



Material Safety Data Sheet

NFPA 	HMIS <table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="background-color: #00FFFF;">Health Hazard</td> <td style="text-align: center; font-weight: bold;">3</td> </tr> <tr> <td style="background-color: #FFCCCC;">Fire Hazard</td> <td style="text-align: center; font-weight: bold;">3</td> </tr> <tr> <td style="background-color: #FFFF00;">Reactivity</td> <td style="text-align: center; font-weight: bold;">2</td> </tr> </table>	Health Hazard	3	Fire Hazard	3	Reactivity	2	Personal Protective Equipment  See Section 15.
Health Hazard	3							
Fire Hazard	3							
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Section 1. Chemical Product and Company Identification		<i>Page Number: 1</i>
Common Name/Trade Name	Lithium Borohydride	Catalog Number(s) L1051
Manufacturer	SPECTRUM LABORATORY PRODUCTS INC. 14422 S. SAN PEDRO STREET GARDENA, CA 90248	CAS# 16949-15-8
Commercial Name(s)	Not available.	RTECS ED2725000
Synonym	Lithium Tetrahydridoborate	TSCA TSCA 8(b) inventory: Lithium Borohydride
Chemical Name	Lithium Borohydride	CI# Not available.
Chemical Family	Not available.	IN CASE OF EMERGENCY CHEMTREC (24hr) 800-424-9300 CALL (310) 516-8000
Chemical Formula	LiBH ₄	
Supplier	SPECTRUM LABORATORY PRODUCTS INC. 14422 S. SAN PEDRO STREET GARDENA, CA 90248	

Section 2. Composition and Information on Ingredients					
		<i>Exposure Limits</i>			
Name	CAS #	TWA (mg/m ³)	STEL (mg/m ³)	CEIL (mg/m ³)	% by Weight
1) Lithium Borohydride	16949-15-8				100
Toxicological Data on Ingredients	Lithium Borohydride: ORAL (LD50): Acute: 87.8 mg/kg [Mouse].				

Section 3. Hazards Identification	
Potential Acute Health Effects	Very hazardous in case of skin contact (irritant), of eye contact (irritant), of inhalation. Hazardous in case of skin contact (corrosive, permeator), of eye contact (corrosive). Severe over-exposure can result in death. Inflammation of the eye is characterized by redness, watering, and itching. Skin inflammation is characterized by itching, scaling, reddening, or, occasionally, blistering.
Potential Chronic Health Effects	CARCINOGENIC EFFECTS: Not available. MUTAGENIC EFFECTS: Not available. TERATOGENIC EFFECTS: Not available. DEVELOPMENTAL TOXICITY: Not available. The substance may be toxic to blood, kidneys, liver, heart. Repeated or prolonged exposure to the substance can produce target organs damage. Repeated exposure to a highly toxic material may produce general deterioration of health by an accumulation in one or many human organs.

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Section 4. First Aid Measures

Eye Contact	Check for and remove any contact lenses. In case of contact, immediately flush eyes with plenty of water for at least 15 minutes. Cold water may be used. Get medical attention immediately.
Skin Contact	In case of contact, immediately flush skin with plenty of water for at least 15 minutes while removing contaminated clothing and shoes. Cover the irritated skin with an emollient. Cold water may be used. Wash clothing before reuse. Thoroughly clean shoes before reuse. Get medical attention immediately.
Serious Skin Contact	Wash with a disinfectant soap and cover the contaminated skin with an anti-bacterial cream. Seek immediate medical attention.
Inhalation	If inhaled, remove to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Get medical attention.
Serious Inhalation	Evacuate the victim to a safe area as soon as possible. Loosen tight clothing such as a collar, tie, belt or waistband. If breathing is difficult, administer oxygen. If the victim is not breathing, perform mouth-to-mouth resuscitation. Seek medical attention.
Ingestion	If swallowed, do not induce vomiting unless directed to do so by medical personnel. Never give anything by mouth to an unconscious person. Loosen tight clothing such as a collar, tie, belt or waistband. Get medical attention immediately.
Serious Ingestion	Not available.

