Section 1- PRODUCT IDENTIFICATION

<table>
<thead>
<tr>
<th>COMPOSITION</th>
<th>PRODUCT NAME</th>
</tr>
</thead>
<tbody>
<tr>
<td>LiF</td>
<td>Lithium Fluoride</td>
</tr>
</tbody>
</table>

Section 2- HAZARDOUS INGREDIENTS

Note: Products under normal conditions do not represent an inhalation, ingestion or contact health hazard.

<table>
<thead>
<tr>
<th>MATERIAL OR COMPONENT</th>
<th>CAS NUMBER</th>
<th>WT%</th>
<th>EXPOSURE LIMITS</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>0.0-100.0%</td>
<td></td>
</tr>
<tr>
<td>LiF</td>
<td>7789-24-4</td>
<td>100.0%</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>OSHA PEL (Mg/M3)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>2.5mg(F)/m3</td>
</tr>
</tbody>
</table>

Section 3- PHYSICAL DATA

MATERIAL IS (AT NORMAL CONDITIONS)
- □ Liquid
- □ Solid
- □ Gas
- □ Other

APPEARANCE AND ODOR

White powder and pieces, no odor

SPECIFIC GRAVITY

2.64gm/cc at 20.0°C

Section 4- FIRE AND EXPLOSION

Flash Point (Method Used) N/A

Flammable Limits N/A

LEL N.A.

UEL N.A.

EXTINGUISHING MEDIA

Use: Not applicable. Use suitable extinguishing media for surrounding materials and type of fire.

SPECIAL FIRED FIGHTING PROCEDURES

Firefighters must wear full face, self-contained breathing apparatus with full protective clothing to prevent contact with skin and eyes. Fumes from fire are hazardous. Isolate runoff to prevent environmental pollution.

UNUSUAL FIRE AND EXPLOSION HAZARDS

When heated to decomposition, lithium fluoride may emit toxic fumes of fluorine. Does not react with water at red hot heat.

Section 5- REACTIVITY DATA

STABILITY
- Stable

CONDITIONS TO AVOID
- None

INCOMPATABILITY (MATERIALS TO AVOID)
- Acids and acid fumes

HAZARDOUS DECOMPOSITION PRODUCTS
- Fumes of fluorine
## Section 6- HEALTH HAZARD GUIDE

### MAJOR EXPOSURE HAZARD
- **Inhalation**  
- **Skin**  
- **Skin Absorption**  
- **Eye Contact**  
- **Ingestion**

### EFFECTS OF OVEREXPOSURE

To the best of our knowledge the chemical, physical and toxicological properties of lithium fluoride have not been thoroughly investigated and recorded.

Toxicity of lithium compounds is a function of their solubility in water. Lithium ion has central nervous system toxicity. (Sax, Dangerous Properties of Industrial Materials, eighth edition)

Inorganic fluorides are generally highly irritating and toxic. Chronic fluorine poisoning, or “fluorosis”, occurs among miners of cryolite and consists of sclerosis of the bones, caused by fixation of the calcium by fluorine. There may also be some calcification of the ligaments. The teeth are mottled and there is osteosclerosis and osteomalacia. Large doses can cause very severe nausea, vomiting, diarrhea, aggravate attacks of asthma and severe bone changes, making normal movements painful. Some signs of pulmonary fibrosis are noted. Some enzyme system effects are reported. Irritants to the eyes, skin and mucous membranes. Loss of weight, anorexia, wasting and cachexia and dental defects are among the common findings in chronic fluorine poisoning. There may be an eosinophilia and impairment of growth in young workers. Symptoms of intoxication include gastric, intestinal, circulatory, respiratory and nervous complaints and rashes. (Sax, Dangerous Properties of Industrial Materials, eighth edition)

### INHALATION: Acute
- May cause lithium toxicity, irritation to the respiratory tract and mucous membrane. Dusts may cause asthma attacks and lung damage such a lung granulomas and pulmonary edema. Large doses may cause immediate defecation, writhing, loss of muscle coordination, labored respiration, sedation, hypotension, dyspnea, hyperemia, liver edema and necrosis, portal congestion, pleural effusion and granulomatous peritonitis with serious and hemorrhagic ascites, respiratory and cardiac failure. **Chronic**-May cause lithium toxicity, fluorosis, pulmonary fibrosis, severe bone changes, hyperemia, cellular eosinophilia and vascular granulomata, acute chemical pneumonitis, subacute bronchitis and focal hypertopic emphysema.

