



A Basic Safe Handling Guide for Lithium Hydroxide Monohydrate

Disclaimer

In preparing this guide, FMC Lithium has utilized the best information known and available at the time of printing. FMC Lithium recognizes that over time techniques, methods and equipment related to the safe handling of lithium metal will evolve, dating the information within this guide.

Additionally, the information presented in this Guide has been written to address most typical situations, environments and facilities, based upon FMC Lithium's experiences. However, FMC Lithium recognizes that each customer's situation is different and necessitates specific solutions to fit those requirements. This guide is intended to assist in the handling of small quantities of SLMP[®] in a laboratory environment.

FMC Lithium seeks to provide up-to-date solutions to the questions or concerns that our customers may have. Please contact us to discuss your specific needs.



Responsible Care

FMC supports the principles of the American Chemistry Council (ACC) Responsible Care[®] program by working with our employees, suppliers, customers, contractors, and commercial partners to promote responsible management of products and processes.



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Physical Properties

Appearance	White Crystals
Molecular Formula	LiOH
Molecular Weight	41.96
Available lithium hydroxide	57.4 typical 56.5 minimum
Bulk Density	Loose 0.9 g/cm ³ Tap 1.0 g/cm ³
Typical particle size	> 20 mesh less than 3%
Water Solubility	10.7% LiOH at 0°C 10.9% LiOH at 20°C 14.8% LiOH at 100°C



Lithium Hydroxide Monohydrate

Transport classification :

- 8, Corrosive, Packing Group II



Storage:

- Keep containers sealed and closed. Store away from acids and water.

Typical Shipping containers (Net package):

- 100 kg in a polyethylene lined fiber drum
- 25 kg bags, 40 per pallet (1 MT per pallet)
- 50 lb bags, 40 per pallet (2,000 lb per pallet)

Physical Hazards

- Corrosive lithium hydroxide dust
- Incompatible materials – Acids, aluminum & zinc
- Not an Oxidizer
- Noncombustible
- Does not polymerize
- Does not auto-ignite
- Not sensitive to static discharge
- Does not biodegrade



Stability

- Lithium Hydroxide Monohydrate is stable under normal storage and temperature conditions.
- Lithium Hydroxide Monohydrate is incompatible with acids, aluminum and zinc.

Health Hazards

- Corrosive to the eyes (may cause blindness), skin, nose and throat.
- Continuous inhalation exposure may cause lung damage.
- Use local exhaust ventilation to reduce airborne concentrations.



Toxicological Information

Eye and Skin Contact :

- corrosive

Skin Absorption:

- corrosive

Ingestion:

- Oral LD₅₀ = 210 mg/kg (rat) (LiOH, anhydrous)

Inhalation:

- LC₅₀ > 2.0 mg/L (rat) (LiOH, monohydrate)



Toxicological Information (continued)

Acute Effects:

- Corrosive to the eyes (may cause blindness), skin, upper respiratory track

Chronic Effects:

- Continuous inhalation exposure may cause lung damage

Carcinogenicity:

- Not considered a carcinogen under OSHA

Mutagenicity/Reproductive Toxicity:

- Not mutagenic or genotoxic



Environmental Hazards

- Ecotoxicological toxicity testing has not been carried out. The hydroxyl ion may affect the pH of water.
- Lithium Hydroxide exists as the inorganic ions lithium and hydroxide in aqueous solutions.
 - Lithium Hydroxide is NOT:
 - biograded
 - bioaccumulated
 - photodegraded



Handling

- Avoid contamination with incompatible materials
- Product should be kept cool and dry
- 5 year shelf life if stored properly
- Avoid spills



Personal Protective Equipment

Eyes and Face:

- Safety glasses or goggles



Respiratory:

- When adequate ventilation is not available, wear a NIOSH/MSHA respirator approved for protection against inorganic dust.

Protective Clothing:

- Rubber gloves and apron

Work Hygienic Practices:

- Quick-drench eyewash and safety shower



Storage

- Store in a cool, dry location
- Keep containers closed and sealed
- Do not storage close to acids or water

Transferring, Repackaging, Blending, Processing or Mixing material

- Process Hazards Review on product use is required.
- Compatible materials of construction for equipment in contact with product, or a diluted or dissolved mixture.
- Contamination sources:
 - Need to be identified
 - Protected against
- Lithium Hydroxide Monohydrate dust :
 - Corrosive to the eyes (may cause blindness), skin, nose, and throat.
 - Exposure may cause breathing difficulty and continuous inhalation exposure may cause lung damage.
 - Use local exhaust ventilation to reduce airborne concentrations.



Transportation

Proper Shipping Name
Classification
UN Number
Packing Group
Marine Pollutant

Lithium hydroxide
 8, Corrosive
 UN2680
 II
 No



Post

Not acceptable

Parcel, Air

Restricted Quantities

Sea

Class 8 (IMDG)

Road, Rail

Class 8.41b (RID/ADR)

For shipments within Europe labeling for supply requirements are

C

Corrosive

R&S phrases

see MSDS

Responsible Care initiatives dictates that all shipments of lithium chemicals must be transported in a DOT approved vehicle in a responsible manner (i.e., no flat bed trucks)

First Aid Measures

Eyes	Immediately flush with water for a minimum of 15 minutes. See medical doctor or ophthalmologist immediately.
Skin	Immediately flush with plenty of water. Remove contaminated clothing, wash with soap and water.
Ingestion	Rinse mouth with water. Dilute by giving 1-2 glasses of water. Do not induce vomiting. See a medical doctor immediately.
Inhalation	Remove to fresh air. If breathing difficulty occurs and persists, see a medical doctor. If breathing has stopped give artificial respiration.



Firefighting

- Dry chemical, CO₂, water spray, or regular foam
- Wear full protective clothing and self-contained breathing apparatus (SCBA) for fire fighting.
 - This is necessary to protect against the hazards of heat, products of combustion and oxygen deficiency.



Firefighting (continued)

- Water based fire systems:
 - must be inspected, tested, and maintained in accordance with NFPA 25 Standard for the Inspection, Testing, and Maintenance of Water-Based Fire Protection Systems.
- Manual fire-fighting equipment :
 - in the form of portable water extinguishers or water hose reel stations provided in accordance with NFPA requirements



Phone Numbers

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Emergency

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