

## Chemical Safety Data Sheet MSDS / SDS

## Lithium SDS

Revision Date:2024-04-25 Revision Number:1

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**SECTION 1: Identification of the substance/mixture and of the company/undertaking****Product identifier**

Product name: Lithium  
CAS: 7439-93-2

**Relevant identified uses of the substance or mixture and uses advised against**

Relevant identified uses: For R&D use only. Not for medicinal, household or other use.  
Uses advised against: none

**Company Identification**

Company: Chemicalbook.in  
Address: 5 vasavi Layout Basaveswara Nilayam Pragathi Nagar Hyderabad, India -500090  
Telephone: +91 9550333722

**SECTION 2: Hazards identification****Classification of the substance or mixture**

Substances and mixtures, which in contact with water, emit flammable gases, Category 1  
Skin corrosion, Sub-category 1B

## GHS label elements, including precautionary statements

Pictogram(s)



Signal word

Danger

### Hazard statement(s)

H260 In contact with water releases flammable gases which may ignite spontaneously

H314 Causes severe skin burns and eye damage

### Precautionary statement(s)

#### Prevention

P223 Do not allow contact with water.

P231+P232 Handle and store contents under inert gas/....Protect from moisture.

P280 Wear protective gloves/protective clothing/eye protection/face protection/hearing protection/...

P260 Do not breathe dust/fume/gas/mist/vapours/spray.

P264 Wash ... thoroughly after handling.

#### Response

P302+P335+P334 IF ON SKIN: Brush off loose particles from skin. Immerse in cool water [or wrap in wet bandages].

P370+P378 In case of fire: Use ... to extinguish.

P301+P330+P331 IF SWALLOWED: Rinse mouth. Do NOT induce vomiting.

P363 Wash contaminated clothing before reuse.

P304+P340 IF INHALED: Remove person to fresh air and keep comfortable for breathing.

P316 Get emergency medical help immediately.

P321 Specific treatment (see ... on this label).

P305+P351+P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.

#### Storage

P402+P404 Store in a dry place. Store in a closed container.

P405 Store locked up.

#### Disposal

P501 Dispose of contents/container to an appropriate treatment and disposal facility in accordance with applicable laws and

regulations, and product characteristics at time of disposal.

**Other hazards which do not result in classification**

no data available

**SECTION 3: Composition/information on ingredients**

**Substance**

Chemical name:	Lithium
Common names and synonyms:	Lithium
CAS number:	7439-93-2
EC number:	231-102-5
Concentration:	100%

**SECTION 4: First aid measures**

**Description of necessary first-aid measures**

**If inhaled**

Fresh air, rest. Half-upright position. Refer for medical attention.

**Following skin contact**

Remove contaminated clothes. Rinse skin with plenty of water or shower. Refer for medical attention .

**Following eye contact**

First rinse with plenty of water for several minutes (remove contact lenses if easily possible), then refer for medical attention.

**Following ingestion**

Refer for medical attention . See Notes.

**Most important symptoms/effects, acute and delayed**

Contact with eyes causes caustic irritation or burn. Incontact with skin lithium reacts with body moisture to cause chemical burns:

foil, ribbon, and wire react relatively slowly. (USCG, 1999)

#### **Indication of immediate medical attention and special treatment needed, if necessary**

Basic treatment: Establish a patent airway (oropharyngeal or nasopharyngeal airway, if needed). Suction if necessary. Watch for signs of respiratory insufficiency and assist ventilations if necessary. Administer oxygen by nonrebreather mask at 10 to 15 L/min. Monitor for pulmonary edema and treat if necessary . Monitor for shock and treat if necessary . Anticipate seizures and treat if necessary . For eye contamination, flush eyes immediately with water. Irrigate each eye continuously with 0.9% saline (NS) during treatment . Do not use emetics. For ingestion, rinse mouth and administer 5 ml/kg up to 200 ml of water for dilution if the patient can swallow, has a strong gag reflex, and does not drool . Cover skin burns with dry sterile dressings after decontamination .  
Lithium and related compounds

### **SECTION 5: Firefighting measures**

#### **Suitable extinguishing media**

Extinguish lithium fires only with chemicals designed for this purpose.

