1. Identification of the Substance/Mixture and of the Company/Undertaking:

1.1 Product Identifier: Lithium
1.1.1 Substances Lithium chloride
Alternate names and trade name Lithium Chloride Anhydrous
1.1.2 Mixture name: Not applicable
1.2 Relevant Identified Uses of the Substance or Mixture and Uses Advised Against:
Component in closed systems for air conditioning applications. Formulation and chemical synthesis in industrial manufacturing operations. Additive for preparations and articles for industrial and consumer use. Do not use for private purposes (household).

1.3 Details of the Supplier of the Safety Data Sheet

North America
FMC Lithium
Seven Lake Point Plaza
2801 Yorkmont Rd, Suite 300
Charlotte, NC 28208
Phone: +1.704.868.5300
Fax: +1.704.868.5370
1.888.lithium
Email: lithium.info@fmc.com
Web: www.fmclithium.com

Europe
FMC Chemicals
Commercial Road
Bromborough, Merseyside
CH62 3NL, England
Phone: +44.151.482.7356
Fax: +44.151.482.7361

Asia Pacific
FMC Lithium Asia Pacific Office
15F Far East International Plaza
Shanghai 200051, PRC
Phone: +86.21.6235 1919
Fax: +86.21.6235 1917

1.4 Emergency Telephone Number:

North America
CHEMTREC: +1.800.424.9300
Plant: +1.704.629.5361
Medical: +1.303.595.9048

Europe
24 hr Specialist advice number (Carechem): +44.1865.407333
Office (0900-1700): +44.151.334.8085

Asia Pacific
Phone: +86.21.6235.1919
Fax: +86.21.6235.1917

2. Hazards Identification

2.1 Classification of the Substance or mixture:

2.1.1 GHS Classification [EC Regulation No 1272/2008 and US OSHA regulations]
Acute Toxicity, Category 4
Eye Irritant, Category 2
Skin irritant, Category 2

2.2.2 EC: Classification according to 67/548/EEC or 1999/45/EC [DSD/DPD]
Xn, R22; Xi, R36, R38

2.2 Label Elements:

2.2.3 Hazard Pictograms(s):

2.2.4 Signal Word: Warning
Hazard Statement(s):
Harmful if swallowed H302
Causes serious eye irritation H319
Causes skin irritation H315

Precautionary Statement(s):
Wear protective gloves/protection clothing/eye protection/face protection. P280
IF IN EYES: Rinse cautiously w/ water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
P305 + P351 + P338
If eye irritation persists: Get medical advice/attention. P337 + P313
IF SWALLOWED: Call a POISON CENTER or doctor/physician if you feel unwell. P301 + P312
IF ON SKIN: Wash with plenty of soap and water. If skin irritation occurs: Get medical advice/attention. P302 + P352

2.3 Other Hazards
None.

3. Composition / Information on Ingredients

3.1 Substances
3.1.1 GHS Classification [EC: Regulation No 1272/2008; US: OSHA regulations]

<table>
<thead>
<tr>
<th>Chemical Name</th>
<th>CAS #</th>
<th>EC No</th>
<th>REACH Reg No</th>
<th>Wt.%</th>
<th>Classification, Hazard Statement Codes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lithium chloride</td>
<td>7447-41-8</td>
<td>231-212-3</td>
<td>not avail.</td>
<td>100</td>
<td>Acute Tox. 4</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Eye Irrit. 2</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Skin Irrit. 2</td>
</tr>
</tbody>
</table>

3.1.2 EC: Classification according to 67/548/EEC or 1999/45/EC [DSD/DPD]

<table>
<thead>
<tr>
<th>Chemical Name</th>
<th>CAS #</th>
<th>EC No</th>
<th>Wt.%</th>
<th>Symbols</th>
<th>R-phrases</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lithium chloride</td>
<td>7447-41-8</td>
<td>231-212-3</td>
<td>100</td>
<td>Xn</td>
<td>R22</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Xi</td>
<td>R36, 38</td>
</tr>
</tbody>
</table>

3.2 Mixtures
Not applicable.
(see Section 16 for R-phrase text)

4. First Aid Measures

4.1 Description of First Aid Measures
EYES: Flush with water for at least 15 minutes. If irritation occurs and persists, contact a medical doctor.
SKIN: Wash with plenty of soap and water. Get medical attention if irritation occurs and persists.
INGESTION: Drink 1 or 2 glasses of water. Never give anything by mouth to an unconscious person. If any discomfort persists, obtain medical attention.
INHALATION: Remove to fresh air. If breathing difficulty or discomfort occurs and persists, contact a medical doctor.

