SAFETY DATA SHEET LITHIUM CARBONATE

1. Identification of the Substance/Mixture and of the Company/Undertaking:

1.1 Product Identifier: Lithium carbonate
1.1.1 Substances Lithium carbonate
Alternate names and trade name Lithchips®
1.1.2 Mixture name: Not applicable
1.2 Relevant Identified Uses of the Substance or Mixture and Uses Advised Against:
Formulation and chemical synthesis in industrial manufacturing operations;
Additive for preparations and articles for industrial and consumer use;
Active ingredient in pharmaceutical preparations.
Do not use for private purposes (household).

1.3 Details of the Supplier of the Safety Data Sheet

North America
FMC Lithium
Seven LakePointe Plaza
2801 Yorkmont Rd, Suite 300
Charlotte, NC 28208
Phone: +1.704.868.5300
Fax: +1.704.868.5370
1.888.lithium

Email: lithium.info@fmc.com
Web: www.fmclithium.com

Europe
FMC Chemicals
Commercial Road
Bromborough, Merseyside
CH62 3NL, England
Phone: +44.151. 334.8085
Fax: +44.151.482.7361

Asia Pacific
FMC Asia Innovation Center
No 3 Building No. 4560
Jinke Road
Shanghai, China 201203
T: +86.21.2067.5888

1.4 Emergency Telephone Number:

North America
CHEMTREC: +1.800.424.9300
+1.703.527.3887
Plant: +1.704.629.5361
Medical: +1.303.595.9048

Europe
24 hr Specialist advice number:
CHEMTREC: +1.703.527.3887
Office (0900-1700)**:** +44.151.334.8085

Asia Pacific
Phone: +86.21.2067.5888

2. Hazards Identification

2.1 Classification of the Substance or mixture:
2.1.1 GHS Classification [EC Regulation No 1272/2008 and US OSHA regulations]
Acute Toxicity, Category 4
Eye Irritant, Category 2
2.2.2 EC: Classification according to 67/548/EEC or 1999/45/EC [DSD/DPD]
Xn, R22; Xi, R36

2.2 Label Elements:
2.2.3 Hazard Pictograms

2.2.4 Signal Word: Warning

Hazard Statement	Harmful if swallowed	H302
	Causes serious eye irritation	H319

Precautionary Statement(s):

Wear protective gloves/protective clothing/eye protection/face protection.	P280
IF IN EYES: Rinse cautiously w/ water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.	P305 + P351 + P338
If eye irritation persists: Get medical advice/attention.	P337 + P313
IF SWALLOWED: Call a POISON CENTER or doctor/physician if you feel unwell.	P301 + P312

Rinse mouth. P330
Wash hands thoroughly after handling. P264

Additional Precautionary Statement(s):

Do not eat, drink or smoke when using this product. P270
Dispose of contents/ container to an approved waste disposal plant. P501

2.3 Other Hazards

None.

3. Composition / Information on Ingredients

3.1 Substances

3.1.1 GHS Classification [EC: Regulation No 1272/2008; US: OSHA regulations]

Chemical Name	CAS #	EC No	EC Index No	REACH Reg No	Wt.%	Classification, Hazard Statement Codes	
Lithium carbonate	554-13-2	209-062-5	not avail.	01-2119516034-53-0005	100	Acute Tox. 4 Eye Irrit. 2	H302 H319

3.1.2 EC: Classification according to 67/548/EEC or 1999/45/EC [DSD/DPD]

Chemical Name	CAS #	EC No	Wt.%	Symbols	R-phrases
Lithium carbonate	554-13-2	209-062-5	100	Xn Xi	R22 R36

3.2 Mixtures Not applicable.

(see Section 16 for abbreviations and R-phrase text)

4. First Aid Measures

4.1 Description of First Aid Measures

EYES: Flush with water for at least 15 minutes. If irritation occurs and persists, contact a medical doctor.

SKIN: Wash with plenty of soap and water. Get medical attention if irritation occurs and persists.

INGESTION: Drink 1 or 2 glasses of water. Never give anything by mouth to an unconscious person. If any discomfort persists, obtain medical attention.

INHALATION: Remove to fresh air. If breathing difficulty or discomfort occurs and persists, obtain medical attention.

