1. IDENTIFICATION OF THE SUBSTANCE/PREPARATION AND OF THE COMPANY/UNDERTAKING

Product Identifier
LITHIUM CARBONATE

Product Name

Other means of identification
Synonyms
401260 Lithium Carbonate BG <40 micron
401223 Lithium Carbonate, "fines"

Chemical Family
Inorganic Salt

CAS-No
554-13-2

Formula
Li2CO3

Recommended use of the chemical and restrictions on use.
General function
Raw material for chemical industry, pharmaceutical and the glass industry.
Uses advised against
No information available

Details of the supplier of the safety data sheet
Company
Albemarle Corporation
451 Florida Street
Baton Rouge, LA 70801

Albemarle U.S., Inc.
348 Holiday Inn Drive
Kings Mountain, NC 28086

For Non-Emergency
704-739-2501 (8AM-5PM M-Th; 8AM-12PM Fri)

‘Competent Body for SDS’
Department of product safety
productsafety@albemarle.com

Emergency telephone number
Emergency Telephone Numbers
In case of emergency, call Albemarle emergency response at +1 225 344 7147

2. HAZARDS IDENTIFICATION

Classification
Acute Toxicity - Oral
Category 4

Serious eye damage/eye irritation
Category 2

Chronic aquatic toxicity
Category 3

Label elements

Emergency Overview

Warning

Hazard Statements
Harmful if swallowed
Causes serious eye irritation
Harmful to aquatic life with long lasting effects

Prevention
Wash face, hands and any exposed skin thoroughly after handling
Do not eat, drink or smoke when using this product
Wear eye/face protection
Avoid release to the environment

Response
IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing
If eye irritation persists: Get medical advice/attention
IF ON SKIN: Wash with plenty of soap and water
IF INHALED: Move to fresh air.
IF SWALLOWED: Call a POISON CENTER or doctor/physician if you feel unwell Rinse mouth

Disposal
Dispose of contents/container to an approved waste disposal plant

Hazards not otherwise classified (HNOC)
Not applicable
Other Information
No data available

3. COMPOSITION/INFORMATION ON INGREDIENTS

Synonyms
401260 Lithium Carbonate BG <40 micron
401223 Lithium Carbonate, "fines"

Pure substance/mixture
Substance

<table>
<thead>
<tr>
<th>Component</th>
<th>CAS-No</th>
<th>Weight %</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lithium carbonate</td>
<td>554-13-2</td>
<td>&lt;=100</td>
</tr>
</tbody>
</table>

Note: The exact concentrations of the above listed chemicals are being withheld as a trade secret.

4. FIRST AID MEASURES

First aid measures
General Advice
Take off contaminated clothing and shoes immediately. First aid responders should pay attention to self-protection and use the recommended protective clothing. Move out of dangerous area. Keep warm and in a quiet place.

Eye contact
Rinse immediately with plenty of water, also under the eyelids, for at least 15 minutes. Call a physician immediately.

Skin contact
Wash off immediately with soap and plenty of water. If symptoms persist, call a physician.
Inhalation IF INHALED: Remove to fresh air and keep at rest in a position comfortable for breathing. If breathing has stopped, apply artificial respiration. If symptoms persist, call a physician.

Ingestion Clean mouth with water and drink afterwards plenty of water. Do not induce vomiting. Never give anything by mouth to an unconscious person. Call a physician immediately.

Protection of First-aiders Use personal protective equipment as required.

Most important symptoms and effects, both acute and delayed

Symptoms Discomfort. Irritating to eyes. Harmful if swallowed. Symptoms of overexposure include nausea, vomiting, rashes, dizziness, drowsiness, central nervous system effects.

Indication of any immediate medical attention and special treatment needed

Notes to Physician Treat symptomatically.

5. FIRE-FIGHTING MEASURES

Extinguishing media

Suitable extinguishing media Water spray jet, Dry powder, Carbon dioxide (CO2), Foam.

