SAFETY DATA SHEET

1. Identification

Product Name: Lithium carbonate
Cat No.: AC413260000; AC413260025; AC413260050; AC413261000; AC413265000
Synonyms: Carbonic Acid Dilithium Salt; carbonic acid lithium salt
Recommended Use: Laboratory chemicals.
Uses advised against: No Information available

2. Hazard(s) identification

Classification
This chemical is considered hazardous by the 2012 OSHA Hazard Communication Standard (29 CFR 1910.1200)

Acute oral toxicity: Category 4
Skin Corrosion/irritation: Category 2
Serious Eye Damage/Eye Irritation: Category 2
Reproductive Toxicity: Category 1B
Specific target organ toxicity (single exposure): Category 3
Target Organs - Respiratory system, Central nervous system (CNS).
Specific target organ toxicity - (repeated exposure): Category 1
Target Organs - Kidney.

Label Elements

Signal Word: Danger

Hazard Statements
Harmful if swallowed
Causes serious eye irritation
Causes skin irritation
May cause respiratory irritation
May cause drowsiness or dizziness
May cause damage to organs through prolonged or repeated exposure
May damage fertility or the unborn child
Precautionary Statements

Prevention
Obtain special instructions before use
Do not handle until all safety precautions have been read and understood
Wear protective gloves/protective clothing/eye protection/face protection
Wash face, hands and any exposed skin thoroughly after handling
Do not eat, drink or smoke when using this product
Use only outdoors or in a well-ventilated area
Do not breathe dust/fume/gas/mist/vapors/spray

Response
Get medical attention/advice if you feel unwell
IF exposed or concerned: Get medical attention/advice

Inhalation
IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing

Skin
Take off contaminated clothing and wash before reuse
IF ON SKIN: Wash with plenty of soap and water
If skin irritation occurs: Get medical advice/attention

Eyes
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

Ingestion
IF SWALLOWED: Call a POISON CENTER or doctor/physician if you feel unwell
Rinse mouth

Storage
Store in a well-ventilated place. Keep container tightly closed
Store locked up

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

Hazards not otherwise classified (HOC)
None identified

3. Composition / information on ingredients

<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>&gt;95</td>
</tr>
</tbody>
</table>

4. First-aid measures

General Advice
If symptoms persist, call a physician.

Eye Contact
Rinse immediately with plenty of water, also under the eyelids, for at least 15 minutes.
Obtain medical attention.

Skin Contact
Obtain medical attention. Wash off immediately with plenty of water for at least 15 minutes.

Inhalation
Move to fresh air. If breathing is difficult, give oxygen. Obtain medical attention.

Ingestion
Do not induce vomiting. Obtain medical attention.
Most important symptoms/effects
Notes to Physician

None reasonably foreseeable.
Treat symptomatically

5. Fire-fighting measures

Unsuitable Extinguishing Media
Flash Point
Method -
No information available
No information available
No information available

Autoignition Temperature
Explosion Limits
Upper
Lower
No applicable
No data available
No data available

Sensitivity to Mechanical Impact
Sensitivity to Static Discharge
No information available
No information available

Specific Hazards Arising from the Chemical
Keep product and empty container away from heat and sources of ignition.

Hazardous Combustion Products
None known

Protective Equipment and Precautions for Firefighters
As in any fire, wear self-contained breathing apparatus pressure-demand, MSHA/NIOSH (approved or equivalent) and full protective gear.

NFPA
Health 2
Flammability 0
Instability 0
Physical hazards N/A

6. Accidental release measures

Personal Precautions
Use personal protective equipment. Ensure adequate ventilation. Avoid dust formation.

Environmental Precautions
Should not be released into the environment. See Section 12 for additional ecological information.

Methods for Containment and Clean Up
Sweep up or vacuum up spillage and collect in suitable container for disposal. Keep in suitable, closed containers for disposal.

7. Handling and storage

Handling
Wear personal protective equipment. Ensure adequate ventilation. Do not get in eyes, on skin, or on clothing. Avoid ingestion and inhalation. Avoid dust formation.

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

8. Exposure controls / personal protection

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

Engineering Measures
Ensure adequate ventilation, especially in confined areas. Ensure that eyewash stations and safety showers are close to the workstation location.

Personal Protective Equipment

Eye/face Protection
Tightly fitting safety goggles.

