

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

Product identifier

Substance name: Lithium Carbonate
EC No.: 209-062-5
CAS No.: 554-13-2
REACH Registration No.: 01-2119516034-53-0011 (EU)
01-0841228232-2-0001 (UK)
Other means of identification: Lithium carbonate

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

Relevant identified uses:

- ES 1: Manufacture: Manufacture of lithium carbonate. (PROCS: 1, 2, 3, 4, 5, 8a, 8b, 9, 15)
- ES 2: Formulation or re-packing; Various products. Formulation into mixture. Adsorbents (PC 2), Heat Transfer Fluids (PC 16). (PROCS: 1, 2, 3, 4, 5, 8a, 8b, 9,15)
- ES 3: Use at industrial sites; Other. Use as an intermediate to manufacture other chemicals (fine chemicals and pharmaceuticals). (PROCS: 1, 2, 3, 4, 5, 8a, 8b, 9, 15)
- ES 4: Use at industrial sites; Heat Transfer Fluids; Other. Industrial use of substance in closed systems - Absorption Chillers. Heat Transfer Fluids (PC 16). (PROCS: 2, 8b, 15)
- ES 5: Widespread use by professional workers; Heat Transfer Fluids; Electricity, steam, gas water supply and sewage treatment. Wide, dispersive use of substances, closed systems - professional use. Heat Transfer Fluids (PC 16). Electricity, steam, gas water supply and sewage treatment (SU 23). (PROCS: 2, 8a, 8b, 9)

Uses advised against: None.

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2. HAZARDS IDENTIFICATION

Classification of the substance or mixture:

Classification according to Regulation (EC) No 1272/2008 (CLP):

Acute Tox. 4: H302 Harmful if swallowed
Eye Irrit. 2: H319 Causes serious eye irritation.
Additional information: For full text of Hazard- and EU Hazard-statements: See SECTION 16.

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Label elements:

Hazard pictogram(s):



Signal word:

Warning.

Hazard statement(s):

H302 Harmful if swallowed.
H319 Causes serious eye irritation.

Precautionary statement(s):

P270 Do not eat, drink or smoke when using this product.
P280 Wear protective gloves, protective clothing, eye protection and face protection.
P301+P330: IF SWALLOWED: Rinse mouth.
P312: Call a POISON CENTRE or doctor 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.
P337+P313 If eye irritation persists seek medical advice/attention.
P501: Dispose of contents / container in accordance with local / regional / national / international regulations.

Supplemental information on the label:

Supplementary Hazard Information (EU): None.

Other hazards:

PBT and vPvB assessment is not applicable to inorganic substances. Lithium Carbonate does not cause endocrine disruption.

3. COMPOSITION / INFORMATION ON INGREDIENTS

Substances

Chemical Name: Lithium Carbonate

Identification Number:

EC No.: 209-062-5

CAS No.: 554-13-2

REACH Registration No.: 01-2119516034-53-0011 (EU)

01-0841228232-2-0001 (UK)

Other means of identification: Lithium Carbonate

%: > 98%

M-factor: Not applicable

Acute Toxicity Estimate (ATE): Not applicable

Specific Concentration Limit (SCL): Not applicable

Particle Characteristics: d10: 8.0 µm, d50: 461 µm, d90: 977 µm (DIN EN ISO/IEC 17025.)

[cont...]

4. FIRST AID MEASURES

Description of first aid measures:

- General notes:** If symptoms persist, seek medical attention.
- Following inhalation:** Remove person to fresh air and keep comfortable for breathing. Keep at rest. If experiencing respiratory symptoms: Get immediate medical advice/attention.
- Following skin contact:** Remove contaminated clothing immediately. Wash thoroughly with plenty of soap and water. If skin irritation occurs: Get medical advice/attention.
- Following eye contact:** Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. If eye irritation persists, seek medical advice/attention.
- Following ingestion:** Rinse mouth with water. Never give anything by mouth to an unconscious person. Call a doctor if you feel unwell.
- Self-protection of the first aider:** If it is suspected that the mixture is still present, wear appropriate personal protective equipment.

Most important symptoms and effects, both acute and delayed:

Symptoms:

- Following inhalation:** May irritate the respiratory tract and mucous membrane.
- Following skin contact:** May cause redness or irritation.
- Following eye contact:** Causes serious eye irritation.
- Following ingestion:** Harmful if swallowed.

The following acute adverse effects have been described in patients receiving lithium therapy:

- Gastrointestinal disorders (Nausea. Vomiting. Diarrhoea.)
Long-term sequelae from acute lithium poisoning include adverse CNS effects.

Indication of any immediate medical attention and special treatment needed: Treat systematically.

