LITHIUM HYDROXIDE MONOHYDRATE

Section 1 - CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

PRODUCT NAME
LITHIUM HYDROXIDE

OTHER NAMES

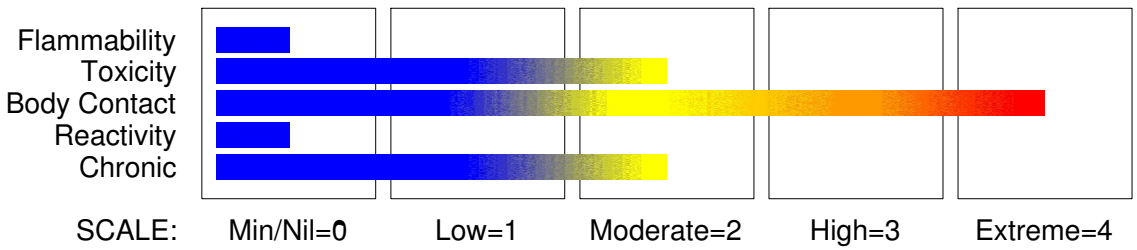
H-Li-O.H2O, "lithium hydroxide hydrate"

PROPER SHIPPING NAME
LITHIUM HYDROXIDE

PRODUCT USE
In photographic developers; in alkaline storage batteries; in preparation of other lithium salts where use of carbonate is not practical; as a catalyst in the production of alkyd resins, in esterifications. Also in the production of lithium soaps, greases and sulfonates.

SUPPLIER
Company: S D FINE- CHEM LIMITED
Address:
315- 317, T.V. INDUSTRIAL ESTATE,
248, WORLI,
MUMBAI- 400030.INDIA.
technical@sdfine.com
Telephone: 91- 22- 24959898
Telephone: 91- 22- 24959899
Fax: 91- 22- 24937232

HAZARD RATINGS



Section 2 - HAZARDS IDENTIFICATION

GHS Classification
Acute Toxicity (Inhalation) Category 4
Acute Toxicity (Oral) Category 3
Metal Corrosion Category 1
Skin Corrosion/Irritation Category 1B

continued...

EMERGENCY OVERVIEW

HAZARD

DANGER
Determined by using GHS criteria:
H301 H332 H290 H314
Toxic if swallowed
Harmful if inhaled
May be corrosive to metals
Causes severe skin burns and eye damage

PRECAUTIONARY STATEMENTS

Prevention

Wash hands thoroughly after handling.
Do not eat, drink or smoke when using this product.
Do not breathe dust or mist.
Wash thoroughly after handling.
Use only outdoors or in a well ventilated area.
Avoid breathing dust/fume/gas/mist/vapours/spray.
Wear protective gloves/clothing and eye/face protection.

Response

Call a POISON CENTER or doctor/physician if you feel unwell.
IF INHALED: Remove to fresh air and keep at rest in a position comfortable for breathing.
Immediately call a POISON CENTER or doctor/physician.
If on skin or hair: remove/take off immediately all contaminated clothing. Rinse with water/shower.
Absorb spillage to prevent material damage.
IF SWALLOWED: Rinse mouth. Do NOT induce vomiting.
IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
Specific treatment: refer to Label or MSDS.
Wash contaminated clothing before reuse.
IF SWALLOWED: Immediately call a POISON CENTER or doctor/physician.

Storage

Store in a corrosive resistant container with a resistant inliner.
Store locked up.

Disposal

Dispose of contents and container in accordance with relevant legislation.

Section 3 - COMPOSITION / INFORMATION ON INGREDIENTS

NAME	CAS RN	%
lithium hydroxide	1310-66-3	100 nom.

