



LITHIUM-6 METAL (6Li, 95%)

Safety Data Sheet

according to Federal Register / Vol. 77, No. 58 / Monday, March 26, 2012 / Rules and Regulations
Issue date: 12/9/2010 Revision date: 6/6/2023 Supersedes: 7/13/2016 Version: 4.0

SECTION 1: Identification

1.1. Identification

Product form : Substance
Substance name : LITHIUM-6 METAL (6Li, 95%)
CAS-No. : 7439-93-2
Product code : LLM-827
Formula : Li

1.2. Recommended use and restrictions on use

No additional information available

1.3. Supplier

Cambridge Isotope Laboratories, Inc.
50 Frontage Rd
01810
ANDOVER, MA, 01810
USA
T 1-800-322-1174
cilsales@isotope.com - www.isotope.com

1.4. Emergency telephone number

Emergency number : 1-703-741-5970
Chemtrec 1-800-424-9300 24 hours

SECTION 2: Hazard(s) identification

2.1. Classification of the substance or mixture

GHS US classification

Substances and mixtures which in contact with water emit flammable gases Category 1	H260	In contact with water releases flammable gases which may ignite spontaneously
Skin corrosion/irritation Category 1A	H314	Causes severe skin burns and eye damage
Full text of H statements : see section 16		

2.2. GHS Label elements, including precautionary statements

GHS US labeling

Hazard pictograms (GHS US) :



Signal word (GHS US) :

Danger

Hazard statements (GHS US) :

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

Precautionary statements (GHS US) :

P223 - Do not allow contact with water.
P231+P232 - Handle under inert gas. Protect from moisture.
P260 - Do not breathe dust, fume, gas, mist, spray, vapors.
P264 - Wash Both hands thoroughly after handling.
P280 - Wear protective clothing, protective gloves.
P301+P330+P331 - If swallowed: rinse mouth. Do NOT induce vomiting.
P303+P361+P353 - If on skin (or hair): Take off immediately all contaminated clothing. Rinse

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skin with water/shower.

P304+P340 - If inhaled: Remove person to fresh air and keep comfortable for breathing.

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

P310 - Immediately call a poison center or doctor.

P321 - Specific treatment (see Hazard pictograms (CLP) on this label).

P335+P334 - Brush off loose particles from skin. Immerse in cool water/wrap in wet bandages.

P363 - Wash contaminated clothing before reuse.

P370+P378 - In case of fire: Use Dry powder, Dry chemical, Alcohol resistant foam to extinguish.

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

P405 - Store locked up.

P501 - Dispose of contents/container to Comply with applicable regulations.

2.3. Other hazards which do not result in classification

No additional information available

2.4. Unknown acute toxicity (GHS US)

Not applicable

SECTION 3: Composition/Information on ingredients

3.1. Substances

Name	Product identifier	%	GHS US classification
LITHIUM-6 METAL (6Li, 95%) (Main constituent)	CAS-No.: 7439-93-2	100	Water-react. 1, H260 Skin Corr. 1A, H314

Full text of hazard classes and H-statements : see section 16

3.2. Mixtures

Not applicable

SECTION 4: First-aid measures

4.1. Description of first aid measures

First-aid measures general	: Consult a physician. Show this safety data sheet to the doctor in attendance. Move out of dangerous area.
First-aid measures after inhalation	: If breathed in, move person to fresh air. If not breathing, give artificial respiration. Consult a physician.
First-aid measures after skin contact	: Take off contaminated clothing and shoes immediately. Wash off with soap and plenty of water. Consult a physician.
First-aid measures after eye contact	: Rinse thoroughly with plenty of water for at least 15 minutes and consult a physician. Continue rinsing eyes during transport to hospital.
First-aid measures after ingestion	: Do NOT induce vomiting. Never give anything by mouth to an unconscious person. Rinse mouth with water. Consult a physician.

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4.2. Most important symptoms and effects (acute and delayed)

Potential Adverse human health effects and symptoms	: This information is based on our current knowledge and is intended to describe the product for the purposes of health, safety and environmental requirements only. It should not therefore be construed as guaranteeing any specific property of the product. 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.
Symptoms/effects after inhalation	: May be harmful if inhaled. Material is extremely destructive to the tissue of the mucous membranes and upper respiratory tract.
Symptoms/effects after skin contact	: Causes severe skin burns.
Symptoms/effects after eye contact	: Causes severe eye damage.
Symptoms/effects after ingestion	: May be harmful if swallowed. Causes burns.

4.3. Immediate medical attention and special treatment, if necessary

No additional information available

SECTION 5: Fire-fighting measures

5.1. Suitable (and unsuitable) 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. Specific hazards arising from the chemical

Fire hazard	: In contact with water releases flammable gases which may ignite spontaneously.
Hazardous decomposition products in case of fire	: Lithium oxides.

