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

Product Identifier:

Identification as on the label/Trade name: Lithium Hydroxide Monohydrate, Enriched Lithium.
Molecular weight: 41.96
Chemical formula: LiOH H_2O
Synonyms: Lithium hydroxide.

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:	Hazard statement:
Acute Toxicity, Oral (Category 4)	H302
Skin Corrosive (Category 1B)	H314
Eye Damage (Category 1)	H318

Label elements:

Hazard pictograms:

Signal Words: Danger.

Hazard Statements:

H302 Harmful if swallowed.
H314 Causes severe skin burns and eye damage.
H318 Causes serious eye damage.
Precautionary Statements:
P270 Do not eat, drink or smoke when using this product.
P280 Wear protective gloves/protective clothing/eye protection/face protection.
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 skin with water [or shower].
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/doctor.
P405 Store locked up.

Section 3: Composition/Information on Ingredients

Substance/Mixture: Substance.
Ingredients:

Substance name (IUPAC/EC)	**CAS-No.** / **EC-No.**	**Concentration % by weight**	**Classification** EC1272/2008
Lithium hydroxide	1310-66-3 / 603-454-3	>99.9%	Acute Tox. 4 H302 Skin Corr. 1B H314 Eye Dam. 1 H318

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 upper and lower lids intermittently. See a doctor immediately.
Skin: Immediately flush with plenty of water while removing contaminated clothing and/or shoes and thoroughly wash with soap and water. Obtain medical attention. Contact a doctor if necessary.
Ingestion: Rinse mouth with water. Dilute by giving 1 or 2 glasses of water. Do not induce vomiting. Do not give anything by mouth to an unconscious person. See a doctor immediately.
Inhalation: Remove to fresh air. If breathing discomfort occurs and persists, see a doctor. If breathing has stopped, give artificial respiration and see a doctor immediately.
Notes to doctor: This product is corrosive to the skin, eyes and mucous membranes of the respiratory and gastrointestinal tracts. Consideration should be given to gastric lavage, with endotracheal tube in place. Treatment is controlled removal of exposure with symptomatic and supportive care.

Most important symptoms and effects, both acute and delayed:

Inhalation: Corrosive. Extremely destructive to tissues of the mucous membranes and upper respiratory tract. Symptoms may include burning sensation, coughing, wheezing, laryngitis, shortness of breath, headache, nausea and vomiting. Inhalation may be fatal as a result of spasm inflammation and edema of the larynx and bronchi, chemical pneumonitis and pulmonary edema.

Ingestion: Corrosive. Swallowing can cause severe burns of the mouth, throat and stomach, leading to death. Can cause sore throat, vomiting, diarrhoea. In severe cases, lithium can cause apathy, sluggishness, drowsiness, slurred speech, blurred vision, irregular eye movements, weakness, incoordination, lethargy, heart effects, brain effects, ringing in the ears, tremors and muscle twitching, central nervous system damage, kidney effects, thyroid changes, coma, pulmonary edema and renal failure.
Skin Contact: Dermal contact with alkaline corrosives may produce pain, redness, severe irritation or full thickness burns.
Eye Contact: Corrosive. Contact can cause blurred vision, redness, pain and severe tissue burns.
Chronic Exposure: Prolonged skin contact causes dermatitis, deep burns and scarring. Chronic exposure may damage the liver or kidneys and may cause central nervous system depression.
Aggravation of Pre-existing Conditions: Persons with pre-existing skin disorders or eye problems or impaired respiratory function may be more susceptible to the effects of the substance.

Section 5: Fire-Fighting Measures

Extinguisher media:

Flammable Limits: Upper: Not available. Lower: Not available.
General Hazards: None.
Extinguishing Media: Dry chemical, CO_2, water or regular foam.
Hazardous Combustion Products: Corrosive lithium hydroxide dust.
Fire-Fighting Procedure: 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.
Flash Point: Not applicable.
Autoignition Temperature: Not applicable.
Properties Contributing to Flammability: None.
Sensitivity to Static Discharge: Not applicable.
Sensitivity to Impact: Not applicable.

