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Produktinformation



Forschungsprodukte & Biochemikalien



Zellkultur & Verbrauchsmaterial



Diagnostik & molekulare Diagnostik



Laborgeräte & Service

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See the following pages for more information!



Lieferung & Zahlungsart

siehe unsere [Liefer- und Versandbedingungen](#)

Zuschläge

- Mindermengenzuschlag
- Trockeneiszuschlag
- Gefahrgutzuschlag
- Expressversand

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Lithium

sc-252954



The Power is Question

Material Safety Data Sheet

Hazard Alert Code Key: **EXTREME** **HIGH** **MODERATE** **LOW**

Section 1 - CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

PRODUCT NAME

Lithium

STATEMENT OF HAZARDOUS NATURE

CONSIDERED A HAZARDOUS SUBSTANCE ACCORDING TO OSHA 29 CFR 1910.1200.

NFPA



SUPPLIER

Santa Cruz Biotechnology, Inc.
2145 Delaware Avenue
Santa Cruz, California 95060
800.457.3801 or 831.457.3800

EMERGENCY:

ChemWatch
Within the US & Canada: 877-715-9305
Outside the US & Canada: +800 2436 2255
(1-800-CHEMCALL) or call +613 9573 3112

SYNONYMS

Li, "Lithium metal, in cartridge", "Metal lithium", "Metallic lithium", "lithium granula", "lithium granulated", "lithium high sodium, granule"

Section 2 - HAZARDS IDENTIFICATION

CHEMWATCH HAZARD RATINGS

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

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



CANADIAN WHMIS SYMBOLS



EMERGENCY OVERVIEW

RISK

Causes burns.
Risk of serious damage to eyes.
Reacts violently with water liberating extremely flammable gases.
Extremely flammable.

POTENTIAL HEALTH EFFECTS

ACUTE HEALTH EFFECTS

SWALLOWED

- The material can produce chemical burns within the oral cavity and gastrointestinal tract following ingestion.
- Accidental ingestion of the material may be damaging to the health of the individual.
- Lithium, in large doses, can cause dizziness and weakness. If a low salt diet is in place, kidney damage can result.

EYE

- The material can produce 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 chemical burns following direct contact with the skin.
- Skin contact is not thought to have harmful health effects, however the material may still produce health damage following entry through wounds, lesions or abrasions.
- Open cuts, abraded or irritated skin should not be exposed to this material.
- Entry into the blood-stream, through, for example, cuts, abrasions or lesions, may produce systemic injury with harmful effects. Examine the skin prior to the use of the material and ensure that any external damage is suitably protected.

INHALED

- If inhaled, this material can irritate the throat and lungs of some persons.
- Inhalation of dusts, generated by the material during the course of normal handling, may be damaging to the health of the individual.
- Persons with impaired respiratory function, airway diseases and conditions such as emphysema or chronic bronchitis, may incur further disability if excessive concentrations of particulate are inhaled.
- The inhalation of small particles of metal oxide results in sudden thirst, a sweet, metallic or foul taste, throat irritation, cough, dry mucous membranes, tiredness and general unwellness. Headache, nausea and vomiting, fever or chills, restlessness, sweating, diarrhea, excessive urination and prostration may also occur.

CHRONIC HEALTH EFFECTS

- Repeated or prolonged exposure to corrosives may result in the erosion of teeth, inflammatory and ulcerative changes in the mouth and necrosis (rarely) of the jaw. Bronchial irritation, with cough, and frequent attacks of bronchial pneumonia may ensue.
- Limited evidence suggests that repeated or long-term occupational exposure may produce cumulative health effects involving organs or biochemical systems.
Lithium compounds can affect the nervous system and muscle. This can cause tremor, inco-ordination, spastic jerks and very brisk reflexes.
- Long term exposure to high dust concentrations may cause changes in lung function i.e. pneumoconiosis; caused by particles less than 0.5 micron penetrating and remaining in the lung.

Section 3 - COMPOSITION / INFORMATION ON INGREDIENTS

NAME	CAS RN	%
lithium	7439-93-2	>99
contact with water or moisture produce		
lithium hydroxide	1310-66-3	
hydrogen	1333-74-0	

Section 4 - FIRST AID MEASURES

SWALLOWED

· For advice, contact a Poisons Information Center or a doctor at once. · Urgent hospital treatment is likely to be needed.

