



Safety Data Sheet

1. Product and Company Identification

Product Name:	Lithium Hexafluorophosphate in EC/EMC 3:7
Catalog Codes:	EQ-LBC-3015B-LD
CAS#:	21324-40-3
Identified uses:	Laboratory chemicals, Synthesis of substances
Chemical Formula:	LiPF ₆
Contact Information:	MTI Corporation 860 South 19 th Street Richmond, CA 94804, USA Tel: 510-525-3070 Fax: 510-525-4705 Email: info@mtixtl.com Website: www.mtixtl.com
Non-emergency assistance:	1-888-525-3070
Emergency assistance:	Company: CHEMTEL (MTI Contract# MIS2559467) Day or Night Tel (Within USA and Canada): 1-800-255-3924 Tel (Outside USA and Canada): 1-813-248-0585

2. Hazards Identification

Emergency Overview: GHS Classification in accordance with 29 CFR 1910 (OSHA HCS)

Flammable Liquids (Category 3), H226
Acute Toxicity, Oral (Category 4). H302
Skin corrosion (Category 1A), H314
Serious eye damage (Category 1), H318
Specific target organ toxicity - single exposure (Category 3), Respiratory system, H335
Specific target organ toxicity - repeated exposure, Inhalation (Category 1), Bone, Teeth, H372

For the full text of the H-Statements mentioned in this Section, see Section 16.


HMIS Rating

Health hazard:	3
Chronic Health Hazard:	
Flammability:	3
Physical Hazard:	0

NFPA Rating

Health hazard:	3
Fire Hazard:	3
Reactivity Hazard:	0

GHS Label elements, including precautionary statements

Pictogram	
Signal	Danger
Hazard statement(s)	
H226	Flammable liquid and vapor.
H302	Harmful if swallowed.
H314	Causes severe skin burns and eye damage.
H318	Causes serious eye damage.
H335	May cause respiratory irritation.
H372	Causes damage to organs (Bone, Teeth) through prolonged or repeated exposure if inhaled.
Precautionary statement(s)	
P210	Keep away from heat/sparks/open flames/hot surfaces. No smoking.
P233	Keep container tightly closed.
P240	Ground/bond container and receiving equipment.
P241	Use explosion-proof electrical/ ventilating/ lighting/ equipment.
P242	Use only non-sparking tools.
P243	Take precautionary measures against static discharge.
P260	Do not breathe dust/ fume/ gas/ mist/ vapors/ spray.
P264	Wash skin thoroughly after handling.
P270	Do not eat, drink or smoke when using this product.
P271	Use only outdoors or in a well-ventilated area.
P280	Wear protective gloves/ protective clothing/ eye protection/ face protection.
P301 + P312 + P330	IF SWALLOWED: Call a POISON CENTER/doctor if you feel unwell. Rinse mouth.
P301 + P330 + P331	IF SWALLOWED: Rinse mouth. Do NOT induce vomiting.
P303 + P361 + P353	IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water/shower.
P304 + P340 + P310	IF INHALED: Remove person to fresh air and keep comfortable for breathing. Immediately call a POISON CENTER/doctor.
P305 + P351 + P338 + P310	IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Immediately call a POISON CENTER/doctor.
P314	Get medical advice/ attention if you feel unwell.
P363	Wash contaminated clothing before reuse.
P370 + P378	In case of fire: Use dry sand, dry chemical or alcohol-resistant foam to extinguish.
P403 + P233	Store in a well-ventilated place. Keep container tightly closed.
P403 + P235	Store in a well-ventilated place. Keep cool.
P405	Store locked up.
P501	Dispose of contents/ container to an approved waste disposal plant.

Hazards not otherwise classified (HNOC) or not covered by GHS

Strong hydrogen fluoride-releaser



3. Composition/Information on Ingredients

Substance Name:

Lithium hexafluorophosphate in Ethylene carbonate/Ethyl methyl carbonate

Ingredient Name:	CAS#:	SARA 313:
Lithium hexafluorophosphate	21324-40-3	No
Ethylene carbonate	96-49-1	No
Ethyl methyl carbonate	1313734-97-2	No