4.2 Most Important Symptoms and effects, both acute and delayed
Skin and eye irritation.

4.3 Indication of any immediate medical attention and special treatment needed.
Notes to medical doctor:
This product has low oral, dermal and inhalation toxicity, and is a mild irritant. Treatment is controlled removal of exposure followed by symptomatic and supportive care.

5. Fire-Fighting Measures

5.1 Extinguishing media
Dry chemical, CO₂, water spray or regular foam.

5.2 Special hazards arising from the substance or mixture
Hazardous combustion products: None
General Hazard: No known physical hazard, non-combustible.
Properties contributing to Flammability: None
Flammable limits in air: Not applicable
Auto ignition temperature: Not applicable
Sensitivity to static discharge: Not applicable
Sensitivity to static impact: Not applicable

5.3 Advice for fire-fighters
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.
6. Accidental Release Measures

6.1 Personal precautions, protective equipment and emergency procedures

Before cleanup measures begin, review the entire SDS with particular attention to Section 2, Hazards Identification; and Section 8, Exposure Controls/Personal Protection.

6.2 Environmental precautions

Do not wash into drains. Dispose of at qualified waste disposal facility.

6.3 Methods and material for containment and cleaning up

Sweep up and place in suitable container. Dispose of waste according to local and Federal laws and regulations.

6.4 Reference to other sections

Before cleanup measures begin, review the entire SDS with particular attention to Section 2, Hazards Identification; and Section 8, Exposure Controls/Personal Protection.

6.5 Additional information

Not specified.

7. Handling and Storage

7.1 Precautions for safe handling

Avoid contact with eyes, skin or clothing. Use with adequate ventilation. Wear safety glasses or goggles and rubber gloves. Wash thoroughly after handling.

7.2 Conditions for safe storage, including any incompatibilities

Keep away from strong acids. Keep container closed.

7.3 Specific end use(s)

Not available. Chemical safety assessment has not been completed for this product.

8. Exposure Controls / Personal Protection

8.1 Control parameters

<table>
<thead>
<tr>
<th>Chemical Name</th>
<th>EU TWA</th>
<th>STEL</th>
<th>EH40 (UK WEL) TWA</th>
<th>STEL</th>
<th>USA (ACGIH) TWA</th>
<th>STEL/Ceiling</th>
<th>USA (OSHA) PEL</th>
<th>STEL/Ceiling</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lithium chloride</td>
<td>none*</td>
<td></td>
<td>none*</td>
<td></td>
<td>none*</td>
<td></td>
<td>none*</td>
<td></td>
</tr>
</tbody>
</table>

* No occupational exposure limit value

8.2 Exposure controls

Engineering controls:

Use local exhaust ventilation to keep airborne concentrations below exposure limits.

Personal protective equipment

<table>
<thead>
<tr>
<th>Eyes and Face:</th>
<th>Respiratory:</th>
<th>Protective Clothing:</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>When engineering controls are not adequate, wear a respirator approved for protection against inorganic dusts.</td>
<td>Safety glasses or goggles</td>
</tr>
<tr>
<td></td>
<td>US: NIOSH or MSHA approved</td>
<td>EU: CEN Class P type</td>
</tr>
<tr>
<td></td>
<td>Europe:</td>
<td>Gloves: Nitrile/Neoprene/PVC/Natural Rubber (permeation breakthrough not detected during 6 hr test)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>These glove recommendations should not be used as the absolute basis for glove selection. Actual in-use conditions may vary glove performance from the controlled conditions of laboratory tests. Factors such as concentration and temperature, glove thickness and glove reuse, may affect performance. Other glove requirements, such as length, dexterity, cut, abrasion, puncture and snag resistance, or glove grip need to be considered in making your final selection.</td>
</tr>
<tr>
<td></td>
<td>Other: Not specified.</td>
<td>Other:</td>
</tr>
</tbody>
</table>

Work Hygienic Practices:

Quick-drench eyewash and safety shower.