Unsuitable Extinguishing Media High volume water jet.

Specific Hazards Arising from the Chemical

Combustion/explosion hazards High temperatures may liberate toxic or corrosive gases.

Hazardous Combustion Products Carbon monoxide, Carbon dioxide (CO2).

Explosion Data

Sensitivity to mechanical impact None.

Sensitivity to static discharge None.

Protective Equipment and Precautions for Firefighters

Wear self-contained breathing apparatus and protective suit. Collect contaminated fire extinguishing water separately. This must not be discharged into drains. Fire residues and contaminated fire extinguishing water must be disposed of in accordance with local regulations.

6. ACCIDENTAL RELEASE MEASURES

Personal precautions, protective equipment and emergency procedures

Personal precautions Ensure adequate ventilation. Wear suitable protective equipment. Avoid contact with skin, eyes and clothing. Do not breathe dust. Keep people away from and upwind of spill/spill. Handle in accordance with good industrial hygiene and safety practice

For emergency responders Use personal protective equipment as required.

Environmental Precautions

Environmental precautions Do not flush into surface water or sanitary sewer system. Avoid release to the environment.

Methods and material for containment and cleaning up

Methods for Containment Prevent further leakage or spillage if safe to do so.

Methods for Cleaning up Take up mechanically and collect in suitable container for disposal. Avoid dust formation.

7. HANDLING AND STORAGE

Precautions for safe handling

Handling Mechanical ventilation is recommended. Wear personal protective equipment. Avoid dust formation. Handle in accordance with good industrial hygiene and safety practice.
Conditions for safe storage, including any incompatibilities

Storage
Keep containers tightly closed in a dry, cool and well-ventilated place. Protect from moisture.

Incompatible Materials
Avoid strong acids and oxidizers. Fluorine.

Dust Explosion Properties
Avoid dust formation.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Control parameters

Exposure Guidelines
This product does not contain any hazardous materials with occupational exposure limits established by the region specific regulatory bodies.

Component | CAS-No | ACGIH TLV (TWA) | OSHA PEL (TWA) | NIOSH IDLH
--- | --- | --- | --- | ---
Lithium carbonate | 554-13-2 | - | - | -

Component | CAS-No | Alberta | British Columbia | Ontario | Quebec
--- | --- | --- | --- | --- | ---
Lithium carbonate | 554-13-2 | - | - | - | -

Appropriate engineering controls

Engineering Controls
Showers.
Eyewash stations.
Ventilation systems.

Individual protection measures, such as personal protective equipment

Eye/face Protection
Tightly fitting safety goggles.

Skin Protection
If repeated or prolonged skin contact or contamination of clothing is likely, protective clothing should be worn. Rubber gloves resistant to chemical permeation

Hand protection
Gloves resistant to chemical permeation.

Respiratory protection
Whenever workplace conditions warrant, wear properly fitted, approved respirator with high-efficiency (dust/fume/mist) filter cartridges.

General Hygiene Considerations
When using, do not eat, drink or smoke. Wash hands before breaks and at the end of workday. Avoid contact with skin, eyes and clothing. Wear suitable gloves and eye/face protection. Handle in accordance with good industrial hygiene and safety practice.

9. PHYSICAL AND CHEMICAL PROPERTIES

Information on basic physical and chemical properties

Physical state
Crystalline powder.

Color
White.

Odor
Odorless.

Odor Threshold
None

Molecular Weight
73.89 g/mol

pH
9 - 11 at 1 g/l (as aqueous solution)

Melting point/freezing point
722 °C / 1332 °F Method: OECD Test Guideline 102

Boiling Point/Range
ca 1,310 °C / 2390 °F

Flash Point
Not applicable

Evaporation Rate
No data available.