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Section 4 - FIRST AID MEASURES

SWALLOWED

· For advice, contact a Poisons Information Centre or a doctor at once.
· Urgent hospital treatment is likely to be needed.
· If swallowed do NOT induce vomiting.
· If vomiting occurs, lean patient forward or place on left side (head-down position, if possible) to maintain open airway and prevent aspiration.
· Observe the patient carefully.
· Never give liquid to a person showing signs of being sleepy or with reduced awareness; i.e. becoming unconscious.
· Give water to rinse out mouth, then provide liquid slowly and as much as casualty can comfortably drink.
· Transport to hospital or doctor without delay.

EYE

If this product comes in contact with the eyes:
· Immediately hold eyelids apart and flush the eye continuously with running water.
· Ensure complete irrigation of the eye by keeping eyelids apart and away from eye and moving the eyelids by occasionally lifting the upper and lower lids.
· Continue flushing until advised to stop by the Poisons Information Centre or a doctor, or for at least 15 minutes.
· Transport to hospital or doctor without delay.
· Removal of contact lenses after an eye injury should only be undertaken by skilled personnel.

SKIN

If skin or hair contact occurs:
· Immediately flush body and clothes with large amounts of water, using safety shower if available.
· Quickly remove all contaminated clothing, including footwear.
· Wash skin and hair with running water. Continue flushing with water until advised to stop by the Poisons Information Centre.
· Transport to hospital, or doctor.

INHALED

· If fumes or combustion products are inhaled remove from contaminated area.
· Lay patient down. Keep warm and rested.
· Prostheses such as false teeth, which may block airway, should be removed, where possible, prior to initiating first aid procedures.
· Apply artificial respiration if not breathing, preferably with a demand valve resuscitator, bag-valve mask device, or pocket mask as trained. Perform CPR if necessary.
· Transport to hospital, or doctor, without delay.

NOTES TO PHYSICIAN

For acute or short-term repeated exposures to highly alkaline materials:
· Respiratory stress is uncommon but present occasionally because of soft tissue edema.
· Unless endotracheal intubation can be accomplished under direct vision, cricothyroidotomy or tracheotomy may be necessary.
· Oxygen is given as indicated.
· The presence of shock suggests perforation and mandates an intravenous line and fluid administration.
· Damage due to alkaline corrosives occurs by liquefaction necrosis whereby the saponification of fats and solubilisation of proteins allow deep penetration into the tissue.
Alkalis continue to cause damage after exposure.

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INGESTION:
· Milk and water are the preferred diluents
No more than 2 glasses of water should be given to an adult.
· Neutralising agents should never be given since exothermic heat reaction may compound injury.
* Catharsis and emesis are absolutely contra-indicated.
* Activated charcoal does not absorb alkali.
* Gastric lavage should not be used.

Supportive care involves the following:
· Withhold oral feedings initially.
· If endoscopy confirms transmucosal injury start steroids only within the first 48 hours.
· Carefully evaluate the amount of tissue necrosis before assessing the need for surgical intervention.
· Patients should be instructed to seek medical attention whenever they develop difficulty in swallowing (dysphagia).

SKIN AND EYE:
· Injury should be irrigated for 20-30 minutes.
Eye injuries require saline. [Ellenhorn & Barceloux: Medical Toxicology].
Clinical effects of lithium intoxication appear to relate to duration of exposure as well as to level.
· Lithium produces a generalised slowing of the electroencephalogram; the anion gap may increase in severe cases.
· Emesis (or lavage if the patient is obtunded or convulsing) is indicated for ingestions exceeding 40 mg (Li)/Kg.
· Overdose may delay absorption; decontamination measures may be more effective several hours after cathartics.
· Charcoal is not useful. No clinical data are available to guide the administration of catharsis.
· Haemodialysis significantly increases lithium clearance; indications for haemodialysis include patients with serum levels above 4 mEq/L
· There are no antidotes.
[Ellenhorn and Barceloux: Medical Toxicology].

Section 5 - FIRE FIGHTING MEASURES

EXTINGUISHING MEDIA
· Water spray or fog.
· Foam.
· Dry chemical powder.
· BCF (where regulations permit).
· Carbon dioxide.