#### **Specific hazards arising from the chemical**

Special Hazards of Combustion Products: Strong alkali fumes are formed in fire. Behavior in Fire: Molten lithium is quite easily ignited and is then difficult to extinguish. Hot or burning lithium will react with all gases except those of the helium-argon group. It also reacts violently with concrete, wood, asphalt, sand, asbestos; and in fact, nearly everything except metal. Do not apply water to adjacent fires. Hydrogen explosion may result. (USCG, 1999)

#### **Special protective actions for fire-fighters**

Use special powder. NO water. NO other agents. In case of fire: keep drums, etc., cool by spraying with water. NO direct contact with water.

### **SECTION 6: Accidental release measures**

#### **Personal precautions, protective equipment and emergency procedures**

Personal protection: complete protective clothing including self-contained breathing apparatus. Consult an expert! Do NOT wash away into sewer. Sweep spilled substance into covered dry, metallic, sealable containers. Carefully collect remainder. Then store and dispose of according to local regulations.

### **Environmental precautions**

Personal protection: complete protective clothing including self-contained breathing apparatus. Consult an expert! Do NOT wash away into sewer. Sweep spilled substance into covered dry, metallic, sealable containers. Carefully collect remainder. Then store and dispose of according to local regulations.

### **Methods and materials for containment and cleaning up**

Eliminate all ignition sources. Keep water away from release. Shovel into suitable dry container.

## **SECTION 7: Handling and storage**

### **Precautions for safe handling**

NO open flames, NO sparks and NO smoking. NO contact with water. Handling in a well ventilated place. Wear suitable protective clothing. Avoid contact with skin and eyes. Avoid formation of dust and aerosols. Use non-sparking tools. Prevent fire caused by electrostatic discharge steam.

### **Conditions for safe storage, including any incompatibilities**

Fireproof. Separated from strong oxidants, acids, halons and other incompatible materials. See Chemical Dangers. Dry. Keep under mineral oil. Store in a cool, dry, well-ventilated location. Separate from water.

## **SECTION 8: Exposure controls/personal protection**

### **Control parameters**

### **Occupational Exposure limit values**

MAK: (inhalable fraction): 0.2 mg/m<sup>3</sup>; peak limitation category: I(1); pregnancy risk group: C

### **Biological limit values**

no data available

### **Appropriate engineering controls**

Ensure adequate ventilation. Handle in accordance with good industrial hygiene and safety practice. Set up emergency exits and the risk-elimination area.

**Individual protection measures, such as personal protective equipment (PPE)**

**Eye/face protection**

Wear safety goggles or eye protection in combination with breathing protection.

**Skin protection**

Protective gloves. Protective clothing.

**Respiratory protection**

Use ventilation, local exhaust or breathing protection.

**Thermal hazards**

no data available

**SECTION 9: Physical and chemical properties and safety characteristics**

Physical state:	Solid. Granular or powder.
Colour:	White.
Odour:	ODORLESS
Melting point/freezing point:	722 °C. Atm. press.:1 013.25 hPa.
Boiling point or initial boiling point and boiling range:	1342°C(lit.)
Flammability:	Flammable. Many reactions may cause fire or explosion. Gives off irritating or toxic fumes (or gases) in a fire.
Lower and upper explosion limit/flammability limit:	no data available
Flash point:	no data available
Auto-ignition temperature:	354° F (USCG, 1999)

Decomposition temperature:	no data available
pH:	no data available
Kinematic viscosity:	no data available
Solubility:	Reacts with water
Partition coefficient n-octanol/water:	no data available
Vapour pressure:	7.90X10 <sup>-11</sup> Pa (5.92X10 <sup>-13</sup> mm Hg) at 400 K (127 deg C); 0.000489 Pa (3.67X10 <sup>-6</sup> mm Hg) at 600 K (327 deg C); 1.08 Pa (0.00810 mm Hg) at 800 K (524 deg C); 109 Pa (0.818 mm Hg) at 1000 K (727 deg C)
Density and/or relative density:	2.1 g/cm <sup>3</sup> .
Relative vapour density:	no data available
Particle characteristics:	no data available

## SECTION 10: Stability and reactivity

### Reactivity

Heating may cause violent combustion or explosion. The substance, when finely dispersed, may ignite spontaneously on contact with air. Upon heating, toxic fumes are formed. Decomposes on heating. This produces toxic fumes. Reacts violently with strong oxidants, acids and many compounds (hydrocarbons, halogens, halons, concrete, sand and asbestos). This generates fire and explosion hazard. Reacts violently with water. This produces highly flammable hydrogen gas and corrosive fumes of lithium hydroxide.