Flammability (solid, gas)
No data available

Flammability Limit in Air
- Upper flammability limit: No data available
- Lower flammability limit: No data available

Vapor Pressure
1 hPa (610 °C)

Vapor Density
No data available
Density: 2.11 g/cm³ (20°C), ca. 750 kg/m³ (Bulk Density)

Solubility:
- Water Solubility: 8.4 g/l (20 °C) Method: OECD Test Guideline 102
- Solubility in other solvents: No data available

Partition coefficient: No data available

Autoignition temperature: No data available

Decomposition temperature: >600 °C

Viscosity, kinematic: No data available

Dynamic viscosity: No data available

Explosive Properties: No data available

Oxidizing Properties: No data available

**10. STABILITY AND REACTIVITY**

Reactivity Hazard: No data available.

Stability: Stable.

Hazardous Reactions: May react with strong acids generating heat with boiling and spattering.

Conditions to Avoid: Avoid moisture. Excess heat.

Materials to avoid: Fluorine, Avoid strong acids and oxidizing agents.

Hazardous decomposition products: Thermal decomposition of this product can produce lithium and carbon oxides.

**11. TOXICOLOGICAL INFORMATION**

Information on likely routes of exposure:
- Inhalation: No.
- Eye contact: Yes.
- Skin contact: No.
- Ingestion: Yes. Harmful if swallowed.

Potential Health Effects:
**Acute Effects**
- Skin Corrosion/irritation: Not irritating. (OECD Test No. 404: Acute Dermal Irritation/Corrosion.).
- Serious eye damage/eye irritation: Irritating to eyes. (OECD Test No. 405: Acute Eye Irritation/Corrosion.).
- Respiratory irritation: No data available
- Sensitization: Buehler Test: Not a skin sensitizer. (guinea pig). (OECD Test No. 406: Skin Sensitization.).

STOT - single exposure: No information available.

**Chronic Effects**
- Mutagenic Effects: OECD Test No. 476: In vitro Mammalian Cell Gene Mutation Test: negative. (with or without metabolic activation).
- OECD Test No. 473: In vitro Mammalian Chromosome Aberration Test: negative. (with or without metabolic activation).

There are no known carcinogenic chemicals in this product.
Lithium carbonate  554-13-2

Reproductive Effects
Two-generation reproductive toxicity: (rat). oral: Maternal toxicity: NOAEL (No observed adverse effect level). 15 mg/kg bw/day. Developmental Toxicity:. NOAEL (No observed adverse effect level). 45 mg/kg bw/day. (. OECD Test No. 416: Two-Generation Reproduction Toxicity. ).

STOT - repeated exposure
No information available.

Chronic Effects
No information available

Aspiration hazard
No information available.

Numerical measures of toxicity

Product Information
The following values are calculated based on chapter 3.1 of the GHS document .

<table>
<thead>
<tr>
<th>Component Information</th>
</tr>
</thead>
<tbody>
<tr>
<td>Component</td>
</tr>
<tr>
<td>------------</td>
</tr>
<tr>
<td>Lithium carbonate</td>
</tr>
<tr>
<td>554-13-2</td>
</tr>
</tbody>
</table>

12. ECOLOGICAL INFORMATION

Ecotoxicity
Harmful to aquatic life with long lasting effects

<table>
<thead>
<tr>
<th>Component</th>
<th>Freshwater Algae EC50/72h</th>
<th>Freshwater Fish LC50/96h</th>
<th>Water Flea EC50/48h</th>
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<tr>
<td>Lithium carbonate (CAS #: 554-13-2)</td>
<td>&gt;400 mg/l</td>
<td>30.3 mg/l</td>
<td>33 mg/l</td>
</tr>
</tbody>
</table>

Persistence/Degradability
Not applicable: inorganic.

Bioaccumulation/ Accumulation
Not likely to bioaccumulate.

Mobility in Environmental Media
No information available.

Other adverse effects
Slightly water endangering. Avoid subsoil penetration.

