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

1.1 Product Identifier: Lithium carbonate
1.1.1 Substances Lithium carbonate
Alternate names and trade name Lithchips®
1.1.2 Mixture name: Not applicable
1.2 Relevant Identified Uses of the Substance or Mixture and Uses Advised Against:
Formulation and chemical synthesis in industrial manufacturing operations;
Additive for preparations and articles for industrial and consumer use;
Active ingredient in pharmaceutical preparations.
Do not use for private purposes (household).

1.3 Details of the Supplier of the Safety Data Sheet

<table>
<thead>
<tr>
<th>North America</th>
<th>Europe</th>
<th>Asia Pacific</th>
</tr>
</thead>
<tbody>
<tr>
<td>FMC Lithium</td>
<td>FMC Chemicals</td>
<td>FMC Lithium Asia Pacific Office</td>
</tr>
<tr>
<td>Seven Lake Point Plaza</td>
<td>Commercial Road</td>
<td>15F Far East International Plaza</td>
</tr>
<tr>
<td>2801 Yorkmont Rd, Suite 300</td>
<td>Bromborough, Merseyside</td>
<td>Shanghai 200051, PRC</td>
</tr>
<tr>
<td>Charlotte, NC 28208</td>
<td>CH62 3NL, England</td>
<td>Phone: +86.21.6235 1919</td>
</tr>
<tr>
<td>Phone: +1.704.868.5300</td>
<td>Phone: +44.151.482.7356</td>
<td>Fax: +86.21.6235 1917</td>
</tr>
<tr>
<td>Fax: +1.704.868.5370</td>
<td>Fax: +44.151.482.7361</td>
<td>Email: <a href="mailto:lithium.info@fmc.com">lithium.info@fmc.com</a></td>
</tr>
<tr>
<td>1.888.lithium</td>
<td>Email: <a href="mailto:lithium.info@fmc.com">lithium.info@fmc.com</a></td>
<td>Web: <a href="http://www.fmclithium.com">www.fmclithium.com</a></td>
</tr>
</tbody>
</table>

1.4 Emergency Telephone Number:

<table>
<thead>
<tr>
<th>North America</th>
<th>Europe</th>
<th>Asia Pacific</th>
</tr>
</thead>
<tbody>
<tr>
<td>CHEMTREC: +1.800.424.9300</td>
<td>24 hr Specialist advice number (Carechem): +44.1865.407333</td>
<td>Phone: +86.21.6235.1919</td>
</tr>
<tr>
<td>Plant: +1.704.629.5361</td>
<td>Office (0900-1700): +44.151.334.8085</td>
<td>Fax: +86.21.6235.1917</td>
</tr>
<tr>
<td>Medical: +1.303.595.9048</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

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
Aquatic Toxicity, Chronic Category 3

2.2.2 EC: Classification according to 67/548/EEC or 1999/45/EC [DSD/DPD]
Xn, R22; Xi, R36; R52/53

2.2 Label Elements:

2.2.3 Hazard Pictograms:

2.2.4 Signal Word: Warning
Hazard Statement:
Harmful if swallowed: H302
Causes serious eye irritation: H319
Harmful to aquatic life with long lasting effects: H412

Precautionary Statement(s):
Wear protective gloves/protective 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

Air Treatment | Construction | Energy | Fine Chemicals | Glass & Ceramics | Greases & Lubricants | Polymers | Pool Water Treatment
--- | --- | --- | --- | --- | --- | --- | ---
NORTH AMERICA AND HEADQUARTERS
FMC Lithium
Seven LakePoint Plaza
2801 Yorkmont Rd, Suite 300
Charlotte, NC 28208
P: +1.704.408.5300
F: +1.704.426.5370
EUROPE
FMC Chemicals
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Bromborough
Merseyside
CH62 3NL, England
P: +44.151.482.7356
F: +44.151.482.7361
JAPAN
FMC Lithium
9F, Aoyama Building
1-2-9, Aoyama
Minato-ku, Tokyo
107-0061, Japan
T: +81.3.3402.3716
F: +81.3.3402.3700
CHINA
FMC Lithium
15F Far East International Plaza
No. 317 Xianxia Road
Shanghai 200051 P. R. China
T: +86.21.6235.1919
F: +86.21.6235.1917
INDIA
FMC India Private Limited
Embassy Star
II, Palace Road
High Grounds
Bangalore 560005, India
T: +91.80.2238.4311
F: +91.80.2238.5255
TAIWAN
FMC Lithium
9F-1, 183 Tien Hoa S. Rd.
Sec. 1
Taipei, Taiwan
T: +886.2.2705.4400
F: +886.2.2702.7460
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
Avoid release to the environment P273

