

# MATERIAL SAFETY DATA SHEET

## I PRODUCT IDENTIFICATION

**Trade Name:** Lithium **Synonym:** None  
**Chemical Family:** Alkali Metals **Formula:** Li

## II HAZARDOUS INGREDIENTS

**CAS#:** 7439-93-2 **Wt %:** 100  
**PEL/OSHA:** No Applicable information was found **TWA/ACGIH:** N/A  
**STEL/ACGIH:** N/A **Ceiling:** N/A **TDLH/OSHA:** N/A

## III PHYSICAL DATA

**Boiling Point:** 1317 °C (2400 °F) **Melting Point:** 180.5 °C (357 °F)  
**Density or Specific Gravity:** 0.5 g/cc **Volatiles:** N/A  
**Evaporation Rate:** N/A Butyl Acetate = 1 **pH (as is) @ 25 °C:** N/A  
**pH (1% Soln.)@ 25 °C:** >12 **Physical State:** Solid  
**Appearance and Odor:** Silvery-white soft metallic solid; odorless **Solubility in H<sub>2</sub>O:** Reacts violently with water.

## IV FIRE AND EXPLOSION HAZARDS DATA

**Physical Hazard:** Flammable Solid **Autoignition Temperature:** N/A  
**Flash Point (Method used):** N/A  
**Flammable Limits: Upper:** N/A **Lower:** N/A

**National Fire Prevention Code 704:** Fire (Red) 1Health (Blue) 1Reactivity (Yellow) 2

**Extinguishing Media:** DO NOT USE WATER, SAND OR CARBON DIOXIDE. Use graphite, Lith-X (Ansul). If not available, use dry sodium chloride, dry (anhydrous) calcium oxide, dry lithium chloride.

**Special Fire Fighting Procedures:** Wear self-contained breathing apparatus and full fire fighting protective clothing when fighting significant-sized fires. Lithium fires can throw off molten lithium metal particles. Burning lithium releases corrosive lithium oxide dust and fumes. Lithium metal can reignite after fire is initially extinguished. Never leave extinguished fire unattended. After all material has apparently burned and cooled, carefully turn over remaining residue and be prepared to re-extinguish should re-ignition occur. Carefully place residue in a steel drum, using a long-handled shovel, and over with extinguishing media.

**Unusual Fire & Explosion Hazard:** Reacts violently with water to give off flammable hydrogen gas and corrosive dust.

**Hazardous Combustion Products:** Corrosive lithium oxide.

**Explosion Data:** This product is not an explosive.

**Sensitivity to Mechanical Impact:** N/A

**Sensitivity to Static Discharge:** N/A

## V HEALTH HAZARD INFORMATION

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### EMERGENCY AND FIRST AID PROCEDURES:

**EYES:** Immediately wipe away any particles, then flush with very large amounts of water occasionally lifting the upper and lower lids, for at least 15 minutes. See a physician immediately.

**SKIN:** Quickly brush off as much of the material as possible. If particles are embedded in the skin and cannot be removed, cover area with USP Grade mineral oil and see a physician immediately. If particles are not embedded, flush with large amounts of water. Obtain medical attention.

**INHALATION:** Remove to fresh air. If breathing difficulty occurs, administer oxygen. See a physician immediately.

**INGESTION:** Quickly wipe from the mouth as much of the material as possible and immediately rinse the mouth with large amounts of water. See a physician immediately. DO NOT induce vomiting.

**Note to Physician:** See "Effects of Overexposure." Product is corrosive and reacts violently with water. Treatment should first remove as much of the material as possible as quickly as possible and then flush with very large quantities of water. Ingestion presents a singular problem as emesis may produce esophageal damage and/or aspiration damage; dilution with water or other water-containing materials may produce a reaction that exacerbates the corrosive activity. Consideration may be given to gastric lavage with a large diameter tube for removal of material and then dilution with large amounts of water. Esophagoscope may be of assistance in this procedure and to assess extent of damage. Treatment is otherwise symptomatic and supportive.

**Decontamination Procedures:** Wipe off as much as possible and remove contaminated clothing, being careful not to allow material to contact skin. Wash thoroughly with large amounts of water.

**Product health hazards:** CORROSIVE (Reacts with body moisture to form corrosive lithium hydroxide).

**Product Exposure Limit:** No information was found for product.

<u>Route(s) of Exposure</u>	<u>Hazard</u>
<b>Eye Contact:</b>	Corrosive
<b>Inhalation:</b>	Corrosive
<b>Skin Contact:</b>	Corrosive
<b>Skin Absorption:</b>	Corrosive
<b>Ingestion:</b>	Corrosive

**Product TOX Data and Reference:** No toxicology data available

**Effects of Overexposure: Acute Effects:** Lithium metal is extremely reactive with body moisture and is corrosive to skin, nose, throat and eyes (may cause blindness).

