



SAFETY DATA SHEET

LITHIUM HYDROXIDE, MONOHYDRATE

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

- 1.1 Product Identifier:** Lithium Hydroxide, Monohydrate
1.1.1 Substances Not applicable
Alternate names and trade name Lectro[®] Lyte 900 salt
1.1.2 Mixture name: Lithium Hydroxide, Monohydrate
1.2 Relevant Identified Uses of the Substance or Mixture and Uses Advised Against:
Formulation and chemical synthesis in industrial manufacturing operations;
Additive for preparations and articles for industrial and consumer use.
Raw material in manufacture of lithium greases.
Do not use for private purposes (household).
1.3 Details of the Supplier of the Safety Data Sheet

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FMC Corporation
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Charlotte, NC 28208
Phone: +1.704.426.5300
Fax: +1.704.426.5370
1.888.lithium

Europe
FMC Chemicals
Commercial Road
Bromborough, Merseyside
CH62 3NL, England
Phone: +44.151.334.8085
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Asia Pacific
FMC Asia Innovation Center
No 3 Building No. 4560
Jinke Road
Shanghai, China 201203
T: +86.21.2067.5888

Email: lithium.info@fmc.com
Web: www.fmclithium.com

1.4 Emergency Telephone Number:

North America
CHEMTREC: +1.800.424.9300
+1.703.527.3887
Plant: +1.704.629.5361
Medical: +1.303.595.9048

Europe
24 hr Specialist advice number:
CHEMTREC: +44 870 8200418

Asia Pacific
Phone: +86.21.2067.5888

2. Hazards Identification

2.1 Classification of the Substance or mixture:
2.1.1 GHS Classification [EC Regulation No 1272/2008 and US OSHA regulations]

Skin Corrosion Category 1B
Eye damage; Category 1
Acute Toxicity Category 4

2.2.2 EC: Classification according to 67/548/EEC or 1999/45/EC [DSD/DPD]
C, R34; Xn, R22

2.2 Label Elements:

2.2.3 Hazard Pictograms(s):



2.2.4 Signal Word:

Danger

Hazard Statement(s):

Causes severe skin burns and eye damage.
Harmful if swallowed.

H314
H302

Precautionary Statement(s):

Wear protective gloves/protective clothing/eye protection/face protection.
IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
IF SWALLOWED: Rinse mouth. Do NOT induce vomiting.
Immediately call a POISON CENTER or doctor/physician.
IF ON SKIN (or hair): Remove/Take off immediately all contaminated clothing. Rinse skin with water/shower.

P280
P305 + P351 + P338
P301 + P330 + P331
P310
P303 + P361 + P353

IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing. P304 + P340

Additional Precautionary Statement(s):

Do not breathe dust/fume/gas/mist/vapours/spray. P260
 Wash hands thoroughly after handling. P264
 Do not eat, drink or smoke when using this product. P270
 Wash contaminated clothing before reuse. P363
 Store locked up. P405
 Dispose of contents/ container to an approved waste disposal plant. P501

2.3 Other Hazards
 None.

3. Composition / Information on Ingredients

3.1 Substances Not applicable. Lithium hydroxide monohydrate is considered to be a mixture of anhydrous in water

3.2 Mixtures

3.2.1 GHS Classification [EC: Regulation No 1272/2008; US: OSHA regulations]

Chemical Name	CAS #	EC No	EC Index No	REACH Reg No	Wt. %	Classification, Hazard Statement Codes	
Lithium hydroxide, anhydrous	1310-65-2	215-183-4	not avail.	01-2119560576-31-0000	57	Skin Corr. 1B Acute Tox. 4	H314 H302
Water	7732-18-5	None	None	None	43	None	

3.2.2 EC: Classification according to 67/548/EEC or 1999/45/EC [DSD/DPD]

Chemical Name	CAS #	EC No	Wt. %	Symbols	R-phrases
Lithium hydroxide, anhydrous	1310-65-2	215-183-4 (anhyd. form)	57	C Xn	R34 R22
Water	7732-18-5	None	43	None	None

(see Section 16 for R-phrases text)

4. First Aid Measures

4.1 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: Immediately flush with plenty of water while removing contaminated clothing and/or shoes, and thoroughly wash with soap and water. Obtain immediate medical attention. Contact a medical doctor if necessary.

INGESTION: Rinse mouth with water. Dilute by giving 1 or 2 glasses of 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 discomfort occurs and persists, see a medical doctor. If breathing has stopped, give artificial respiration and see a medical doctor immediately.

4.2 Most Important Symptoms and effects, both acute and delayed

This product is corrosive.

4.3 Indication of any immediate medical attention and special treatment needed.

Notes to medical 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.

5. Fire-Fighting Measures

5.1 Extinguishing media Dry chemical, CO₂, water spray or regular foam.

5.2 Special hazards arising from the substance or mixture

Hazardous combustion products Corrosive lithium hydroxide dust.

