



**SIGMA-ALDRICH**

## Material Safety Data Sheet

Date Printed: 10/14/2004  
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Version 1.10

### Section 1 - Product and Company Information

**Product Name** sec-Butyllithium, 1.4M solution in cyclohexane  
**Product Number** 195596  
**Brand** Aldrich Chemical

**Company** Sigma-Aldrich  
**Street Address** 3050 Spruce Street  
**City, State, Zip, Country** SAINT LOUIS, MO 63103 US  
**Technical Phone:** 314 771 5765  
**Fax:** 800 325 5052

**Emergency Phone:** 414 273 3850 Ext. 5996

### 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>
SEC-BUTYLLITHIUM SOLUTION, ~1.3 M IN CYCLOHEXANE	None	Yes		

<u>Ingredient Name</u>	<u>CAS #</u>	<u>Percent</u>	<u>SARA 313</u>
CYCLOHEXANE	110-82-7	>= 90.000 % <= 92.000 %	Yes
SEC-BUTYLLITHIUM	598-30-1	>= 8.000 % <= 10.000 %	No

**Formula**  
**Synonyms**

### Section 3 - Hazards Identification

#### Emergency Overview

Pyrophoric (USA) Highly Flammable (EU). Corrosive. Dangerous for the environment. Contact with water liberates extremely flammable gases. Spontaneously flammable in air. Causes burns. Very toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment. Harmful: may cause lung damage if swallowed. Vapors may cause drowsiness and dizziness.  
Target organ(s): Lungs. Nerves.

**HMIS Rating**  
Health: 3\*      Flammability: 3      Reactivity: 4      Special Hazard(s) : Water reactive

**NFPA Rating**  
Health: 3      Flammability: 3      Reactivity: 4      Special Hazard(s) : Water reactive

\*additional chronic hazards present.

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

### Section 4 - First Aid Measures

#### Oral Exposure

If swallowed, do not induce vomiting; 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

#### Explosion Hazards

Vapor may travel considerable distance to source of ignition and flash back. Container explosion may occur under fire conditions.

#### Conditions of Flammability

Catches fire if exposed to air. Reacts with water to liberate flammable and/or explosive gas.

**Flash Point:** 1.4 °F      -17 °C

**Autoignition Temp:** N/A

#### Extinguishing Media

##### Suitable

Dry chemical powder.

##### Unsuitable

Do not use water.

#### Firefighting

##### Protective Equipment

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

##### Specific Hazard(s)

Flammable liquid. Emits toxic fumes under fire conditions.

### Section 6 - Accidental Release Measures

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

Evacuate area. Shut off all sources of ignition. Use nonsparking tools.

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

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

#### Methods for Cleaning Up

Cover with dry-lime, sand, or soda ash. Place in covered containers using non-sparking tools and transport outdoors. Ventilate area and wash spill site after material pickup is complete.

### Section 7 - Handling and Storage

#### Handling

##### User Exposure

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

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**Storage****Suitable**

Keep tightly closed. Handle and store under nitrogen. Keep away from heat, sparks, and open flame. Store at 2-8°C

**Incompatible Materials**

Do not allow contact with water.

**Special Requirements**

Air sensitive. Handle and store under inert gas.

**Section 8 - Exposure Controls / PPE****Engineering Controls**

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

**Personal Protective Equipment****Respiratory**

Government approved respirator.

**Hand**

Compatible chemical-resistant gloves.

**Eye**

Chemical safety goggles.

**Other**

Faceshield (8-inch minimum).

**General Hygiene Measures**

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

**Section 9 - Physical/Chemical Properties****Appearance****Physical State**

Liquid

Molecular Weight: N/A

pH N/A

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 0.769 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 1.4 °F

Flash Point °C -17 °C

Explosion Limits N/A

Method: closed cup

Method: closed cup

Flammability N/A

Autoignition Temp N/A

Solubility N/A

N/A = not available

**Section 10 - Stability and Reactivity****Stability****Stable**

Stable.

**Conditions to Avoid**

Air sensitive.