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. · DO NOT attempt to remove particles attached to or embedded in eye. · Lay victim down, on stretcher if available and pad BOTH eyes, make sure dressing does not press on the injured eye by placing thick pads under dressing, above and below the eye. · Seek urgent medical assistance, or transport to hospital.

SKIN

■ If skin or hair contact occurs: · Immediately flush body and clothes with large amounts of water, using safety shower if available. · Quickly

remove all contaminated clothing, including footwear.

INHALED

· If fumes or combustion products are inhaled remove from contaminated area. · Lay patient down. Keep warm and rested.

NOTES TO PHYSICIAN

■ Copper, magnesium, aluminum, antimony, iron, manganese, nickel, zinc (and their compounds) in welding, galvanizing or smelting operations all give rise to thermally produced particulates of smaller dimension than might be produced if the metals are divided mechanically. Where insufficient ventilation or respiratory protection is available these particulates may produce "metal fume fever" in workers from an acute or long term exposure.

For acute or short-term repeated exposures to highly alkaline materials:

- Respiratory stress is uncommon but present occasionally because of soft tissue edema.
- Unless endotracheal intubation can be accomplished under direct vision, cricothyroidotomy or tracheotomy may be necessary. 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.

Section 5 - FIRE FIGHTING MEASURES

Vapor Pressure (mmHg):	0.975 @ 723 C
Upper Explosive Limit (%):	Not applicable.
Specific Gravity (water=1):	0.534 @ 20 C
Lower Explosive Limit (%):	Not applicable.

EXTINGUISHING MEDIA

■ Metal dust fires need to be smothered with sand, inert dry powders.

DO NOT USE WATER, CO2 or FOAM.

· DO NOT use halogenated fire extinguishing agents.

Dry agent - Graphite, Lithium chloride, Potassium chloride.

Class D Fire Extinguisher.

NOTE: Carbon dioxide extinguishers should not be used.

FIRE FIGHTING

- Alert Emergency Responders and tell them location and nature of hazard.
- May be violently or explosively reactive.

When any large container (including road and rail tankers) is involved in a fire, consider evacuation by 800 metres in all directions.

GENERAL FIRE HAZARDS/HAZARDOUS COMBUSTIBLE PRODUCTS

· Solid in contact with water or moisture may generate sufficient heat to ignite combustible materials.

Combustion products include: metal oxides.

With the exception of the metals that burn in contact with air or water (for example, sodium), masses of combustible metals do not represent unusual fire risks because they have the ability to conduct heat away from hot spots so efficiently that the heat of combustion cannot be maintained - this means that it will require a lot of heat to ignite a mass of combustible metal. Generally, metal fire risks exist when sawdust, machine shavings and other metal 'fines' are present.

- Metal powders, while generally regarded as non-combustible, may burn when metal is finely divided and energy input is high.
- May react explosively with water.
- May be ignited by friction, heat, sparks or flame.
- Metal dust fires are slow moving but intense and difficult to extinguish.
- Will burn with intense heat.
- DO NOT disturb burning dust. Explosion may result if dust is stirred into a cloud, by providing oxygen to a large surface of hot metal.
- Containers may explode on heating.
- Dusts or fumes may form explosive mixtures with air.
- May REIGNITE after fire is extinguished.
- Gases generated in fire may be poisonous, corrosive or irritating.
- DO NOT use water or foam as generation of explosive hydrogen may result.

Gas forms explosive mixtures with air over a wide area.

On combustion emits toxic fumes of lithium oxide (Li₂O), lithium hydroxide (LiOH) and hydrogen gas (H₂).

FIRE INCOMPATIBILITY

- Reacts with acids producing flammable / explosive hydrogen (H₂) gas.
- Segregate from alcohol, water.
- NOTE: May develop pressure in containers; open carefully. Vent periodically.
 - Keep dry.

PERSONAL PROTECTION

Glasses:

Full face- shield.

Gloves:

Respirator:

Particulate

Section 6 - ACCIDENTAL RELEASE MEASURES

MINOR SPILLS

- Material from spill may be contaminated with water resulting in generation of gas which subsequently may pressure closed containers.
- Hold spill material in vented containers only and plan for prompt disposal.
- Eliminate all ignition sources.
- Cover with DRY earth, sand or other non-combustible material.

Cover with suitable non-reactive organic liquid.