5.3. Special protective equipment and precautions for fire-fighters

Firefighting instructions	: Never use water as extinguishing media. Wear self contained breathing apparatus for fire fighting if necessary.
Protection during firefighting	:

SECTION 6: Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures

6.1.1. For non-emergency personnel

Emergency procedures	: Use personal protective equipment. Avoid dust formation. Avoid breathing dust. Ensure adequate ventilation. Remove all sources of ignition. Evacuate personnel to safe areas.
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6.1.2. For emergency responders

No additional information available

6.2. Environmental precautions

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

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6.3. Methods and material for containment and cleaning up

- For containment : Sweep up and shovel. Contain spillage, and then collect with an electrically protected vacuum clean or by wet-brushing and place in container for disposal according to local regulations. Keep in suitable, closed containers for disposal. Contain spillage, pick up with an electrically protected vacuum cleaner or by wet-brushing and transfer to a container for disposal according to local regulations.
- Methods for cleaning up : Take up mechanically (sweeping, shoveling) and collect in suitable container for disposal.

6.4. Reference to other sections

No additional information available

SECTION 7: Handling and storage

7.1. Precautions for safe handling

- Additional hazards when processed : Avoid contact with skin and eyes. Avoid formation of dust and aerosols. Provide appropriate exhaust ventilation at places where dust is formed. Keep away from sources of ignition - No smoking. Keep away from combustible material.
- Hygiene measures : Handle in accordance with good industrial hygiene and safety practice. Wash hands before breaks and at the end of workday.

7.2. Conditions for safe storage, including any incompatibilities

- Technical measures : Keep container tightly closed in a cool, dry and well-ventilated place.
- Storage conditions : Store at room temperature away from light and moisture.

SECTION 8: Exposure controls/personal protection

8.1. Control parameters

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USA - ACGIH - Occupational Exposure Limits

ACGIH chemical category	No component of this product present at levels greater than or equal to 0.1% is identifiable as a carcinogen or potential carcinogen by ACGIH.
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8.2. Appropriate engineering controls

- Appropriate engineering controls : Handle in accordance with good industrial hygiene and safety practice. Wash hands before breaks and at the end of workday.
- Environmental exposure controls : Prevent further leakage or spillage if safe to do so. Do not let product enter drains.

8.3. Individual protection measures/Personal protective equipment

Personal protective equipment:

Gloves. Protective clothing. Protective goggles. Self-contained breathing apparatus.

Materials for protective clothing:

Wear suitable protective clothing and gloves

Hand protection:

Wear suitable protective clothing and gloves

Eye protection:

Wear safety glasses with side shields (or goggles) and a face shield.

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Skin and body protection:

Choose body protection according to the amount and concentration of the dangerous substance at the work place.

Respiratory protection:

When appropriate, use NIOSH/CEN approved respirator.

Personal protective equipment symbol(s):



SECTION 9: Physical and chemical properties

9.1. Information on basic physical and chemical properties

Physical state	: Solid
Appearance	: Granular.
Color	: White
Odor	: No data available
Odor threshold	: No data available
pH	: No data available
Melting point	: 180 °C (356 °F) - lit
Freezing point	: No data available
Boiling point	: 1342 °C (2,448 °F) - lit
Flash point	: No data available
Relative evaporation rate (butyl acetate=1)	: No data available
Flammability (solid, gas)	: No data available
Vapor pressure	: 1 hPa (1 mmHg) at 723 °C (1,333 °F)
Relative vapor density at 20°C	: No data available
Relative density	: 0.534 g/cm ³ at 25 °C (77 °F)
Molecular mass	: 6.07 g/mol (Labeled)
Solubility	: No data available
Partition coefficient n-octanol/water (Log Pow)	: No data available
Auto-ignition temperature	: No data available
Decomposition temperature	: No data available
Viscosity, kinematic	: No data available
Viscosity, dynamic	: No data available
Explosion limits	: No data available
Explosive properties	: No data available
Oxidizing properties	: No data available

9.2. Other information

No additional information available

SECTION 10: Stability and reactivity

10.1. Reactivity

Reacts violently with water.

10.2. Chemical stability

Stable if stored under recommended conditions.

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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 metals. Iron and iron salts. Heavy metals, Phosphorus, Sulphur compounds, Oxygen, Nickel, Acids, Metals. Do not store near acids. metals.

10.6. Hazardous decomposition products

lithium oxides.

