

## Section 1: Identification of the Substance/Mixture and of the Company/Undertaking

### Product Identifier:

Identification as on the label/Trade name: Lithium Metal.

Molecular weight: 6.941

Chemical formula: Li

Synonyms: None.

### Details of the supplier of the Safety Data Sheet:

Neonest AB  
Storgatan 70C, Solna  
SE-17152  
Sweden

### Contact details:

+46-76-219-9731

### 24-hour Emergency Contact:

Swedish Poisons Centre  
Phone: 112 - Ask for Poisons Information, 112 – begär Giftinformation.

### Other International Contacts:

CHEMTREC 24-hour: +1-703-741-5500 (US + Worldwide)  
NHS: 111 (UK)  
Charite: +49 30 450 531 000 (Netherlands)  
INTCF: +34 917689800 (Spain)  
CapTv: +33 1 40 05 48 48 (France)

## Section 2: Hazards Identification

### Classification of the substances or mixture:

The mixture is classified according to: Regulation EC 1272/2008 [EU-GHS/CLP]

### Hazard classes/Hazard categories:

Water Reactive (Category 1)

Skin Corrosive (Category 1B)

### Hazard statement:

H260

H314

### Label elements:

Hazard pictograms:



Signal Words: Danger.

**Hazard Statements:**

H260 In contact with water releases flammable gasses which may ignite spontaneously.

H314 Causes severe skin burns and eye damage.

EUH014 Reacts violently with water.

**Precautionary Statements:**

P223 Do not allow contact with water.

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

P260 Do not breathe dust or mists.

P270 Do not eat, drink or smoke when using this product.

P280 Wear protective gloves/protective clothing/eye protection.

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

P302 + P335 + P334 IF ON SKIN: Brush off loose particles from skin and immerse in cool water.

P303 + P361 + P353 IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water.

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.

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

P405 Store locked up.

P501 Dispose of contents/container in accordance with local and national regulations.

**Other hazards:** None known.

**Section 3: Composition/Information on Ingredients**

**Substance/Mixture:** Substance.

**Ingredients:**

Substance name (IUPAC/EC)	CAS-No.	Molecular weight	Concentration % by weight	Classification
	EC-No.			EC1272/2008
Lithium	7439-93-2	6.941	>99%	Water-react. 1 H260
	231-102-5			Skin Corr. 1B H314

For explanation of abbreviations see Section 16.

**Section 4: First-Aid Measures**
**Description of first aid measures:**

**Eyes:** Immediately flush with water for at least 15 minutes, lifting the upper and lower eyelids intermittently. See a medical doctor or ophthalmologist immediately.

**Skin:** Quickly wipe off as much as possible, then immediately flush with plenty of water while removing contaminated clothing and/or shoes. Thoroughly wash with soap and water. Obtain immediate medical attention. Contact a medical doctor if necessary.

**Ingestion:** Quickly wipe material from the mouth and rinse mouth with water. Do not induce vomiting. Never give anything by mouth to an unconscious person. See a medical doctor immediately.

**Inhalation:** Remove to fresh air. If breathing difficulty or discomfort occurs and persists, see a medical doctor. If breathing has stopped, give artificial respiration and see a medical doctor immediately.

**Most important symptoms and effects, both acute and delayed:**

Lithium metal reacts violently with water and is corrosive to the eyes, skin and respiratory tract. Treatment should first remove as much of the material as possible as quickly as possible, then flush with very large quantities of water.

**Indication of any immediate medical attention and special treatment needed:**

**Notes to medical doctor:** This product is corrosive and reacts violently with water. Treatment should first remove as much of the material as possible as quickly as possible, then flush with very large quantities of water. Ingestion presents a singular problem as emesis may produce oesophageal 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. Esophagoscopy may be of assistance in this procedure and to assess extent of damage. Treatment is otherwise symptomatic and supportive.

