SECTION 01: PRODUCT AND COMPANY IDENTIFICATION

Product name: Lithium Carbonate
Formula: Li₂CO₃
Chemical family: Carbonates
Synonyms: Dilithium Carbonate and Carbonic acid Lithium salt
Product use: For laboratory use only

Manufacturer: CLAISSE
Address: 350, FRANQUET, QUEBEC (QUEBEC) G1P 4P3 CANADA
Phone: +1 418 656-6453
Fax: +1 418 656-1169

Emergency telephone number:
CANUTEC (24h): +1 613 996-6666

SECTION 02: HAZARDS IDENTIFICATION

GHS and (EC) No 1272/2008 classification
- Eye irritation (Category 2).
- Acute toxicity, Oral (Category 4).
- Reproductive toxicity (Category 1A).
- STOT-SE (Category 1: nervous system and Category 3: respiratory tract irritation)
- STOT-RE (Category 1: nervous system and kidney)

Label elements:
- Pictogram:
  - Signal word: Health Hazard SGH 08

Hazard statements:
- H302 Harmful if swallowed
- H319 Causes serious eye irritation
- H335 May cause respiratory irritation
- H360 May damage fertility or the unborn child
- H362 May cause harm to breast-fed children
- H370 Causes damage to organs
- H372 Cause damage to organs through prolonged or repeated exposure
Precautionary statements:

P261  Avoid breathing dust/fume/gas/mist/vapours/spray.
P263  Avoid contact during pregnancy/while nursing.
P264  Wash hands and clothes thoroughly after handling.
P273  Avoid release to the environment.
P280  Wear protective gloves/protective clothing/eye protection/face protection.
P301+P312 IF SWALLOWED: Call a POISON CENTER/doctor/physician if you feel unwell.
P302+P352 IF ON SKIN: Wash with plenty of soap and water.
P304+P340 IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing.
P305+P351+P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses if present and easy to do. Continue rinsing.

Other hazards
No data available

SECTION 03: COMPONENT INFORMATION

<table>
<thead>
<tr>
<th>Compound</th>
<th>Synonym</th>
<th>Molecular formula</th>
<th>Molecular Weight (g/mol)</th>
<th>CAS-No.</th>
<th>EC-No.</th>
<th>Concentration (%)</th>
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</thead>
<tbody>
<tr>
<td>Lithium Carbonate</td>
<td>-</td>
<td>Li₂CO₃</td>
<td>73.89</td>
<td>554-13-2</td>
<td>209-062-5</td>
<td>100</td>
</tr>
</tbody>
</table>

SECTION 04: FIRST AID MEASURES

Description of first aid measures

General information
Seek immediate medical advice.
Take affected persons out of danger area and lay down.

After inhalation
In case of unconsciousness place patient stably in side position for transportation.
Supply fresh air. If required, provide artificial respiration. Keep patient warm. If symptoms persist, consult a physician.

After skin contact
Immediately wash with water and soap and rinse thoroughly. If skin irritation persists, consult a physician.

After eye contact
Rinse opened eye for several minutes under running water. If symptoms persist, consult a physician.

After swallowing
Rinse out mouth and then drink plenty of water. If symptoms persist, consult a physician.

Most important symptoms and effects, both acute and delayed
No data available.

Indication of any immediate medical attention and special treatment needed
No data available.
SECTION 05: FIRE FIGHTING MEASURES

Suitable extinguishing media
Use water spray, alcohol-resistant foam, dry chemical or carbon dioxide.

Unsuitable extinguishing media
No data available.

Special protective equipment for fire fighters
Wear self-contained breathing apparatus for firefighting if necessary.

Hazardous combustion products
Hazardous decomposition products formed under fire conditions: carbon oxides and lithium oxides.

SECTION 06: ACCIDENTAL RELEASE MEASURES

Personal precautions
Use personal protective equipment. Avoid dust formation. Avoid breathing dust, vapours, fumes or gas. Ensure adequate ventilation. Evacuate personnel to safe areas.

Environmental precautions
Avoid dispersal of spilled material, runoff and contact with soil waterways, drains and sewers.

Methods and materials for containment and cleaning up
Pick up and arrange disposal without creating dust. Sweep up and shovel. Keep in suitable, closed and non-leaking containers for local chemical disposal.

Reference to other sections
See Section 7 for information on safe handling and storage.
See Section 8 for information on exposure controls and personal protection.
See Section 13 for disposal information.

SECTION 07: HANDLING AND STORAGE

Precautions for safe handling
Provide suction extractors if dust is formed.
Do not inhale dust, smoke or mist.
Avoid contact with the eyes and skin.
Prevent formation of dust.
Prevent formation of aerosols.