FIRE FIGHTING
· Alert Fire Brigade and tell them location and nature of hazard.
· Wear full body protective clothing with breathing apparatus.
· Prevent, by any means available, spillage from entering drains or water course.
· Use fire fighting procedures suitable for surrounding area.
· Do not approach containers suspected to be hot.
· Cool fire exposed containers with water spray from a protected location.
· If safe to do so, remove containers from path of fire.
· Equipment should be thoroughly decontaminated after use.

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FIRE/EXPLOSION HAZARD

· Non combustible.
· Not considered a significant fire risk, however containers may burn.

Decomposition may produce toxic fumes of: metal oxides.
May emit corrosive fumes.

FIRE INCOMPATIBILITY

None known.

Personal Protective Equipment

Breathing apparatus.
Gas tight chemical resistant suit.
Limit exposure duration to 1 BA set 30 mins.

Section 6 - ACCIDENTAL RELEASE MEASURES

EMERGENCY PROCEDURES

MINOR SPILLS

· Remove all ignition sources.
· Clean up all spills immediately.
· Avoid contact with skin and eyes.
· Control personal contact by using protective equipment.
· Use dry clean up procedures and avoid generating dust.
· Place in a suitable labelled container for waste disposal.

MAJOR SPILLS

· Clear area of personnel and move upwind.
· Alert Fire Brigade and tell them location and nature of hazard.
· Wear full body protective clothing with breathing apparatus.
· Prevent, by any means available, spillage from entering drains or water course.
· Consider evacuation (or protect in place).
· Stop leak if safe to do so.
· Contain spill with sand, earth or vermiculite.
· Collect recoverable product into labelled containers for recycling.
· Neutralise/decontaminate residue.
· Collect solid residues and seal in labelled drums for disposal.
· Wash area and prevent runoff into drains.
· After clean up operations, decontaminate and launder all protective clothing and equipment before storing and re-using.
· If contamination of drains or waterways occurs, advise emergency services.

EMERGENCY RESPONSE PLANNING GUIDELINES (ERPG)

The maximum airborne concentration below which it is believed that nearly all individuals could be exposed for up to one hour WITHOUT experiencing or developing

life-threatening health effects is:
lithium hydroxide 100 mg/m³

irreversible or other serious effects or symptoms which could impair an individual's ability to take protective action is:
lithium hydroxide 1 mg/m³

other than mild, transient adverse effects without perceiving a clearly defined odour is:
lithium hydroxide 0.15 mg/m³

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The threshold concentration below which most people will experience no appreciable risk of health effects:
lithium hydroxide 0.05 mg/m³

American Industrial Hygiene Association (AIHA)

Ingredients considered according to the following cutoffs

Very Toxic (T+)	>= 0.1%	Toxic (T)	>= 3.0%
R50	>= 0.25%	Corrosive (C)	>= 5.0%
R51	>= 2.5%		
else	>= 10%		

where percentage is percentage of ingredient found in the mixture

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SAFE STORAGE WITH OTHER CLASSIFIED CHEMICALS

\+ + + + + +

+: May be stored together
O: May be stored together with specific preventions
X: Must not be stored together

Personal Protective Equipment advice is contained in Section 8 of the MSDS.

Section 7 - HANDLING AND STORAGE

PROCEDURE FOR HANDLING

DO NOT use aluminium, galvanised or tin-plated containers.
· Avoid all personal contact, including inhalation.
· Wear protective clothing when risk of exposure occurs.
· Use in a well-ventilated area.
· WARNING: To avoid violent reaction, ALWAYS add material to water and NEVER water to material.
· Avoid smoking, naked lights or ignition sources.
· Avoid contact with incompatible materials.
· When handling, DO NOT eat, drink or smoke.
· Keep containers securely sealed when not in use.
· Avoid physical damage to containers.
· Always wash hands with soap and water after handling.
· Work clothes should be laundered separately. Launder contaminated clothing before re -use.
· Use good occupational work practice.
· Observe manufacturer's storing and handling recommendations.
· Atmosphere should be regularly checked against established exposure standards to ensure safe working conditions are maintained.