Skin and body protection
Long sleeved clothing.
9. Physical and chemical properties

- **Physical State**: Powder Solid
- **Appearance**: White
- **Odor**: Odorless
- **Odor Threshold**: No information available
- **pH**: 10-11 for 5 g/l aq. sol. (20°C)
- **Melting Point/Range**: 720 °C / 1328 °F
- **Boiling Point/Range**: No information available
- **Flash Point**: No information available
- **Evaporation Rate**: Not applicable
- **Flammability (solid,gas)**: No information available
- **Flammability or explosive limits**: No data available
- **Vapor Pressure**: 1 hPa @ 610 °C
- **Vapor Density**: Not applicable
- **Relative Density**: No information available
- **Solubility**: No information available
- **Partition coefficient; n-octanol/water**: No data available
- **Autoignition Temperature**: Not applicable
- **Decomposition Temperature**: 1200 °C
- **Viscosity**: Not applicable
- **Molecular Formula**: C Li2 O3
- **Molecular Weight**: 73.88

10. Stability and reactivity

- **Reactive Hazard**: None known, based on information available
- **Stability**: Stable under normal conditions.
- **Conditions to Avoid**: Incompatible products. Excess heat. Avoid dust formation.
- **Incompatible Materials**: Strong oxidizing agents, Strong acids, Fluorine, Metals
- **Hazardous Decomposition Products**: None under normal use conditions
- **Hazardous Polymerization**: Hazardous polymerization does not occur.
- **Hazardous Reactions**: None under normal processing.

11. Toxicological information

- **Acute Toxicity**
  
<table>
<thead>
<tr>
<th>Component</th>
<th>LD50 Oral (Rat)</th>
<th>LD50 Dermal</th>
<th>LC50 Inhalation (Rat) 4 h</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lithium carbonate</td>
<td>525 mg/kg</td>
<td>Not listed</td>
<td>&gt;2.17 mg/L</td>
</tr>
</tbody>
</table>

- **Toxicologically Synergistic Products**: No information available

- **Delayed and immediate effects as well as chronic effects from short and long-term exposure**

- **Irritation**: Irritating to eyes, respiratory system and skin

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Respiratory Protection

Follow the OSHA respirator regulations found in 29 CFR 1910.134 or European Standard EN 149. Use a NIOSH/MSHA or European Standard EN 149 approved respirator if exposure limits are exceeded or if irritation or other symptoms are experienced.

Hygiene Measures

Handle in accordance with good industrial hygiene and safety practice.

Revision Date 10-Feb-2015
Sensitization
No information available

Carcinogenicity
The table below indicates whether each agency has listed any ingredient as a carcinogen.

<table>
<thead>
<tr>
<th>Component</th>
<th>CAS-No</th>
<th>IARC</th>
<th>NTP</th>
<th>ACGIH</th>
<th>OSHA</th>
<th>Mexico</th>
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<tbody>
<tr>
<td>Lithium carbonate</td>
<td>554-13-2</td>
<td>Not listed</td>
<td>Not listed</td>
<td>Not listed</td>
<td>Not listed</td>
<td>Not listed</td>
</tr>
</tbody>
</table>

Mutagenic Effects
No information available

Reproductive Effects
May cause birth defects. May impair fertility.

Developmental Effects
No information available.

Teratogenicity
May cause harm to the unborn child.

STOT - single exposure
Respiratory system Central nervous system (CNS)

STOT - repeated exposure
Kidney

Aspiration hazard
No information available

Symptoms / effects, both acute and delayed
No information available

Endocrine Disruptor Information
No information available

Other Adverse Effects
The toxicological properties have not been fully investigated. See actual entry in RTECS for complete information.

12. Ecological information

Ecotoxicity
Do not empty into drains.

Persistence and Degradability
Soluble in water Persistence is unlikely based on information available.

Bioaccumulation/ Accumulation
No information available.

Mobility
Will likely be mobile in the environment due to its water solubility.

13. Disposal considerations

Waste Disposal Methods
Chemical waste generators must determine whether a discarded chemical is classified as a hazardous waste. Chemical waste generators must also consult local, regional, and national hazardous waste regulations to ensure complete and accurate classification.