Conditions for safe storage, including any incompatibilities
Requirements to be met by storerooms and receptacles: no special measures required.
Information about storage in one common storage facility: not required.
Further information about storage conditions: keep container tightly sealed store receptacle in a well-ventilated area; store in dry conditions.

Specific end use(s)
No data available.
## SECTION 08: EXPOSURE CONTROLS/PERSONAL PROTECTION

### Control parameters
No exposure limits have been established.

### Exposure control

#### Personal protective equipment

- **General protective and hygienic measures**
  
  Keep away from foodstuffs, beverages and feed. Immediately remove all soiled and contaminated clothing. Wash hands before breaks and at the end of work shifts. Avoid contact with the eyes and skin.

- **Respiratory protection**
  
  For nuisance exposure, use type N100 (US) or type P2 (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).

- **Hand protection**
  
  Handle with gloves. The glove material has to be impermeable and resistant to the product, the substance or preparation. Selection of the glove material must be made considering the penetration times, rates of diffusion and degradation. 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.

- **Eye protection**

  Wear safety glasses with side shields conforming to EN 166. Use equipment for eye protection tested and approved under appropriate government standards such as NIOSH (US) or EN 166 (EU).

- **Skin and body protection**

  Wear impervious clothing. The type of protective equipment must be selected according to the concentration and amount of dangerous substance at the specific workplace.

### Specific engineering controls

Use mechanical exhaust or laboratory fume hood to avoid exposure.

### Environmental exposure controls

No data available.

## SECTION 09: PHYSICAL AND CHEMICAL PROPERTIES

<table>
<thead>
<tr>
<th>Property</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Appearance</strong></td>
<td></td>
</tr>
<tr>
<td>Form</td>
<td>Powder</td>
</tr>
<tr>
<td>Colour</td>
<td>White</td>
</tr>
<tr>
<td><strong>pH</strong></td>
<td>Basic in solution</td>
</tr>
<tr>
<td>Melting point/freezing point</td>
<td>723°C / 1333°F.</td>
</tr>
<tr>
<td>Initial boiling point/boiling range</td>
<td>No data available</td>
</tr>
</tbody>
</table>
Flash point: No data available
Flammability: No data available
Ignition point: No data available
Autoignition point: No data available
Lower flammable/explosive limit: No data available
Upper flammable/explosive limit: No data available
Vapour pressure: No data available
Relative density: No data available
Solubility: 1.3 g/100 mL at 25°C in water
Partition coefficient n-octanol/water: No data available
Decomposition temperature: No data available
Viscosity: No data available
Vapour density: No data available
Odour: No data available
Odour threshold: No data available
Evaporation rate: No data available
Explosive properties: No data available
Oxidizing properties: No data available

SECTION 10: STABILITY AND REACTIVITY

Reactivity
The solution in water is a weak base. Reacts violently with fluorine.

Chemical stability
Stable under recommended storage conditions.

Possibility of hazardous reactions
No dangerous reactions known.

Conditions to avoid
Incompatible materials.

Incompatible materials
Strong oxidizing agents, strong acids (carbon oxides emission) and fluorine.

Hazardous decomposition products
Hazardous decomposition products formed under fire conditions: carbon oxide and lithium oxide.
SECTION 11: TOXICOLOGICAL INFORMATION

Acute toxicity

<table>
<thead>
<tr>
<th>Compound</th>
<th>Oral LD50</th>
<th>Inhalation LC50</th>
<th>Dermal LD50</th>
<th>Other</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lithium Carbonate</td>
<td>525 mg/kg bw</td>
<td>&gt;2 mg/L</td>
<td>&gt;3000 mg/kg</td>
<td>No data</td>
</tr>
</tbody>
</table>

Skin corrosion/irritation
An acute skin irritation/corrosion study was performed with lithium carbonate in accordance with OECD Guideline 404. Based on the results obtained, lithium carbonate has not to be classified and labelled irritating to the skin according to Directive 67/548/EEC (DSD) and Regulation (EC) No 1272/2008 (CLP).

Serious eye damage/eye irritation
An acute eye irritation/corrosion study was performed with lithium carbonate in accordance with OECD Guideline 405. With respect to eye irritation, lithium carbonate has to be classified into Cat. 2 (H319) according to the Regulation (EC) No 1272/2008 (CLP).

Respiratory or skin sensitization
A skin sensitisation test was performed with lithium carbonate according to OECD 406 and EU method B.6 (Buehler test). based on the results obtained, lithium carbonate has not to be classified and labelled with respect to skin sensitisation according to Directive 67/548/EEC (DSD) and Regulation (EC) No 1272/2008 (CLP).

