



SIGMA-ALDRICH

## Material Safety Data Sheet

Date Printed: 12/16/2008  
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Version 1.70

### Section 1 - Product and Company Information

**Product Name** Lithium hydroxide monohydrate, SigmaUltra, 98.5101.5% (titration)  
**Product Number** L4533  
**Brand** Sigma-Aldrich

**Company** Sigma-Aldrich  
**Address** 3050 Spruce Street  
**City, State, Zip, Country** SAINT LOUIS, MO 63103 US  
**Technical Phone:** 800-325-5832  
**Fax:** 800-325-5052

**Emergency Phone:** 314-776-6555

### Section 2 - Composition/Information on Ingredient

<u>Substance Name</u>	<u>CAS #</u>	<u>SARA 313</u>	<u>EC no</u>	<u>Annex I Index Number</u>
LITHIUM HYDROXIDE MONOHYDRATE	1310-66-3	No	215-183-4	

**Formula** LiOH·H<sub>2</sub>O  
**Synonyms**

### Section 3 - Hazards Identification

**Emergency Overview**  
Toxic (USA) Harmful (EU).  
Harmful if swallowed. Causes severe burns.  
Target organ(s): Central nervous system, Cardiovascular system.

**HMIS Rating**  
Health: 3\* Flammability: 0 Reactivity: 1

**NFPA Rating**  
Health: 3 Flammability: 0 Reactivity: 1

\*additional chronic hazards present.

For additional information on toxicity, please refer to Section 11.

### Section 4 - First Aid Measures

**Oral Exposure**  
If swallowed, wash out mouth with water provided person is conscious. Call a physician immediately.

**Inhalation Exposure**  
If inhaled, remove to fresh air. If not breathing give artificial respiration. If breathing is difficult, give oxygen.

**Dermal Exposure**  
In case of skin contact, flush with copious amounts of water for at least 15 minutes. Remove contaminated clothing and shoes. Call a physician.

#### Eye Exposure

In case of contact with eyes, flush with copious amounts of water for at least 15 minutes. Assure adequate flushing by separating the eyelids with fingers. Call a physician.

### Section 5 - Fire Fighting Measures

**Autoignition Temp:** N/A

#### Firefighting

##### Protective Equipment

Wear self-contained breathing apparatus and protective clothing to prevent contact with skin and eyes.

##### Specific Hazard(s)

Emits toxic fumes under fire conditions.

### Section 6 - Accidental Release Measures

#### Procedure to be Followed in Case of Leak or Spill

Evacuate area.

#### Procedure(s) of Personal Precaution(s)

Wear self-contained breathing apparatus, rubber boots, and heavy rubber gloves.

#### Methods for Cleaning Up

Sweep up, place in a bag and hold for waste disposal. Ventilate area and wash spill site after material pickup is complete.

### Section 7 - Handling and Storage

#### Handling

##### User Exposure

Do not breathe dust. Do not get in eyes, on skin, on clothing. Avoid prolonged or repeated exposure.

#### Storage

##### Suitable

Keep tightly closed. Store under nitrogen.

##### Incompatible Materials

Absorbs carbon dioxide from air.

#### Special Requirements

Store under inert gas. Air sensitive.

### Section 8 - Exposure Controls / PPE

#### Engineering Controls

Safety shower and eye bath. Use only in a chemical fume hood.

#### Personal Protective Equipment

##### Respiratory

Use respirators and components tested and approved under appropriate government standards such as NIOSH (US) or CEN (EU). Where risk assessment shows air-purifying respirators are appropriate use a fullface particle respirator type N100 (US) or type P3 (EN 143) respirator cartridges as a backup to engineering controls. If the respirator is the sole means of protection, use a full-face supplied air respirator.

##### Hand

Compatible chemical-resistant gloves.

##### Eye

Chemical safety goggles.

#### General Hygiene Measures

Wash contaminated clothing before reuse. Discard contaminated shoes. Wash thoroughly after handling.

### Section 9 - Physical/Chemical Properties

Appearance	Physical State	Color	Form
	Solid	White	Fine crystals

Molecular Weight 41.96 AMU

pH	12
BP/BP Range	N/A
MP/MP Range	N/A
Freezing Point	N/A
Vapor Pressure	N/A
Vapor Density	N/A
Saturated Vapor Conc.	N/A
SG/Density	1.51 g/cm <sup>3</sup>
Bulk Density	N/A
Odor Threshold	N/A
Volatile%	N/A
VOC Content	N/A
Water Content	N/A
Solvent Content	N/A
Evaporation Rate	N/A
Viscosity	N/A
Partition Coefficient	N/A
Decomposition Temp.	N/A
Flash Point °F	N/A
Flash Point °C	N/A
Explosion Limits	N/A
Flammability	N/A
Autoignition Temp	N/A
Solubility	
Solubility in Water: 1 M in H <sub>2</sub> O, 20°C. complete, colorless	

N/A = not available

### Section 10 - Stability and Reactivity

**Stability**  
Stable.  
Stable.

**Conditions of Instability**  
Absorbs carbon dioxide from air.

**Materials to Avoid**  
Strong oxidizing agents, Strong acids

**Hazardous Decomposition Products**  
**Hazardous Decomposition Products**  
Lithium oxides.

**Hazardous Polymerization**  
**Hazardous Polymerization**  
Will not occur.

### Section 11 - Toxicological Information

**Route of Exposure**  
**Skin Contact**  
Causes severe burns.  
**Skin Absorption**  
May be harmful if absorbed through the skin.  
**Eye Contact**  
Causes severe burns.  
**Inhalation**  
Material is extremely destructive to the tissue of the mucous membranes and upper respiratory tract. May be harmful if inhaled.  
**Ingestion**  
Harmful if swallowed.

