
Product: Lithium Hydroxide, anhydrous**1. Chemical Product and Company Identification**

Trade Name: Lithium Hydroxide, anhydrous
Synonyms: Eclipse™ CO₂ Adsorbent (Lithium Hydroxide)
Product Use: Carbon Dioxide Absorption for inhalation anesthesia

Manufacturer:
Micropore, Inc.
350F Pencader Drive
Newark DE 19702
General Information: 302-731-4100

Emergency Phone Numbers:
CHEMTREC: 800-424-9300
DOMESTIC NORTH AMERICA
Emergency Phone: (703) 527-3887
INTERNATIONAL, CALL COLLECT
24 HR, 365 DAYS

NFPA 704 © Hazard Rating

Health—3 Fire—1 Reactivity—1 Special—None

2. Composition and Information on Ingredients

Ingredients	CAS Number	Approx. Percent
Lithium hydroxide	1310-65-2	95% Min.
Lithium carbonate	554-13-2	3% Max.
Polyethylene	9002-88-4	5% Max.

3. Hazardous Identification**EMERGENCY OVERVIEW**

IMMEDIATE CONCERNS: Corrosive. Odorless, white solid.

POTENTIAL HEALTH EFFECTS: Corrosive to eyes (may cause blindness), skin, nose and throat. Continuous inhalation exposure may cause lung damage.

COMMENTS: (See Section 11, Toxicological)

4. 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.

NOTES TO MEDICAL DOCTOR: This product has high corrosivity. Removal of exposure should be immediate, using copious water flushes and gastric lavage, if necessary. Treatment is otherwise symptomatic and supportive.

5. Fire Fighting Measures

FLAMMABLE LIMITS: Not applicable

GENERAL HAZARD: None

EXTINGUISHING MEDIA: Dry chemical, CO₂, water spray or regular foam.

HAZARDOUS COMBUSTION PRODUCTS: Corrosive lithium hydroxide dust.
Carbon monoxide and carbon dioxide.

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

FLASH POINT: Not applicable

PROPERTIES CONTRIBUTING TO FLAMABILITY: None

SENSITIVITY TO STATIC DISCHARGE: Not applicable

SENSITIVITY TO IMPACT: Not applicable

COMMENTS: (See Section 10, Stability and Reactivity)

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 cleanup measures begin, review the entire MSDS with particular attention to Section 3, Emergency Overview and Potential Health Effects; and Section 8, Recommended Personal Protective Equipment.

7. Handling and Storage

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

STORAGE: Keep container closed. Store away from acids and water.

8. EXPOSURE CONTROLS / PERSONAL PROTECTION

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 NIOSH/MSHA respirator approved for protection against inorganic dusts.

PROTECTIVE CLOTHING: Rubber gloves

WORK HYGIENIC PRACTICES: Quick-drench eyewash and safety shower.

COMMENTS: EXPOSURE LIMITS

AIHA Recommended Ceiling Limit (1999) = 1.0 mg/m³

9. Physical and Chemical Properties

ODOR: Odorless

APPEARANCE: White solid

pH: (1% solution) @ 25°C: >13

PERCENT VOLATILE: Not applicable

VAPOR PRESSURE: Not applicable

VAPOR DENSITY: Not applicable

BOILING POINT: Not applicable

MELTING POINT: 470°C (878°F)

SOLUBILITY IN WATER: % by wt. @ 25°C (77°F): 11

EVAPORATION RATE: Not applicable

SPECIFIC GRAVITY: .68 g/cc

MOLECULAR WEIGHT: 23.95

COEFF. OIL/WATER: Not applicable

ODOR THRESHOLD: Not applicable

10. Stability and Reactivity

CONDITIONS TO AVOID: Do not heat above 330 deg C (626 deg F). Avoid prolonged heating above 250 deg C (482 deg F).

STABILITY: Stable under normal storage and temperature conditions.

POLYMERIZATION: Will not occur

HAZARDOUS DECOMPOSITION PRODUCTS: None

INCOMPATIBLE MATERIALS: Acids, aluminum, zinc

11. Toxicological Information

EYE EFFECTS: No data available for the product. Corrosive [Merck, 1983; Gosselin, 1984]

SKIN EFFECTS: No data available for the product. Corrosive [Merck, 1983; Gosselin, 1984]

DERMAL LD50: No data available for the product. Corrosive.

ORAL LD50: No data available for the product. 210 mg/kg (rat) (lithium hydroxide) [Kushneva, V. and Gorshkova, R., 46, Zhivopisnaya St. 123182, Moscow, Russia, 1999] 120 mg/kg (rat) (lithium hydroxide monohydrate) [AIHA WEEL Guide, 1999]

INHALATION LC50: No data available for the product. 960 mg/m³ (rat) (mixture containing 77% LiOH and 23% lithium carbonate) [AIHA WEEL Guide, 1999] > 6.15 mg/L (rat) (lithium hydroxide monohydrate) [FMC I99-2286]

ACUTE EFFECTS FROM OVEREXPOSURE: This product is corrosive to eyes (may cause blindness), skin and the upper respiratory tract. Continuous inhalation exposure may cause lung damage.