Germ cell mutagenicity (in vitro) – gene mutation
Based on the inconclusive results from genotoxicity tests in bacteria and animals but the negative results in patients, the applicant concluded that lithium carbonate is not classified as a genotoxic in humans at therapeutic levels.

Germ cell mutagenicity (in vivo) – DNA damage and/or repair
Based on data in multiple mutagenicity tests on a variety of lithium salts it is concluded that lithium lacks mutagenicity. Consequently, lithium carbonate is not classified as a genotoxic or clastogenic substance.

Carcinogenicity
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 (A4 group).

Reproductive toxicity
Based on data in multiple reproductive toxicity tests during pregnancy (PIM 309F [2000], Birth Defects 3rd [2000], HSDB [2007] and IUCLID [2000]) on a variety of lithium salts, the substance was classified in reproductive toxicity Category 1A. In addition, based on data on humans lactation studies (PIM 309F [2000]) the substance was classified in an additional category for effects on or via lactation.

STOT – SE (GHS)
The substance is irritating to the eyes, skin and respiratory tract. The substance may cause effects on the central nervous system. Based on KemI-Riskline NR 2002:16, Handbook of Japanese pharmaceutical drugs (2010) and IUCLID (2000), the classification was determined as Category 1 (nervous system). However, it was reported that irritation of the upper respiratory tract was observed in humans by exposure to dust of this substance (KemI-Riskline NR 2002:16). Based on this information, the classification was determined as Category 3 (respiratory tract irritation).

STOT – RE (GHS)
The substance may have effects on the central nervous system and kidneys. May cause reproductive toxicity in humans. Based on the information on human toxicity (KemI-Riskline NR 2002:16, Handbook of Japanese pharmaceutical drugs [2010] and IUCLID [2000]), the classification was determined as Category 1 (nervous system). Due to a description of possible occurrence of chronic renal failure (KemI-Riskline NR 2002:16), the classification was also determined as Category 1 (kidney).
Signs and symptoms of exposure
Large doses of lithium ion have caused dizziness and prostration, and can cause kidney damage if sodium intake is limited. Nausea, anorexia, 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. Based on human data obtained from routine long-term treatment of bipolar disorder with lithium, a NOAEL for long-term oral toxicity of 6.43 mg lithium carbonate/kg bw/day was calculated.

Synergistic effects
No data available.

Additional information

<table>
<thead>
<tr>
<th>Compound</th>
<th>RTECS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lithium Carbonate</td>
<td>OJ5800000</td>
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</table>

SECTION 12: ECOLOGICAL INFORMATION

Toxicity
Aquatic environment toxicity (acute)
No data available.

Aquatic environment toxicity (long-term)
No data available.

Persistence and degradability
No data available.

Bioaccumulative potential
No data available.

Mobility in soil
No data available.

PBT and vPvB assessment
PBT: Not applicable.
vPvB: Not applicable.

Other adverse effects
Will affect drinking water supplies. The product components are not classified as environmentally hazardous. However, this does not exclude the possibility that large or frequent spills can have harmful or damaging effects on the environment.

SECTION 13: DISPOSAL CONSIDERATIONS

Product disposal
The generation of waste should be avoided or minimized wherever possible.

Contaminated packaging disposal
Dispose as an unused product.

Waste treatment-relevant information
Disposal of this product, solutions and any by-products should at all times comply with the requirements of environmental protection and waste disposal legislation and any regional and local authority requirements.
Sewage disposal-relevant information
Avoid dispersal of spilled material, runoff and contact with soil, waterways, drains and sewers.

Other disposal recommendations
Contact a licensed professional waste disposal service to dispose of this material.

SECTION 14: TRANSPORT INFORMATION

UN number
ADR, ADN, IMDG, IATA, TDG, DOT Not applicable.

UN Proper shipping name
Not applicable.

Transport hazard class(es)
ADR, ADN, IMDG, IATA, TDG, DOT Not applicable.

Packing group
ADR/IMDG/IATA/TDG/DOT Not applicable.

Environmental hazards
Environmentally hazardous substance/marine pollutant: No.

Special precaution for user
Not applicable.

Transport in bulk according to Annex II of MARPOL73/78 and the IBC Code
Not applicable.

SECTION 15: REGULATORY INFORMATION

Safety, health and environmental regulations/legislation specific for the substance or mixture
This safety data sheet complies with the requirements of regulation (EC) No. 1907/2006.

Chemical safety assessment
A chemical safety assessment has not been carried out.

DSL status
All components of this product are on the Canadian DSL list.

