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

North America
FMC Lithium USA Corp
2801 Yorkmont Road, Suite 300
Charlotte, NC 28208
Phone: +1.704.426.5300
Fax: +1.704.426.5370
1.888.lithium

Europe
FMC Chemicals Limited
Commercial Road
Bromborough, Merseyside
CH62 3NL, England
Phone: +44.151.334.8085
Fax: +44.151.482.7361

Asia Pacific
FMC Specialty Chemicals (Zhangjiagang) Co. Ltd.
32 Beijing Road,
Yangtse River Chemical Park,
Zhangjiagang Free Trade Zone, Jiangsu
215635, China
T: +86.512.5832.7307
Fax: +86.512.5832.7311
email: lithium.info@fmc.com
Web: www.livent.com

1.4 Emergency Telephone Number:

North America
CHEMTREC: +1.800.424.9300
+1.703.527.3887
Plant: +1.704.629.5361

Europe
24 hr Specialist advice number: CHEMTREC: +44 870 8200418

Asia Pacific
Phone: +86.512.5832.7307

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

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

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

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
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
Rinse mouth.
Wash hands thoroughly after handling.

**Additional Precautionary Statement(s):**
- Do not eat, drink or smoke when using this product.
- Dispose of contents/container to an approved waste disposal plant.

### 3. Composition / Information on Ingredients

#### 3.1 Substances

**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>
<tbody>
<tr>
<td>Lithium carbonate</td>
<td>554-13-2</td>
<td>209-062-5</td>
<td>not avail.</td>
<td>01-2119516034-53-0005</td>
<td>100</td>
<td>Acute Tox. 4 Eye Irrit. 2 H302 H319</td>
</tr>
</tbody>
</table>

**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</td>
</tr>
</tbody>
</table>

#### 3.2 Mixtures

Not applicable.

(see Section 16 for abbreviations and 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.
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)**
Defined in Exposure scenarios. Industrial and professional use only.

8. Exposure Controls / Personal Protection

8.1 **Control parameters**

**DNEL**
Long-term exposure, systemic, inhalation 10 mg/m³
Long-term exposure, systemic, dermal 64 mg/kg/day

**PNEC**
PNEC aqua (freshwater, intermittent) 0.9 mg/l
PNEC STP 122 mg/l

**EXPOSURE LIMITS**

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

deficiency. Do not breathe smoke, gases or vapors generated.
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.


9. Physical and Chemical Properties

9.1 Information on basic physical and chemical properties

<table>
<thead>
<tr>
<th>Property</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Appearance</td>
<td>Solid, white granular or powder</td>
</tr>
<tr>
<td>Odor</td>
<td>Odorless</td>
</tr>
<tr>
<td>Odor threshold</td>
<td>None</td>
</tr>
<tr>
<td>pH</td>
<td>(1% Slurry) @ 25°C: 11.2</td>
</tr>
<tr>
<td>Melting point</td>
<td>Decomposes at 1310°C (2390°F)</td>
</tr>
<tr>
<td>Boiling point</td>
<td>Not applicable</td>
</tr>
<tr>
<td>Flash point</td>
<td>Not applicable</td>
</tr>
<tr>
<td>Evaporation rate (butyl acetate = 1):</td>
<td>Not applicable</td>
</tr>
<tr>
<td>Flammability</td>
<td>Not combustible</td>
</tr>
<tr>
<td>Flammable limits</td>
<td>Not applicable</td>
</tr>
<tr>
<td>Vapor pressure</td>
<td>Not applicable</td>
</tr>
<tr>
<td>Vapor density (air = 1):</td>
<td>Not applicable</td>
</tr>
<tr>
<td>Specific gravity</td>
<td>2.1 g/ml</td>
</tr>
<tr>
<td>Solubility in water</td>
<td>1.3 g/100 cc @ 20°C</td>
</tr>
<tr>
<td>Partition coefficient n-octanol/ water:</td>
<td>Not available</td>
</tr>
<tr>
<td>Autoignition temperature</td>
<td>Not applicable</td>
</tr>
<tr>
<td>Decomposition temperature</td>
<td>Decomposes at 1310°C (2390°F)</td>
</tr>
<tr>
<td>Viscosity</td>
<td>Not applicable</td>
</tr>
<tr>
<td>Explosive properties</td>
<td>Not explosive</td>
</tr>
<tr>
<td>Oxidizing properties</td>
<td>Not an oxidizer</td>
</tr>
</tbody>
</table>

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 Information on toxicological effects

(a) acute toxicity
Lithium carbonate acute oral toxicity > 525 mg/kg (rat)
Lithium carbonate acute inhalation toxicity LC50: >0.80 mg/L (4 hr. rat);
No mortality at maximum attainable concentration
Lithium carbonate acute dermal toxicity LD50: >2000 mg/kg (rat),

(b) skin corrosion/irritation Classified as not irritating to skin on the basis of lithium carbonate

(c) serious eye damage/irritation Classified as irritant to eyes on the basis of lithium carbonate

(d) respiratory/skin sensitisation Classified as not sensitizing to skin on the basis of lithium carbonate

(e) germ cell mutagenicity Classified as not mutagenic based on lithium carbonate.

(f) carcinogenicity Classified as not carcinogenic based on lithium carbonate.

(g) reproductive toxicity Classified as not a reproductive toxin based on lithium carbonate.

(h) STOT-single exposure Classified as not causing organ damage based on lithium carbonate.
(i) STOT-repeated exposure  Classified as not causing organ damage on repeat exposure based on lithium carbonate.

(j) aspiration hazard  Lithium carbonate, a solid, does not present an aspiration hazard.

Lithium carbonate has been extensively tested for REACH registration

**Acute Effects From Overexposure:**
No data available for the formulation.
No envisaged effects other than acute effects from local irritation

**Chronic Effects From Overexposure:**
No data available for product.

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

### 12. Ecological Information

12.1 **Toxicity:** No classification
- Lithium carbonate  
  Daphnia magna: 48 hr. EC$_{50}$ = 33.2 mg/L
  Rainbow trout: 96 hr. LC$_{50}$ = 30.3 mg/L

12.2 **Persistence and degradability**
Inorganic salt.

12.3 **Bioaccumulative potential**
Inorganic. Lithium salts are not bioaccumulative.

12.4 **Mobility in soil**
No data available for the product.

12.5 **Results of PBT and vPvB assessment**
Based on the available test results, lithium carbonate was considered as a non PBT and a non vPvB substance.

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

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

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 been completed for lithium carbonate.

16. Other Information

European Union:

R Phrases:
Harmful if swallowed R22
Irritating to eyes R36

List of Abbreviations used in this SDS:
PBT Persistent, Bioaccumulative and Toxic
vPvB very Persistent, very Bioaccumulative
PEC Predicted environmental concentration
PNEC Predicted no effect concentration
DNEL Derived no effect level

REVISION SUMMARY: Revision # 3. Sections 1 and 16 modified. Legal entity and addresses changed.

This SDS has been prepared to meet U. S. OSHA Hazard Communication Standard requirements. type 1b

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Specific uses identified for Exposure Scenarios
ES1 Industrial use Formulation
ES2 Industrial use Chemical processing
ES3 Consumer use Consumer products