SUITABLE CONTAINER

Glass container.
· Lined metal can, lined metal pail/ can.
· Plastic pail.
· Polyliner drum.
· Packing as recommended by manufacturer.
· Check all containers are clearly labelled and free from leaks.

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STORAGE INCOMPATIBILITY

Avoid strong acids.
Avoid contact with copper, aluminium and their alloys.
Metals and their oxides or salts may react violently with chlorine trifluoride. Chlorine trifluoride is a hypergolic oxidiser. It ignites on contact (without external source of heat or ignition) with recognised fuels - contact with these materials, following an ambient or slightly elevated temperature, is often violent and may produce ignition. The state of subdivision may affect the results.

STORAGE REQUIREMENTS

- Store in original containers.
- Keep containers securely sealed.
- Store in a cool, dry, well-ventilated area.
- Store away from incompatible materials and foodstuff containers.
- Protect containers against physical damage and check regularly for leaks.
- Observe manufacturer's storing and handling recommendations.

DO NOT store near acids, or oxidising agents.
No smoking, naked lights, heat or ignition sources.
Absorbs carbon dioxide from air

Section 8 - EXPOSURE CONTROLS / PERSONAL PROTECTION

EXPOSURE CONTROLS

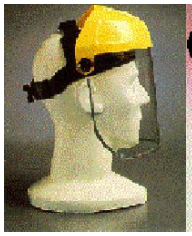
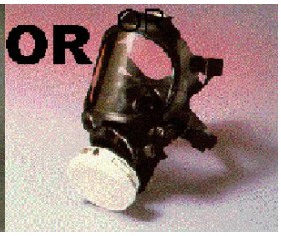
The following materials had no OELs on our records
• lithium hydroxide: CAS:1310- 66- 3 CAS:1310- 65- 2

MATERIAL DATA

No exposure limits set by NOHSC or ACGIH.
OEH STEL: 1 mg/m3
CEL STEL: 1 mg/m3 (1.75 mg/m3 LiOH.H2O)
[compare WEEL-C, 1 minute time weighted average]
Lithium hydroxide produces respiratory irritation and tissue injury in a similar fashion to that produced by sodium and potassium hydroxides which have TLV-Cs of 2 mg/m3. This is equivalent to 1.2 and 0.85 mg LiOH/m3, respectively on a molar basis. Respiratory irritation has been reported below these limits. The AIHA has established a workplace environmental exposure level (WEEL) partly by analogy with the alkaline earth hydroxides. The lithium ion has toxic properties not exhibited by sodium. At the WEEL-Ceiling value (1.0 ,g/m3), the maximum daily intake would be 2.9 mg Li, or 0.04 mg/kg for a 70 kg person (assuming 10 m3 average breathing volume). This is considerably below therapeutic or toxic levels. The WEEL is thought to be protective against respiratory irritation. The short-term limit should also ensure and average workshift exposure well below 1 mg/m3.

PERSONAL PROTECTION



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EYE

· Chemical goggles.
· Full face shield may be required for supplementary but never for primary protection of eyes
· Contact lenses may pose a special hazard; soft contact lenses may absorb and concentrate irritants. A written policy document, describing the wearing of lens or restrictions on use, should be created for each workplace or task. This should include a review of lens absorption and adsorption for the class of chemicals in use and an account of injury experience. Medical and first-aid personnel should be trained in their removal and suitable equipment should be readily available. In the event of chemical exposure, begin eye irrigation immediately and remove contact lens as soon as practicable. Lens should be removed at the first signs of eye redness or irritation - lens should be removed in a clean environment only after workers have washed hands thoroughly. [CDC NIOSH Current Intelligence Bulletin 59].