13. DISPOSAL CONSIDERATIONS

Waste treatment methods
Disposal should be in accordance with applicable regional, national and local laws and regulations.

Contaminated Packaging
Do not reuse container.
14. TRANSPORT INFORMATION

DOT
- Proper Shipping Name: NOT REGULATED FOR TRANSPORTATION
- Hazard Class: Not regulated
- UN No.: Not regulated
- Packing Group: Not regulated
- Description: Not regulated

TDG
- Not regulated

IMDG/IMO
- IMO Class: Not regulated
- Packing Group: Not regulated
- UN-No: Not regulated
- IMO Labelling and Marking: Not regulated
- Proper Shipping Name: Not regulated
- Transport Description: Not regulated

IATA/ICAO
- IATA/ICAO Class: Not regulated
- Packing Group: Not regulated
- UN-No: Not regulated
- IATA/ICAO Labelling/Marking: Not regulated
- Proper shipping name: Not regulated
- Transport Description: Not regulated

15. REGULATORY INFORMATION

<table>
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<tr>
<th>International Inventories</th>
<th>TSCA</th>
<th>DSL</th>
<th>NDSL</th>
<th>AICS</th>
<th>EINECS</th>
<th>ENCS</th>
<th>KECL</th>
<th>PICCS</th>
<th>IECSC</th>
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<tr>
<td>LITHIUM CARBONATE</td>
<td>X</td>
<td>X</td>
<td>-</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
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</table>

(X) Complies (-) Does not Comply

SARA 313
Section 313 of Title III of the Superfund Amendments and Reauthorization Act of 1986 (SARA). This product contains a chemical or chemicals which are subject to the reporting requirements of the Act and Title 40 of the Code of Federal Regulations, Part 372:

<table>
<thead>
<tr>
<th>Component</th>
<th>Weight %</th>
<th>SARA 313 - De minimis</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lithium carbonate (CAS #: 554-13-2)</td>
<td>&lt;=100</td>
<td>1.0</td>
</tr>
</tbody>
</table>

SARA 311/312 Hazardous Categorization
- Acute Health Hazard: Yes
- Chronic Health Hazard: No
- Fire Hazard: No
- Sudden Release of Pressure Hazard: No
- Reactive Hazard: No

Reportable and Threshold Planning Quantities
This material, as supplied, does not contain any substances regulated as hazardous substances under the Comprehensive Environmental Response Compensation and Liability Act (CERCLA) (40 CFR 302) or the Superfund Amendments and Reauthorization Act (SARA) (40 CFR 355). There may be specific reporting requirements at the local, regional, or state level pertaining to releases of this material.

State Right-to-Know
This product contains the following chemicals regulated in the states listed below.

<table>
<thead>
<tr>
<th>Component</th>
<th>California Prop. 65</th>
<th>New Jersey</th>
<th>Massachusetts</th>
<th>Pennsylvania</th>
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<tbody>
<tr>
<td>Lithium carbonate (CAS #: 554-13-2)</td>
<td>Developmental</td>
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WHMIS Hazards
D2B  Toxic materials
16. OTHER INFORMATION

<table>
<thead>
<tr>
<th>NFPA</th>
<th>Health</th>
<th>Flammability</th>
<th>Instability</th>
<th>Physical Hazards</th>
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</table>

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</table>

Prepared By
Health & Environment Department, Albemarle Corporation

FOR ADDITIONAL NONEMERGENCY PRODUCT INFORMATION, CONTACT:

HEALTH AND ENVIRONMENT DEPARTMENT
ALBEMARLE CORPORATION
451 FLORIDA ST.
BATON ROUGE, LA. 70801
(800) 535-3030

Preparation Date: 13-Apr-2016
Revision Date: 13-Apr-2018

Disclaimer:
The information contained herein is accurate to the best of our knowledge. The Company makes no warranty of any kind, express or implied, concerning the safe use of this material in your process or in combination with other substances.

End of Safety Data Sheet