



MATERIAL SAFETY DATA SHEET

1. Chemical Product and Company Identification

Product Name: Lithium Hydroxide, Monohydrate

Chemical Formula: $\text{LiOH} \cdot \text{H}_2\text{O}$

Supplied by: Chengdu Chemphys Chemical Industry Co., Ltd.

381 Kebei Rd., Chengdu Cross-Strait Technology Industry Development Park, Wenjiang,
Chengdu, 611137 P.R.China

Emergency phone: 86-28-85228102 Fax No.: 86-28-85229355

E-mail: info@chemphys.com

Product use: Used in the manufacture of LiFePO_4 , LiCoO_2 , LiMnO_4 , LiNiO_2 , and $\text{Li-Ni}_x\text{Co}_y\text{Mn}_z\text{-O}$ electrodes for lithium ion batteries.

2. Hazards Identification

Hazard class

Acute toxicity, oral Category 3

Skin corrosion/irritation Category 1

GHS Label elements, including precautionary statements

Pictogram



Signal word Danger

Hazard statement(s)

H301 Toxic if swallowed

H314 Causes severe skin burns and eye damage.

Precautionary statement(s)

P260 Do not breathe dusts or mists.

P264 Wash thoroughly after handling.

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

P280 Wear protective gloves/protective clothing/eye protection/face protection.

P310 Immediately call a POISON CENTER/doctor.

P363 Wash contaminated clothing before reuse.

P301 + P310 IF SWALLOWED: Immediately call a POISON CENTER/doctor.

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/shower.

P304 + P340 IF INHALED: Remove person to fresh air and keep comfortable for breathing.

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

P405 Store locked up.

P501 Dispose of contents/container in accordance with local/regional/national/ international regulations.HMIS

3. Composition and Information on Ingredients

Chemical name: Lithium Hydroxide, Monohydrate

Chemical Formula: LiOH H₂O

CAS NO.: 1310-66-3

4. First Aid Measures

Inhalation: Remove to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Get medical attention immediately.

Ingestion: If swallowed, DO NOT INDUCE VOMITING. Give large quantities of water. Never give anything by mouth to an unconscious person. Get medical attention immediately.

Skin contact: Immediately flush skin with plenty of water for at least 15 minutes while removing contaminated clothing and shoes. Get medical attention immediately. Wash clothing before reuse. Thoroughly clean shoes before reuse.

Eye contact: Immediately flush eyes with plenty of water for at least 15 minutes, lifting lower and upper eyelids occasionally. Get medical attention immediately.

Notes to Physician: Treat symptomatically

5. Fire Fighting Measures

Flammable limits	Upper: Not available Lower: Not available.
General hazard	None
Extinguishing media	Dry chemical, CO ₂ , water spray or regular foam.
Hazardous combustion products	Corrosive lithium hydroxide dust.
Fire fighting procedures	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.
Autoignition temperature	Not applicable
Properties contributing to flammability	None
Flash point	Not applicable
Sensitivity to static discharge	Not applicable
Sensitivity to impact	Not applicable

6. Accidental Release Measures

Release notes:

Sweep up and place in suitable transport container. Dispose of waste according to all local and federal laws and regulations. Before clean up measures begin, review the entire MSDS with particular attention to Section 4 and Section 8.

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Personal Precautions:

Avoid contact with skin, eyes and clothing. Use personal protective equipment. Ensure adequate ventilation

Methods for Containment :

Prevent further leakage or spillage if safe to do so

Measures for cleaning/collecting:

Use appropriate tools to put the spilled solid in a convenient waste disposal container. Finish cleaning by spreading water on the contaminated surface .

7.Handing and Storage

Handing

Information for safe handing:

Keep container tightly sealed.

Ensure good ventilation in workplace.

Storage

Requirements to be met by storerooms and receptacles:No special requirements.

Information about storage in one common storage facility:Do not store together with acids.

Further information about storage conditions:

Keep containers tightly sealed.

Store in cool,dry place in tightly closed containers.

Work hygienic practices: Quick-drench eyewash and safety shower.