Mixtures

Synonyms	1.0M LiPF6 EC/EMC 3:7
Formula	LiPF6

Hazardous Components

Ethylene carbonate CAS-No. 96-49-1	Acute Tox. 4; Eye Irrit. 2A; STOT RE 2; H302, H319, H373
Ethyl methyl carbonate CAS-No. 1313734-97-2	Flam. Liq. 3; Skin Irrit. 2, Eye Irrit. 2A; STOT SE 3; H226, H315, H319, H335
Lithium hexafluorophosphate CAS-NO. 21324-40-3	Acute Tox. 3; Skin Corr. 1A; Eye Dam. 1; STOT RE 1; H301, H314, H372

4. First Aid Measures

4.1 Description of first aid measures**General advice**

Consult a physician. Show this safety data sheet to the doctor in attendance. Move out of dangerous area. Hydrofluoric (HF) acid burns require immediate and specialized first aid and medical treatment. Symptoms may be delayed up to 24 hours depending on the concentration of HF. After decontamination with water, further damage can occur due to penetration/absorption of the fluoride ion. Treatment should be directed toward binding the fluoride ion as well as the effects of exposure. Skin exposures can be treated with a 2.5% calcium gluconate gel repeated until burning ceases. More serious skin exposures may require subcutaneous calcium gluconate except for digital areas unless the physician is experienced in this technique, due to the potential for tissue injury from increased pressure. Absorption can readily occur through the subungual areas and should be considered when undergoing decontamination. Prevention of absorption of the fluoride ion in cases of ingestion can be obtained by giving milk, chewable calcium carbonate tablets or Milk of Magnesia to conscious victims. Conditions such as hypocalcemia, hypomagnesemia and cardiac arrhythmias should be monitored for, since they can occur after exposure.

If inhaled

If breathed in, move person into fresh air. If not breathing, give artificial respiration. Consult a physician.

In case of skin contact

Take off contaminated clothing and shoes immediately. Wash off with soap and plenty of water. Take victim immediately to hospital. Consult a physician. First treatment with calcium gluconate paste.

In case of eye contact

Rinse thoroughly with plenty of water for at least 15 minutes and consult a physician. Continue rinsing eyes during transport to hospital.

If swallowed

Do NOT induce vomiting. Never give anything by mouth to an unconscious person. Rinse mouth with water. Consult a physician.

**4.2 Most important symptoms and effects, both acute and delayed**

The most important known symptoms and effects are described in the labelling (see section 2.2) and/or in section 11

4.3 Indication of any immediate medical attention and special treatment needed

No data available

5. Firefighting Measures

5.1 Extinguishing media

Suitable extinguishing media

Use water spray, alcohol resistant-foam, dry chemical or carbon dioxide.

5.2 Special hazards arising from the substance mixture

Carbon oxides, oxides of phosphorus, Hydrogen fluoride, Lithium oxides

5.3 Advice for firefighters

Wear self-contained breathing apparatus for firefighting if necessary.

5.4 Further Information

Use water spray to cool unopened containers.

6. Accidental Release Measures

6.1 Personal precautions, protective equipment and emergency procedures

Use personal protective equipment. Avoid breathing vapors, mist or gas. Ensure adequate ventilation. Remove all sources of ignition. Evacuate personnel to safe areas. Beware of vapors accumulating to form explosive concentrations. Vapors can accumulate in low areas. For personal protection see section 8.

6.2 Environmental precautions

Prevent further leakage or spillage if safe to do so. Do not let product enter drains.

6.3 Methods and materials for containment and cleaning up

Contain spillage, and then collect with an electrically protected vacuum cleaner or by wet-brushing and place in container for disposal according to local regulations (see section 13).

6.4 Reference to other sections

For disposal see section 13.

7. Handling and Storage

7.1 Precautions for safe handling

Avoid contact with skin and eyes. Avoid inhalation of vapor or mist.

Keep away from sources of ignition - No smoking. Take measures to prevent the buildup of electrostatic charge.

For precautions see section 2.2.

7.2 Conditions for safe storage, including any incompatibilities

Keep container tightly closed in a dry and well-ventilated place. Containers which are opened must be carefully resealed and kept upright to prevent leakage.