**Chronic Effects:** See Acute Effects. No other information available.

**Carcinogenicity:** Product is not indicated to be a carcinogenic.

**NTP Annual:** Not listed      **IARC Monograph:** Not listed      **ACGIH:** Not listed      **OSHA:** Not Listed

**Irritancy:** No applicable information was found.

**Sensitization:** N/A

**Mutagenicity:** N/A

**Teratogenicity:** N/A

**Toxicologically Synergistic Products:** N/A

**Any Medical Conditions Generally Recognized as Being Aggravated by Exposure:** N/A

**SARA III SECTION 313:** This product does not contain any toxic chemicals subject to the reporting requirements of Section 313 of Title III of the Superfund Amendments and Re-authorization Act of 1986 (SARA) and 40 CFR Part 372. This information must be included in all MSDS that are copied and distributed for this material.

**TSCA:** Listed

**SECTION 302:** Not listed

**California Prop. 65:** Not listed

**CERCLA:** Not listed

**RCRA:** Not listed

**Hazard Classification:** Class B, Division 6 (Reactive Flammable Materials) Class E (Corrosive)

**Disclosure List:** Not listed.

## VI REACTIVITY DATA

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**Stability:** Stable

**Incompatibility:** Moisture, acids, oxidizers, oxygen, nitrogen, carbon dioxide, temperatures above melting point (180.5 °C/357 °F).

**Conditions of Reactivity:** Temperatures above melting point (180.5 °C/357 °F) and contact with water or humid air.

**Hazardous Decomposition Products:** Lithium is an element and does not decompose. However, it is highly reactive in contact with many other substances, releasing large quantities of heat and/or hazardous products. It can react violently with water, the humidity air, and the moisture in other substances, releasing hydrogen gas, which may catch fire explosively. Corrosive fumes of lithium oxide and/or lithium hydroxide are also released. The reactivity of the lithium increases as the exposed surface area increases.

**Conditions Contributing to Hazardous Polymerization:** Does not polymerize.

**Hazardous Polymerization:** Will not occur.

## VII SPILL OR LEAK PROCEDURES

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**Steps to be Taken in Case Material is Released or Spilled:** To prevent ignition, cover with mineral oil (or kerosene) soaking thoroughly, and place in oiled steel drums, closing them securely and tightly. Keep away from water, rain, snow, etc.

**Waste Disposal Method:** Dispose of in accordance with Local, State and Federal Waste Disposal Regulations.

## VIII SPECIAL PROTECTION INFORMATION

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**Respiratory Protection:** No special requirement.

**Ventilation:** No special requirement.

**Gloves:** Dry rubber for general use. Fire resistant gloves required if the metal is handled and used in a molten state.

**Footwear:** No special requirement for general use. Fire resistant footwear required if the metal is handled and used in a molten state.

**Eyes:** Safety glasses or goggles for general use. Full flame-resistant face shield required if the metal is handled and used in a molten state.

**Clothing:** No special requirement for general use. Fire resistant, full protective clothing required if the metal is handled and used in a molten state.

**Others:** Quick-drench eyewash and safety shower.

## IX SPECIAL PRECAUTIONS

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**Handling and Storage:** Keep away from water, humid air, acids and oxidizing materials. Can be handled in open atmosphere at room temperature, either coated with mineral oil or where relative humidity is maintained below 50%. Wear safety glasses or goggles under a face shield and dry rubber gloves. Store in original unopened shipping container. Once opened, store in argon atmosphere or mineral oil. Keep away from sparks, heat and flame.

### DOMESTIC:

**DOT Proper Shipping Name:** Lithium Metal

**DOT Classification:** Flammable solid

**DOT Labels:** Flammable Solid and Dangerous When Wet

**DOT Marking:** Lithium Metal, UN1415

**DOT Placard:** Flammable Solid and Dangerous When Wet

**UN Number:** UN1415

**FOREIGN:**

**IMCO Proper shipping name:** Lithium Metal

**IMCO Hazard Classification:** Flammable solid emitting flammable gases when wet.

**IMCO Hazard Class:** 4.3

**IMCO Marking:** Lithium Metal, UN1415

**49 STCC Number:** 49 164 28

**Emergency Accident:**

**Precautions and Procedures:** Keep away from water, humid air, acids and oxidizing materials.

**Precautions to be taken in transportation:** Isolate any damaged containers.

**Type Packages:** Bulk (Dry Packaged) - Argon-purged 55 gallon returnable DOT 17E drum. Bulk (In Mineral Oil) - Oil-coated and bulk packed in DOT 17C or 37A steel drums, or individually packed in steel drums.

**Other:** Dry packed under argon in steel cans packed in DOT 17C or 37A steel drums, or dry packed in argon-purged foil pouches in DOT 17C or 37A steel drums.

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