CHRONIC EFFECTS FROM OVEREXPOSURE: No data available for the product. The use of this product in industrial and commercial applications presents no significant toxicity hazard. The symptoms described below are based on therapeutic applications where relatively large doses are taken orally by medically supervised patients.

Lithium carbonate is used therapeutically at 500-2000 mg/day oral doses for specific mental disorders. Therapeutic effects occur at blood levels of 2.8 - 8.3 mg of lithium per liter. Minimal signs of toxicity may also occur at these therapeutic levels and involve primarily gastrointestinal upset. Increased dosage can produce tremors, drowsiness and unsteady gait. Signs of toxicity resolve rapidly on cessation of treatment. Prolonged treatment at toxic levels result in dehydration, kidney damage, weight loss and thyroid disturbances.

Some studies of pregnant mice and rats were associated with birth defects but only at dose levels large enough to produce signs of severe maternal toxicity. Although data from the 1970s and early 1980s suggested an increase in cardiovascular defects in babies born to women on lithium carbonate therapy, more recent studies have not found any association between lithium exposure and birth defects. Women receiving therapeutic lithium carbonate treatment at the time of confinement have the potential for delivery of a fetus with poor muscle tone, slowed heart rate and cyanosis. Full recovery usually occurs within 2-10 days postpartum. Therapeutic and greater levels of lithium may pose a risk to the conceptus and potential benefits to the mother are weighed carefully in clinical situations.

Exposure to lithium in industrial settings is not considered to pose a risk to human health. NIOSH studied 25 workers exposed to lithium-containing dust at air concentrations exceeding 10 mg/m³ (nuisance dust limit) and found that typical industrial exposure to lithium will not result in blood levels sufficiently high to produce toxicity in either adults or their offspring. [Health Hazard Evaluation report HHE80-036-922]

CARCINOGENICITY:

IARC: Not listed

NTP: Not listed

OSHA: Not considered a carcinogen under OSHA.

OTHER: ACGIH: Not listed

12. Ecological Information

ECOTOXICOLOGICAL INFORMATION: No data available for the product. The hydroxide ion may affect the pH of the water. Lithium carbonate is expected to be slightly toxic to aquatic invertebrates and freshwater fish. *Daphnia magna*: 48 hour EC50 = 33.2 mg/L [FMC I96-2085] Rainbow trout: 96 hour LC50 = 30.0 mg/L [FMC I96-2086]

CHEMICAL FATE INFORMATION: LiOH exists as the inorganic ions lithium and hydroxide in aqueous solutions. LiOH is not biodegraded, bio-accumulated or photo degraded.

13. Disposal Considerations

DISPOSAL METHOD: Dispose of waste according to local and Federal laws and regulations.

14. Transport Information

COMMENTS:

U.S. DOT, INTERNATIONAL MARITIME, AND INTERNATIONAL AIR

Proper Shipping Name: Lithium hydroxide, solid

Classification: 8, Corrosive

Labels: Corrosive

UN Number: UN 2680

Packing Group: II

15. Regulatory Information

UNITED STATES

SARA TITLE III (SUPERFUND AMENDMENTS AND REAUTHORIZATION ACT)

SARA TITLE III SECTION 302 EXTREMELY HAZARDOUS SUBSTANCES (40 CFR 355): Not listed

SECTION 311 HAZARD CATEGORY (40 CFR 370): Immediate (Acute) Health Hazard

SECTION 313 REPORTABLE INGREDIENTS (40 CFR 372): This product contains lithium carbonate which is subject to the reporting requirements of Section 313 of the Emergency Planning and Right-To-Know Act of 1986.

CERCLA (COMPREHENSIVE ENVIRONMENTAL RESPONSE COMPENSATION AND LIABILITY ACT)

CERCLA REGULATORY (40 CFR 302.4): Not listed

TSCA (TOXIC SUBSTANCE CONTROL ACT)

TSCA INVENTORY (40 CFR 710, SUBPART B): This product is not subject to TSCA 12 (b) Export Notification Requirements.

TSCA STATUS (40 CFR 710): Listed

CANADA

WHMIS (WORKPLACE HAZARDOUS MATERIALS INFORMATION SYSTEM):

Product Identification No.: 2680

Hazard Classification: Class E (Corrosive) Ingredient Disclosure List: Listed (lithium hydroxide)

16. OTHER INFORMATION

This MSDS has been prepared to meet U. S. OSHA Hazard Communication Standard, 29 CFR 1910.1200 and Canada's Workplace Hazardous Materials Information System (WHMIS) requirements.

Since the previous issue, revisions were made for this MSDS in the following section: Section 1, 5, 11

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