Do not store in glass Air and moisture sensitive. Hygroscopic. Handle and store under inert gas. Do not store in glass

Storage class (TRGS 510): Flammable liquids

7.3 Specific end use(s)

Apart from the uses mentioned in section 1.2 no other specific uses are stipulated

8. Exposure Control/ Personal Protection

8.1 Control parameters

Components with workplace control parameters

Component	CAS-No.	Value	Control Parameters	Basis
Lithium hexafluorophosphate(1-)	21324-40-3	TWA	2.500000 mg/m3	USA. Occupational Exposure Limits (OSHA) - Table Z-1 Limits for Air Contaminants
	Remarks	CAS number varies with compound		
		TWA	2.500000 mg/m3	USA. Occupational Exposure Limits (OSHA) - Table Z-2
		Z37.28-1969		
		TWA	2.500000 mg/m3	USA. ACGIH Threshold Limit Values (TLV)
		Bone damage Fluorosis Substances for which there is a Biological Exposure Index or Indices (see BEI® section) Not classifiable as a human carcinogen varies		
		PEL	2.500000 mg/m3	California permissible exposure limits for chemical contaminants

Hazardous components without workplace control parameters

Biological occupational exposure limits

Component	CAS-No.	Parameters	Value	Biological Specimen	Basis
Lithium hexafluorophosphate(1-)	21324-40-3	Fluoride	2 mg/l	Urine	ACGIH - Biological Exposure Indices (BEI)
	Remarks	Prior to shift (16 hours after exposure ceases)			
		Fluoride	3.0000 mg/g	Urine	ACGIH - Biological Exposure Indices (BEI)
		End of shift (As soon as possible after exposure ceases)			

8.2 Exposure controls

Appropriate engineering controls

Handle in accordance with good industrial hygiene and safety practice. Wash hands before breaks and at the end of workday.

Personal protective equipment

Eye/face protection

Tightly fitting safety goggles. Faceshield (8-inch minimum). Use equipment for eye protection tested and approved under appropriate government standards such as NIOSH (US) or EN 166(EU).

Skin protection

Handle with gloves. Gloves must be inspected prior to use. Use proper glove removal technique (without touching glove's outer surface) to avoid skin contact with this product. Dispose of contaminated gloves after use in accordance with applicable laws and good laboratory practices. Wash and dry hands.

**Body Protection**

Complete suit protecting against chemicals, Flame retardant antistatic protective clothing. The type of protective equipment must be selected according to the concentration and amount of the dangerous substance at the specific workplace.

Respiratory protection

Where risk assessment shows air-purifying respirators are appropriate use a full-face respirator with multipurpose combination (US) or type ABEK (EN 14387) respirator cartridges as a backup to engineering controls.

If the respirator is the sole means of protection, use a full-face supplied air respirator. Use respirators and components tested and approved under appropriate government standards such as NIOSH (US) or CEN (EU).

Control of environmental exposure

Prevent further leakage or spillage if safe to do so. Do not let product enter drains.

9. Physical and Chemical Properties

9.1 Information on basic physical and chemical properties

a) Appearance	Liquid
b) Odor	No data available
c) Odor	Threshold No data available
d) pH	No data available
e) Melting point/freezing point	No data available
f) Initial boiling point and boiling range	No data available
g) Flash point	26.1°C (79.0°F)
h) Evaporation rate	No data available
i) Flammability (solid, gas)	No data available
j) Upper/lower flammability or explosive limits	No data available
k) Vapor pressure	No data available
l) Vapor density	No data available
m) Relative density	No data available
n) Water solubility	No data available
o) Partition coefficient: n-octanol/water	No data available
p) Auto-ignition temperature	No data available
q) Decomposition temperature	No data available
r) Viscosity	No data available
s) Explosive properties	No data available
t) Oxidizing properties	No data available

9.2 Other safety information

No data available

10. Stability and Reactivity

10.1 Reactivity

No data available

10.2 Chemical stability

Stable under recommended storage conditions.

**10.3 Possibility of hazardous reactions**

Vapors may form explosive mixture with air.

10.4 Conditions to avoid

Heat, flames and sparks.

Reacts dangerously with glass.

10.5 Incompatible materials

Strong oxidizing agents, Acids, Bases, Reducing agents, Steel (all types and surface treatments) glass

10.6 Hazardous decomposition products

Hazardous decomposition products formed under fire conditions. - Carbon oxides, Oxides of phosphorus, Hydrogen fluoride, Lithium oxides

Other decomposition products - No data available

In the event of fire: see section 5

11. Toxicological Information

11.1 Information on toxicological effects**Acute toxicity**

Inhalation: No data available

Dermal: No data available

No data available

Skin corrosion/irritation

No data available

Serious eye damage/eye irritation

No data available

Respiratory or skin sensitization

No data available

Germ cell mutagenicity

No data available

Carcinogenicity

IARC: No component of this product present at levels greater than or equal to 0.1% is identified as probable, possible or confirmed human carcinogen by IARC.

