1. PRODUCT AND COMPANY IDENTIFICATION

1.1 Product identifiers

Product name: Lithium carbonate

Product Number: 62470
Brand: Sigma-Aldrich

REACH No.: A registration number is not available for this substance as the substance or its uses are exempted from registration, the annual tonnage does not require a registration or the registration is envisaged for a later registration deadline.

CAS-No.: 554-13-2

1.2 Relevant identified uses of the substance or mixture and uses advised against

Identified uses: Laboratory chemicals, Manufacture of substances

1.3 Details of the supplier of the safety data sheet

Company: Sigma-Aldrich
3050 Spruce Street
SAINT LOUIS MO  63103
USA

Telephone: +1 800-325-5832
Fax: +1 800-325-5052

1.4 Emergency telephone number

Emergency Phone #: (314) 776-6555

2. HAZARDS IDENTIFICATION

2.1 Classification of the substance or mixture

GHS Classification in accordance with 29 CFR 1910 (OSHA HCS)
Acute toxicity, Oral (Category 4), H302
Eye irritation (Category 2A), H319

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

2.2 GHS Label elements, including precautionary statements

Pictogram

Signal word: Warning

Hazard statement(s)
H302 Harmful if swallowed.
H319 Causes serious eye irritation.

Precautionary statement(s)
P264 Wash skin thoroughly after handling.
P270 Do not eat, drink or smoke when using this product.
P280 Wear protective gloves/ eye protection/ face protection.
P301 + P312 IF SWALLOWED: Call a POISON CENTER or doctor/ physician if you feel unwell.
P305 + P351 + P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
2.3 Hazards not otherwise classified (HNOC) or not covered by GHS - none

3. COMPOSITION/INFORMATION ON INGREDIENTS

3.1 Substances

<table>
<thead>
<tr>
<th>Component</th>
<th>Classification</th>
<th>Concentration</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lithium carbonate</td>
<td>Acute Tox. 4; Eye Irrit. 2A;</td>
<td>90 - 100 %</td>
</tr>
<tr>
<td></td>
<td>H302, H319</td>
<td></td>
</tr>
</tbody>
</table>

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

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.

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

In case of skin contact
Wash off with soap and plenty of water. Consult a physician.

In case of eye contact
Rinse thoroughly with plenty of water for at least 15 minutes and consult a physician.

If swallowed
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 or mixture
no data available

5.3 Advice for firefighters
Wear self-contained breathing apparatus for fire fighting if necessary.

5.4 Further information
no data available

6. ACCIDENTAL RELEASE MEASURES

6.1 Personal precautions, protective equipment and emergency procedures
Use personal protective equipment. Avoid dust formation. Avoid breathing vapours, mist or gas. Ensure adequate ventilation. Avoid breathing dust.
For personal protection see section 8.

6.2 Environmental precautions
Do not let product enter drains.

6.3 Methods and materials for containment and cleaning up
Pick up and arrange disposal without creating dust. Sweep up and shovel. Keep in suitable, closed containers for disposal.

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 formation of dust and aerosols. Provide appropriate exhaust ventilation at places where dust is formed. 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.

7.3 Specific end use(s)
Apart from the uses mentioned in section 1.2 no other specific uses are stipulated

8. EXPOSURE CONTROLS/PERSO NAL PROTECTION

8.1 Control parameters
Components with workplace control parameters
Contains no substances with occupational exposure limit values.

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
Safety glasses with side-shields conforming to EN166 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.

Full contact
Material: Nitrile rubber
Minimum layer thickness: 0.11 mm
Break through time: 480 min
Material tested:Dermatril® (KCL 740 / Aldrich Z677272, Size M)

Splash contact
Material: Nitrile rubber
Minimum layer thickness: 0.11 mm
Break through time: 480 min
Material tested:Dermatril® (KCL 740 / Aldrich Z677272, Size M)

data source: KCL GmbH, D-36124 Eichenzell, phone +49 (0)6659 87300, e-mail sales@kcl.de, test method: EN374
If used in solution, or mixed with other substances, and under conditions which differ from EN 374, contact the supplier of the CE approved gloves. This recommendation is advisory only and must be evaluated by an industrial hygienist and safety officer familiar with the specific situation of anticipated use by our customers. It should not be construed as offering an approval for any specific use scenario.
**Body Protection**
Complete suit protecting against chemicals. The type of protective equipment must be selected according to the concentration and amount of the dangerous substance at the specific workplace.

**Respiratory protection**
For nuisance exposures use type P95 (US) or type P1 (EU EN 143) particle respirator. For higher level protection use type OV/AG/P99 (US) or type ABEK-P2 (EU EN 143) respirator cartridges. Use respirators and components tested and approved under appropriate government standards such as NIOSH (US) or CEN (EU).