5. FIRE-FIGHTING MEASURES

Extinguishing media:

- Suitable extinguishing media:** Use fire-extinguishing media suitable for the surrounding fire.
- Unsuitable extinguishing media:** None.

Special hazards arising from the substance or mixture:

Combustion or thermal decomposition will evolve toxic and irritant vapours.

Hazardous combustion products: Lithium oxides. Carbon dioxide and carbon monoxide.

- Advice for firefighters:** Wear full protective clothing and self-contained breathing apparatus (SCBA) approved for firefighting.

6. ACCIDENTAL RELEASE MEASURES

Personal precautions, protective equipment and emergency procedures:

- For non-emergency personnel:** Persons not wearing personal protective clothing should be restricted from the spillage area.
- For emergency responders:** Ensure adequate ventilation. Avoid dust generation.
Wear suitable protective clothing, gloves and eye/face protection.

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Environmental precautions: Do not allow to enter drains, sewers or watercourses. Ensure waste is collected and contained.

Methods and material for containment and cleaning up:

Sweep up and shovel into waste drums or plastic bags. Avoid dust generation. Dispose of waste according to local/national regulations.

Reference to other sections: For Personal Protective Equipment, see Section 8. For disposal, see Section 13.

7. HANDLING AND STORAGE

Precautions for safe handling: Avoid dust generation. Ensure adequate ventilation. Wear suitable personal protective equipment.
Avoid contact with skin and eyes. Do not breathe dust.
Wash hands before breaks and at the end of workday. Do not eat, drink or smoke when using this product.
Keep away from food, drink and animal feeding stuff. Observe good industrial hygiene practices.

Conditions for safe storage, including any incompatibilities:

Keep dry. Keep in a cool, well-ventilated place. Keep container tightly closed. Keep only in the original container. Keep away from strong acids.

Specific end use(s): No further relevant information available.

8. EXPOSURE CONTROLS / PERSONAL PROTECTION

Control parameters: No Occupational Exposure Limit assigned.

Derived No Effect Level (DNEL):

Lithium Carbonate:

Workers:

Inhalation:

Chronic Effects, Systemic 10 mg/m³

Acute Effects, Systemic 30 mg/m³

Dermal:

Chronic Effects, Systemic 64.3 mg/kg bw/day

Acute Effects, Systemic 100 mg/kg bw/day

Consumers:

Inhalation:

Chronic Effects, Systemic 9.64 mg/m³

Acute Effects, Systemic 28.92 mg/m³

Dermal:

Chronic Effects, Systemic 64.3 mg/kg bw/day

Acute Effects, Systemic 50 mg/kg bw/day

Oral:

Chronic Effects, Systemic 6.43 mg/kg bw/day

Acute Effects, Systemic 19.23 mg/kg bw/day

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Predicted No Effect Concentration (PNEC):

Lithium Carbonate

Environmental Protection Target: PNEC

Fresh water	9 mg/l
Marine water	0.9 mg/l
Intermittent releases (freshwater)	0.3 mg/l mg/kg sediment
Freshwater sediments	238.4 dw mg/kg sediment
Marine water sediments	23.84 dw
Microorganisms in sewage treatment (STP)	122.2 mg/l
Soil	44.11 mg/kg soil dw

Exposure controls:

Appropriate engineering controls: Ensure adequate ventilation.

Individual protection measures, such as personal protective equipment.

Eye/face protection:

Goggles or safety glasses with side shields giving complete protection to eyes according to EN 166:2001.



Skin protection:

Hand protection:

Protective gloves conforming to EN374.

Recommended gloves: Nitrile Rubber



Other:

Laboratory coat or other chemical resistant protective clothing.

Respiratory protection:

In case of insufficient ventilation wear suitable respiratory equipment.

Dust mask. Type P, EN143 recommended.



Thermal hazards:

Not applicable.

Environmental exposure controls: Avoid release to the environment.

9. PHYSICAL AND CHEMICAL PROPERTIES

Information on basic physical and chemical properties

Physical state:	Solid
Colour:	White
Odour:	Odourless
Odour Threshold:	Not applicable
Melting point/freezing point:	722 °C @ 1013 hPa
Boiling point or initial boiling point and boiling range:	Not applicable (decomposes)

