Rio Tinto

Lithium Hydroxide Monohydrate

Safe handling guide

Disclaimer

In preparing this guide, Rio Tinto has utilized the best information known and available at the time of printing. Rio Tinto 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 Rio Tinto's experiences. However, Rio Tinto recognizes that each customer's situation is different and necessitates specific solutions to fit those requirements.

Rio Tinto 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.

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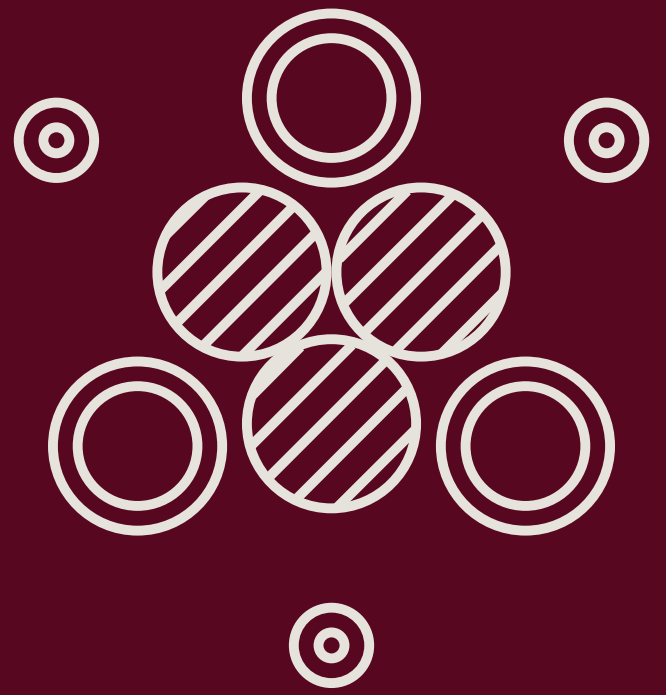
Physical properties



Physical properties

Appearance	White Crystals
Molecular Formula	LiOH
Molecular Weight	41.96
Available Lithium Hydroxide	57.4 Typical 56.5 Minimum
Bulk Density	Lose 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 ºC 10.9% LiOH at 20 ºC 14.8% LiOH at 100 ºC

2.0
Hazards

Hazards

Lithium is Highly Reactive

Lithium is highly reactive in contact with many substances, releasing large quantities of heat and/or hazardous products.

Lithium can react violently with water, even the humidity in the air, and the moisture in other substances, releasing hydrogen gas, which may catch fire explosively. Corrosive fumes of lithium oxide and/or lithium hydroxide are also released.

Lithium is incompatible with acids, oxidizers, oxygen and nitrogen.

Reactivity of lithium increases with surface area.

Physical hazards

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

Other hazards

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

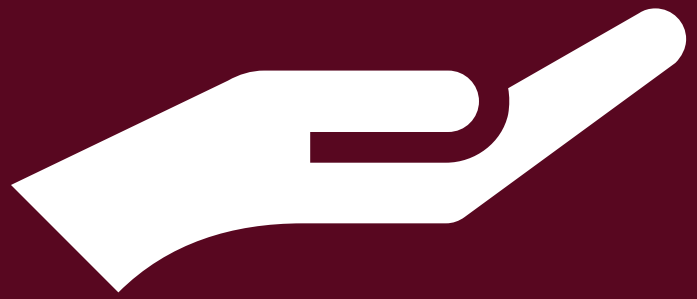
Toxicological information

Corrosive

Environmental hazards

Harmful to aquatic life

3.0
Handling



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 goggles
- **Respiratory:** Use local exhaust ventilation to reduce airborne concentrations When adequate ventilation is not available, wear a 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 store close to acids or water

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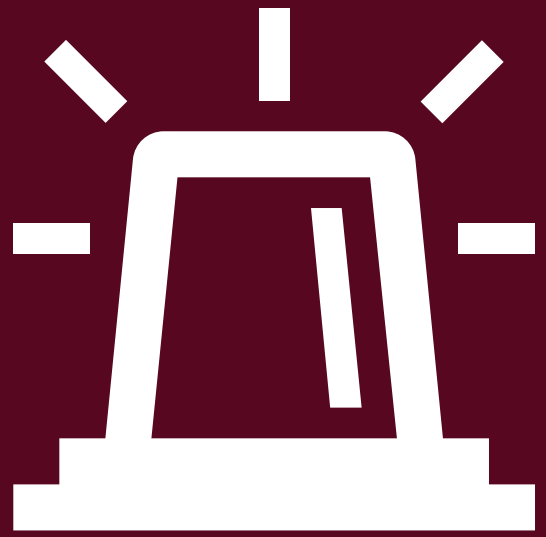
Transportation

Proper Shipping Name	Lithium hydroxide
Classification	8, Corrosive
UN Number	UN2680
Packing Group	II
Marine Pollutant	No

4.0
Emergency guidelines



First aid measures

Eyes

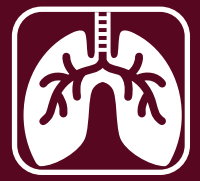
Immediately flush with water for at least 15 minutes, lifting the upper and lower eyelids intermittently. See a physician immediately.

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 physician 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 physician 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 physician immediately.

Fire fighting

- Lithium hydroxide monohydrate is noncombustible.
- If lithium hydroxide monohydrate is involved in fire fighting activities any run-off should be contained as it will potentially be of high pH.
- Wear full protective clothing and self-contained breathing apparatus (SCBA) for fire fighting to guard against possible exposure to lithium hydroxide monohydrate.

More information:

Customersupport@riotinto.com

In case of an emergency call:
CHEMTREC at 1-800-424-9300

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