MAJOR SPILLS

- Clear area of personnel and move upwind.
- Alert Emergency Responders and tell them location and nature of hazard.

Section 7 - HANDLING AND STORAGE

PROCEDURE FOR HANDLING

- Avoid all personal contact, including inhalation.
- Wear protective clothing when risk of overexposure occurs.

RECOMMENDED STORAGE METHODS

■ Storage containers must be hermetically sealed; the product must be stored under an inert, dry gas.

For low viscosity materials and solids: Drums and jerricans must be of the non-removable head type. Where a can is to be used as an inner package, the can must have a screwed enclosure.

<lp>

The following containers may be used provided the metal is completely covered by a suitable non-reactive organic liquid with a flash point not less than 50 C.

Glass bottle.

Metal can.

Metal drum.

STORAGE REQUIREMENTS

■ KEEP DRY! Packages must be protected from water ingress.

FOR MINOR QUANTITIES:

- Store in an indoor fireproof cabinet or in a room of noncombustible construction and
- provide adequate portable fire-extinguishers in or near the storage area.

Section 8 - EXPOSURE CONTROLS / PERSONAL PROTECTION

EXPOSURE CONTROLS

Source	Material	TWA ppm	TWA mg/m ³	STEL ppm	STEL mg/m ³	Peak ppm	Peak mg/m ³	TWA F/CC	Notes
Canada - British Columbia Occupational Exposure Limits	lithium hydroxide (Lithium hydroxide)						1		
Canada - Ontario Occupational Exposure Limits	lithium hydroxide (Lithium hydroxide Anhydrous)			1					
US AIHA Workplace Environmental Exposure Levels (WEELs)	lithium hydroxide (Lithium Hydroxide)						1		
Canada - Yukon Permissible Concentrations for Airborne Contaminant Substances	hydrogen (Hydrogen)		(See Table 12)						
US - Oregon Permissible Exposure Limits (Z-1)	hydrogen (Hydrogen)	1,000							*

ENDOELTABLE

The following materials had no OELs on our records

- lithium: CAS:7439-93-2

PERSONAL PROTECTION



RESPIRATOR

Particulate
Consult your EHS staff for recommendations

EYE

- Chemical goggles.
- Full face shield.

HANDS/FEET

■ Wear chemical protective gloves, eg. PVC.

Suitability and durability of glove type is dependent on usage. Important factors in the selection of gloves include: such as:

- frequency and duration of contact,
- chemical resistance of glove material,
- glove thickness and
- dexterity

Select gloves tested to a relevant standard (e.g. Europe EN 374, US F739).

- When prolonged or frequently repeated contact may occur, a glove with a protection class of 5 or higher (breakthrough time greater than 240 minutes according to EN 374) is recommended.
- When only brief contact is expected, a glove with a protection class of 3 or higher (breakthrough time greater than 60 minutes according to EN 374) is recommended.
- Contaminated gloves should be replaced.

Gloves must only be worn on clean hands. After using gloves, hands should be washed and dried thoroughly. Application of a non-perfumed moisturiser is recommended.

- Protective gloves eg. Leather gloves or gloves with Leather facing.
- Neoprene gloves.

OTHER

- Protective overalls, closely fitted at neck and wrist.
- Eye-wash unit.

IN CONFINED SPACES:

- Non-sparking protective boots
- Static-free clothing.
- Ensure availability of lifeline.

Staff should be trained in all aspects of rescue work.

Rescue gear: Two sets of SCUBA breathing apparatus Rescue Harness, lines etc.

- Some plastic personal protective equipment (PPE) (e.g. gloves, aprons, overshoes) are not recommended as they may produce static electricity.
- For large scale or continuous use wear tight-weave non-static clothing (no metallic fasteners, cuffs or pockets), non sparking safety footwear.

ENGINEERING CONTROLS

■ Metal dusts must be collected at the source of generation as they are potentially explosive.

- Vacuum cleaners, of flame-proof design, should be used to minimize dust accumulation.
- Metal spraying and blasting should, where possible, be conducted in separate rooms. This minimizes the risk of supplying oxygen, in the form of metal oxides, to potentially reactive finely divided metals such as aluminum, zinc, magnesium or titanium.

Section 9 - PHYSICAL AND CHEMICAL PROPERTIES

PHYSICAL PROPERTIES

Solid.
Does not mix with water.
Floats on water.
Alkaline.