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>EC Index No</th>
<th>REACH Reg No</th>
<th>Wt.%</th>
<th>Classification, Hazard Statement Codes</th>
</tr>
</thead>
</table>
| Lithium carbonate| 554-13-2 | 209-062-5 | not avail. | not available | 100  | Acute Tox. 4  
|                 |        |         |             |              |      | Skin Irrit. 3  
|                 |        |         |             |              |      | Aquatic Chronic 3  |

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 carbonate</td>
<td>554-13-2</td>
<td>209-062-5</td>
<td>100</td>
<td>Xn</td>
<td>R22  R36  R52/53</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, obtain medical attention.

4.2 Most Important Symptoms and effects, both acute and delayed

Lithium carbonate has low toxicity and may produce moderate irritation.

4.3 Indication of any immediate medical attention and special treatment needed.

Notes to medical doctor:
Lithium carbonate has low toxicity and may produce moderate irritation. Treatment is symptomatic and supportive.

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
Flashpoint: Not applicable
Flammable limits in air: Upper: Not available  Lower: Not available.
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 carbonate</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

Eyes and Face:
Safety glasses or goggles

Respiratory:
When engineering controls are not adequate, wear a respirator approved for protection against inorganic dusts.
US: NIOSH or MSHA approved
Europe: CEN Class P type

Protective Clothing:

Gloves: Nitrile/Neoprene/PVC/Natural Rubber (permeation breakthrough not detected during 6 hr test)
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.
Other: Not specified.

Work Hygienic Practices:
Quick-drench eyewash and safety shower.
9. Physical and Chemical Properties

9.1 Information on basic physical and chemical properties

- **Appearance:** Solid, white granular or powder
- **Odor:** Odorless
- **Odor threshold:** None
- **pH:** (1% Slurry) @ 25°C: 11.2
- **Melting point:** Decomposes at 1310°C (2390°F)
- **Boiling point:** Not applicable
- **Flash point:** Not applicable
- **Evaporation rate (butyl acetate = 1):** Not applicable
- **Flammability:** Not combustible
- **Flammable limits:** Not applicable
- **Vapor pressure:** Not applicable
- **Vapor density (air = 1):** Not applicable
- **Specific gravity:** 2.1 g/ml
- **Solubility in water:** 1.3 g/100 cc @ 20°C
- **Partition coefficient n-octanol/ water:** Not available
- **Autoignition temperature:** Not applicable
- **Decomposition temperature:** Decomposes at 1310°C (2390°F)
- **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:** 73.89

10. Stability and Reactivity

10.1 Reactivity

Reacts with acids

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

Not available

Method:

Dosis:

Routes of administration:

Results:

Absorption:

Distribution:

Metabolism:

Excretion:

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 carbonate</td>
<td>LD₅₀: 525 mg/kg (rat),</td>
<td>LD₅₀: &gt;2000 mg/kg (rat),</td>
<td>LC₅₀: &gt;0.80 mg/L (4 hr. rat); No mortality at maximum attainable concentration,</td>
</tr>
</tbody>
</table>
11.2.2  Skin Corrosion/Irritation: No classification

Substance/mixture  Data
Lithium carbonate  Minimally irritating; (rabbit)

11.2.3  Serious Eye Damage/Irritation: Eye Irritant Category 2

Substance/mixture  Data
Lithium carbonate  Moderately irritating (rabbit)

11.2.4  Respiratory or Skin Sensitization: No classification

Substance/mixture  Data
Lithium carbonate  Non-sensitizing (guinea pig)

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 carbonate</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

Substance/mixture  Data
Lithium carbonate  Based on available data, the classification criteria are not met.

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

Substance/mixture  Data
Lithium carbonate  Based on available data, the classification criteria are not met.

11.2.8  Aspiration Hazard: No classification

Substance/mixture  Data
Lithium carbonate  Based on available data, the classification criteria are not met.

12. Ecological Information

12.1  Toxicity: Aquatic Toxicity, Chronic Category 3
Lithium carbonate  Daphnia magna: 48 hr. EC50 = 33.2 mg/L
Rainbow trout: 96 hr. LC50 = 30.3 mg/L

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 carbonate 1

UNITED STATES:
Section 311 Hazard Category (40 CFR 370): Immediate (acute) health hazard,
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 SDS’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.
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
Harmful to aquatic organisms, may cause long-term adverse effects in the aquatic environment R52/53

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.
type 1b

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