9. Physical and Chemical Properties
9.1 Information on basic physical and chemical properties

**Appearance:** White, granular solid

**Odor:** Odorless

**Odor threshold:** None

**pH:** (1% solution) @ 25°C: 6

**Melting point:** 608°C (1126°F)

**Boiling point:** 1355°C (2471°F)

**Flash point:** Not applicable

**Evaporation rate (butyl acetate = 1):** Not applicable

**Flammability:** Not applicable

**Flammable limits:** Not applicable

**Vapor pressure:** Not applicable

**Vapor density (air = 1):** Not applicable

**Specific gravity:** 2.1 g/ml

**Solubility in water:** % by wt. @ 25°C (77°F): 45.4

**Partition coefficient n-octanol/water:** Not available

**Autoignition temperature:** Not applicable

**Decomposition temperature:** Not available

**Viscosity:** Not applicable

**Explosive properties:** Not explosive

**Oxidizing properties:** Not an oxidizer

9.2 Other information

- **Self-reactive properties:** Does not meet classification criteria.
- **Pyrophoric properties:** Does not meet classification criteria.
- **Self-heating properties:** Does not meet classification criteria.
- **Water reactive properties:** Does not meet classification criteria.
- **Corrosive to metals:** Does not meet classification criteria.
- **Molecular weight:** 42.4

10. Stability and Reactivity

10.1 Reactivity

Reacts with acids to form hydrogen chloride

10.2 Chemical stability

Stable

10.3 Possibility of hazardous reaction

Hazardous polymerization will not occur.

10.4 Conditions to avoid

Contact with acids

10.5 Incompatible materials

Acids

10.6 Hazardous decomposition products

None

11. Toxicological Information

11.1 Toxicokinetics, metabolism and distribution

Non-human toxicological data

**Method:**

**Dosis:**

**Routes of administration:**

**Results:**

Absorption:

Distribution:

Metabolism:

Excretion:

Not available

11.2 Information on toxicological effects

11.2.1 Acute Toxicity:

Acute Toxicity Category 4

<table>
<thead>
<tr>
<th>Substance/mixture</th>
<th>Oral:</th>
<th>Dermal:</th>
<th>Inhalation:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lithium chloride</td>
<td>LD₅₀ = 526 mg/kg (rat)</td>
<td>LD₅₀ &gt;2000 mg/kg (rabbit)</td>
<td>LC₅₀ =&gt; 5.57 mg/L (rat)</td>
</tr>
</tbody>
</table>

11.2.2 Skin Corrosion/Irritation:

Skin irritant Category 2

11.2.3 Serious Eye Damage/Irritation:

Eye Irritant Category 2

11.2.4 Respiratory or Skin Sensitization:

No classification

Data

Slight irritant (rabbit)

Moderate irritant (rabbit)
11.2.5 Carcinogenicity, Mutagenicity, Reproductive Toxicity: No classification

<table>
<thead>
<tr>
<th>Substance/mixture</th>
<th>Germ Cell Mutagenicity</th>
<th>Carcinogenicity</th>
<th>Reproductive Toxicity</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lithium chloride</td>
<td>Based on available data, the classification criteria are not met.</td>
<td>Based on available data, the classification criteria are not met.</td>
<td>Based on available data, the classification criteria are not met.</td>
</tr>
</tbody>
</table>

Carcinogenicity Listings
- EH40: Not listed.
- IARC: Not listed.
- NTP: Not listed.
- OSHA: Not considered a carcinogen under OSHA.
- ACGIH: Not listed.

