



SAFETY DATA SHEET

Lithium Hydroxide, monohydrate

Revision Date 29.03.2019

Version 1.1

SECTION 1: IDENTIFICATION OF THE SUBSTANCE/MIXTURE AND OF THE COMPANY/ UNDERTAKING

1.1 Product identifier

Product identifier : Lithium Hydroxide monohydrate.
CAS-No : 1310-66-3
EC-No : 215-183-4
Registration number : REACH Registration № 01-2119560576-31-XXXX

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

Use of the : Raw material for industrial applications.
Substance/ Mixture

1.3 Details of the supplier of the safety data sheet

Company : LLC «TD Halmek»
3-7a Doroznaya st., Moscow, 117545, Russian Federation
Telephone : +7 (495) 943-97-03
E-mail address : info@halmek.ru

1.4 Emergency telephone number

Austria: Poison Control Centre, Tel.: (+43)-1-406-43-43;
Belgium: Belgisch Antigifcentrum, Tel.: 070-245-245;
Croatia: Poison Control Centre, Tel: (+385)-1-23-48-342;
Czech Republic: Toxikologické informační středisko Tel.: (+420)-224-919-293,
(+420)-224-915-402;
Denmark: Poison Control Hotline, Tel.: (+45)-82-12-12-12;
Estonia: National emergency telephone number: 112 or Poison information telephone number:
16662, calling from abroad: (+372) 7943-794;
Finland: Poison Information Centre, Tel.: (09)-471-977 (direct) or (09)-4711;
France: ORFILA (INRS), Tel.: (+33)-(0)-1-45-42-59-59;
Hungary: Az Egészségügyi Toxikológiai Tájékoztató Szolgálat elérhetőségei Tel: (+36)-80-201-199;
Iceland : Landspítali - The National University Hospital of Iceland, Tel.: (+354) 543-1000 or 112;
Latvia: Valsts Toksikoloģijas centra Saindēšanās un zāļu informācijas centrs, Tel.: (+371)-67042473;
Lithuania: Sveikatos apsaugos ministerijos ekstremalių sveikatai situacijų centras,
Tel.: (+370)-5-236-20-52;
Luxembourg: Belgian Poison Center, Tel.: (+352) 8002-5500;
Malta: Mater Dei Hospital, Tel: 2545-0000;
Kingdom of Norway: 113;
Sweden: Swedish Poisons Information Centre, Tel.: (+46) 10-456-6700 or 112.

Note: please, consult with your local/national competent authorities for the emergency number in your country.

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SECTION 2: HAZARDS IDENTIFICATION**2.1 Classification of the substance or mixture****Classification according to REGULATION (EC) No 1272/2008**Acute Toxicity, Category 4
Skin corrosion, Category 1BH302: Harmful if swallowed.
H314: Causes severe skin burns and eye damage.**2.2 Label elements****Labeling according to REGULATION (EC) No 1272/2008**

Hazard pictogram (s) :



GHS05: corrosion



GHS07: exclamation mark

Signal Word : Danger

Hazard statements : H302 : Harmful if swallowed.
H314 : Causes severe skin burns and eye damage.

Precautionary statements : **Prevention:**
P260 : Do not breathe dust.
P280 : Wear protective gloves, protective clothing, eye protection and face protection.

Response:
P301+P330+ : IF SWALLOWED: Rinse mouth. Do NOT induce vomiting. Immediately call a POISON CENTER or doctor.
P331+P310
P303+P361+ : IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water or shower. Immediately call a POISON CENTER or doctor.
P353+P310
P304+P340+ : If INHALED: Remove person to fresh air and keep comfortable for breathing. Immediately call a POISON CENTER or doctor.
P310
P305+P351+ : IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Immediately call a POISON CENTER or doctor.
P338+P310

All precautionary statements see Section 16.

2.3 Other hazards



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This substance does not meet the PBT/vPvB criteria of REACH Annex XIII.

A solution of lithium hydroxide may cause corrosion of metals (aluminum, zinc).

SECTION 3: COMPOSITION/INFORMATION ON INGREDIENTS

Substance name : Lithium hydroxide, monohydrate
CAS No : 1310-66-3
EC No : 215-183-4 (anhyd. form)
Index No : Not indexed

SECTION 4: FIRST AID MEASURES

4.1 Description of first aid measures

General advice : In the case of accident or if you feel unwell, seek medical advice immediately (show the label where possible). First aider needs to protect himself. Move out of dangerous area. Take off contaminated clothing and shoes immediately. Never give anything by mouth to an unconscious person.

Inhalation : If breathed in, move person into fresh air. Keep patient warm and at rest. Immediately call a POISON CENTER or doctor.

Skin contact : In case of contact, immediately flush skin with soap and plenty of water. Immediately call a POISON CENTER or doctor.