**Section 5: Fire-Fighting Measures****Extinguisher media:**

**Extinguishing media:** Dry chemical, CO<sub>2</sub>, water spray or regular foam.

**Special hazards arising from the substance or mixture:** Hazardous combustion products: None.

**General Hazard:** No known physical hazard, non-combustible.

**Properties contributing to Flammability:** None.

**Flashpoint:** Not applicable.

**Flammable limits in air:** Upper: Not available Lower: Not available.

**Auto ignition temperature:** Not applicable.

**Sensitivity to static discharge:** Not applicable.

**Sensitivity to static impact:** Not applicable.

**Advice for fire-fighters:** Wear full protective clothing and self-contained breathing apparatus (SCBA) approved for firefighting. This is necessary to protect against the hazards of heat, products of combustion and oxygen deficiency. Do not breathe smoke, gases or vapours generated.

**Section 6: Accidental Release Measures****Personal precautions, protective equipment and emergency procedures:**

**Personal precautions:** Before clean-up measures begin, review the entire SDS with particular attention to Section 2, Hazards Identification; and Section 8, Exposure Controls/Personal Protection.

**Environmental precautions:** Do not wash into drains. Dispose of at a qualified waste disposal facility.

**Methods for containment and cleaning up:**

Remove all sources of ignition. To prevent ignition, cover with mineral oil (or kerosene), soaking thoroughly, and place in oiled steel drums which are approved for transport. Keep water and moisture away from spilled material. Dispose of waste according to local and Federal laws and regulations.

**Reference to other sections:**

Treat recovered material as described in the section "Disposal considerations".

**Section 7: Handling and Storage****Precautions for safe handling:**

**Advice on safe handling:** Wear safety glasses or goggles and dry rubber gloves. Where relative humidity is maintained below 50%, or lithium surface is coated with mineral oil, lithium pieces can be handled in open atmosphere at room temperature. To maintain best quality, humidity levels of less than 2% are recommended.

**Conditions for safe storage, including incompatibilities:**

Store in original unopened shipping container. Once opened, store in argon atmosphere or mineral oil. Keep away from water, humid air, acids and oxidizing materials. Keep away from heat, sparks and flame.

**Specific end uses:** Defined in Exposure scenarios. Industrial and professional use only.

## Section 8: Exposure Controls/Personal Protection

**Control parameters:**

**Occupational exposure limits:** Contains no substances with occupational exposure limit values.

**Exposure controls:**

**Appropriate engineering controls:** Use local exhaust ventilation to keep airborne concentrations below exposure limits.

**Individual protection measures, such as personal protective equipment:**

Safety glasses or goggles for general use.

Full flame-resistant face shield required if metal is in a molten state.

Respiratory: None.

Gloves: Dry rubber gloves for general use.

Wear full flame-resistant clothing if the metal is handled or used in a molten state.

Work Hygienic Practices: Quick-drench eyewash and safety shower.

## Section 9: Physical and Chemical Properties

**Information on basic physical and chemical properties**

**Appearance (form):** Solid.

**Colour:** Silver.

**Odour:** Odourless.

**Odour threshold:** No data available.

**Molecular Weight:** 6.941

**pH (concentration):** No data available.

**Melting point/range (°C):** 180.5 °C

**Boiling point/range (°C):** 1,342 °C

**Freezing point (°C):** No data available.

**Flash point (°C):** No data available.

**Evaporation rate:** No data available.

**Flammability (solid, gas):** Contact with water liberates extremely flammable gases.

**Ignition temperature (°C):** No data available.

**Upper/lower flammability/explosive limits:** No data available.

**Vapour pressure:** 0 Pa at 25°C

**Vapour density:** No data available.

**Relative density (25 °C):** 0.534

**Water solubility (g/L) at 20 °C:** Insoluble.

**n-Octanol/Water partition coefficient:** -0.77 at 25 °C

**Auto-ignition temperature:** 180.5 °C

**Decomposition temperature:** No data available.

**Viscosity, dynamic (mPa s):** No data available.

**Explosive properties:** The substance or mixture is not classified as explosive.

**Oxidising properties:** The substance or mixture is not classified as oxidizing.

## Section 10: Stability and Reactivity

**Reactivity:** Reacts violently with water, producing flammable hydrogen gas.

**Chemical stability:** Stable when kept dry and under inert gas.

**Possibility of hazardous reactions:** Reacts violently with water, producing flammable hydrogen gas. Hazardous polymerization will not occur.

