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

1.1 Product identifiers

Product name: Lithium
Product Number: 444456
Brand: Aldrich
Index-No.: 003-001-00-4
REACH No.: A registration number is not available for this substance as the substance or its uses are exempted from registration, the annual tonnage does not require a registration or the registration is envisaged for a later registration deadline.
CAS-No.: 7439-93-2

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

Identified uses: Laboratory chemicals, Manufacture of substances

1.3 Details of the supplier of the safety data sheet

Company: Sigma-Aldrich Inc.
3050 SPRUCE ST
ST. LOUIS MO 63103
UNITED STATES
Telephone: +1 314 771-5765
Fax: +1 800 325-5052

1.4 Emergency telephone

Emergency Phone #: 800-424-9300 CHEMTREC (USA) +1-703-527-3887 CHEMTREC (International) 24 Hours/day; 7 Days/week

SECTION 2: Hazards identification

2.1 Classification of the substance or mixture

Classification according to Regulation (EC) No 1272/2008
Substances which in contact with water emit flammable gases (Category 1), H260
Skin corrosion (Category 1B), H314

For the full text of the H-Statements mentioned in this Section, see Section 16.

2.2 Label elements

Labelling according Regulation (EC) No 1272/2008
SECTION 2: Danger and Precautionary Information

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)

- **P223**: Keep away from any possible contact with water, because of violent reaction and possible flash fire.
- **P231 + P232**: Handle under inert gas. Protect from moisture.
- **P280**: Wear protective gloves/ protective clothing/ eye protection/ face protection.
- **P305 + P351 + P338**: IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
- **P370 + P378**: In case of fire: Use dry sand, dry chemical or alcohol-resistant foam for extinction.
- **P422**: Store contents under inert gas.

Supplemental Hazard information (EU)

**EUH014**: Reacts violently with water.

2.3 Other hazards

This substance/mixture contains no components considered to be either persistent, bioaccumulative and toxic (PBT), or very persistent and very bioaccumulative (vPvB) at levels of 0.1% or higher.

SECTION 3: Composition/information on ingredients

3.1 Substances

<table>
<thead>
<tr>
<th>Component</th>
<th>Classification</th>
<th>Concentration</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lithium</td>
<td></td>
<td></td>
</tr>
<tr>
<td>CAS-No.</td>
<td>7439-93-2</td>
<td>Water-react 1; Skin Corr. 1B; H260, H314</td>
</tr>
<tr>
<td>EC-No.</td>
<td>231-102-5</td>
<td></td>
</tr>
<tr>
<td>Index-No.</td>
<td>003-001-00-4</td>
<td>&lt;= 100 %</td>
</tr>
</tbody>
</table>

For the full text of the H-Statements mentioned in this Section, see Section 16.

SECTION 4: First aid measures

4.1 Description of first-aid measures

**General advice**

Consult a physician. Show this material safety data sheet to the doctor in attendance.
If inhaled
If breathed in, move person into fresh air. If not breathing, give artificial respiration. Consult a physician.

In case of skin contact
Take off contaminated clothing and shoes immediately. Wash off with soap and plenty of water. Consult a physician.

In case of eye contact
Rinse thoroughly with plenty of water for at least 15 minutes and consult a physician.

If swallowed
Do NOT induce vomiting. Never give anything by mouth to an unconscious person. Rinse mouth with water. Consult a physician.

4.2 Most important symptoms and effects, both acute and delayed
The most important known symptoms and effects are described in the labelling (see section 2.2) and/or in section 11

4.3 Indication of any immediate medical attention and special treatment needed
No data available

SECTION 5: Firefighting measures

5.1 Extinguishing media

Suitable extinguishing media
Use approved class D extinguishers or smother with dry sand, dry ground limestone, or dry clay. Dry powder

Unsuitable extinguishing media
Do not use water, foam, or carbon dioxide.