Eye contact : Protect unharmed eye. If easy to do, remove contact lens, if worn. In the case of contact with eyes, rinse with plenty of water. Immediately call a POISON CENTER or doctor.

Ingestion : Immediately call a POISON CENTER or doctor. Do NOT induce vomiting. Do not give anything to drink.

4.2 Most important symptoms and effects, both acute and delayed

Inhalation : Lethargy, drowsiness, weakness, headache, dizziness, tears, chest pain, throat irritation, cough, respiratory difficulty.

Skin contact : Redness, edema, burn, necrosis.

Eye contact : Edema of the eyelids, redness of conjunctiva, burn, iris damage up to blindness.

Ingestion : Lip burn, burn of oral mucosa, esophageal pain, pain in the stomach area, drowsiness, headache, nausea, diarrhea, vomit, bloody excrements. May cause convulsions and faint.

4.3 Indication of any immediate medical attention and special treatment needed

No data available.

SECTION 5: FIRE-FIGHTING MEASURES



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5.1 Extinguishing Media

Suitable extinguishing media : Use all fire extinguishing media.

Unsuitable extinguishing media : No data available.

5.2 Special hazards arising from the substance or mixture

Specific hazards : No data available.

5.3 Advice fire fighters

Special protective equipment for fire-fighters : In the event of fire, wear self-contained breathing apparatus. Use personal protective equipment.

Further information : Standard procedure for chemical fires. Collect contaminated fire extinguishing water separately. This must not be discharged into drains. Fire residues and contaminated fire extinguishing water must be disposed of in accordance with local regulations. The product itself does not burn.

SECTION 6: ACCIDENTAL RELEASE MEASURES

6.1 Personal precautions, protective equipment and emergency procedure

Refer to protective measures listed in sections 7 and 8. Use personal protective equipment. Ensure adequate ventilation, especially in confined areas. Immediately evacuate personnel to safe areas. Avoid dust formation. Avoid contact with skin and eyes. Do not breathe dust.

6.2 Environmental precautions

Prevent further spillage if safe to do so. If the product contaminates rivers and lakes or drains inform respective authorities. Avoid release to the environment.

6.3 Methods and materials for containment and cleaning up

Indoors:

Sweep up and disposal. Pick up and arrange disposal without creating dust. Keep in suitable, closed containers for disposal. Avoid release to the environment. Clean contaminated surface thoroughly.

Outdoors:

Prevent spreading over a wide area by containment. Contain and collect spillage with non-combustible absorbent material, (e.g. sand, earth, diatomaceous earth, vermiculite) and place in container for disposal according to local regulations. Pick up and arrange disposal without creating dust. Avoid release to the environment. Clean contaminated surface thoroughly.

6.4 Reference to other sections

See Section 7, 8, 11, 12 and 13.



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SECTION 7: HANDLING AND STORAGE

7.1 Precautions for safe handling

Advice on safe handling : For personal protection see section 8. Avoid contact with skin and eyes. Avoid formation of dust. Do not breathe dust. Provide appropriate exhaust ventilation at places where dust is formed. Do not carry cloths that have come into contact with the product in your clothing. Handle with care. Avoid exposure – obtain special instructions before use.

Advice on protection against fire and explosion : Normal measures for preventive fire protection.

7.2 Conditions for safe storage including any incompatibilities

Requirements for storage areas and containers : Store in a place accessible by authorized persons only. Store in polypropylene bags (density = 85 g/cm³) with inner liners made of polyethylene film (film thickness ≥ 0.07 mm).

Advice on common storage : Protect from moisture. Keep away from food, drink and animal feeding stuffs. Do not store near acids and strong bases, oxidizing agents, metals (aluminum, zinc).

Storage period : 10 years.

Storage temperature : No data available.

7.3 Specific end use(s)

No data available.

SECTION 8: EXPOSURE CONTROLS/PERSONAL PROTECTION

8.1 Control parameters

Components	CAS-No	Control parameters	Basis	Country
Lithium hydroxide	1310-65-2	STEL: 1 mg/m ³	S.I. No619 of 2001	Ireland
Lithium hydroxide	1310-65-2	STEL: 1 mg/m ³	EH40/2005	United Kingdom
Lithium hydroxide	1310-65-2	STEL [KGV]: 1 mg/m ³	HR-OEL	Croatia

PNEC (Predicted No Effect Concentration)

PNEC aqua – freshwater : 2.3 mg/l

PNEC aqua – marine water : 0.23 mg/l

PNEC aqua – intermittent releases No data available.