**Materials to Avoid**

Strong oxidizing agents, Acids, Water, Alcohols.

**Hazardous Decomposition Products****Hazardous Decomposition Products**

Carbon monoxide, Carbon dioxide, Lithium oxides.

**Hazardous Polymerization****Hazardous Polymerization**

Will not occur.

**Section 11 - Toxicological Information****Route of Exposure****Skin Contact**

Causes burns.

**Skin Absorption**

May be harmful if absorbed through the skin.

**Eye Contact**

Causes burns.

**Inhalation**

May be harmful if inhaled. Material is extremely destructive to the tissue of the mucous membranes and upper respiratory tract.

**Ingestion**

Harmful if swallowed.

**Target Organ(s) or System(s)**

Lungs. Nerves.

**Signs and Symptoms of Exposure**

Exposure can cause CNS depression, drowsiness, light-headedness, and irritability. Damage to the lungs. Gastrointestinal disturbances. Lung irritation, chest pain, and edema which may be fatal. 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.

**Conditions Aggravated by Exposure**

May cause nervous system disturbances.

RTECS Number: N/A

**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.

Burn in a chemical incinerator equipped with an afterburner and scrubber but exert extra care in igniting as this material is highly flammable.

Observe all federal, state, and local environmental regulations.

#### Section 14 - Transport Information

##### DOT

**Proper Shipping Name:** Lithium alkyls  
**UN#:** 2445  
**Class:** 4.2  
**Packing Group:** Packing Group I  
**Hazard Label:** Spontaneously combustible  
**Hazard Label:** Dangerous when wet.  
**PIH:** Not PIH

##### IATA

**Proper Shipping Name:** Lithium alkyls  
**IATA UN Number:** 2445  
**Hazard Class:** 4.2  
**Not Allowed - Aircraft:** Not permitted for air transport.

#### Section 15 - Regulatory Information

##### EU Additional Classification

**Symbol of Danger:** F Xn N

##### Indication of Danger

Highly Flammable, Harmful, Dangerous for the environment.

**Risk Statements** R: 11 15 17 36/37/38 50/53 65 67

Highly flammable. Contact with water liberates extremely flammable gases. Spontaneously flammable in air. Irritating to eyes, respiratory system and skin. Very toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment. Harmful: may cause lung damage if swallowed. Vapors may cause drowsiness and dizziness.

**Safety Statements** S: 16 26 43 45 60 61 62

Keep away from sources of ignition - no smoking. In case of contact with eyes, rinse immediately with plenty of water and seek medical advice. In case of fire, use dry powder. Never use water. In case of accident or if you feel unwell, seek medical advice immediately (show the label where possible). This material and its container must be disposed of as hazardous waste. Avoid release to the environment. Refer to special instructions/safety data sheets. If swallowed, do not induce vomiting; seek medical advice immediately and show this container or label.

##### US Classification and Label Text

##### Indication of Danger

Pyrophoric (USA) Highly Flammable (EU), Corrosive, Dangerous for the environment.

##### Risk Statements

Contact with water liberates extremely flammable gases. Spontaneously flammable in air. Causes burns. Very toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment. Harmful: may cause lung damage if swallowed. Vapors may cause drowsiness and dizziness.

##### Safety Statements

Keep away from sources of ignition - no smoking. In case of contact with eyes, rinse immediately with plenty of water and seek medical advice. In case of fire, use dry powder. Never use water. In case of accident or if you feel unwell, seek medical advice immediately (show the label where possible). This material and its container must be disposed of as hazardous waste. Avoid release to the environment. Refer to special instructions/safety data sheets. If swallowed, do not induce vomiting; seek medical advice immediately and show this container or label.

##### US Statements

Target organ(s): Lungs, Nerves.

##### United States Regulatory Information

**SARA Listed:** Yes

**Notes:** This product is or contains a component that is subject to SARA313 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

#### Section 16 - Other Information

##### 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. Sigma-Aldrich 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 2004 Sigma-Aldrich Co. License granted to make unlimited paper copies for internal use only.

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