General Hazard None

Properties contributing to None

<u>Flammability</u>	
<u>Flashpoint</u>	Not applicable
<u>Flammable limits in air</u>	Not applicable
<u>Auto ignition temperature</u>	Not applicable
<u>Sensitivity to static discharge</u>	Not applicable
<u>Sensitivity to static impact</u>	Not applicable

5.3 Advice for fire-fighters

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

COMMENTS:

(See Section 10, Stability and Reactivity)

6. Accidental Release Measures

6.1 Personal precautions, protective equipment and emergency procedures

Before cleanup measures begin, review the entire SDS with particular attention to Section 2, Hazards Identification; and Section 8, Exposure Controls/Personal Protection.

6.2 Environmental precautions

Do not wash into drains. Dispose of at qualified waste disposal facility.

6.3 Methods and material for containment and cleaning up

Sweep up and place in suitable transport container. Dispose of waste according to all local and Federal laws and regulations.

6.4 Reference to other sections

Before cleanup measures begin, review the entire SDS with particular attention to Section 2, Hazards Identification; and Section 8, Exposure Controls/Personal Protection.

6.5 Additional information

Not specified.

7. Handling and Storage

7.1 Precautions for safe handling

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

7.2 Conditions for safe storage, including any incompatibilities

Keep container closed. Store away from acids and water.

7.3 Specific end use(s)

Defined in Exposure scenarios. Industrial and professional use only

8. Exposure Controls / Personal Protection

8.1 Control parameters

Lithium hydroxide, anhydrous

DNEL

Long-term exposure, systemic, inhalation	14.5 mg/m ³
Long-term exposure, systemic, dermal	41.4 mg/kg/day

PNEC

PNEC aqua (freshwater)	2.3 mg/l
PNEC STP	80 mg/l

EXPOSURE LIMITS

<u>Chemical Name</u>	EU		EH40 (UK WEL)		USA (ACGIH)		USA (OSHA)	
	TWA	STEL	TWA	STEL	TWA	STEL/Ceiling	PEL	STEL/Ceiling
Lithium hydroxide, monohydrate	none*		none*		none*		none*	
Lithium hydroxide, anhydrous	none*		---	1 mg/m ³	none*		none*	

* No occupational exposure limit value

8.2 Exposure controls

Engineering controls:

Use local exhaust ventilation to keep airborne concentrations below exposure limits.

Personal protective equipment

Eyes and Face:

Safety glasses or goggles

Respiratory:

When engineering controls are not adequate, wear a respirator approved for protection against inorganic dusts. See Exposure Scenario for more details.
US: NIOSH or MSHA approved
Europe: CEN Class P type

Protective Clothing:

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.
Other: Not specified.

Work Hygienic

Quick-drench eyewash and safety shower.

Practices:

9. Physical and Chemical Properties

9.1 Information on basic physical and chemical properties

Appearance:

White crystals

Odor:

Odorless

Odor threshold:

Not applicable

pH:

(1% solution) @ 25°C: >13

Melting point:

470°C (878°F)

Boiling point:

Not applicable

Flash point:

Not applicable

Evaporation rate(butyl acetate = 1):

Not applicable

Flammability:

Not flammable

Flammable limits:

Not applicable

Vapor pressure:

Not applicable

Vapor density (air = 1):

Not applicable

Specific gravity:

1.5 g/cc

Solubility in water:

% by wt. @ 25°C (77°F): 10

Partition coefficient n-octanol/ water:

Not applicable

Autoignition temperature:

Not applicable

Decomposition temperature:

Not available

Viscosity:

Not applicable

Explosive properties:

Not explosive

Oxidizing properties:

Not an oxidizer

9.2 Other information

Self-reactive properties

Does not meet classification criteria.

Pyrophoric properties

Does not meet classification criteria.

Self-heating properties

Does not meet classification criteria.

Water reactive properties

Does not meet classification criteria.

Corrosive to metals

Does not meet classification criteria.

Molecular weight:

41.96

10. Stability and Reactivity

10.1 Reactivity

Reacts with acids.

10.2 Chemical stability

Stabile

10.3 Possibility of hazardous reaction

Hazardous polymerization will not occur

10.4 Conditions to avoid

Contact with acids, aluminium or zinc.