State	Divided solid	Molecular Weight	6.94
Melting Range (°F)	356.972	Viscosity	Not Applicable
Boiling Range (°F)	2402.6	Solubility in water (g/L)	Immiscible
Flash Point (°F)	Not applicable.	pH (1% solution)	Not applicable.
Decomposition Temp (°F)	Not Applicable	pH (as supplied)	Not applicable
Autoignition Temp (°F)	>354.2	Vapor Pressure (mmHg)	0.975 @ 723 C
Upper Explosive Limit (%)	Not applicable.	Specific Gravity (water=1)	0.534 @ 20 C
Lower Explosive Limit (%)	Not applicable.	Relative Vapor Density (air=1)	Not applicable

Volatile Component (%vol)	Not applicable	Evaporation Rate	Not applicable
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APPEARANCE

Silvery-white, ductile, light, soft metal. Yellows in moist air. Must always be kept under mineral oil or other liquid free from oxygen or water. Reacts violently with water evolving hydrogen. It is an odourless metal. Lighter than water and is soluble in ammonia forming a blue solution. It has high electrical conductivity. Burns with a carmine-red flame over a bunsen burner. Mohs hardness: 0.6

Section 10 - CHEMICAL STABILITY

CONDITIONS CONTRIBUTING TO INSTABILITY

- May heat spontaneously
- Identify and remove sources of ignition and heating.

STORAGE INCOMPATIBILITY

- Metals and their oxides or salts may react violently with chlorine trifluoride and bromine trifluoride.
- These trifluorides are hypergolic oxidisers. They ignite on contact (without external source of heat or ignition) with recognised fuels - contact with these materials, following an ambient or slightly elevated temperature, is often violent and may produce ignition.
- The state of subdivision may affect the results.
- Contact with water liberates highly flammable gases.
- Many metals may incandesce, react violently, ignite or react explosively upon addition of concentrated nitric acid.
- Segregate from alcohol, water.
- Some metals can react exothermically with oxidizing acids to form noxious gases.
- Very reactive metals have been known to react with halogenated hydrocarbons, sometimes forming explosive compounds (for example, copper dissolves when heated in carbon tetrachloride).
- Many metals in elemental form react exothermically with compounds having active hydrogen atoms (such as acids and water) to form flammable hydrogen gas and caustic products.
- Elemental metals may react with azo/diazo compounds to form explosive products.
- Some elemental metals form explosive products with halogenated hydrocarbons.
- Reacts with acids producing flammable / explosive hydrogen (H₂) gas.
- Avoid contact with copper, aluminium and their alloys.
- Finely divided metal powders develop pyrophoricity when a critical specific surface area is exceeded; this is ascribed to high heat of oxide formation on exposure to air.
- Safe handling is possible in relatively low concentrations of oxygen in an inert gas
- Several pyrophoric metals, stored in glass bottles have ignited when the container is broken on impact. Storage of these materials moist and in metal containers is recommended.
- The reaction residues from various metal syntheses (involving vacuum evaporation and co-deposition with a ligand) are often pyrophoric.
- NOTE: May develop pressure in containers; open carefully. Vent periodically.

Lithium metal:

- may ignite spontaneously in air when it exists as finely divided particles or powders
- forms corrosive fumes of lithium hydroxide when in contact with water
- reacts violently with water, releasing heat, flammable hydrogen gas, corrosive fumes and forming strong caustic solutions
- is air sensitive and reacts with nitrogen gas at high temperatures
- reacts violently with oxidisers, acetonitrile, arsenic, alcohols, beryllium, bromine pentafluoride, bromobenzene, carbides, carbon dioxide, carbon tetrachloride, chlorine, chlorine trifluoride, chlorine pentafluoride, chromium trichloride, cobalt and its alloys, diazomethane, diborane, glycols, iron alloys, magnesium alloys, maleic anhydride, mercury, metal oxides, nickel alloys, nitric acid, nitrogen, organic matter, oxygen, phosphorus, silicates, sulfur, vanadium and many other substances
- in moist conditions readily undergoes an exothermic reaction with nitrogen at room temperature to form the nitride
- forms friction- and impact-sensitive explosive mixtures with halogens, halocarbons, diborane, methyl dichloride, methyl diiodide, and other substances
- is incompatible with atmospheric gases, diazomethane, hydrogen, iron(II) sulfide, manganese telluride, metal chlorides, nonmetal oxides, platinum, trimethyl hypofluorite and other substances
- attacks plastics, rubber
- when molten attacks ceramic materials, concrete, sand
- attacks metal alloys, cobalt, iron manganese, nickel
- reacts violently with most standard fire extinguishers: water, carbon dioxide, foam, halogenated agents, sodium carbonate, sodium chloride and other dry powders (in case of fire Class D extinguishers or smothering quantities of dry sand, crushed limestone or clay recommended).
- NOTE: . Argon should be used as an inert atmosphere for lithium metal reactions.