5.2 Special hazards arising from the substance or mixture
Lithium oxides

5.3 Advice for firefighters
Wear self-contained breathing apparatus for firefighting if necessary.

5.4 Further information
No data available

SECTION 6: Accidental release measures

6.1 Personal precautions, protective equipment and emergency procedures
Use personal protective equipment. Avoid dust formation. Avoid breathing vapors, mist or gas. Ensure adequate ventilation. Evacuate personnel to safe areas. Avoid breathing dust. For personal protection see section 8.

6.2 Environmental precautions
Prevent further leakage or spillage if safe to do so. Do not let product enter drains.

6.3 Methods and materials for containment and cleaning up
Sweep up and shovel. Contain spillage, and then collect with an electrically protected vacuum cleaner or by wet-brushing and place in container for disposal according to local regulations (see section 13). Do not flush with water. Keep in suitable, closed containers for disposal.
6.4 Reference to other sections
For disposal see section 13.

SECTION 7: Handling and storage

7.1 Precautions for safe handling

Advice on safe handling
Avoid formation of dust and aerosols.

Advice on protection against fire and explosion
Provide appropriate exhaust ventilation at places where dust is formed. Keep away from sources of ignition - No smoking.

Hygiene measures
Handle in accordance with good industrial hygiene and safety practice. Wash hands before breaks and at the end of workday.
For precautions see section 2.2.

7.2 Conditions for safe storage, including any incompatibilities

Storage conditions
Store under argon. Handle under argon. Store in cool place. Keep container tightly closed in a dry and well-ventilated place.
Never allow product to get in contact with water during storage.

Storage class
Storage class (TRGS 510): 4.3: Hazardous materials, which set free flammable gases upon contact with water

7.3 Specific end use(s)
Apart from the uses mentioned in section 1.2 no other specific uses are stipulated

SECTION 8: Exposure controls/personal protection

8.1 Control parameters

Ingredients with workplace control parameters

8.2 Exposure controls

Personal protective equipment

Eye/face protection
Face shield and safety glasses Use equipment for eye protection tested and approved under appropriate government standards such as NIOSH (US) or EN 166(EU).

Skin protection
Handle with gloves. Gloves must be inspected prior to use. Use proper glove removal technique (without touching glove's outer surface) to avoid skin contact with this product. Dispose of contaminated gloves after use in accordance with applicable laws and good laboratory practices. Wash and dry hands.
The selected protective gloves have to satisfy the specifications of Regulation (EU) 2016/425 and the standard EN 374 derived from it.

Full contact
Material: Nitrile rubber
Minimum layer thickness: 0,11 mm
Break through time: 480 min
Material tested: Dermatril® (KCL 740 / Aldrich Z677272, Size M)

Splash contact
Material: Nitrile rubber
Minimum layer thickness: 0,11 mm
Break through time: 480 min
Material tested: Dermatril® (KCL 740 / Aldrich Z677272, Size M)

data source: KCL GmbH, D-36124 Eichenzell, phone +49 (0)6659 87300, e-mail sales@kcl.de, test method: EN374
If used in solution, or mixed with other substances, and under conditions which differ from EN 374, contact the supplier of the EC approved gloves. This recommendation is advisory only and must be evaluated by an industrial hygienist and safety officer familiar with the specific situation of anticipated use by our customers. It should not be construed as offering an approval for any specific use scenario.

**Body Protection**
Complete suit protecting against chemicals, Flame retardant protective clothing, The type of protective equipment must be selected according to the concentration and amount of the dangerous substance at the specific workplace.

**Respiratory protection**
Where risk assessment shows air-purifying respirators are appropriate use a full-face 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. Use respirators and components tested and approved under appropriate government standards such as NIOSH (US) or CEN (EU).

**Control of environmental exposure**
Prevent further leakage or spillage if safe to do so. Do not let product enter drains.