**Control of environmental exposure**
Do not let product enter drains.

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9. **PHYSICAL AND CHEMICAL PROPERTIES**

9.1 Information on basic physical and chemical properties

| a) Appearance | Form: crystalline  
| Colour: white  |
| b) Odour | odourless  |
| c) Odour Threshold | no data available  |
| d) pH | 9.0 - 11.0 at 1 g/l  |
| e) Melting point/freezing point | Melting point/range: 618 °C (1,144 °F) - lit.  |
| f) Initial boiling point and boiling range | no data available  |
| g) Flash point | no data available  |
| h) Evaporation rate | no data available  |
| i) Flammability (solid, gas) | no data available  |
| j) Upper/lower flammability or explosive limits | no data available  |
| k) Vapour pressure | no data available  |
| l) Vapour density | no data available  |
| m) Relative density | 2.11 g/cm³  |
| n) Water solubility | 8.4 g/l at 20 °C (68 °F) - OECD Test Guideline 105  |
| 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

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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
no data available

10.4 Conditions to avoid
no data available

10.5 Incompatible materials
Incompatible with strong acids and oxidizing agents.

10.6 Hazardous decomposition products
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
LD50 Oral - rat - 525 mg/kg
LC50 Inhalation - rat - 4 h - > 2.17 mg/l
LD50 Dermal - rat - male and female - > 2,000 mg/kg
no data available

Skin corrosion/irritation
no data available

Serious eye damage/eye irritation
Eyes - rabbit
Result: Eye irritation

Respiratory or skin sensitisation
Buehler Test - guinea pig
Did not cause sensitisation on laboratory animals.
(OECD Test Guideline 406)

Germ cell mutagenicity
no data available

Carcinogenicity
no data available
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.

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

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
Lithium and its compounds are possible teratogens by analogy to lithium carbonate which has equivocal human teratogenic data and positive animal teratogenic data.
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: OJ5800000

Nausea, Anorexia., Large doses of lithium ion have caused dizziness and prostration, and can cause kidney damage if sodium intake is limited. Dehydration, weight loss, dermatological effects, and thyroid disturbances have been reported. Central nervous system effects that include slurred speech, blurred vision, sensory loss, ataxia, and convulsions may occur. Diarrhea, vomiting, and neuromuscular effects such as tremor, clonus, and hyperactive reflexes may occur as a result of repeated exposure to lithium ion. Vomiting, Cyanosis and t-wave inversion have occurred in the breast-fed infants of women receiving lithium carbonate therapy.

Stomach - Irregularities - Based on Human Evidence
Stomach - Irregularities - Based on Human Evidence

12. ECOLOGICAL INFORMATION

12.1 Toxicity
   Toxicity to fish   LC50 - Oncorhynchus mykiss (rainbow trout) - 30.3 mg/l - 96 h
   Toxicity to daphnia and other aquatic invertebrates
   Toxicity to algae static test EC50 - Desmodesmus subspicatus (green algae) - > 400 mg/l - 72 h

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

13. DISPOSAL CONSIDERATIONS

13.1 Waste treatment methods
   Product
   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)
   Not dangerous goods

   IMDG
   Not dangerous goods

   IATA
   Not dangerous goods

15. REGULATORY INFORMATION

   REACH No. : A registration number is not available for this substance as the substance or its uses are exempted from registration, the annual tonnage does not require a registration or the registration is envisaged for a later registration deadline.

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

**SARA 313 Components**
The following components are subject to reporting levels established by SARA Title III, Section 313:

<table>
<thead>
<tr>
<th>Component</th>
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</thead>
<tbody>
<tr>
<td>Lithium carbonate</td>
<td>554-13-2</td>
<td>2007-07-01</td>
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**SARA 311/312 Hazards**
Acute Health Hazard, Chronic Health Hazard

**Massachusetts Right To Know Components**

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**Pennsylvania Right To Know Components**

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**New Jersey Right To Know Components**

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**California Prop. 65 Components**

*WARNING: This product contains a chemical known to the State of California to cause birth defects or other reproductive harm.*

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</thead>
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<td>Lithium carbonate</td>
<td>554-13-2</td>
<td>2007-09-28</td>
</tr>
</tbody>
</table>

16. **OTHER INFORMATION**

**Full text of H-Statements referred to under sections 2 and 3.**

- **Acute Tox.** Acute toxicity
- **Eye Irrit.** Eye irritation
- **H302** Harmful if swallowed.
- **H319** Causes serious eye irritation.

**HMIS Rating**

- Health hazard: 2
- Chronic Health Hazard: *
- Flammability: 0
- Physical Hazard 0

**NFPA Rating**

- Health hazard: 2
- Fire Hazard: 0
- Reactivity Hazard: 0

**Further information**

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**Preparation Information**

Sigma-Aldrich Corporation
Product Safety – Americas Region
1-800-521-8956

Version: 3.6  Revision Date: 02/10/2014  Print Date: 03/12/2014