HANDS/FEET

Suitability and durability of glove type is dependent on usage. Factors such as:
· frequency and duration of contact,
· chemical resistance of glove material,
· glove thickness and
· dexterity,
are important in the selection of gloves.
Elbow length PVC gloves.

OTHER

· Overalls.
· PVC Apron.
· PVC protective suit may be required if exposure severe.
· Eyewash unit.
· Ensure there is ready access to a safety shower.

RESPIRATOR

Protection Factor	Half- Face Respirator	Full- Face Respirator	Powered Air Respirator
10 x ES	P1 Air- line*	- -	PAPR- P1 -
50 x ES	Air- line**	P2	PAPR- P2
100 x ES	-	P3	-
		Air- line*	-
100+ x ES	-	Air- line**	PAPR- P3

* - Negative pressure demand ** - Continuous flow.

The local concentration of material, quantity and conditions of use determine the type of personal protective equipment required.
For further information consult
your
Occupational Health and Safety Advisor.

ENGINEERING CONTROLS

Local exhaust ventilation usually required. If risk of overexposure exists, wear approved respirator. Correct fit is essential to obtain adequate protection. Supplied-air type respirator may be required in special circumstances. Correct fit is essential to ensure adequate protection.
An approved self contained breathing apparatus (SCBA) may be required in some situations.
Provide adequate ventilation in warehouse or closed storage area. Air contaminants generated in the workplace possess varying "escape" velocities which, in turn, determine the "capture velocities" of fresh circulating air required to effectively remove the contaminant.

Type of Contaminant: Air Speed:

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solvent, vapours, degreasing etc., evaporating from tank (in still air).	0.25- 0.5 m/s (50- 100 f/min.)
aerosols, fumes from pouring operations, intermittent container filling, low speed conveyer transfers, welding, spray drift, plating acid fumes, pickling (released at low velocity into zone of active generation)	0.5- 1 m/s (100- 200 f/min.)
direct spray, spray painting in shallow booths, drum filling, conveyer loading, crusher dusts, gas discharge (active generation into zone of rapid air motion)	1- 2.5 m/s (200- 500 f/min.)
grinding, abrasive blasting, tumbling, high speed wheel generated dusts (released at high initial velocity into zone of very high rapid air motion).	2.5- 10 m/s (500- 2000 f/min.)

Within each range the appropriate value depends on:

Lower end of the range	Upper end of the range
1: Room air currents minimal or favourable to capture	1: Disturbing room air currents
2: Contaminants of low toxicity or of nuisance value only.	2: Contaminants of high toxicity
3: Intermittent, low production.	3: High production, heavy use
4: Large hood or large air mass in motion	4: Small hood- local control only

Simple theory shows that air velocity falls rapidly with distance away from the opening of a simple extraction pipe. Velocity generally decreases with the square of distance from the extraction point (in simple cases). Therefore the air speed at the extraction point should be adjusted, accordingly, after reference to distance from the contaminating source. The air velocity at the extraction fan, for example, should be a minimum of 1-2 m/s (200-400 f/min) for extraction of solvents generated in a tank 2 meters distant from the extraction point. Other mechanical considerations, producing performance deficits within the extraction apparatus, make it essential that theoretical air velocities are multiplied by factors of 10 or more when extraction systems are installed or used.

Section 9 - PHYSICAL AND CHEMICAL PROPERTIES

APPEARANCE

Monohydrate, small monoclinic crystals; mix with water (18.7% at 20 deg C.).
Available as monohydrate CAS RN: 1310-66-3
and anhydrous CAS RN: 1310-65-2

PHYSICAL PROPERTIES

Solid.
Mixes with water.
Corrosive.
Alkaline.