14. Transport information

DOT
Not regulated

TDG
Not regulated

IATA
Not regulated

IMDG/IMO
Not regulated

15. Regulatory information

International Inventories

<table>
<thead>
<tr>
<th>Component</th>
<th>TSCA</th>
<th>DSL</th>
<th>NDSL</th>
<th>EINECS</th>
<th>ELINCS</th>
<th>NLP</th>
<th>PICCS</th>
<th>ENCS</th>
<th>AICS</th>
<th>IECSC</th>
<th>KECL</th>
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<tr>
<td>Lithium carbonate</td>
<td>X</td>
<td>X</td>
<td>-</td>
<td>209-062-5</td>
<td>-</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td></td>
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</tr>
</tbody>
</table>

Legend:
X - Listed
E - Indicates a substance that is the subject of a Section 5(e) Consent order under TSCA.
F - Indicates a substance that is the subject of a Section 5(f) Rule under TSCA.
N - Indicates a polymeric substance containing no free-radical initiator in its inventory name but is considered to cover the designated polymer made with any free-radical initiator regardless of the amount used.
P - Indicates a commenced PMN substance
Lithium carbonate

R - Indicates a substance that is the subject of a Section 6 risk management rule under TSCA.
S - Indicates a substance that is identified in a proposed or final Significant New Use Rule
T - Indicates a substance that is the subject of a Section 4 test rule under TSCA.
XU - Indicates a substance exempt from reporting under the Inventory Update Rule, i.e. Partial Updating of the TSCA Inventory Data Base Production and Site Reports (40 CFR 710(B)).
Y1 - Indicates an exempt polymer that has a number-average molecular weight of 1,000 or greater.
Y2 - Indicates an exempt polymer that is a polyester and is made only from reactants included in a specified list of low concern reactants that comprises one of the eligibility criteria for the exemption rule.

U.S. Federal Regulations

TSCA 12(b) Not applicable

SARA 313

<table>
<thead>
<tr>
<th>Component</th>
<th>CAS-No</th>
<th>Weight %</th>
<th>SARA 313 - Threshold Values %</th>
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<tbody>
<tr>
<td>Lithium carbonate</td>
<td>554-13-2</td>
<td>&gt;95</td>
<td>1.0</td>
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</table>

SARA 311/312 Hazardous Categorization

- Acute Health Hazard: Yes
- Chronic Health Hazard: Yes
- Fire Hazard: No
- Sudden Release of Pressure Hazard: No
- Reactive Hazard: No

Clean Water Act Not applicable

Clean Air Act Not applicable

OSHA Occupational Safety and Health Administration
Not applicable

CERCLA
Not applicable

California Proposition 65
This product contains the following Proposition 65 chemicals:

<table>
<thead>
<tr>
<th>Component</th>
<th>CAS-No</th>
<th>California Prop. 65</th>
<th>Prop 65 NSRL</th>
<th>Category</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lithium carbonate</td>
<td>554-13-2</td>
<td>Developmental</td>
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</table>

State Right-to-Know

<table>
<thead>
<tr>
<th>Component</th>
<th>Massachusetts</th>
<th>New Jersey</th>
<th>Pennsylvania</th>
<th>Illinois</th>
<th>Rhode Island</th>
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</thead>
<tbody>
<tr>
<td>Lithium carbonate</td>
<td>X</td>
<td>X</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
</tbody>
</table>

U.S. Department of Transportation

- Reportable Quantity (RQ): N
- DOT Marine Pollutant: N
- DOT Severe Marine Pollutant: N

U.S. Department of Homeland Security
This product does not contain any DHS chemicals.

Other International Regulations

Mexico - Grade
No information available

Canada
This product has been classified in accordance with the hazard criteria of the Controlled Products Regulations (CPR) and the MSDS contains all the information required by the CPR

WHMIS Hazard Class
D2A Very toxic materials
D1B Toxic materials
16. Other information

Prepared By: Regulatory Affairs
Thermo Fisher Scientific
Email: EMSDS.RA@thermofisher.com

Creation Date: 16-Nov-2010
Revision Date: 10-Feb-2015
Print Date: 10-Feb-2015
Revision Summary: This document has been updated to comply with the US OSHA HazCom 2012 Standard replacing the current legislation under 29 CFR 1910.1200 to align with the Globally Harmonized System of Classification and Labeling of Chemicals (GHS).

Disclaimer
The information provided on this Safety Data Sheet is correct to the best of our knowledge, information and belief at the date of its publication. The information given is designed only as a guide for safe handling, use, processing, storage, transportation, disposal and release and is not to be considered as a warranty or quality specification. The information relates only to the specific material designated and may not be valid for such material used in combination with any other material or in any process, unless specified in the text.

End of SDS