**Target Organ(s) or System(s)**  
Central nervous system. Cardiovascular system. Kidneys.

**Signs and Symptoms of Exposure**  
Large doses of lithium ion have caused dizziness and prostration, and can cause kidney damage if sodium intake is limited. Dehydration, weight loss, dermatological effects, and thyroid disturbances have been reported. Central nervous system effects that include slurred speech, blurred vision, sensory loss, ataxia, and convulsions may occur. Diarrhea, vomiting, and neuromuscular effects such as tremor, clonus, and hyperactive reflexes may occur as a result of repeated exposure to lithium ion. Cyanosis and t-wave inversion have occurred in the breastfed infants of women receiving lithium carbonate therapy. Material is extremely destructive to tissue of the mucous membranes and upper respiratory tract, eyes, and skin. Inhalation may result in spasm, inflammation and edema of the larynx and bronchi, chemical pneumonitis, and pulmonary edema. Symptoms of exposure may include burning sensation, coughing, wheezing, laryngitis, shortness of breath, headache, nausea, and vomiting. To the best of our knowledge, the chemical, physical, and toxicological properties have not been thoroughly investigated.

**RTECS Number:** N/A

**Toxicity Data**  
Oral - Rat: 368 mg/kg (LD<sub>50</sub>)

**Chronic Exposure - Teratogen**  
Result: Lithium and its compounds are possible teratogens by analogy to lithium carbonate which has equivocal human teratogenic data and positive animal teratogenic data.

### Section 12 - Ecological Information

No data available.

### Section 13 - Disposal Considerations

**Appropriate Method of Disposal of Substance or Preparation**  
Contact a licensed professional waste disposal service to dispose of this material.  
Dissolve or mix the material with a combustible solvent and burn in a chemical incinerator equipped with an afterburner and scrubber. Observe all federal, state, and local environmental regulations.

### Section 14 - Transport Information

**DOT**  
**Proper Shipping Name:** Lithium hydroxide, monohydrate [or] Lithium hydroxide, solid  
**UN#:** 2680  
**Class:** 8  
**Packing Group:** Packing Group II  
**Hazard Label:** Corrosive  
**PIH:** Not PIH

**IATA**

**Proper Shipping Name:** Lithium hydroxide monohydrate  
**IATA UN Number:** 2680  
**Hazard Class:** 8  
**Packing Group:** II

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**Section 15 - Regulatory Information**

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**EU Additional Classification**

**Symbol of Danger:** C

**Indication of Danger**

Corrosive.

**Risk Statements** R: 22 35

Harmful if swallowed. Causes severe burns.

**Safety Statements** S: 26 36/37/39 45

In case of contact with eyes, rinse immediately with plenty of water and seek medical advice. Wear suitable protective clothing, gloves, and eye/face protection. In case of accident or if you feel unwell, seek medical advice immediately (show the label where possible).

**US Classification and Label Text**

**Indication of Danger**

Toxic (USA) Harmful (EU).

**Risk Statements**

Harmful if swallowed. Causes severe burns.

**Safety Statements**

In case of contact with eyes, rinse immediately with plenty of water and seek medical advice. Wear suitable protective clothing, gloves, and eye/face protection. In case of accident or if you feel unwell, seek medical advice immediately (show the label where possible).

**US Statements**

Target organ(s): Central nervous system. Cardiovascular system.

**United States Regulatory Information**

**SARA Listed:** No

**Notes:** This product is subject to SARA section 313 reporting requirements.

**Canada Regulatory Information**

**WHMIS Classification**

This product has been classified in accordance with the hazard criteria of the CPR, and the MSDS contains all the information required by the CPR.

**DSL:** No

**NDSL:** No

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**Section 16 - Other Information**

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**Disclaimer**

For R&D use only. Not for drug, household or other uses.

**Warranty**

The above information is believed to be correct but does not purport to be all inclusive and shall be used only as a guide. The information in this document is based on the present state of our knowledge and is applicable to the product with regard to appropriate safety precautions. It does not represent any guarantee of the properties of the product. SigmaAldrich Inc., shall not be held liable for any damage resulting from handling or from contact with the above product. See reverse side of invoice or packing slip for additional terms and conditions of sale. Copyright 2008 Sigma-Aldrich Co. License granted to make unlimited paper copies for internal use only.