SECTION 11: Toxicological information

11.1. Information on toxicological effects

Acute toxicity (oral) : Not classified
Acute toxicity (dermal) : Not classified
Acute toxicity (inhalation) : Not classified

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Additional data	LD50 Intraperitoneal - mouse - 1,000 mg/kg
Skin corrosion/irritation	: Causes severe skin burns.
Serious eye damage/irritation	: Assumed to cause serious eye damage
Respiratory or skin sensitization	: Not classified
Germ cell mutagenicity	: Not classified
Carcinogenicity	: Not classified
Reproductive toxicity	: Not classified
STOT-single exposure	: Not classified
STOT-repeated exposure	: Not classified
Aspiration hazard	: Not classified
Viscosity, kinematic	: No data available
Potential Adverse human health effects and symptoms	: This information is based on our current knowledge and is intended to describe the product for the purposes of health, safety and environmental requirements only. It should not therefore be construed as guaranteeing any specific property of the product. 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.
Symptoms/effects after inhalation	: May be harmful if inhaled. Material is extremely destructive to the tissue of the mucous membranes and upper respiratory tract.
Symptoms/effects after skin contact	: Causes severe skin burns.
Symptoms/effects after eye contact	: Causes severe eye damage.
Symptoms/effects after ingestion	: May be harmful if swallowed. Causes burns.

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SECTION 12: Ecological information

12.1. Toxicity

Ecology - general : The product is not considered harmful to aquatic organisms or to cause long-term adverse effects in the environment.

12.2. Persistence and degradability

No additional information available

12.3. Bioaccumulative potential

No additional information available

12.4. Mobility in soil

No additional information available

12.5. Other adverse effects

Other adverse effects : Disposal must be done according to official regulations. Avoid release to the environment.

SECTION 13: Disposal considerations

13.1. Disposal methods

Regional legislation (waste) : Waste materials should be disposed of under conditions which meet Federal, State, and local environmental control regulations.

Product/Packaging disposal recommendations : Offer surplus and non-recyclable solutions to a licensed disposal company. Contact a licensed professional waste disposal service to dispose of this material.

Ecology - waste materials : Dispose of as unused product.

SECTION 14: Transport information

In accordance with DOT / TDG / IMDG / IATA

14.1. UN number

DOT NA No : UN1415
UN-No. (TDG) : UN1415
UN-No. (IMDG) : 1415
UN-No. (IATA) : 1415

14.2. UN proper shipping name

Proper Shipping Name (DOT) : Lithium
Proper Shipping Name (TDG) : LITHIUM
Proper Shipping Name (IMDG) : LITHIUM
Proper Shipping Name (IATA) : Lithium

14.3. Transport hazard class(es)

DOT

Transport hazard class(es) (DOT) : 4.3
Hazard labels (DOT) : 4.3



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TDG

Transport hazard class(es) (TDG) : 4.3
Hazard labels (TDG) : 4.3



IMDG

Transport hazard class(es) (IMDG) : 4.3
Hazard labels (IMDG) : 4.3



IATA

Transport hazard class(es) (IATA) : 4.3
Hazard labels (IATA) : 4.3



14.4. Packing group

Packing group (DOT) : I
Packing group (TDG) : I
Packing group (IMDG) : I
Packing group (IATA) : I

14.5. Environmental hazards

Other information : No supplementary information available.