8. Exposure Controls/Personal Protection

Personal protective equipment

General protective and hygienic measures:

The usual precautionary measures for handing chemicals should be followed.

Keep away from food stuffs,beverages and feeds.

Remove all soiled and contaminated clothing immediately.

Wash hands before breaks and at the end of the work.

Breathing equipment:Use suitable respirator when high concentration are present.

Protection of hands:

Check protective gloves before using.The selection of suitable gloves not only depending on their material but also on quality.Quality will vary from manufacture to manufacture.

Eye protection:Safety glasses.

Body protection:Protective work clothing.

9. Physical and Chemical Properties

Physical state and appearance:White crystal powder.

Odor: Odorless.

Molecular weight:41.96g/mol

Melting point:471.2°C

Boiling point:1626°C.

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Specific gravity:1.46 (water=1)

Bulk density:Not determined.

Solubility:soluble in water,easy to soluble in alcohol.

Water coeff:Not determined.

Flash point:Not determined.

Explosion limits:Not determined.

Heat value of combustion:Not determined.

Viscosity:Not determined.

10. Stability and Reactivity Data

Stability:Stable under ordinary conditions of use and storage. When exposed to air, lithium hydroxide picks up carbon dioxide and cakes.

Decomposition products: None

Hazardous polymerization: Will not occur.

Incompatibilities:For lithium hydroxide: water, carbon dioxide, strong acids, aluminum, zinc, and strong oxidizers.

11. Toxicological Information

Acute toxicity: LD50(oral, rat) 210mg/kg

Primary irritant effect:

Skin:Irritant to skin,especially to membranes and respiratory organs.

Eye:Irritating effect.

Sensitization:No sensitizing effects known.

Other information(about experimental toxicology):

Reproductive effects have been observed on tests with laboratory animals.

Carcinogenicity:Not available.

Single exposure:Not available.

Repeated exposure:Maybe damage to respiratory organs、 blood and liver.

Aspiration hazards: Not available.

12. Ecological Information

Remark:Maybe toxic for hydrobios.

General notes:

Do not let products reach ground water,water course or sewage system,even in small quantities.

Danger to drinking water if even extremely small quantities leak into the ground.

Also poisonous to fish and plankton in water bodies.

Do not let material to be released to the environment without proper government permits.

Toxic for aquatic organisms.

13. Disposal Considerations

Product:

Recommendation: Consult state,local or national regulations to ensure proper disposal.

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Uncleaned packagings: Recommendation: Disposal must be made according to official regulations.

14. Transport Information

ADR(Road)			
UN NO.:	2680	CLASS:	8
LABEL:	8	PACKING GROUP:	II
Information reported for product/size	1KG	HAZ. ID NO.	80

RID(Railway)			
UN NO.:	2680	CLASS:	8
HAZ. ID NO.	80	PACKING GROUP:	II
Information reported for product/size	1KG		

IMDG(Sea)			
UN NO.:	2680	CLASS:	8
LABEL:		PACKING GROUP:	II
Information reported for product/size	1KG	SUB. RISK:	
		MARINE POLL:	

IATA(Airplane)			
UN NO.:	2680	CLASS:	8
LABEL:		PACKING GROUP:	II
Information reported for product/size	1KG	SUB. RISK:	

15. Other Regulatory Information

Dangerous chemicals safety management regulations issued by the state council on Feb 17,1987.

The implement of safety management regulations of dangerous chemicals detailed rules ([1992]NO.677).

Safety regulations about using chemicals in workplace ([1996]NO.423).

The substance classified as paragraph 8.2 alkaline corrosive according to the classification of dangerous chemicals and marks (GB 13690-92).

16. Other Information

The information above is believed to be accurate and the best information currently available to us. However, we make no warranty of merchantability or any other warranty, express or implied, with respect to such information, and we assume no liability resulting from its use. Users should make their own investigations to determine the suitability of the information for their particular purpose. In no way shall the company be liable for any claims, losses, or damages of any third party or for lost profits or any special, indirect, incidental, consequential or exemplary damages, howsoever arising, even if the company has been advised of the possibility of such damages.