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

Section 11 - TOXICOLOGICAL INFORMATION

LITHIUM

TOXICITY AND IRRITATION

■ unless otherwise specified data extracted from RTECS - Register of Toxic Effects of Chemical Substances.

HYDROGEN:

LITHIUM:

- No significant acute toxicological data identified in literature search.
- Asthma-like symptoms may continue for months or even years after exposure to the material ceases. This may be due to a non-allergenic condition known as reactive airways dysfunction syndrome (RADS) which can occur following exposure to high levels of highly irritating compound. Key criteria for the diagnosis of RADS include the absence of preceding respiratory disease, in a non-atopic individual, with

abrupt onset of persistent asthma-like symptoms within minutes to hours of a documented exposure to the irritant. A reversible airflow pattern, on spirometry, with the presence of moderate to severe bronchial hyperreactivity on methacholine challenge testing and the lack of minimal lymphocytic inflammation, without eosinophilia, have also been included in the criteria for diagnosis of RADS. RADS (or asthma) following an irritating inhalation is an infrequent disorder with rates related to the concentration of and duration of exposure to the irritating substance. Industrial bronchitis, on the other hand, is a disorder that occurs as result of exposure due to high concentrations of irritating substance (often particulate in nature) and is completely reversible after exposure ceases. The disorder is characterised by dyspnea, cough and mucus production.

LITHIUM HYDROXIDE:

TOXICITY IRRITATION

Inhalation (rat) LD50: 960 mg/kg Nil Reported

■ The material may produce moderate eye irritation leading to inflammation. Repeated or prolonged exposure to irritants may produce conjunctivitis.

The material may cause skin irritation after prolonged or repeated exposure and may produce on contact skin redness, swelling, the production of vesicles, scaling and thickening of the skin.

CARCINOGEN

METALS	US Environmental Defense Scorecard Suspected Carcinogens	Reference(s)	P65-MC
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REPROTOXIN

lithium	ILO Chemicals in the electronics industry that have toxic effects on reproduction	Reduced fertility or sterility	
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Section 12 - ECOLOGICAL INFORMATION

This material and its container must be disposed of as hazardous waste.

Ecotoxicity

Ingredient	Persistence: Water/Soil	Persistence: Air	Bioaccumulation	Mobility
lithium			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.

‡ Legislation addressing waste disposal requirements may differ by country, state and/ or territory. Each user must refer to laws operating in their area. In some areas, certain wastes must be tracked.

A Hierarchy of Controls seems to be common - the user should investigate:

- Reduction
- Reuse
- Recycling
- Disposal (if all else fails)

This material may be recycled if unused, or if it has not been contaminated so as to make it unsuitable for its intended use. Shelf life considerations should also be applied in making decisions of this type. Note that properties of a material may change in use, and recycling or reuse may not always be appropriate.

- Recycle where possible.
- Consult Waste Management Authority for disposal.

For small quantities:

- Cautiously add the material to dry butanol in an appropriate solvent.
- Reaction may be vigorous and exothermic.

Section 14 - TRANSPORTATION INFORMATION

DOT:

Symbols: None Hazard class or Division: 4.3

Identification Numbers: UN1415 PG: I

Label Codes: 4.3 Special provisions: A7, A19,

IB4, IP1,

N45

Packaging: Exceptions: None Packaging: Non- bulk: 211

Packaging: Exceptions: None Quantity limitations: Forbidden

Passenger aircraft/rail:

Quantity Limitations: Cargo 15 kg Vessel stowage: Location: E

aircraft only:

Vessel stowage: Other: 52

Hazardous materials descriptions and proper shipping names:

Lithium

Air Transport IATA:

ICAO/IATA Class: 4.3 ICAO/IATA Subrisk: None

UN/ID Number: 1415 Packing Group: I

Special provisions: A1

Cargo Only

Packing Instructions: 412 Maximum Qty/Pack: 15 kg

Passenger and Cargo Passenger and Cargo

Packing Instructions: Forbidden Maximum Qty/Pack: Forbidden

Passenger and Cargo Limited Quantity Passenger and Cargo Limited Quantity

Packing Instructions: - Maximum Qty/Pack: -

■ Air transport may be forbidden if this material is flammable, corrosive or toxic gases may be released under normal conditions of transport.