11.2.6 Specific Target Organ Toxicity (STOT) --Single Exposure: No classification

<table>
<thead>
<tr>
<th>Substance/mixture</th>
<th>Germ Cell Mutagenicity</th>
<th>Carcinogenicity</th>
<th>Reproductive Toxicity</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lithium chloride</td>
<td>Based on available data, the classification criteria are not met.</td>
<td>Based on available data, the classification criteria are not met.</td>
<td>Based on available data, the classification criteria are not met.</td>
</tr>
</tbody>
</table>

11.2.7 Specific Target Organ Toxicity (STOT) -- Repeated Exposure: No classification

<table>
<thead>
<tr>
<th>Substance/mixture</th>
<th>Germ Cell Mutagenicity</th>
<th>Carcinogenicity</th>
<th>Reproductive Toxicity</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lithium chloride</td>
<td>Based on available data, the classification criteria are not met.</td>
<td>Based on available data, the classification criteria are not met.</td>
<td>Based on available data, the classification criteria are not met.</td>
</tr>
</tbody>
</table>

11.2.8 Aspiration Hazard: No classification

12. Ecological Information

12.1 Toxicity: No classification

<table>
<thead>
<tr>
<th>Substance/mixture</th>
<th>Toxicity (mg/L)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lithium chloride</td>
<td>Rainbow trout: 96 hr. LC&lt;sub&gt;50&lt;/sub&gt; = 158 mg/L</td>
</tr>
<tr>
<td></td>
<td>Daphnia magna: 48 hr. EC&lt;sub&gt;50&lt;/sub&gt; = 249 mg/L</td>
</tr>
</tbody>
</table>

12.2 Persistence and degradability

- No data available for the product.

12.3 Bioaccumulative potential

- No data available for the product.

12.4 Mobility in soil

- No data available for the product.

12.5 Results of PBT and vPvB assessment

- No data available for the product.

12.6 Other adverse effects

- None

13. Disposal Considerations

13.1 Waste treatment methods

- Use a qualified industrial waste disposal facility. Dispose of waste according to local and Federal laws and regulations.

14. Transport Information

14.1 UN Number

- None

14.2 UN proper shipping name (IMDG, ICAO, ADR, DOT)

- None

14.3 Transport hazard class(es) (IMDG, ICAO, ADR, DOT)

- Based on available data, the classification criteria are not met.

14.4 Packing group (IMDG, ICAO, ADR, DOT)

- None

14.5 Environmental hazards

- Based on available data, the classification criteria are not met.

14.6 Special precautions for user

- None

14.7 Transport in bulk according to Annex II of MARPOL73/78 and the IBC Code

- None
15. Regulatory Information

15.1 Safety, health and environmental regulations/legislation specific for the substance or mixture

EUROPEAN UNION:

German Wassergefährdungsklasse (water hazard class)
Lithium chloride 1

UNITED STATES:
Section 311 Hazard Category (40 CFR 370):
Immediate (acute) health hazard,

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

NFPA Rating:
Health: 1 Flammability: 0 Reactivity: 0 Special: None

UNITED STATES:
Section 311 Hazard Category (40 CFR 370):
Immediate (acute) health hazard,

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

NFPA Rating:
Health: 1 Flammability: 0 Reactivity: 0 Special: None

CANADA:
WHMIS:
Product Identification No.: None
Hazard Classification: Class D, Division 2B (Eye irritant)
Ingredient Disclosure List: Not listed

This product has been classified in accordance with the hazard criteria of the Controlled Products Regulations and the SDS contains all the information required by the Controlled Products Regulations.

INTERNATIONAL INVENTORY STATUS:

<table>
<thead>
<tr>
<th>Inventory/Country</th>
<th>Product Status</th>
</tr>
</thead>
<tbody>
<tr>
<td>EINECS (EU)</td>
<td>Listed</td>
</tr>
<tr>
<td>TSCA (US)</td>
<td>Listed</td>
</tr>
<tr>
<td>ECL (Korea)</td>
<td>Listed</td>
</tr>
<tr>
<td>DSL (Canada)</td>
<td>Listed</td>
</tr>
</tbody>
</table>

15.2 Chemical Safety Assessment
The Chemical Safety Assessment has not been completed for this mixture.

16. Other Information

European Union:

R Phrases:
Harmful if swallowed R22
Irritating to eyes R36
Irritating to skin R38

REVISION SUMMARY: Revision #0. All sections revised. New format. Regular review completed.

This SDS has been prepared to meet European Regulation (EC) No 1907/2006 [and No 1272/2008], U. S. OSHA Hazard Communication Standard, and Canada's Workplace Hazardous Materials Information System (WHMIS) requirements.

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