**Conditions to avoid:** Temperatures above the melting point 180.5°C. Contact with water. Moisture. Humid air.

**Incompatible materials:** Acids, oxidizers, oxygen, nitrogen, and carbon dioxide.

**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 in 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.

## Section 11: Toxicological Information

### Information on toxicological effects:

**Acute Toxicity:** Not classified based on available information

### Classification according to GHS (1272/2008/EG, CLP)

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

Causes severe skin burns and eye damage.

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

Not classified based on available information.

#### **Respiratory or skin sensitisation:**

Not classified based on available information.

#### **Germ cell mutagenicity:**

Not classified based on available information.

#### **Carcinogenicity:**

No classification data on carcinogenic properties of this material is available from the EPA, IARC, NTP, OSHA or ACGIH.

#### **Reproductive toxicity:**

Not classified based on available information.

#### **Specific target organ toxicity – single exposure (STOT):**

Not classified based on available information.

#### **Specific target organ toxicity (STOT) – repeated exposure:**

Not classified based on available information.

#### **Aspiration toxicity:**

Not classified based on available information.

## Section 12: Ecological Information

**Toxicity:** No data available.

**Persistence and degradability:** No data available.

**Bioaccumulative potential:** No data available.

**Mobility in soil:** No data available.

**Results of PBT& vPvB assessment:** Not relevant.

**Other adverse effects:** No data available.

## Section 13: Disposal Considerations

**Waste treatment methods:** Waste containing lithium metal is considered a reactive waste. Disposal facilities specializing in the handling of reactive waste are recommended. Dispose of waste according to local and Federal laws and regulations.

## Section 14: Transport Information

### Land transport (UN RTDG/ADR/RID)

**UN number:** 1415

**Proper shipping name and description:** Lithium

**Chemical name:** LITHIUM METAL

**Hazard class:** Class 4.3

**Hazard label:**



**Packing group:** I

**Environmental hazards:** Based on available data, the classification criteria are not met.

**Transport in bulk according to Annex II of MARPOL73/78 and the IBC Code:** Based on available data, the classification criteria are not met.

**Special precautions for user:** None

### Inland waterway transport (UN RTDG/ADN(R))

**UN number:** 1415

**Proper shipping name and description:** Lithium

**Chemical name:** LITHIUM METAL

**Hazard class:** Class 4.3

**Packing group:** I

**Environmental hazards:** Based on available data, the classification criteria are not met.

**Transport in bulk according to Annex II of MARPOL73/78 and the IBC Code:** Based on available data, the classification criteria are not met.

**Special precautions for user:** None

### Marine transport (UN RTDG/IMDG)

**UN number:** 1415

**Proper shipping name and description:** Lithium

**Chemical name:** LITHIUM METAL

**Hazard class:** Class 4.3

**Packing group:** I

**Hazard label:**



**Environmental hazards:** Based on available data, the classification criteria are not met.

**Transport in bulk according to Annex II of MARPOL73/78 and the IBC Code:** Based on available data, the classification criteria are not met.

**Special precautions for user:** None

#### Air transport (UN RTDG/ICAO/IATA)

**UN number:** 1415

**Proper shipping name and description:** Lithium

**Chemical name:** LITHIUM METAL

**Hazard class:** Class 4.3

**Packing group:** I

**Environmental hazards:** Based on available data, the classification criteria are not met.

**Transport in bulk according to Annex II of MARPOL73/78 and the IBC Code:** Based on available data, the classification criteria are not met.