Section 5. Fire and Explosion Data

Flammability of the Product	Flammable.
Auto-Ignition Temperature	Not available.
Flash Points	Not available.
Flammable Limits	LOWER: 4% UPPER: 75%
Products of Combustion	Some metallic oxides.
Fire Hazards in Presence of Various Substances	Highly flammable in presence of open flames and sparks, of heat. Non-flammable in presence of shocks.
Explosion Hazards in Presence of Various Substances	Risks of explosion of the product in presence of mechanical impact: Not available. Risks of explosion of the product in presence of static discharge: Not available.
Fire Fighting Media and Instructions	Flammable solid. SMALL FIRE: Use DRY chemical powder. LARGE FIRE: Use water spray or fog.
Special Remarks on Fire Hazards	Not available.
Special Remarks on Explosion Hazards	Not available.

Section 6. Accidental Release Measures

Small Spill	Use appropriate tools to put the spilled solid in a convenient waste disposal container.
Large Spill	Poisonous solid. Flammable solid that, in contact with water, emits flammable gases. Stop leak if without risk. Do not get water inside container. Do not touch spilled material. Cover with dry earth, sand or other non-combustible material. Use water spray to reduce vapors. Prevent entry into sewers, basements or confined areas; dike if needed. Eliminate all ignition sources. Call for assistance on disposal.

Section 7. Handling and Storage

Precautions	Keep locked up.. Keep under inert atmosphere. Keep container dry. Do not ingest. Do not breathe dust. Never add water to this product. In case of insufficient ventilation, wear suitable respiratory equipment. If ingested, seek medical advice immediately and show the container or the label. Avoid contact with skin and eyes. Keep away from incompatibles such as oxidizing agents, acids, moisture.
Storage	Moisture Sensitive. Dangerous when wet. Reacts violently with water. Keep container tightly closed. Keep container in a cool, well-ventilated area. Keep from any possible contact with water. Do not allow water to get into container because of violent reaction.

Section 8. Exposure Controls/Personal Protection

Engineering Controls	Use process enclosures, local exhaust ventilation, or other engineering controls to keep airborne levels below recommended exposure limits. If user operations generate dust, fume or mist, use ventilation to keep exposure to airborne contaminants below the exposure limit.
Personal Protection	Splash goggles. Lab coat. Dust respirator. Be sure to use an approved/certified respirator or equivalent. Gloves.
Personal Protection in Case of a Large Spill	Splash goggles. Full suit. Dust respirator. Boots. Gloves. A self contained breathing apparatus should be used to avoid inhalation of the product. Suggested protective clothing might not be sufficient; consult a specialist BEFORE handling this product.
Exposure Limits	Not available.

Section 9. Physical and Chemical Properties

Physical state and appearance	Solid.	Odor	Not available.
Molecular Weight	21.78 g/mole	Taste	Not available.
pH (1% soln/water)	Not available.	Color	White.
Boiling Point	Not available.		
Melting Point	280°C (536°F)		
Critical Temperature	Not available.		
Specific Gravity	0.666 (Water = 1)		
Vapor Pressure	Not applicable.		
Vapor Density	Not available.		
Volatility	Not available.		
Odor Threshold	Not available.		
Water/Oil Dist. Coeff.	Not available.		
Ionicity (in Water)	Not available.		
Dispersion Properties	See solubility in water.		
Solubility	Soluble in cold water.		

Section 10. Stability and Reactivity Data

Stability	The product is stable.
Instability Temperature	Not available.
Conditions of Instability	Heat, ignition sources, moisture, water, incompatible materials
Incompatibility with various substances	Reactive with oxidizing agents, acids, moisture. The product reacts violently with water to emit flammable but non toxic gases.

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Corrosivity Not available.

Special Remarks on Reactivity Moisture Sensitive. Dangerous when wet.
Incompatible with strong oxidizing agents, alcohols, acids, moist air or water.

Special Remarks on Corrosivity Not available.

Polymerization Will not occur.

Section 11. Toxicological Information

Routes of Entry Absorbed through skin. Dermal contact. Eye contact. Inhalation. Ingestion.

Toxicity to Animals Acute oral toxicity (LD50): 87.8 mg/kg [Mouse].

Chronic Effects on Humans May cause damage to the following organs: blood, kidneys, liver, heart.