14.6. Special precautions for user

DOT

UN-No.(DOT) : UN1415

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DOT Special Provisions (49 CFR 172.102)	: A7 - Steel packaging must be corrosion-resistant or have protection against corrosion. A19 - Combination packaging consisting of outer fiber drums or plywood drums, with inner plastic packaging, are not authorized for transportation by aircraft. IB4 - Authorized IBCs: Metal (11A, 11B, 11N, 21A, 21B, 21N, 31A, 31B and 31N). IP1 - IBCs must be packed in closed freight containers or a closed transport vehicle. N45 - Copper cartridges are authorized as inner packaging if the hazardous material is not in dispersion. T9 - 4 6 mm Normal..... Prohibited TP7 - The vapor space must be purged of air by nitrogen or other means. TP33 - The portable tank instruction assigned for this substance applies for granular and powdered solids and for solids which are filled and discharged at temperatures above their melting point which are cooled and transported as a solid mass. Solid substances transported or offered for transport above their melting point are authorized for transportation in portable tanks conforming to the provisions of portable tank instruction T4 for solid substances of packing group III or T7 for solid substances of packing group II, unless a tank with more stringent requirements for minimum shell thickness, maximum allowable working pressure, pressure-relief devices or bottom outlets are assigned in which case the more stringent tank instruction and special provisions shall apply. Filling limits must be in accordance with portable tank special provision TP3. Solids meeting the definition of an elevated temperature material must be transported in accordance with the applicable requirements of this subchapter. W31 - Non-bulk packagings must be hermetically sealed.
DOT Packaging Exceptions (49 CFR 173.xxx)	: 151
DOT Packaging Non Bulk (49 CFR 173.xxx)	: 211
DOT Packaging Bulk (49 CFR 173.xxx)	: 244
DOT Quantity Limitations Passenger aircraft/rail (49 CFR 173.27)	: Forbidden
DOT Quantity Limitations Cargo aircraft only (49 CFR 175.75)	: 15 kg
DOT Vessel Stowage Location	: D - The material must be stowed "on deck only" on a cargo vessel and on a passenger vessel carrying a number of passengers limited to not more than the larger of 25 passengers or one passenger per each 3 m of overall vessel length, but the material is prohibited on passenger vessels in which the limiting number of passengers is exceeded.
DOT Vessel Stowage Other	: 13 - Keep as dry as reasonably practicable, 52 - Stow "separated from" acids, 148 - In addition: from flammable gases and flammable liquids when stowed on deck of a containership a minimum distance of two container spaces athwartship shall be maintained, when stowed on ro-ro ships a distance of 6 m athwartship shall be maintained.
TDG	
UN-No. (TDG)	: UN1415
TDG Special Provisions	: 38 - A person must not handle, offer for transport or transport these dangerous goods in a large means of containment if they are in direct contact with the large means of containment.
ERAP Index	: 1000
Explosive Limit and Limited Quantity Index	: 0
Excepted quantities (TDG)	: E0
Passenger Carrying Ship Index	: Forbidden
Passenger Carrying Road Vehicle or Passenger Carrying Railway Vehicle Index	: Forbidden
Emergency Response Guide (ERG) Number	: 138
IMDG	
Limited quantities (IMDG)	: 0
Excepted quantities (IMDG)	: E0
Packing instructions (IMDG)	: P403
Packing provisions (IMDG)	: PP31
IBC packing instructions (IMDG)	: IBC04
IBC special provisions (IMDG)	: B1
Tank instructions (IMDG)	: T9
Tank special provisions (IMDG)	: TP7, TP33

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EmS-No. (Fire)	: F-G - FIRE SCHEDULE Golf - WATER-REACTIVE SUBSTANCES
EmS-No. (Spillage)	: S-N - SPILLAGE SCHEDULE November - SUBSTANCES REACTING VIGOROUSLY WITH WATER
Stowage category (IMDG)	: E
Stowage and handling (IMDG)	: H1
Segregation (IMDG)	: SG26, SG35
Flash point (IMDG)	: '
Properties and observations (IMDG)	: White, ductile, soft metal. Floats on water. Readily decomposes in water and reacts violently with acids, evolving hydrogen, which may be ignited by the heat of the reaction. For fire-fighting purposes, dry lithium chloride powder, dry sodium chloride or graphite powder should be carried on board when this substance is transported.
MFAG-No	: 138

IATA

PCA Excepted quantities (IATA)	: E0
PCA Limited quantities (IATA)	: Forbidden
PCA limited quantity max net quantity (IATA)	: Forbidden
PCA packing instructions (IATA)	: Forbidden
PCA max net quantity (IATA)	: Forbidden
CAO packing instructions (IATA)	: 487
CAO max net quantity (IATA)	: 15kg
Special provision (IATA)	: A1
ERG code (IATA)	: 4W

14.7. Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code

Not applicable

SECTION 15: Regulatory information

15.1. US Federal regulations

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SARA Section 302 Threshold Planning Quantity (TPQ)	SARA 302: No chemicals in this material are subject to the reporting requirements of SARA Title III, Section 302
SARA Section 311/312 Hazard Classes	Reactive hazard Immediate (acute) health hazard

Commercial status of components according to the United States Environmental Protection Agency's Toxic Substances Control Act (TSCA):

Name	CAS-No.	Listing	Commercial status	Flags
LITHIUM-6 METAL (6Li, 95%)	7439-93-2	Present	Active	

15.2. International regulations

CANADA

LITHIUM-6 METAL (6Li, 95%) (7439-93-2)
Listed on the Canadian DSL (Domestic Substances List)

EU-Regulations

No additional information available

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National regulations

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Listed on INSQ (Mexican National Inventory of Chemical Substances)
Listed on TECI (Thailand Existing Chemicals Inventory)

15.3. US State regulations

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State or local regulations	U.S. - Massachusetts - Right To Know List U.S. - New Jersey - Right to Know Hazardous Substance List U.S. - Pennsylvania - RTK (Right to Know) List
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SECTION 16: Other information

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Revision date

: 06/06/2023

Other information

: This product is not radioactive. The data given for this product are those of the corresponding unlabeled compound, unless specifically indicated otherwise. Health and safety data for labeled compounds are generally not available, but are assumed to be similar or identical to the corresponding unlabeled compound.

Full text of H-phrases

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

Safety Data Sheet (SDS), USA

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