Molecular Weight: 41.97	Boiling Range (°C): Not available.
Melting Range (°C): Not available.	Specific Gravity (water=1): 1.510
Solubility in water (g/L): Miscible	pH (as supplied): Not applicable
pH (1% solution): 14	Vapour Pressure (kPa): Negligible
Volatile Component (%vol): Negligible	Evaporation Rate: Not applicable
Relative Vapour Density (air=1): Not applicable.	Flash Point (°C): Not applicable
Lower Explosive Limit (%): Not applicable	Upper Explosive Limit (%): Not applicable

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Autoignition Temp (°C): Not available.
State: Divided solid

Decomposition Temp (°C): Not Available
Viscosity: Not Applicable

Section 10 - CHEMICAL STABILITY AND REACTIVITY INFORMATION

CONDITIONS CONTRIBUTING TO INSTABILITY

- Presence of incompatible materials.
- Product is considered stable.
- Hazardous polymerisation will not occur.

Section 11 - TOXICOLOGICAL INFORMATION

POTENTIAL HEALTH EFFECTS

ACUTE HEALTH EFFECTS

SWALLOWED

The material can produce chemical burns within the oral cavity and gastrointestinal tract following ingestion.
Accidental ingestion of the material may be damaging to the health of the individual.
Ingestion of alkaline corrosives may produce immediate pain, and circumoral burns. Mucous membrane corrosive damage is characterised by a white appearance and soapy feel; this may then become brown, oedematous and ulcerated. Profuse salivation with an inability to swallow or speak may also result. Even where there is limited or no evidence of chemical burns, both the oesophagus and stomach may experience a burning pain; vomiting and diarrhoea may follow. The vomitus may be thick and may be slimy (mucous) and may eventually contain blood and shreds of mucosa. Epiglottal oedema may result in respiratory distress and asphyxia. Marked hypotension is symptomatic of shock; a weak and rapid pulse, shallow respiration and clammy skin may also be evident. Circulatory collapse may occur and, if uncorrected, may produce renal failure. Severe exposures may result in oesophageal or gastric perforation accompanied by mediastinitis, substernal pain, peritonitis, abdominal rigidity and fever. Although oesophageal, gastric or pyloric stricture may be evident initially, these may occur after weeks or even months and years. Death may be quick and results from asphyxia, circulatory collapse or aspiration of even minute amounts. Death may also be delayed as a result of perforation, pneumonia or the effects of stricture formation.
Large doses of lithium ion have caused dizziness and prostration and can cause kidney damage if sodium intake is limited. Dehydration, weight-loss, dermatological effects and thyroid disturbances have been reported. Central nervous system effects that include slurred speech, blurred vision, sensory loss, impaired concentration, irritability, lethargy, confusion, disorientation, drowsiness, anxiety, spasticity, delirium, stupor, ataxia (loss of muscle coordination), sedation, fine and gross tremor, giddiness, twitching and convulsions may occur. Diarrhoea, vomiting and neuromuscular effects such as tremor, clonus (rapid contraction and relaxation of muscles) and hyperactive reflexes may occur as a result of repeated exposure to lithium.
Acute severe overexposure may affect the kidneys, resulting in renal dysfunction, albuminuria, oliguria and degenerative changes. Cardiovascular effects may also result in cardiac arrhythmias and hypotension.

EYE

The material can produce chemical burns to the eye following direct contact. Vapours or mists may be extremely irritating.
When applied to the eye(s) of animals, the material produces severe ocular lesions which are present twenty-four hours or more after instillation.

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Direct contact with alkaline corrosives may produce pain and burns. Oedema, destruction of the epithelium, corneal opacification and iritis may occur. In less severe cases these symptoms tend to resolve. In severe injuries the full extent of the damage may not be immediately apparent with late complications comprising a persistent oedema, vascularisation and corneal scarring, permanent opacity, staphyloma, cataract, symblepharon and loss of sight.