Other Toxic Effects on Humans Very hazardous in case of skin contact (irritant), of inhalation.
Hazardous in case of skin contact (corrosive, permeator), of eye contact (corrosive).

Special Remarks on Toxicity to Animals Not available.

Special Remarks on Chronic Effects on Humans Not available.

Special Remarks on other Toxic Effects on Humans Acute Potential Health Effects:
Skin: Causes skin irritation and possible burns, especially if the skin is wet or moist.
Eyes: Causes eye irritation and burns.
Inhalation: May cause irritation of the respiratory tract with burning pain in the nose and throat, chest pain, coughing, wheezing shortness of breath, pulmonary edema.
Ingestion: Cause gastrointestinal tract irritation and burns. May cause abdominal pain, ulceration and bleeding from the stomach, nausea, vomiting, and inflammation of the gums and mouth. May affect behavior/central nervous system (central nervous system depression - somnolence, convulsions, seizures, hallucinations, dizziness, abnormal coordination, tremor, headache, personality disorder), liver, urinary system, cardiovascular system.
Chronic Potential Health Effects:
May cause liver and kidney damage. May affect blood, and cardiovascular system

Section 12. Ecological Information

Ecotoxicity Not available.

BOD5 and COD Not available.

Products of Biodegradation Possibly hazardous short term degradation products are not likely. However, long term degradation products may arise.

Toxicity of the Products of Biodegradation The products of degradation are less toxic than the product itself.

Special Remarks on the Products of Biodegradation Not available.

Section 13. Disposal Considerations

Waste Disposal Waste must be disposed of in accordance with federal, state and local environmental control regulations.

Section 14. Transport Information

DOT Classification CLASS 4.3: Dangerous when wet material.

Identification : Lithium Borohydride UNNA: 1413 PG: I

Special Provisions for Transport Not available.

DOT (Pictograms)



Section 15. Other Regulatory Information and Pictograms

Federal and State Regulations Connecticut hazardous material survey.: Lithium Borohydride
New Jersey: Lithium Borohydride
TSCA 8(b) inventory: Lithium Borohydride

California Proposition 65 Warnings

Other Regulations OSHA: Hazardous by definition of Hazard Communication Standard (29 CFR 1910.1200).
EINECS: This product is on the European Inventory of Existing Commercial Chemical Substances.

Other Classifications

WHMIS (Canada)	CLASS B-4: Flammable solid. CLASS B-6: Reactive and very flammable material.
DSCL (EEC)	R38- Irritating to skin. R41- Risk of serious damage to eyes. S2- Keep out of the reach of children. S26- In case of contact with eyes, rinse immediately with plenty of water and seek medical advice. S39- Wear eye/face protection. S46- If swallowed, seek medical advice immediately and show this container or label.

HMIS (U.S.A.)

Health Hazard	3
Fire Hazard	3
Reactivity	2
Personal Protection	E

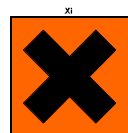
National Fire Protection Association (U.S.A.)

Health Flammability
Reactivity
Specific hazard

WHMIS (Canada) (Pictograms)



DSCL (Europe) (Pictograms)



TDG (Canada) (Pictograms)



**ADR (Europe)
(Pictograms)**



Protective Equipment



Gloves.



Lab coat.



Dust respirator. Be sure to use an approved/certified respirator or equivalent. Wear appropriate respirator when ventilation is inadequate.



Splash goggles.

Section 16. Other Information

MSDS Code 3195L

References Not available.

Other Special Considerations Not available.

Validated by Sonia Owen on 8/11/2006.

Verified by Sonia Owen.

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CALL (310) 516-8000

Notice to Reader

All chemicals may pose unknown hazards and should be used with caution. This Material Safety Data Sheet (MSDS) applies only to the material as packaged. If this product is combined with other materials, deteriorates, or becomes contaminated, it may pose hazards not mentioned in this MSDS. It shall be the user's responsibility to develop proper methods of handling and personal protection based on the actual conditions of use. While this MSDS is based on technical data judged to be reliable, Spectrum Quality Products, Inc. assumes no responsibility for the completeness or accuracy of the information contained herein.