### Chemical stability

Decomposes in water

### Possibility of hazardous reactions

Flammable solid. Burns in air, oxygen, nitrogen, hydrogen, and carbon dioxide. The reactions can become extremely violent at

higher temperatures. The disposition to ignite of surfaces of molten lithium exposed to any of these gases is increased by the presence of lithium oxides and nitrides. Lithium reacts avidly with water to generate gaseous hydrogen and a solution of lithium hydroxide (a caustic). Contact with halogenated hydrocarbons can produce extremely violent reactions, especially on impact [Haz. Chem. Data 1966]. Boron trifluoride reacts with incandescence when heated with lithium [Merck 11th ed. 1989]. Maleic anhydride decomposes explosively in the presence of lithium [Chemical Safety Data Sheet SD-88. 1962, Chem. Haz. Info. Series C-71. 1960]. Chlorine vapors and lithium react producing a luminous flame [Mellor 2, Supp. 1:380. 1956]. The product of the reaction between lithium and carbon monoxide, lithium carbonyl, detonates violently with water, igniting the gaseous products [Mellor 2, Supp. 2:84. 1961]. The reaction of lithium and ferrous sulfide starts around 260° C with subsequent rise in temperature to 950° C [Mellor 2, Supp. 2:80. 1961]. A truck, which was carrying lithium batteries, sodium dithionite and derivatives of cyanide, caught fire; multiple explosions occurred as the cargo was exposed to the air.

#### **Conditions to avoid**

no data available

#### **Incompatible materials**

Reacts with water forming lithium hydroxide and hydrogen. Keep under mineral oil or other liquid free from oxygen or water.

#### **Hazardous decomposition products**

Combustion may produce irritants and toxic gases.

### **SECTION 11: Toxicological information**

#### **Acute toxicity**

Oral: LD50 - rat - 525 mg/kg bw.

Inhalation: LC50 - rat (male/female) - > 2 mg/L air.

Dermal: LD50 - rabbit (male/female) - > 3 000 mg/kg bw.

#### **Skin corrosion/irritation**

no data available

#### **Serious eye damage/irritation**

no data available



### **Respiratory or skin sensitization**

no data available

### **Germ cell mutagenicity**

no data available

### **Carcinogenicity**

no data available

### **Reproductive toxicity**

no data available

### **STOT-single exposure**

The substance is corrosive to the eyes, skin and respiratory tract. Corrosive on ingestion. Inhalation may cause lung oedema. See Notes.

### **STOT-repeated exposure**

no data available

### **Aspiration hazard**

Evaporation at 20°C is negligible; a harmful concentration of airborne particles can, however, be reached quickly when dispersed.

## **SECTION 12: Ecological information**

### **Toxicity**

Toxicity to fish: LC50 - *Oncorhynchus mykiss* (previous name: *Salmo gairdneri*) - 30.3 mg/L - 96 h. Remarks:Li2 CO3.

Toxicity to daphnia and other aquatic invertebrates: EC50 - *Daphnia magna* - 33.2 mg/L - 48 h. Remarks:Li2 CO3.

Toxicity to algae: EC50 - *Desmodesmus subspicatus* (previous name: *Scenedesmus subspicatus*) - > 400 mg/L - 72 h.

Toxicity to microorganisms: EC50 - activated sludge, domestic - 180.8 mg/L - 3 h. Remarks:LiOH.

**Persistence and degradability**

no data available

**Bioaccumulative potential**

no data available

**Mobility in soil**

no data available

**Other adverse effects**

no data available

**SECTION 13: Disposal considerations****Disposal methods****Product**

The material can be disposed of by removal to a licensed chemical destruction plant or by controlled incineration with flue gas scrubbing. Do not contaminate water, foodstuffs, feed or seed by storage or disposal. Do not discharge to sewer systems.