WHMIS classification
Uncontrolled product according to WHMIS classification criteria.
This product has been classified in accordance with the hazard criteria of the Controlled Products Regulations and the MSDS contains all the information required by the Controlled Products Regulation.

HMIS classification
Health hazard: 2
Chronic health hazard: *
Flammability: 0
Physical hazards: 0
Potential health effects

- **Inhalation:** May cause respiratory irritation.
- **Skin:** May cause skin irritation.
- **Eyes:** Causes serious eye irritation.
- **Ingestion:** Harmful if swallowed.

### SECTION 16: OTHER INFORMATION

**Date of issue**
2016-08-15

**Notice to the reader**
To the best of our knowledge, the information contained herein is accurate. However, neither the above named supplier nor any of its subsidiaries assumes any liability whatsoever for the accuracy or completeness of the information contained herein. Final determination of suitability of any material is the only responsibility of the user. All materials may present unknown hazards and should be used with caution. Although certain hazards are described herein, we cannot guarantee that these are the only.

**Abbreviations and acronyms**

- **ACGIH:** American Conference of Governmental Industrial Hygienists
- **ADR:** European Agreement concerning the International Carriage of Dangerous Goods by Road
- **ADN:** European Agreement concerning the International Carriage of Dangerous Goods by Inland Waterway
- **b.w.:** Body weight
- **CAA:** Clean Air Act
- **CAS:** Chemical Abstracts Service (division of the American Chemical Society)
- **CEN:** European Committee for Standardization
- **CERCLA:** Comprehensive Environmental Response, Compensation and Liability Act
- **CFR:** Code of Federal Regulations
- **CLP:** Classification, Labelling and Packaging
- **CPR:** Controlled Products Regulations
- **DNEL:** Derived No-Effect Level
- **DOT:** Department of Transportation
- **DSL:** Domestic Substance List
- **EINECS:** European Inventory of Existing Commercial Chemical Substances
- **GHS:** Globally Harmonized System of Classification and Labelling of Chemicals
- **HDPE:** High Density PolyEthylene
- **HEPA:** High Efficiency Particulate Air
- **HMIS:** Hazardous Material Information System
- **IARC:** International Agency for Research on Cancer
- **IATA:** International Air Transport Association
- **IBC:** Intermediate Bulk Container
- **IDLH:** Immediately Dangerous to Life or Health Concentrations
- **IMDG:** International Maritime Dangerous Goods Code
- **LC50:** Median Lethal Concentration
- **LD50:** Median Lethal Dose
- **LOAEL:** Lowest Observed Adverse Effect Level
- **LOEC:** Lowest Observable Effect Concentration
- **MARPOL:** MARine POLlution
- **NIOSH:** The National Institute for Occupational Safety and Health
- **NOAEL:** No Observed Adverse Effect Level
- **NOEC:** No Observable Effect Concentration
- **OECD:** Organisation for Economic Co-operation and Development
- **OSHA:** Occupational Safety and Health Administration
- **PBT:** Persistent Bioaccumulative and Toxic
<table>
<thead>
<tr>
<th>Abbreviation</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>PEL</td>
<td>Permissible Exposure Limits</td>
</tr>
<tr>
<td>PNEC</td>
<td>Predicted No-Effect Concentration</td>
</tr>
<tr>
<td>RCF</td>
<td>Refractory Ceramic Fibers</td>
</tr>
<tr>
<td>RTECS</td>
<td>Registry of Toxic Effects of Chemical Substances</td>
</tr>
<tr>
<td>SARA</td>
<td>Superfund Amendments and Reauthorization Act</td>
</tr>
<tr>
<td>SCP</td>
<td>Standards Completion Program (NIOSH/OSHA)</td>
</tr>
<tr>
<td>STEL</td>
<td>Short Term Exposure Limit</td>
</tr>
<tr>
<td>STOT – RE</td>
<td>Specific Target Organ Toxicity – Repeated exposure</td>
</tr>
<tr>
<td>STOT – SE</td>
<td>Specific Target Organ Toxicity – Single exposure</td>
</tr>
<tr>
<td>TDG</td>
<td>Transport of Dangerous Goods</td>
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<tr>
<td>TLV</td>
<td>Threshold Limit Value</td>
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<tr>
<td>TSCA</td>
<td>Toxic Substances Control Act</td>
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<tr>
<td>TWA</td>
<td>Time-Weighted Average exposure value</td>
</tr>
<tr>
<td>UN</td>
<td>United Nations</td>
</tr>
<tr>
<td>vPvB</td>
<td>very Persistent and very Bioaccumulative</td>
</tr>
<tr>
<td>WHMIS</td>
<td>Workplace Hazardous Materials Information System</td>
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</table>