and current or available engineering controls must be considered.

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