SKIN

The material can produce chemical burns following direct contact with the skin.
The material can produce severe chemical burns following direct contact with the skin.
Skin contact with alkaline corrosives may produce severe pain and burns; brownish stains may develop. The corroded area may be soft, gelatinous and necrotic; tissue destruction may be deep.
Skin contact is not thought to have harmful health effects (as classified under EC Directives); the material may still produce health damage following entry through wounds, lesions or abrasions.
Solution of material in moisture on the skin, or perspiration, may markedly increase skin corrosion and accelerate tissue destruction.
Entry into the blood-stream, through, for example, cuts, abrasions or lesions, may produce systemic injury with harmful effects. Examine the skin prior to the use of the material and ensure that any external damage is suitably protected.

INHALED

Evidence shows, or practical experience predicts, that the material produces irritation of the respiratory system, in a substantial number of individuals, following inhalation.
In contrast to most organs, the lung is able to respond to a chemical insult by first removing or neutralising the irritant and then repairing the damage. The repair process, which initially evolved to protect mammalian lungs from foreign matter and antigens, may however, produce further lung damage resulting in the impairment of gas exchange, the primary function of the lungs. Respiratory tract irritation often results in an inflammatory response involving the recruitment and activation of many cell types, mainly derived from the vascular system.
Inhalation of alkaline corrosives may produce irritation of the respiratory tract with coughing, choking, pain and mucous membrane damage. Pulmonary oedema may develop in more severe cases; this may be immediate or in most cases following a latent period of 5-72 hours. Symptoms may include a tightness in the chest, dyspnoea, frothy sputum, cyanosis and dizziness. Findings may include hypotension, a weak and rapid pulse and moist rales. Persons with impaired respiratory function, airway diseases and conditions such as emphysema or chronic bronchitis, may incur further disability if excessive concentrations of particulate are inhaled.
The material is not thought to produce adverse health effects following inhalation (as classified by EC Directives using animal models). Nevertheless, adverse systemic effects have been produced following exposure of animals by at least one other route and good hygiene practice requires that exposure be kept to a minimum and that suitable control measures be used in an occupational setting.

CHRONIC HEALTH EFFECTS

Repeated or prolonged exposure to corrosives may result in the erosion of teeth, inflammatory and ulcerative changes in the mouth and necrosis (rarely) of the jaw. Bronchial irritation, with cough, and frequent attacks of bronchial pneumonia may ensue. Gastrointestinal disturbances may also occur. Chronic exposures may result in dermatitis and/or conjunctivitis.
Neuromuscular effects result from chronic over-exposure to lithium compounds. These may include tremor, ataxia, clonus and hyperactive reflexes. Some animal studies have shown that exposure during pregnancy may produce birth defects. Other studies with rats, rabbits and monkeys have not shown teratogenic effects. Human data are ambiguous; it is well established that lithium can cross the human placenta. Of 225 registered pregnancies in which the mothers had received lithium (as a tranquiliser) there were 25 instances of congenital malformation. Although pharmacological doses of lithium cannot be

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unequivocally designated as a human teratogen, lithium therapy is contraindicated in women of childbearing potential.

Prolonged exposure may produce anorexia, weight loss and emaciation. The kidneys, behavioural/ central nervous system and peripheral nervous system may also show adverse effects.
Various types of dermatitis (psoriasis, alopecia, cutaneous ulcers, acne, follicular papules, xerosis cutis, exfoliative) may also result from chronic skin exposure.

Lithium ion can be an effective treatment for manic depression. It is thought to bind the enzyme IMPase (inositol monophosphatase) and thereby mediates its influence in producing a response to calcium-induced production of neurotransmitters and hormones thought to be responsible for the clinical picture.

In subchronic studies, rats were exposed to 3 milliequivalents Li/kg/day (equivalent to 1450 mg for a 70 kg person) but did not accumulate Li whilst on a high sodium diet. However when sodium was restricted, fatal kidney toxicity developed. Dogs survived daily dose of 50 mg LiCl/kg for 150 days to the termination of the experiment on a normal sodium intake, whereas the same dose was lethal in 12 to 18 days on a low sodium diet: 20 mg LiCl/kg/day resulted in death in 18 to 30 days.
Limited evidence suggests that repeated or long-term occupational exposure may produce cumulative health effects involving organs or biochemical systems.
Long term exposure to high dust concentrations may cause changes in lung function (i.e. pneumoconiosis) caused by particles less than 0.5 micron penetrating and remaining in the lung. A prime symptom is breathlessness. Lung shadows show on X-ray.