PNEC sediment – freshwater 9 mg/kg sediment dw



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PNEC sediment – marine water : 0.9 mg/kg sediment dw

PNEC soil : 0.45 mg/kg soil dw

PNEC STP : 79.2 mg/l

DNEL (Derived No Effect Level)/DMEL (Derived Minimal Effect Level)

Worker

Long-term exposure systemic effects, inhalation : 10 mg/m³

Acute exposure systemic effects, inhalation : 30 mg/m³

Long-term exposure systemic effects, dermal : 41.35 mg/kg bw day

Acute exposure systemic effects, dermal : 100 mg/kg bw day

General population

Long-term exposure systemic effects, inhalation : 6.21 mg/m³

Acute exposure systemic effects, inhalation : 18.63 mg/m³

Long-term exposure systemic effects, dermal : 41.35 mg/kg bw day

Acute exposure systemic effects, dermal : 50 mg/kg bw day

Long-term exposure systemic effects, oral : 4.13 mg/kg bw/day

Acute exposure systemic effects, oral : 12.4 mg/kg bw/day

8.2 Exposure controls

Engineering measures

Provide sufficient air exchange and/or exhaust in work rooms. Highly effective exhaust ventilation.

Personal protective equipment

Respiratory protection : Dust mask and aerosol mask (FFP3).
In case of exceeding the TWA/STEL levels:
Respirators with filters type B (used to protect against inorganic gases and vapors), type E (used to protect against sulfur dioxide and other acid gases and vapors).

Remarks : Use respirators and components tested and approved under appropriate government standards CEN (EU).

Hand protection : Protection gloves.

Material : Rubber, rubber latex.

Remarks : Choose gloves to protect hands against chemicals depending on the concentration and quantity of the hazardous substance and specific to place of work. For special applications, we recommend clarifying the resistance to chemicals of the aforementioned protective gloves with the glove manufacturer.



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- Eye protection : Tightly sealed goggles.
- Remarks : Use equipment for eye protection tested and approved under appropriate government standards such as EN 166 (EU).
- Skin and body protection : Protective clothes (cotton), protective apron, rubber or leather boots.
- Remarks : Choose body protection according to the amount and concentration of the dangerous substance at the work place.
- Hygiene measures : Handle in accordance with good industrial hygiene and safety practice.
General industrial hygiene practice.
Avoid formation of dust.
Avoid moisture.
Do not contact with eye and skin.
When using do not eat, drink or smoke.
Wash hands before breaks and at the end of workday.
Wash contaminated clothing before reuse.

Environmental exposure controls

No data available.

SECTION 9: PHYSICAL AND CHEMICAL PROPERTIES

9.1 Information on basic physical and chemical properties

- Form : Solid, tetragonal crystals.
- Colour : White.
- Odour : Absent.
- Odor threshold : No data available.
- Flash point : No applicable.
- Lower explosion limit : No data available.
- Upper explosion limit : No data available.
- Explosive properties : Non-explosive.
- Flammability : Not flammable.
- Oxidizing properties : Non-oxidizing.
- Self-ignition temperature : No data available.
- Melting point/range : 452 °C
- pH : > 13 (1% aqueous solution).
- Boiling point/boiling range : No applicable.
- Vapor pressure : No applicable.
- Density : 1.51 kg/l at 20 °C
- Bulk density : 0.9 kg/l at 20 °C
- Water solubility : Soluble: 189 – 223 g/l at 20 °C
- Miscibility with water (15 °C) : No applicable.



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Partition coefficient: : No applicable.
n-octanol/water
Solubility in other solvents : Soluble: ethanol, glycerol.
Viscosity, dynamic : No applicable.
Viscosity, kinematic : No applicable.
Relative vapor density : No applicable.
Evaporation rate : No data available.
Decomposition temperature : > 924 °C

9.2 Other information

No data available.

SECTION 10: STABILITY AND REACTIVITY

10.1 Reactivity

Non-reactive if stored and applied as directed.
Absorbs carbon dioxide from the air.
In case of contact with water form a solution of lithium hydroxide.

10.2 Chemical stability

No decomposition if stored and applied as directed.

10.3 Possibility of hazardous reactions

The solution of lithium hydroxide may cause corrosion of metals (aluminum, zinc).

10.4 Conditions to avoid

Moisture.

10.5 Incompatible materials

Materials to avoid : Strong bases, acids, water, oxidizing agents, metals (aluminum, zinc).

10.6 Hazardous decomposition products

Hazardous decomposition products : No data available.

Thermal decomposition : > 924 °C

SECTION 11: TOXICOLOGICAL INFORMATION

11.1 Information on toxicological effects

Acute toxicity

Acute oral toxicity

Lithium hydroxide : LD₅₀ (rat): 363 mg/kg bw day

Acute dermal toxicity

Lithium hydroxide : LD₅₀ (rabbit): > 2 000 mg/kg bw day

Acute inhalation toxicity



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Lithium hydroxide : LC₅₀ (rat): > 6.15 mg/l
Exposure time: 4h.