NTP: No component of this product present at levels greater than or equal to 0.1% is identified as a known or anticipated carcinogen by NTP.

OSHA: No component of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by OSHA.

Reproductive toxicity

No data available

Specific target organ toxicity - single exposure

No data available

Specific target organ toxicity - repeated exposure

No data available

Aspiration hazard

No data available

Additional Information

RTECS: Not available

Burning sensation, Cough, wheezing, laryngitis, Shortness of breath, spasm, inflammation and edema of the larynx, spasm, inflammation and edema of the bronchi, pneumonitis, pulmonary edema, Material is extremely destructive to tissue of the mucous membranes and upper respiratory tract, eyes, and skin.

Fluoride ion can reduce serum calcium levels possibly causing fatal hypocalcemia



12. Ecological Information

12.1 Toxicity

No data available

12.2 Persistence and degradability

No data available

12.3 Bioaccumulative potential

No data available

12.4 Mobility in soil

No data available

12.5 Results of PBT and vPvB assessment PBT/vPvB assessment

Not available as chemical safety assessment not required/not conducted

12.6 Other adverse effects

No data available

13. Disposal Considerations

13.1 Waste treatment methods

Product

Burn in a chemical incinerator equipped with an afterburner and scrubber but exert extra care in igniting as this material is highly flammable. Offer surplus and non-recyclable solutions to a licensed disposal company. Contact a licensed professional waste disposal service to dispose of this material.

Contaminated packaging

Dispose of as unused product.

14. Transport Information

DOT (US)

UN number: 2920 Class: 8 (3)

Packing group: I

Proper shipping name: Corrosive liquids, flammable, N.O.S. (Lithium hexafluorophosphate, Ethyl methyl carbonate)

Poison Inhalation Hazard: No

IMDG

UN number: 2920 Class: 8 (3)

Packing group: II

EMS-No: F-E, S-C

Proper shipping name: CORROSIVE LIQUID, FLAMMABLE, N.O.S. (Lithium hexafluorophosphate, Ethyl methyl carbonate)

IATA

UN number: 2920 Class: 8 (3)

Packing group: II

Proper shipping name: Corrosive liquid, flammable, N.O.S. (Lithium hexafluorophosphate, Ethyl methyl carbonate)

ALL INNER PACKAGINGS MUST BE PACKED WITH ABSORBANT MATERIAL IN TIGHTLY CLOSED METAL OR RIGID PLASTIC RECEPTACLES, PLASTIC INNER PACKAGINGS MUST BE IN METAL CANS FOR EXPORT OUT OF THE US

15. Regulatory Information

SARA 302 Components

No chemicals in this material are subject to the reporting requirements of SARA Title III, Section 302.

SARA 313 Components

This material does not contain any chemical components with known CAS numbers that exceed the threshold (De Minimis) reporting levels established by SARA Title III, Section 313.

**SARA 311/312 Hazards**

Fire Hazard, Acute Health Hazard

Massachusetts Right to Know Components

Ethylene carbonate

CAS-No.

96-49-1

Revision Date

1993-04-24

Pennsylvania Right to Know Components

Ethylene carbonate

96-49-1

1993-04-24

Ethyl methyl carbonate

1313734-97-2

Lithium hexafluorophosphate(1-)

21324-40-3

2008-06-01

New Jersey Right to Know Components

Ethylene carbonate

96-49-1

1993-04-24

Ethyl methyl carbonate

1313734-97-2

Lithium hexafluorophosphate(1-)

21324-40-3

2008-06-01

California Prop. 65 Components

This product does not contain any chemicals known to State of California to cause cancer, birth defects, or any other reproductive harm.

16. Other Information

H226	Flammable liquid and vapor.
H302	Harmful if swallowed.
H314	Causes severe skin burns and eye damage.
H318	Causes serious eye damage.
H335	May cause respiratory irritation
H372	Causes damage to organs through prolonged or repeated exposure if inhaled.

The information above is believed to be accurate and represents the best information currently available to us. However, it does not represent any guarantee of the properties of the product. We make no warranty of merchantability or any other warranty, express or implied, with respect to such information, and we shall not be held liable for any damage resulting from handling or from contact with the above product. Users should make their own investigations to determine the suitability of the information for their particular purposes.