

1. CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

PRODUCT NAME: Lithium Citrate, Tetrahydrate
CHEMICAL FAMILY: Organic Acid Alkali Salt
MOLECULAR FORMULA: $\text{Li}_3\text{C}_6\text{H}_5\text{O}_7 \cdot 4\text{H}_2\text{O}$
GENERAL USE: Industrial Manufacturing

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 citrate, tetrahydrate	6080-58-6	99

3. HAZARDS IDENTIFICATION

EMERGENCY OVERVIEW

IMMEDIATE CONCERNS: Small, white crystals, odorless.
POTENTIAL HEALTH EFFECTS: May be irritating to the eyes, skin and mucous membranes.

COMMENTS:
(See Section 11, Toxicological Information)

4. FIRST AID MEASURES

EYES: Flush with water for at least 15 minutes. If irritation occurs and persists, contact a medical doctor.

SKIN: Remove contaminated clothing and thoroughly wash with soap and water. If irritation occurs and persists, contact a medical doctor.

INGESTION: Drink 1 or 2 glasses of water and induce vomiting by touching the back of the throat with a finger or by giving syrup of ipecac. Never induce vomiting or give anything by mouth to an unconscious person. See a medical doctor.

INHALATION: Remove to fresh air. If breathing difficulty or discomfort occurs and persists, contact a medical doctor.

NOTES TO MEDICAL DOCTOR:

This product may be irritating to the eyes, skin and mucous membranes. 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: No known physical hazard, non-combustible.
EXTINGUISHING MEDIA: Dry chemical, CO₂, water spray or regular foam.

HAZARDOUS COMBUSTION PRODUCTS: Lithium hydroxide, carbon dioxide, carbon monoxide.
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: None
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: Sweep up and place in suitable container. 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: Avoid contact with eyes, skin or clothing. Use with adequate ventilation. Wear safety glasses or goggles and rubber gloves. Wash thoroughly after handling.

STORAGE: Keep away from strong acids. Keep container closed.

8. EXPOSURE CONTROLS / PERSONAL PROTECTION

EXPOSURE LIMITS

<u>Chemical Name</u>	<u>TWA (ACGIH)</u>	<u>STEL/Ceiling (ACGIH)</u>	<u>PEL (OSHA)</u>	<u>STEL/Ceiling (OSHA)</u>
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 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.

9. PHYSICAL AND CHEMICAL PROPERTIES

ODOR: Odorless
APPEARANCE: Small white crystals

<u>pH:</u>	Not applicable
<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 after losing water above 100°C (212°F)
<u>SOLUBILITY IN WATER:</u>	% by wt. @ 25°C (77°F): 32
<u>EVAPORATION RATE(Butyl Acetate = 1):</u>	Not applicable
<u>SPECIFIC GRAVITY:</u>	1 g/cc @ 25°C (77°F)
<u>MOLECULAR WEIGHT:</u>	209.92
<u>COEFF. OIL/WATER:</u>	Not applicable
<u>ODOR THRESHOLD:</u>	Not applicable
<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>	Not an oxidizer

10. STABILITY AND REACTIVITY

<u>CONDITIONS TO AVOID:</u>	None
<u>STABILITY:</u>	Stable
<u>POLYMERIZATION:</u>	Does not polymerize
<u>HAZARDOUS DECOMPOSITION</u>	None
<u>PRODUCTS:</u>	
<u>INCOMPATIBLE MATERIALS:</u>	None

11. TOXICOLOGICAL INFORMATION

<u>Eye Contact:</u>	No data available for the product.	
<u>Skin Contact:</u>	Non-corrosive, Corrositex In-Vitro Skin Corrosion	[FMC LD 15719]
<u>Skin Absorption:</u>	No data available for the product.	
<u>Ingestion:</u>	No data available for the product.	
<u>Inhalation:</u>	No data available for the product.	

Acute Effects From Overexposure:

No data available for the product. This product may be irritating to the eyes, skin and mucous membranes. Overexposure to lithium may cause vomiting, diarrhea, drowsiness, muscular weakness and lack of coordination.

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 1970's and 1980's suggested an increase in cardiovascular defects in babies born in 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].

Sensitization:

No

Carcinogenicity:

EH40: Not listed.

IARC: Not listed.

NTP: Not listed.

OSHA: Not considered a carcinogen under OSHA.

ACGIH: Not listed

Mutagenicity:

No

Reproductive Toxicity:

No

12. ECOLOGICAL INFORMATION

Ecotoxicological Information:

No data available for the product.

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

PROPER SHIPPING NAME:

None

CLASSIFICATION:

None

LABELS:

None

UN NUMBER:

None

PACKING GROUP:

None

CUSTOM TARIFF NO:

2918.15.0000

MARINE POLLUTANT:

No

PIH:

Not designated Poison Inhalation Hazard by US DOT.

15. REGULATORY INFORMATION

UNITED STATES

SECTION 311 HAZARD CATEGORY (40 CFR 370):

None

SECTION 313 REPORTABLE INGREDIENTS (40 CFR 372):

This product does not contain a toxic chemical subject to the reporting requirements of Section 313 of Emergency Planning and Community Right-To-Know Act of 1986.

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):

Lithium citrate is listed; the hydrated form is not required to be listed.

CANADA

WHMIS:

Product Identification No.: None
Hazard Classification: None
Ingredient Disclosure List: Not listed

16. OTHER INFORMATION

REVISION SUMMARY: Revision # 5: Regular review completed. No revisions made.

NFPA RATING

HEALTH: 0
FLAMMABILITY: 0
REACTIVITY: 0
SPECIAL: None

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 1b

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