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Flammability:	Not flammable
Lower and upper explosion limit:	Not applicable
Flash point:	Not applicable
Auto-ignition temperature:	Not applicable
Decomposition temperature:	1300°C (EU A.1/OECD Guideline 102)
pH:	c. 11 (1% aqueous slurry)
Kinematic viscosity:	Not applicable
Solubility:	8.4 g/L @ 20 °C (water) (EU A.6/OECD Guideline 105)
Partition coefficient n-octanol/water (log value):	Not applicable
Vapour pressure:	Not applicable
Density and/or relative density:	2.1 g/cm ³ @ 20 °C (Literature information)
Relative vapour density:	Not applicable
Particle characteristics:	d10: 8.0 µm, d50: 461 µm, d90: 977 µm (DIN EN ISO/IEC 17025.)
Explosive Properties:	Not explosive
Oxidising Properties:	Not oxidising

Other information:

Information with regard to physical hazard classes: Not classified

Other safety characteristics: None

10. STABILITY AND REACTIVITY

Reactivity:	Stable under normal storage and temperature conditions.
Chemical stability:	Stable under normal storage and temperature conditions.
Possibility of hazardous reactions:	None identified.
Conditions to avoid:	Avoid generation of dust.
Incompatible materials:	Strong Acids. Strong oxidisers. Other substance incompatible with bases.
Hazardous decomposition products:	Thermal decomposition products: Lithium oxides. Carbon dioxide and carbon monoxide.

11. TOXICOLOGICAL INFORMATION

Information on hazard classes as defined in Regulation (EC) No 1272/2008:

(a) Acute toxicity:

Acute toxicity – oral:	LD50 (oral) (rat) 525 mg/kg bw (Literature information).
Acute toxicity – dermal:	Acute Tox. 4 H302: Harmful if swallowed. LD50 (dermal) (rat) > 2000 mg/kg bw EU B.3/OECD Guideline 402 Not classified, based on the available data the classification criteria are not met.
Acute toxicity – inhalation:	LC50 > 2000 mg/m ³ (4h) (rat) OECD Guideline 403 Not classified, based on the available data the classification criteria are not met.

(b) Skin corrosion/irritation:	Non-irritant (Rabbit) Not classified, based on the available data the classification criteria are not met.
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(c) Serious eye damage/irritation: Irritant (Rabbit)

Eye Irrit. 2: Causes serious eye irritation.

(d) Respiratory or skin sensitisation:

Respiratory sensitisation: Not classified, based on the available data the classification criteria are not met.

skin sensitisation: Non sensitising (Guinea Pig)

OECD Guideline 406/EU B.6/EPA OPP 81-6

Not classified, based on the available data the classification criteria are not met.

(e) Germ cell mutagenicity:

In vitro genotoxicity: Data obtained by analogy conclusion

Gene-mutations microorganisms: Negative (OECD Guideline 471/EU B.13/14)

Gene-mutations mammalian cells: Negative (OECD Guideline 476/EU B.17)

Chromosome aberrations mammalian cells: Negative (OECD Guideline 473/EU B.10)

In vivo genotoxicity:

Evaluation of lithium compounds: Negative (literature information, Lagerkvist, B.J., Lindell, B. (2002))

Lithium carbonate is not genotoxic in vitro and in vivo.

Not classified, based on the available data the classification criteria are not met.

(f) Carcinogenicity:

No data suggest carcinogenic potential of lithium carbonate.

Not classified, based on the available data the classification criteria are not met.

(g) Reproductive toxicity:

Effect on fertility: NOAEL: 45 mg/kg bw/day (rat, oral)

Effects on developmental toxicity: NOAEL: 30 mg/kg bw/day (maternal toxicity)

NOAEL: 90 mg/kg bw/day (embryotoxicity)

OECD guideline 414/EU B.31.

Not classified, based on the available data the classification criteria are not met.

(h) STOT-single exposure:

Not classified, based on the available data the classification criteria are not met.

(i) STOT-repeated exposure:

Lithium Carbonate

NOAEL: 6.43 mg/kg bw/day (human)

Not classified, based on the available data the classification criteria are not met.

(j) Aspiration hazard:

Not classified. Data lacking.

Information on likely routes of exposure:

Following inhalation: May irritate the respiratory tract and mucous membrane.

Following skin contact: May cause redness or irritation.

Following eye contact: Causes serious eye irritation.

Following ingestion: Harmful if swallowed.

Symptoms related to the physical, chemical and toxicological characteristics:

The following acute adverse effects have been described in patients receiving lithium therapy:

Gastrointestinal disorders (Nausea. Vomiting. Diarrhoea.)

Long-term sequelae from acute lithium poisoning include adverse CNS effects.

[cont...]

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Toxicokinetics, metabolism and distribution: Lithium carbonate is poorly absorbed through skin (10% is set as worst case), readily and completely absorbed from the gastrointestinal tract. Upon inhalation, resorption and bioavailability of lithium carbonate is expected to be low. Lithium is not bound to proteins but is quickly distributed throughout the body water both intra- and extracellularly. Lithium is not metabolised to any appreciable extent in the human body. Excretion of lithium is fast and takes place almost completely via urine unchanged.