**Special precautions for user:** None

### **Section 15: Regulatory Information**

#### EU regulations:

**Regulation (EC) No. 1005/2009 on substances that deplete the ozone layer, Annex I and II, as amended**  
Not listed.

**Regulation (EC) No. 850/2004 on persistent organic pollutants, Annex I**  
Not listed.

**Regulation (EU) No. 649/2012 concerning the export and import of dangerous chemicals, Annex I, Part 1 as amended**  
Not listed.

**Regulation (EU) No. 649/2012 concerning the export and import of dangerous chemicals, Annex I, Part 2 as amended**  
Not listed.

**Regulation (EU) No. 649/2012 concerning the export and import of dangerous chemicals, Annex I, Part 3 as amended**  
Not listed.

**Regulation (EU) No. 649/2012 concerning the export and import of dangerous chemicals, Annex V as amended**  
Not listed.

**Regulation (EC) No. 166/2006 Annex II Pollutant Release and Transfer Registry**  
Not listed.

**Regulation (EC) No. 1907/2006, REACH Article 59(10) Candidate List as currently published by ECHA**  
Not listed.



**Authorisations:**

**Regulation (EC) No. 1907/2006, REACH Annex XIV Substances subject to authorization, as amended**

Not listed.

**Restrictions on use:**

**Regulation (EC) No. 1907/2006 Annex XVII Substances subject to restriction on marketing and use**

Not regulated.

**Regulation (EC) No. 1907/2006, REACH Annex XVII Substances subject to restriction on marketing and use as amended**

Not listed.

**Directive 2004/37/EC on the protection of workers from the risks related to exposure to carcinogens and mutagens at work**

Not regulated.

**Directive 92/85/EEC: on the safety and health of pregnant workers and workers who have recently given birth or are breastfeeding.**

Not regulated.

**Other EU regulations:**

**Directive 2012/18/EU on major accident hazards involving dangerous substances**

Not listed.

**Directive 98/24/EC on the protection of the health and safety of workers from the risks related to chemical agents at work.**

Always applicable.

**Directive 94/33/EC on the protection of young people at work**

Lithium, CAS 7439-93-2

**Other regulations:** The product is classified and labelled in accordance with EC directives or respective national laws.

This Safety Data Sheet complies with the requirements of Regulation (EC) No 1907/2006, as amended.

**Hazard Symbols:** C Corrosive, F Highly flammable.

**Risk Phrases:** 14/15 Reacts violently with water, liberating extremely flammable gases. 34 Causes burns.

**Safety Phrases:**

7/8 Keep container tightly closed and dry.

20 When using, do not eat or drink.

26 In case of contact with eyes, rinse immediately with plenty of water and seek medical advice.

30 Never add water to this product.

33 Take precautionary measures against static discharges.

36/37/39 Wear suitable protective clothing, gloves and eye/face protection.

43 In case of fire, use sand or powdered extinguishing agent. Never use water.

45 In case of accident or if you feel unwell, seek medical advice immediately.

**National Regulations:** All components of this product are listed in the U.S. Environmental Protection Agency Toxic Substances Control Act Chemical Substance Inventory.

**SARA 302 Components:** No chemicals in this material are subject to the reporting requirements of SARA Title III, Section 302.

**SARA 313 Components:** This material does not contain any chemical components with known CAS numbers that exceed the threshold (De Minimis) reporting levels established by SARA Title III, Section 313.

**SARA 311/312 Hazards:** Reactivity Hazard, Acute Health Hazard.



**California Prop. 65 Components:** This product does not contain any chemicals known to the State of California to cause cancer, birth defects, or any other reproductive harm.