TOXICITY AND IRRITATION

TOXICITY	IRRITATION
Inhalation (rat) LD50: 960 mg/kg	Nil Reported

The material may produce moderate eye irritation leading to inflammation. Repeated or prolonged exposure to irritants may produce conjunctivitis.
The material may cause skin irritation after prolonged or repeated exposure and may produce a contact dermatitis (nonallergic). This form of dermatitis is often characterised by skin redness (erythema) and swelling the epidermis. Histologically there may be intercellular oedema of the spongy layer (spongiosis) and intracellular oedema of the epidermis.
Asthma-like symptoms may continue for months or even years after exposure to the material ceases. This may be due to a non-allergenic condition known as reactive airways dysfunction syndrome (RADS) which can occur following exposure to high levels of highly irritating compound. Key criteria for the diagnosis of RADS include the absence of preceding respiratory disease, in a non-atopic individual, with abrupt onset of persistent asthma-like symptoms within minutes to hours of a documented exposure to the irritant. A reversible airflow pattern, on spirometry, with the presence of moderate to severe bronchial hyperreactivity on methacholine challenge testing and the lack of minimal lymphocytic inflammation, without eosinophilia, have also been included in the criteria for diagnosis of RADS. RADS (or asthma) following an irritating inhalation is an infrequent disorder with rates related to the concentration of and duration of exposure to the irritating substance. Industrial bronchitis, on the other hand, is a disorder that occurs as result of exposure due to high concentrations of irritating substance (often particulate in nature) and is completely reversible after exposure ceases. The disorder is characterised by dyspnea, cough and mucus production.

Section 12 - ECOLOGICAL INFORMATION

Prevent, by any means available, spillage from entering drains or water courses.
DO NOT discharge into sewer or waterways.

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Section 13 - DISPOSAL CONSIDERATIONS

For small quantities:
· Neutralise an aqueous solution of the material.
· Filter solids for disposal to approved land fill.
· Flush solution to sewer (subject to local regulation)
· Heat and fumes evolved during reaction may be controlled by rate of addition.
· Recycle wherever possible or consult manufacturer for recycling options.
· Consult State Land Waste Management Authority for disposal.
· Bury residue in an authorised landfill.
· Recycle containers if possible, or dispose of in an authorised landfill.

Section 14 - TRANSPORTATION INFORMATION

Labels Required: CORROSIVE
HAZCHEM: 2X

UNDG:

Dangerous Goods Class:	8	Subrisk:	None
UN Number:	2680	Packing Group:	II

Shipping Name:LITHIUM HYDROXIDE

Air Transport IATA:

ICAO/IATA Class:	8	ICAO/IATA Subrisk:	None
UN/ID Number:	2680	Packing Group:	II
ERG Code:	8L		

Shipping name:LITHIUM HYDROXIDE

Maritime Transport IMDG:

IMDG Class:	8	IMDG Subrisk:	None
UN Number:	2680	Packing Group:	II
EMS Number:	F- A, S- B		

Shipping name:LITHIUM HYDROXIDE

Section 15 - REGULATORY INFORMATION

REGULATIONS

No regulations applicable
No data available for lithium hydroxide as CAS: 1310-66-3, CAS: 1310-65-2.

continued...

Section 16 - OTHER INFORMATION

INGREDIENTS WITH MULTIPLE CAS NUMBERS

Ingredient Name	CAS
lithium hydroxide	1310- 66- 3, 1310- 65- 2

The above information is believed to be accurate and represent the best information currently available to us, but does not represent any warranty expressed or implied of the properties of the product. User should make their own investigation to determine the suitability of the information for their particular purpose.

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