Information on other hazards:

Endocrine disrupting properties: Lithium carbonate does not cause endocrine disruption.

Other information: No other information.

12. ECOLOGICAL INFORMATION

Toxicity: Not classified, based on the available data the classification criteria are not met.

Data on aquatic toxicity:

Acute (short-term) toxicity:

Fish: LC50, 96h (Oncorhynchus mykiss) 30.3 mg/L
OECD guideline 203

Crustaceans: EC50, 48h (daphnia magna) 33.2 mg/L
OECD guideline 202

Algae and other aquatic plants: EC50, 72h (Pseudokirchneriella subcapitata) > 400 mg/L
NOEC, 72 h (Pseudokirchneriella subcapitata) 50 mg/L
OECD guideline 201

Microorganisms: Activated Sludge (read across)
EC50 3h 278 mg/L
EC10 3h 122.2 mg/L

Chronic (long-term) toxicity:

Fish: NOEC 34 days (Danio rerio) 15.28 mg/L (read across)

Crustaceans: NOEC 21 days (Daphnia magna) 9 mg/L (read across)

Persistence and degradability

Hydrolysis: Lithium carbonate dissociates in water. Hydrolysis produces basic solutions of lithium hydroxide and lithium hydrogen carbonate.

Biodegradation: Not relevant for inorganic substances.

Bioaccumulative potential: Lithium Carbonate has low potential for bioaccumulation.

Mobility in soil: Low potential for adsorption.

Results of PBT and vPvB assessment: PBT and vPvB assessment is not applicable to inorganic substances.

Endocrine disrupting properties: Lithium carbonate does not cause endocrine disruption.

Other adverse effects: None.

[cont...]

13. DISPOSAL CONSIDERATIONS

Waste treatment methods: Hazardous waste: HP4 Irritant, HP 6 Acute Toxicity.

Suitable methods: Dispose of contents / container in accordance with local / regional / national / international regulations.

Seek the advice of an approved waste disposal contractor for disposal at a licensed facility in accordance with national legislation.

Dispose of this material and its container to hazardous or special waste collection point.

14. TRANSPORT INFORMATION

ADR / RID / ADN / IMDG / ICAO-TI / IATA

UN number or ID number: Not classified as dangerous for transport under ADR, RID, ADN, IMDG or IATA

UN proper shipping name: None

Transport hazard class(es): Not applicable

Packing group: Not applicable

Environmental hazards: Not applicable

Special precautions for user: Not applicable

Maritime transport in bulk according to IMO instruments: Not applicable

15. REGULATORY INFORMATION

Safety, health and environmental regulations/legislation specific for the substance or mixture:

EU Regulations: The substance is classified and labelled according to the CLP Regulation. This safety data sheet is prepared in accordance with Annex II to Regulation (EC) No 1907/2006 as amended by Regulation (EU) No. 2020/878.

Authorisations and/or restrictions on use:

Authorisations: Lithium Carbonate is not on the REACH Candidate list.
Lithium carbonate is not listed in Annex XIV of REACH.

Restrictions on use: No restrictions according to REACH Annex XVII.

Chemical safety assessment: A chemical safety assessment has been carried out.

Note: The regulatory information given above only indicates the principal regulations specifically applicable to the product described in the safety data sheet. The user's attention is drawn to the possible existence of additional provisions which complete these regulations. Refer to all applicable national, international and local regulations or provisions.

16. OTHER INFORMATION

Relevant H-statements (number and full text):

Acute Tox. 4 H302 Acute Toxicity, category 4: Harmful if swallowed.
Eye Irrit. 2 H319 Serious Eye Damage/eye irritation, category 2: Causes serious eye irritation.

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Abbreviations and acronyms:

- DNEL Derived no-effect level
- EC50 Effective concentration of substance that causes 50% of the maximum response.
- NOEC No observed effect concentration
- NOAEL No observed adverse effect level
- LD50 Lethal dose 50%
- LC50 Median lethal concentration
- PBT Persistent, bioaccumulative and toxic
- PNEC Predicted no-effect concentration
- vPvB Very persistent and very bioaccumulative

Legal disclaimer:

The information contained in this SDS does not constitute a risk assessment, and should not replace the user's own assessment of risks as required by other health and safety legislation. This advice is given by Nexchem Ltd who accept no legal liability for it except otherwise provided by law. The information contained herein is based on the present state of our knowledge and is intended to describe our products from the point of view of safety requirements. It should not therefore be construed as guaranteeing specific properties.