Section 6: Accidental Release Measures

Personal precautions, protective equipment and emergency procedures:

Ventilate area of leak or spill. Keep unnecessary and unprotected people away from area of spill. Wear appropriate personal protective equipment as specified in Section 8. Avoid dust formation. Avoid breathing vapours, mist or gas.
Environmental precautions: Prevent further leakage or spillage if safe to do so. Do not let product enter drains. Discharge into the environment must be avoided.

Methods and materials for containment and cleaning up:
Sweep up and collect in a suitable transport container.

Section 7: Handling and Storage

Precautions for safe handling:

Handling: Do not get in eyes, on skin or clothing. Avoid breathing dust. Wash thoroughly after handling.

Conditions for safe storage, including any incompatibilities:
Keep container closed. Store away from acids and water.

Section 8: Exposure Controls/Personal Protection

Control parameters:

Occupational exposure limits: STEL (EH40): 1mg/m^3

Exposure controls:

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

Individual protection measures, such as personal protective equipment:

Respiratory: Wear a CEN Class P respirator approved for protection against inorganic dusts, when adequate ventilation is not available.
Eyes: Safety glasses or goggles.
Gloves: Nitrile (typical permeation breakthrough time >480 minutes).
These glove recommendations should not be used as the absolute basis for glove selection. Actual in-use conditions may vary glove performance from the controlled conditions of laboratory tests. Factors such as concentration and temperature, glove thickness and glove reuse, may affect performance. Other glove requirements, such as length, dexterity, cut, abrasion, puncture and snag resistance, or glove grip need to be considered in making your final selection.
Others: Quick-drench eyewash and safety shower.

Section 9: Physical and Chemical Properties

Information on basic physical and chemical properties

Appearance (form): Solid (crystalline).
Colour: White.
Odour: Odourless.
Odour threshold: No data available.
pH (concentration): No data available.
Melting point/range (°C): 462 °C
Boiling point/range (°C): No data available.
Flash point (°C): No data available.
Evaporation rate: No data available.
Flammability (solid, gas): Non-flammable.
Ignition temperature (°C): No data available.
Upper/lower flammability/explosive limits: No data available.
Vapour pressure (20 °C): No data available.
Vapour density: No data available.
Relative density (25 °C): No data available.
Water solubility (g/L) at 20 °C: 216 g/L
n-Octanol/Water partition coefficient: No data available.
Auto-ignition temperature: No data available.
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

Stability: Stable under normal storage and temperature conditions.
Conditions to avoid: None.
Hazardous polymerization: Will not occur.
Incompatible materials: Acids, aluminium, zinc.
Hazardous decomposition products: None.

Section 11: Toxicological Information

Information on toxicological effects:

Harmful if swallowed.

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

Skin corrosion/irritation:
Not classified based on available information.
Serious eye damage/eye irritation:
Causes severe skin burns and eye damage.
Respiratory or skin sensitisation:
Not classified based on available information.
Germ cell mutagenicity:
Not classified based on available information.
Carcinogenicity:
Not classified based on available information.
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: No data available.
Other adverse effects: No data available.

Section 13: Disposal Considerations

Product: Whatever cannot be saved for recovery or recycling should be managed in an appropriate and approved waste disposal facility. Processing, use or contamination of this product may change the waste management options. State and local disposal regulations may differ from federal disposal regulations. Dispose of unused contents in accordance with federal, state and local requirements.
Contaminated Packaging: Dispose of container in accordance with local requirements.

Section 14: Transport Information

UN number: 2680
UN proper shipping name: LITHIUM HYDROXIDE MONOHYDRATE
Transport hazard class: Class 8
Transport hazard labels:

Packing group: II
Marine pollutant: No.

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
Not listed.

Additional Information:

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: Acute Health Hazard, Chronic Health Hazard.

Massachusetts Right to Know Components: No components are subject to the Massachusetts Right to Know Act.

Pennsylvania Right to Know Components: Lithium hydroxide monohydrate / CAS No. 1310-66-3

New Jersey Right to Know Components: Lithium hydroxide monohydrate / CAS No. 1310-66-3

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:

H302 Harmful if swallowed.
H314 Causes severe skin burns and eye damage.
H318 Causes serious eye damage.

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.