**Signs and Symptoms of Exposure:** Lithium toxicity may cause: tremors of the hands, nausea, micturition, slurred speech, sluggishness, sleepiness, vertigo, thirst, increased urine volume, apathy, anorexia, fatigue, muscular weakness and changes in ECG, hypothyroidism, leukocytosis, edema, weight gain, polydipsia/polyuria, memory impairment, seizures, kidney damage, shock, hypotension and cardiac arrhythmias. Fibrosis may cause: sclerosis of the bones, calcification of ligaments, mottled teeth, osteosclerosis, osteomalacia, loss of weight, anorexia, anemia, wasting, cachia and dental defects.

### SKIN CONTACT: Acute
- Strong irritant. **Chronic**-May cause dermatitis, skin lesions and ulcerations. **Signs and Symptoms of Exposure:** May cause redness, inflammation, itching and burning.

### EYE CONTACT: Acute
- Strong irritant. **Chronic**-May corneal damage. **Signs and Symptoms of Exposure:** May cause redness, burning, itching and watering.

### INGESTION: Acute
- Poison by ingestion, 5-10 grams can be fatal May cause gastrointestinal irritation from less than 1 gram. **Chronic**-May affect renal and hepatic functions, circulatory, enzyme and nervous system. **Signs and Symptoms of Exposure:** May cause nausea, vomiting, diarrhea, abdominal distress, stupor, weakness, tremors, convulsions, collapse, dyspnea, respiratory and cardiac failure.

### TARGET ORGANS: May affect the skeleton, kidneys, central nervous system, respiratory system and skin.

### CARCINOGENICITY: NTP? No  
IARC Monographs? No  
OSHA Regulated? No

### MEDICAL CONDITIONS GENERALLY AGGRAVATED BY EXPOSURE: Pre-existing respiratory, gastrointestinal and skin disorders.
**EMERGENCY & FIRST AID PROCEDURES**

**INHALATION:** Remove victim to fresh air; keep warm and quiet. Give oxygen if breathing is difficult and seek medical attention.

**SKIN CONTACT:** Remove contaminated clothing; brush material off skin. Wash affected area with mild soap and water. Seek medical attention immediately.

**EYE CONTACT:** Flush eyes with lukewarm water, lifting upper and lower lids, for at least 15 minutes. Seek medical attention immediately.

**INGESTION:** Give 1-2 glasses of milk or water and induce vomiting. Seek medical attention immediately. Never induce vomiting or give anything by mouth to an unconscious person.

### Section 7- SPILL OR LEAK PROCEDURES

**SPILL OR LEAK PROCEDURES**

Wear appropriate respiratory and protective equipment specified in Section 8. Isolate spill area and provide ventilation. Vacuum up spill using a high efficiency particulate absolute (HEPA) air filter and place in a closed container for proper disposal. Take care not to raise dust.

**WASTE DISPOSAL METHODS**

Observe all federal, state and local regulations when storing or disposing of this substance.

**HAZARD LABEL INFORMATION**

Store in a tightly sealed container in a cool, dry area. Wash thoroughly after handling.

### Section 8- SPECIAL PROTECTION

**RESPIRATORY**

NIOSH approved respirator.

**VENTILATION**

Local Exhaust: To maintain concentration at or below PEL, TLV. Special: Handle in a controlled, enclosed environment. Mechanical (Gen): Not recommended. Other: Handle and store in an inert gas such as argon.

**EYE PROTECTION & PROTECTIVE CLOTHING**

Use safety glasses. Wear rubber gloves. Use protective gear suitable to prevent contamination.

### Section 9- SPECIAL PRECAUTIONS

**WORK/HYGIENIC/MAINTENANCE PRACTICES**

Implement engineering and work practice controls to reduce and maintain concentration of exposure at low levels. Use good housekeeping and sanitation practices. Do not use tobacco or food in work area. Wash thoroughly before eating and smoking. Do not blow dust off clothing or skin with compressed air.

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