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**SECTION 9: Physical and chemical properties**

**9.1 Information on basic physical and chemical properties**

a) Appearance
   Form: granular

b) Odor
   No data available

c) Odor Threshold
   No data available

d) pH
   No data available

e) Melting point/freezing point
   Melting point/range: 180 °C - lit.

f) Initial boiling point
   and boiling range
   1.342 °C - lit.

g) Flash point
   Not applicable

h) Evaporation rate
   No data available

i) Flammability (solid, gas)
   No data available

j) Upper/lower
   No data available
flammmability or explosive limits

k) Vapor pressure 1 hPa at 723 °C

l) Vapor density No data available

m) Density 0.534 g/mL at 25 °C - lit.

Relative density No data available

n) Water solubility No data available

o) Partition coefficient: n-octanol/water No data available

p) Autoignition temperature No data available

q) Decomposition temperature No data available

r) Viscosity Viscosity, kinematic: No data available

Viscosity, dynamic: No data available

s) Explosive properties No data available

t) Oxidizing properties No data available

9.2 Other safety information
No data available

SECTION 10: Stability and reactivity

10.1 Reactivity
No data available

10.2 Chemical stability
Stable under recommended storage conditions.

10.3 Possibility of hazardous reactions
Reacts violently with water.

10.4 Conditions to avoid
Exposure to moisture.

10.5 Incompatible materials
Forms shock-sensitive mixtures with certain other materials., Iron and iron salts., Heavy metals, Phosphorus, Sulfur compounds, Oxygen, Nickel, Do not store near acids., Metals, Chlorinated solvents, Water, Nitrogen

10.6 Hazardous decomposition products
In the event of fire: see section 5

SECTION 11: Toxicological information

11.1 Information on toxicological effects

Acute toxicity
Oral: No data available
Inhalation: No data available
Dermal: No data available
LD50 Intraperitoneal - Mouse - 1.000 mg/kg

**Skin corrosion/irritation**
No data available

**Serious eye damage/eye 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

**Specific target organ toxicity - single exposure**
No data available

**Specific target organ toxicity - repeated exposure**
No data available

**Aspiration hazard**
No data available

11.2 **Additional Information**

RTECS: OJ5540000
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. Cough, Shortness of breath, Headache, Nausea

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**SECTION 12: Ecological information**

12.1 **Toxicity**
No data available

12.2 **Persistence and degradability**
No data available

12.3 **Bioaccumulative potential**
No data available

12.4 **Mobility in soil**
No data available

12.5 **Results of PBT and vPvB assessment**
This substance/mixture contains no components considered to be either persistent, bioaccumulative and toxic (PBT), or very persistent and very bioaccumulative (vPvB) at levels of 0.1% or higher.
12.6 Other adverse effects
No data available

SECTION 13: Disposal considerations

13.1 Waste treatment methods

Product
Burn in a chemical incinerator equipped with an afterburner and scrubber but exert extra care in igniting as this material is highly flammable. Offer surplus and non-recyclable solutions to a licensed disposal company.

Contaminated packaging
Dispose of as unused product.

SECTION 14: Transport information

14.1 UN number
ADR/RID: 1415  IMDG: 1415  IATA: 1415

14.2 UN proper shipping name
ADR/RID: LITHIUM  IMDG: LITHIUM  IATA: Lithium
Passenger Aircraft: Not permitted for transport

14.3 Transport hazard class(es)
ADR/RID: 4.3  IMDG: 4.3  IATA: 4.3

14.4 Packaging group
ADR/RID: I  IMDG: I  IATA: I

14.5 Environmental hazards
ADR/RID: no  IMDG Marine pollutant: no  IATA: no

14.6 Special precautions for user
No data available

SECTION 15: Regulatory information

15.1 Safety, health and environmental regulations/legislation specific for the substance or mixture
This material safety data sheet complies with the requirements of Regulation (EC) No. 1907/2006.

National legislation

15.2 Chemical Safety Assessment
For this product a chemical safety assessment was not carried out
SECTION 16: Other information

Full text of H-Statements referred to under sections 2 and 3.

EUH014 Reacts violently with water.
H260 In contact with water releases flammable gases which may ignite spontaneously.
H314 Causes severe skin burns and eye damage.

Further information
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