**Contaminated packaging**

Containers can be triply rinsed (or equivalent) and offered for recycling or reconditioning. Alternatively, the packaging can be punctured to make it unusable for other purposes and then be disposed of in a sanitary landfill. Controlled incineration with flue gas scrubbing is possible for combustible packaging materials.

**SECTION 14: Transport information****UN Number**

ADR/RID: UN1415 (For reference only, please check.)

IMDG: UN1415 (For reference only, please check.)

IATA: UN1415 (For reference only, please check.)

**UN Proper Shipping Name**

ADR/RID: LITHIUM (For reference only, please check.)  
IMDG: LITHIUM (For reference only, please check.)  
IATA: LITHIUM (For reference only, please check.)

#### **Transport hazard class(es)**

ADR/RID: 4.3 (For reference only, please check.)  
IMDG: 4.3 (For reference only, please check.)  
IATA: 4.3 (For reference only, please check.)

#### **Packing group, if applicable**

ADR/RID: I (For reference only, please check.)  
IMDG: I (For reference only, please check.)  
IATA: I (For reference only, please check.)

#### **Environmental hazards**

ADR/RID: No  
IMDG: No  
IATA: No

#### **Special precautions for user**

no data available

#### **Transport in bulk according to IMO instruments**

no data available

### **SECTION 15: Regulatory information**

**Safety, health and environmental regulations specific for the product in question**

**European Inventory of Existing Commercial Chemical Substances (EINECS)**

Listed.

**EC Inventory**

Listed.

**United States Toxic Substances Control Act (TSCA) Inventory**

Listed.

**China Catalog of Hazardous chemicals 2015**

Listed.

**New Zealand Inventory of Chemicals (NZIoC)**

Listed.

**(PICCS)**

Listed.

**Vietnam National Chemical Inventory**

Listed.

**IECSC)**

Listed.

**Korea Existing Chemicals List (KECL)**

Listed.

## **SECTION 16: Other information**

### **Abbreviations and acronyms**

CAS: Chemical Abstracts Service

ADR: European Agreement concerning the International Carriage of Dangerous Goods by Road

RID: Regulation concerning the International Carriage of Dangerous Goods by Rail

IMDG: International Maritime Dangerous Goods

IATA: International Air Transportation Association

TWA: Time Weighted Average

STEL: Short term exposure limit

LC50: Lethal Concentration 50%

LD50: Lethal Dose 50%

EC50: Effective Concentration 50%

### References

IPCS - The International Chemical Safety Cards (ICSC), website: <http://www.ilo.org/dyn/icsc/showcard.home>

HSDB - Hazardous Substances Data Bank, website: <https://toxnet.nlm.nih.gov/newtoxnet/hsdb.htm>

IARC - International Agency for Research on Cancer, website: <http://www.iarc.fr/>

eChemPortal - The Global Portal to Information on Chemical Substances by OECD, website: [http://www.echemportal.org/echemportal/index?pageID=0&request\\_locale=en](http://www.echemportal.org/echemportal/index?pageID=0&request_locale=en)

CAMEO Chemicals, website: <http://cameochemicals.noaa.gov/search/simple>

ChemIDplus, website: <http://chem.sis.nlm.nih.gov/chemidplus/chemidlite.jsp>

ERG - Emergency Response Guidebook by U.S. Department of Transportation, website: <http://www.phmsa.dot.gov/hazmat/library/erg>

Germany GESTIS-database on hazard substance, website: <http://www.dguv.de/ifa/gestis/gestis-stoffdatenbank/index-2.jsp>

ECHA - European Chemicals Agency, website: <https://echa.europa.eu/>

### Other Information

The symptoms of lung oedema often do not become manifest until a few hours have passed and they are aggravated by physical effort. Rest and medical observation are therefore essential. Immediate administration of an appropriate inhalation therapy by a doctor, or by an authorized person, should be considered.

Disclaimer: 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. We as supplier shall not be held liable for any