**Chemical safety assessment:** No Chemical Safety Assessment has been carried out.

## Section 16: Other Information

### List of abbreviations:

ACGIH American Conference of Governmental Industrial Hygienists  
ADR European Agreement Concerning the International Carriage of Dangerous Goods by Road  
ALARA As Low As Is Reasonably Achievable  
AMU Atomic Mass Unit  
ANSI American National Standards Institute  
BLS Basic Life Support  
CAM Continuous Air Monitor  
CAS Chemical Abstracts Service (division of the American Chemical Society)  
CEN European Committee for Standardization  
CERCLA Comprehensive Environmental Response Compensation and Liability Act  
CLP Classification, Labelling and Packaging (European Union)  
CPR Controlled Products Regulations (Canada)  
CWA Clean Water Act (USA)  
DAC Derived Air Concentration (USA)  
DOE United States Department of Energy (USA)  
DOT United States Department of Transportation (USA)  
DSL Domestic Substances List (Canada)  
EC50 Half Maximal Effective Concentration  
EINECS European Inventory of Existing Commercial Chemical Substances  
EHS Environmentally Hazardous Substance  
ELINCS European List of Notified Chemical Substances  
EMS Emergency Response Procedures for Ships Carrying Dangerous Goods  
EPA Environmental Protection Agency (USA)  
EPCRA Emergency Planning and Community Right-To-Know Act (EPCRA) of 1986  
GHS Globally Harmonized System  
HMIS Hazardous Materials Identification System (USA)  
IARC International Agency for Research on Cancer  
IATA International Air Transport Association  
IBC Intermediate Bulk Containers  
ICAO International Civil Aviation Organization  
IDLH Immediately Dangerous to Life or Health  
IMDG International Maritime Code for Dangerous Goods  
LC50 Lethal concentration, 50 percent  
LD50 Lethal dose, 50 percent  
LDLO Lethal Dose Low  
LOEC Lowest-Observed-Effective Concentration  
MARPOL International Convention for the Prevention of Pollution from Ships  
MSHA Mine Safety and Health Administration (USA)  
NCRP National Council on Radiation Protection & Measurements (USA)  
NDSL Non-Domestic Substances List (Canada)

NFPA National Fire Protection Association (USA)  
NIOSH National Institute for Occupational Safety and Health (USA)  
NOEC No Observed Effect Concentration  
N.O.S. Not Otherwise Specified  
NRC Nuclear Regulatory Commission (USA)  
NTP National Toxicology Program (USA)  
OSHA Occupational Safety and Health Administration (USA)  
PBT Persistent Bioaccumulative and Toxic Chemical  
PEL Permissible Exposure Limit  
PIH Poisonous by Inhalation Hazard  
RCRA Resource Conservation and Recovery Act (USA)  
RCT Radiation Control Technician  
REACH Registration, Evaluation, Authorisation and Restriction of Chemicals (Europe)  
RID Regulations Concerning the International Transport of Dangerous Goods by Rail  
RTECS Registry of Toxic Effects of Chemical Substances  
SARA Superfund Amendments and Reauthorization Act (USA)  
TDG Transportation of Dangerous Goods (Canada)  
TIH Toxic by Inhalation Hazard  
TLV Threshold Limit Value  
TPQ Threshold Planning Quantity  
TSCA Toxic Substances Control Act  
TWA Time Weighted Average  
UN United Nations (Number)  
VOC Volatile Organic Compound  
vPvB Very Persistent Very Bioaccumulative Chemical  
WGK Wassergefährdungsklassen (Germany: Water Hazard Classes)  
WHMIS Workplace Hazardous Materials Information System

**References:**

Not available.

**Full text of any H-statements not written out in full under Sections 2 to 15:**

H260 In contact with water releases flammable gasses which may ignite spontaneously.

H314 Causes severe skin burns and eye damage.

EUH014 Reacts violently with water.

**Revision information:**

None.

**Training information:**

Follow training instructions when handling this material.

**Further Information:**

The information provided in this Safety Data Sheet is correct to the best of our knowledge, information and belief at the date of its publication. The information given is designed only as a guidance for safe handling, use, processing, storage, transportation, disposal and release and is not to be considered a warranty or quality specification. The information relates only to the specific material designated and may not be valid for such material used in combination with any other materials or in any process, unless specified in the text.