10.5 Incompatible materials

Acids, aluminum, zinc

10.6 Hazardous decomposition products

None

11. Toxicological Information

11.1 Information on toxicological effects

- | | |
|------------------------------------|---|
| (a) acute toxicity | Lithium hydroxide is classed as acute oral category 4 based on read across data. |
| (b) skin corrosion/irritation | Classified as corrosive, category 1B on the basis of lithium hydroxide. |
| (c) serious eye damage/irritation | Classified as corrosive to eyes on the basis of lithium hydroxide. |
| (d) respiratory/skin sensitisation | Classed as not sensitizing to skin on the basis of lithium hydroxide. |
| (e) germ cell mutagenicity | Classified as not mutagenic based on lithium hydroxide. |
| (f) carcinogenicity | Classified as not carcinogenic based on lithium hydroxide. |
| (g) reproductive toxicity | Classified as not a reproductive toxin based on lithium hydroxide. |
| (h) STOT-single exposure | Classified as not causing organ damage based on lithium hydroxide. |
| (i) STOT-repeated exposure | Classified as not causing organ damage on repeat exposure based on lithium hydroxide. |
| (j) aspiration hazard | Lithium hydroxide, a solid, does not present an aspiration hazard. |

Lithium hydroxide has been extensively tested for REACH registration

Acute Effects From Overexposure:

This product is corrosive to skin, nose, throat, stomach and eyes (may cause blindness).

Chronic Effects From Overexposure:

No data available for product.

Carcinogenicity Listings

EH40: Not listed.

IARC: Not listed.

NTP: Not listed.

OSHA: Not considered a carcinogen under OSHA.

ACGIH: Not listed.

12. Ecological Information

12.1 Toxicity: No classification.

Lithium hydroxide, anhydrous

Daphnia magna: 48 hr. EC ₅₀ = 34.3 mg/L
Daphnia reproduction 21 day, NOEC 2.3 mg/l
Fish: 96 hr. LC ₅₀ = 62 mg/L
Algal growth inhibition : EC50 88 mg/l (anhydrous)
Sludge Respiration inhibition: EC50 180 mg/l (anhydrous)

12.2 Persistence and degradability

No applicable for metal salts.

12.3 Bioaccumulative potential

No applicable for metal salts.

12.4 Mobility in soil

No data available for the product.

12.5 Results of PBT and vPvB assessment

No applicable for metal salts.

12.6 Other adverse effects

None

13. Disposal Considerations

13.1 Waste treatment methods

Use a qualified industrial waste disposal facility. Dispose of waste according to local and Federal laws and regulations.

14. Transport Information

14.1 UN Number

UN2680

14.2	<u>UN proper shipping name (IMDG, ICAO, ADR, DOT)</u>	Lithium hydroxide
14.3	<u>Transport hazard class(es) (IMDG, ICAO, ADR, DOT)</u>	8, Corrosive
14.4	<u>Packing group (IMDG, ICAO, ADR, DOT)</u>	II
14.5	<u>Environmental hazards</u>	Based on available data, the classification criteria are not met.
14.6	<u>Special precautions for user</u>	None
14.7	<u>Transport in bulk according to Annex II of MARPOL73/78 and the IBC Code</u>	None

15. Regulatory Information

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

EUROPEAN UNION:

German Wassergefährdungsklasse (water hazard class)

lithium hydroxide, anhydrous 2

UNITED STATES:

Section 311 Hazard Category (40 CFR 370):

Immediate (Acute) Health Hazard

Section 313 Reportable Ingredients (40 CFR 372):

This product does not contain a toxic chemical subject to the reporting requirements of Section 313 of Emergency Planning and Community Right-To-Know Act of 1986.

Section 302 Extremely Hazardous

Not listed

Substances (40 CFR 355):

CERCLA Hazardous Substance (40 CFR 302.4):

Not listed

TSCA Sec 12b Export Notification:

This product is not subject to TSCA 12 (b) Export Notification Requirements.

NFPA Rating:

Health: 3 **Flammability:** 0 **Reactivity:** 1 **Special:** None

INTERNATIONAL INVENTORY STATUS:

Inventory/Country

Product Status

EINECS (EU)

Lithium hydroxide is listed; the hydrated form is not required to be listed.

TSCA (US)

Lithium hydroxide is listed; the hydrated form is not required to be listed.

ECL (Korea)

Lithium hydroxide is listed; the hydrated form is not required to be listed.

DSL (Canada)

Lithium hydroxide is listed; the hydrated form is not required to be listed.

15.2 Chemical Safety Assessment

The Chemical Safety Assessment has been completed for lithium hydroxide anhydrous.

16. Other Information

European Union:

R Phrases:

R22 Harmful if swallowed.

R34 Causes burns

List of Abbreviations used in this SDS:

PBT	Persistent, Bioaccumulative and Toxic
vPvB	very Persistent, very Bioaccumulative
PEC	Predicted environmental concentration
PNEC	Predicted no effect concentration
DNEL	Derived no effect level

Specific uses identified for Exposure Scenarios

ES1	Formulation
ES2	Chemical processing

ES3 Professional use of products

REVISION SUMMARY: Revision # 2. REACH details added, including data from CSR. Exposure scenarios added. Regular review completed.

This SDS has been prepared to meet U. S. OSHA Hazard Communication Standard requirements.
type 7a

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