
1. CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

PRODUCT NAME: Lithium Hypochlorite
CHEMICAL FAMILY: Alkali Hypochlorite
MOLECULAR FORMULA: LiOCl
ALTERNATE TRADE NAMES: Formula 2®
GENERAL USE: Sanitizing and repacking

MANUFACTURER

FMC CORPORATION
Lithium Division
P.O. Box 795
Bessemer City, NC 28016-0795
General Information: (704) 868-5300

Emergency Telephone Numbers:

CHEMTREC (800) 424-9300
Emergency Phone (704) 629-5361 (Plant) Call Collect 24 Hr/Day
Emergency Phone (303) 595-9048 (Medical) Call Collect

2. COMPOSITION / INFORMATION ON INGREDIENTS

<u>Chemical Name</u>	<u>CAS #</u>	<u>Wt. %</u>
Lithium hypochlorite	13840-33-0	25 - 32
Sodium chloride	7647-14-5	36
Sodium sulfate	7757-82-6	13
Potassium sulfate	7646-93-7	6
Lithium chloride	7447-41-8	4
Lithium carbonate	554-13-2	2
Lithium chlorate	36355-96-1	2
Lithium hydroxide	1310-65-2	1
Water	7732-18-5	7

3. HAZARDS IDENTIFICATION

EMERGENCY OVERVIEW

IMMEDIATE CONCERNS:

POTENTIAL HEALTH EFFECTS:

Oxidizer; white granular solid with burning, chlorine-like odor.
Corrosive to eyes (may cause blindness), skin, respiratory tract, mucous membranes.

COMMENTS:

(See Section 11, Toxicological Information)

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 difficulty or 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:

Lithium hypochlorite is corrosive to eyes, skin and mucous membranes. Consideration should be given to careful endoscopy as stomach or esophageal burns, perforations or strictures may occur. Careful gastric lavage with an endotracheal tube in place should be considered. Observation may be warranted. Treatment is controlled removal of exposure with symptomatic and supportive care.

5. FIRE FIGHTING MEASURES

FLAMMABLE LIMITS: Upper: Not available Lower: Not available.

GENERAL HAZARD: Oxidizer. Contact with easily oxidizable or combustible materials can cause fire or explosion upon ignition from any source.

EXTINGUISHING MEDIA: Use water only. Do not use dry chemical, CO2 or Halon.

HAZARDOUS COMBUSTION PRODUCTS: Oxygen and toxic chlorine vapors.

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: Strong oxidizer. Contact with combustible material may cause fire.

FLASH POINT: Not applicable

SENSITIVITY TO STATIC DISCHARGE: Not applicable

SENSITIVITY TO IMPACT: Not applicable

COMMENTS:
(See Section 10, Stability and Reactivity)

6. ACCIDENTAL RELEASE MEASURES

RELEASE NOTES: Keep combustibles (wood, paper, oil etc.) away from spilled material. With clean shovel, place into clean dry container, and cover loosely. Dispose of waste according to 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: Store away from readily oxidizable materials, strong acids and flammable materials. Protect from moisture. Keep container closed.

8. EXPOSURE CONTROLS / PERSONAL PROTECTION

EXPOSURE LIMITS

<u>Chemical Name</u>	TWA	STEL/Ceiling	PEL	STEL/Ceiling
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	(ACGIH)	(ACGIH)	(OSHA)	(OSHA)
PNOC ¹ , inhalable particulate	10 mg/m ³			
PNOC ¹ , respirable particulate	3 mg/m ³			

¹PNOC = Particulates Not Otherwise Classified.

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 adequate ventilation is not available, wear a NIOSH/MSHA respirator approved for protection against inorganic and hypochlorite dusts.

Protective Clothing:

Rubber gloves

Work Hygienic Practices:

Quick-drench eyewash and safety shower.

9. PHYSICAL AND CHEMICAL PROPERTIES

<u>ODOR:</u>	Burning, chlorine-like odor
<u>APPEARANCE:</u>	White granular solid
<u>pH:</u>	(1% solution) @ 25°C: 11
<u>PERCENT VOLATILE:</u>	Not applicable
<u>VAPOR PRESSURE:</u>	Not applicable
<u>VAPOR DENSITY:</u>	Not applicable
<u>BOILING POINT:</u>	Not applicable
<u>MELTING POINT:</u>	Decomposes @ 135°C (275°F)
<u>SOLUBILITY IN WATER:</u>	43 % by wt. @ 25°C (77°F)
<u>EVAPORATION RATE(Butyl Acetate = 1):</u>	Not applicable
<u>SPECIFIC GRAVITY:</u>	0.9 to 1.0 g/cc
<u>MOLECULAR WEIGHT:</u>	58.39
<u>COEFF. OIL/WATER:</u>	Not applicable
<u>ODOR THRESHOLD:</u>	Not available
<u>FLAMMABLE LIMITS:</u>	Upper: Not available Lower: Not available.
<u>FLASH POINT:</u>	Not applicable
<u>AUTOIGNITION TEMPERATURE:</u>	Not applicable
<u>EXPLOSIVE PROPERTIES:</u>	Not explosive
<u>OXIDIZING PROPERTIES:</u>	Oxidizer.