Acute toxicity (other routes of administration)

No data available.

Skin corrosion / irritation

Skin irritation : Corrosive.

Serious eye damage / eye irritation

Eye irritation : Corrosive.

Sensitization of the respiratory / skin

Skin sensitization : Non skin sensitizing.

Respiratory sensitization : Non respiratory sensitizing.

Mutagenicity

No mutagenic effect.

Carcinogenicity

No carcinogenic effect.

Reproductive toxicity

No reproductive effect.

Teratogenicity

No data available.

Specific target organ toxicity after single exposure

May cause respiratory irritation.

Specific target organ toxicity after repeated exposure (sub-acute / sub-chronic)

In accordance with column 2 of REACH Regulation 1907/2006/EC Annex VIII section 8.6.1 for animal welfare reasons, a repeated dose toxicity study through the dermal route is not required for the following reasons: 1. The substance is classified and labelled as corrosive to the skin: Cat . 1B, H314 according to Regulation (EC) No 1272/2008 (CLP).

Repeated dose toxicity: (sub-acute/ sub-chronic) – Calculated data

Lithium hydroxide : NOAEC (sub- chronic): 14.47 mg/m³
: Route of application: inhalation
: NOAEL (sub-chronic): 7.24 mg LiOH*H₂O / kg bw day
: Route of application: oral
: NOAEC (sub-chronic): 72.43 mg LiOH*H₂O / kg bw day
: Route of application: dermal

Aspiration hazard

No data available.

Neurological effects

No data available.



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Toxicology, metabolism, distribution

No data available.

SECTION 12: ECOLOGICAL INFORMATION

12.1 Toxicity

Toxicity to fish:

Lithium hydroxide : LC₅₀ (Danio rerio): 109 mg/l
Exposure time: 96 h

Toxicity to daphnia and other aquatic invertebrates:

Lithium hydroxide : LC₅₀ (Daphnia magna): 33.5 mg/l
Exposure time: 48 h

Toxicity to aquatic plants:

No data available.

Long-term study fish/daphnia and other aquatic invertebrates/aquatic plants:

Lithium hydroxide : NOEC (Daphnia magna): 4.0 mg/l
Exposure time: 21 d

12.2 Persistence and degradability

Biodegradability : No data available.

12.3 Bioaccumulation potential

No data available.

12.4 Mobility in soil

No data available.

12.5 Results of PBT assessment and vPvB

Not PBT and no vPvB.

12.6 Other adverse effects

Additional ecological information : The product should not be allowed to enter drains, water courses or the soil.

SECTION 13: DISPOSAL CONSIDERATIONS

13.1 Waste treatment methods

Advice on disposal and packaging : Disposal:
In accordance with local and national regulations. Do not dispose of waste into sewer. This material and its container



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must be disposed of in a safe way. Do not dispose of together with household waste. Waste codes should be assigned by the user based on the application for which the product was used.

SECTION 14: TRANSPORT INFORMATION

14.1. UN-Number : 2680
14.2. Proper shipping name : LITHIUM HYDROXIDE
14.3. Applicable types of transport : Can be transported with any type of Waterway, Land and Air transport (IMDG, ICAO, ADR, RID, ADN, IATA)

Class : 8
Packing group : II
Hazard Label (s) : Corrosive

Special precautions for the user

None

SECTION 15: REGULATORY INFORMATION

15.1 Safety, health and environmental regulations/ legislation specific for the substance or mixture

Special labelling of certain mixtures : Restricted to professional users.
Seveso Directive (2012/18/EU) : No applicable.

15.2 CSA

The Chemical Safety Assessment was not undertaken.

SECTION 16: OTHER INFORMATION

Precautionary statements which are not written out in full under Sections 2.

Precautionary statements:

Prevention:

P260 : Do not breathe dust.
P264 : Wash hands and face thoroughly after handling.
P270 : Do not eat, drink or smoke when using this product.
P280 : Wear protective gloves, protective clothing, eye protection and face protection.

Response:

P310 : Immediately call a POISON CENTER or doctor.



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- P321 : Specific treatment (see on this label).
P330 : Rinse mouth.
P363 : Wash contaminated clothing before reuse.
P301+P312 : IF SWALLOWED: Call a POISON CENTRE or doctor if you feel unwell.
P301+P330+ : IF SWALLOWED: Rinse mouth. Do NOT induce vomiting.
P331
P303+P361+ : IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water or shower. Immediately call a POISON CENTER or doctor.
P353
P304+P340 : IF INHALED: Remove person to fresh air and keep comfortable for breathing.
P305+P351+ : IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do.
P338
Response:
P405 : Store locked up.
Storage:
P501 : Dispose of contents and container in accordance with national regulation.

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.