Shipping Name: LITHIUM

Maritime Transport IMDG:

IMDG Class: 4.3 IMDG Subrisk: None

UN Number: 1415 Packing Group: I

EMS Number: F-G , S-N Special provisions: None

Limited Quantities: 0

Shipping Name: LITHIUM

Section 15 - REGULATORY INFORMATION

lithium (CAS: 7439-93-2) is found on the following regulatory lists;

"Canada Domestic Substances List (DSL)", "Canada Toxicological Index Service - Workplace Hazardous Materials Information System - WHMIS (English)", "US - Massachusetts Oil & Hazardous Material List", "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 Postal Service (USPS) Hazardous Materials Table: Postal Service Mailability Guide", "US Toxic Substances Control Act (TSCA) - Inventory"

Regulations for ingredients

lithium hydroxide (CAS: 1310-66-3, 1310-65-2) is found on the following regulatory lists;

"Canada - Ontario Occupational Exposure Limits", "Canada Toxicological Index Service - Workplace Hazardous Materials Information System - WHMIS (English)", "US - Minnesota Hazardous Substance List", "US - New Jersey Right to Know Hazardous Substances", "US DOE Temporary Emergency Exposure Limits (TEELs)"

hydrogen (CAS: 1333-74-0) is found on the following regulatory lists;

"Canada - Alberta Occupational Exposure Limits", "Canada - British Columbia Occupational Exposure Limits", "Canada - Nova Scotia Occupational Exposure Limits", "Canada - Prince Edward Island Occupational Exposure Limits", "Canada - Quebec Permissible Exposure Values for Airborne Contaminants (English)", "Canada - Saskatchewan Industrial Hazardous Substances", "Canada - Yukon Permissible Concentrations for Airborne Contaminant Substances", "Canada Domestic Substances List (DSL)", "Canada Toxicological Index Service - Workplace Hazardous Materials Information System - WHMIS (English)", "International Council of Chemical Associations (ICCA) - High Production Volume List", "OECD Representative List of High Production Volume (HPV) Chemicals", "US - California Occupational Safety and Health Regulations (CAL/OSHA) - Hazardous Substances List", "US - California Permissible Exposure Limits for Chemical Contaminants", "US - Massachusetts Oil & Hazardous Material List", "US - Minnesota Hazardous Substance List", "US - New Jersey Right to Know Hazardous Substances", "US - Oregon Permissible Exposure Limits (Z-1)", "US - Pennsylvania - Hazardous Substance List", "US - Rhode Island Hazardous Substance List", "US - Washington Permissible exposure limits of air contaminants", "US ACGIH Threshold Limit Values (TLV)", "US Department of Homeland Security Chemical Facility Anti-Terrorism Standards - Chemicals of Interest", "US DOE Temporary Emergency Exposure Limits (TEELs)", "US EPA High Production Volume Chemicals Additional List", "US FDA Indirect Food Additives: Adhesives and Components of Coatings - Substances for Use Only as Components of Adhesives - Adhesives", "US List of Lists - Consolidated List of Chemicals Subject to EPCRA, CERCLA and Section 112(r) of the Clean Air Act", "US NFPA 45 Fire Protection for Laboratories Using Chemicals - Flammability Characteristics of Common Compressed and Liquefied Gases", "US Spacecraft Maximum Allowable Concentrations (SMACs) for Airborne Contaminants", "US Toxic Substances Control Act (TSCA) - Inventory", "US TSCA Section 8 (a) Inventory Update Rule (IUR) - Partial Exemptions"

Section 16 - OTHER INFORMATION

Ingredients with multiple CAS Nos

Ingredient Name CAS lithium hydroxide 1310-66-3, 1310-65-2

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■ Classification of the preparation 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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