10. STABILITY AND REACTIVITY

<u>CONDITIONS TO AVOID:</u>	Contact with combustible materials (wood, paper, oil). Contamination with moisture.
<u>STABILITY:</u>	Stable at room temperature.
<u>POLYMERIZATION:</u>	Does not polymerize
<u>HAZARDOUS DECOMPOSITION PRODUCTS:</u>	Oxygen, lithium hydroxide, lithium chlorates.
<u>INCOMPATIBLE MATERIALS:</u>	Acids, oxidizable materials, combustible materials.

11. TOXICOLOGICAL INFORMATION

<u>Eye Contact:</u>	Lithium Hypochlorite formulation: Severely irritating (rabbit)	[FMC I87-0987]
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<u>Skin Contact:</u>	Lithium Hypochlorite formulation: Corrosive, Packing group II (rabbit)	[FMC I91-1204]
<u>Skin Absorption:</u>	Dermal LD ₅₀ : Lithium Hypochlorite formulation: 8100 mg/kg (rabbit)	[FMC I87-0986]
<u>Ingestion:</u>	Oral LD ₅₀ : Lithium Hypochlorite formulation: 555 mg/kg (rat)	[FMC I87-0982]
<u>Inhalation:</u>	Inhalation LC ₅₀ : Lithium Hypochlorite formulation: 2.0 mg/L (rat)	[FMC I98-2252]

Acute Effects From Overexposure:

This product is severely irritating/corrosive to the eyes (may cause blindness), skin, respiratory tract, and mucous membranes

Chronic Effects From Overexposure:

Continuous inhalation exposure may cause lung damage.

<u>Sensitization:</u>	Lithium Hypochlorite formulation: Non-sensitizing (guinea pig)	[FMC I87-0985]
<u>Carcinogenicity:</u>	EH40: Not listed. IARC: Not listed. NTP: Not listed. OSHA: Not considered a carcinogen under OSHA. ACGIH: Not listed	

Mutagenicity: This product was not mutagenic or genotoxic in several in vitro tests.

Reproductive Toxicity: This product was not mutagenic or genotoxic in several in vitro tests.

12. ECOLOGICAL INFORMATION

Ecotoxicological Information:

Lithium Hypochlorite formulation:
Mallard duck: Acute Oral LD₅₀ = 1,960 mg/kg [FMC I87-0992]; 5 Day Dietary LC₅₀ > 17,240 ppm (no deaths at maximum dose) [FMC I87-0990]
Bobwhite quail: 5 Day Dietary LC₅₀ > 17,240 ppm [FMC I87-0989]
Rainbow trout: 96 hour LC₅₀ 0.69 mg/L, [FMC I87-0995]
Bluegill: 96 hour LC₅₀ = 0.97 mg/L, [FMC I87-0994]
Daphnia: 48 hour LC₅₀ = 0.37 µg/L, [FMC I87-0993]

Chemical Fate Information:

No data available for the product.

13. DISPOSAL CONSIDERATIONS

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

14. TRANSPORT INFORMATION

<u>PROPER SHIPPING NAME:</u>	Oxidizing solid, N. O. S. (lithium hypochlorite, mixture)
<u>CLASSIFICATION:</u>	5.1, Oxidizer
<u>LABELS:</u>	Oxidizer
<u>UN NUMBER:</u>	UN1479

PACKING GROUP: III
CUSTOM TARIFF NO: 2828.90.0000
MARINE POLLUTANT: No

15. REGULATORY INFORMATION

UNITED STATES

SECTION 311 HAZARD CATEGORY (40 CFR 370):

Immediate (acute) health hazard, reactive.

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. This information must be included in all MSDS's that are copied and distributed for this material.

SECTION 302 EXTREMELY HAZARDOUS

SUBSTANCES (40 CFR 355):

Not listed

CERCLA HAZARDOUS SUBSTANCE (40 CFR 302.4):

Not listed

TSCA SEC 12B EXPORT NOTIFICATION:

This product is not subject to TSCA 12 (b) Export Notification Requirements.

TSCA INVENTORY STATUS (40 CFR 710):

All components except for Lithium Chlorate, an impurity, are listed.

CANADA

WHMIS:

Product Identification No.: 1471
Hazard Classification: Class C (Oxidizer)
Class E (Corrosive)
Ingredient Disclosure List: Not listed

16. OTHER INFORMATION

REVISION SUMMARY: Revision #6: Sections 2 and 14 revised.

NFPA RATING

HEALTH: 3
FLAMMABILITY: 0
REACTIVITY: 1
SPECIAL: OXY

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.
type 6a

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