4.2 Most Important Symptoms and effects, both acute and delayed

Lithium carbonate has low toxicity and may produce moderate irritation.

4.3 Indication of any immediate medical attention and special treatment needed.

Notes to medical doctor:

Lithium carbonate has low toxicity and may produce moderate irritation. Treatment is symptomatic and supportive.

5. Fire-Fighting Measures

5.1 Extinguishing media Dry chemical, CO_2, water spray or regular foam.

5.2 Special hazards arising from the substance or mixture

Hazardous combustion products None
General Hazard No known physical hazard, non-combustible.
Properties contributing to Flammability None
Flashpoint Not applicable
Flammable limits in air Upper: Not available Lower: Not available.
Auto ignition temperature Not applicable
Sensitivity to static discharge Not applicable
Sensitivity to static impact Not applicable

5.3 Advice for fire-fighters

Wear full protective clothing and self-contained breathing apparatus (SCBA) approved for fire fighting. This is necessary to protect against the hazards of heat, products of combustion and oxygen

deficiency. Do not breathe smoke, gases or vapors generated.

COMMENTS:
(See Section 10, Stability and Reactivity)

6. Accidental Release Measures

6.1 Personal precautions, protective equipment and emergency procedures
Before cleanup measures begin, review the entire SDS with particular attention to Section 2, Hazards Identification; and Section 8, Exposure Controls/Personal Protection.

6.2 Environmental precautions
Do not wash into drains. Dispose of at qualified waste disposal facility.

6.3 Methods and material for containment and cleaning up
Sweep up and place in suitable container. Dispose of waste according to local and Federal laws and regulations.

6.4 Reference to other sections
Before cleanup measures begin, review the entire SDS with particular attention to Section 2, Hazards Identification; and Section 8, Exposure Controls/Personal Protection.

6.5 Additional information
Not specified.

7. Handling and Storage

7.1 Precautions for safe handling
Avoid contact with eyes, skin or clothing. Use with adequate ventilation. Wear safety glasses or goggles and rubber gloves. Wash thoroughly after handling.

7.2 Conditions for safe storage, including any incompatibilities
Keep away from strong acids. Keep container closed.

7.3 Specific end use(s)
Defined in Exposure scenarios. Industrial and professional use only

8. Exposure Controls / Personal Protection

8.1 Control parameters

DNEL

Long-term exposure, systemic, inhalation	10 mg/m^3
Long-term exposure, systemic, dermal	64 mg/kg/day

PNEC

PNEC aqua (freshwater, intermittent)	0.9 mg/l
PNEC STP	122 mg/l

EXPOSURE LIMITS

Chemical Name	EU TWA	EU STEL	EH40 (UK WEL) TWA	EH40 (UK WEL) STEL	USA (ACGIH) TWA	USA (ACGIH) STEL/Ceiling	USA (OSHA) PEL	USA (OSHA) STEL/Ceiling
Lithium carbonate	none*		none*		none*		none*	

* No occupational exposure limit value

8.2 Exposure controls

Engineering controls:
Use local exhaust ventilation to keep airborne concentrations below exposure limits.

Personal protective equipment

Eyes and Face: Safety glasses or goggles

Respiratory: When engineering controls are not adequate, wear a respirator approved for protection against inorganic dusts.
US: NIOSH or MSHA approved
Europe: CEN Class P type

Protective Clothing: **Gloves:** Nitrile/Neoprene/PVC/Natural Rubber (permeation breakthrough not detected during 6 hr test)
These glove recommendations should not be used as the absolute basis for glove selection. Actual in-use conditions may vary glove performance from the controlled conditions of laboratory tests. Factors such as concentration and

temperature, glove thickness and glove reuse, may affect performance. Other glove requirements, such as length, dexterity, cut, abrasion, puncture and snag resistance, or glove grip need to be considered in making your final selection.
Other: Not specified.

Work Hygienic Practices: Quick-drench eyewash and safety shower.

9. Physical and Chemical Properties

9.1 Information on basic physical and chemical properties

Appearance:	Solid, white granular or powder
Odor:	Odorless
Odor threshold:	None
pH:	(1% Slurry) @ 25ºC: 11.2
Melting point:	Decomposes at 1310°C (2390°F)
Boiling point:	Not applicable
Flash point:	Not applicable
Evaporation rate(butyl acetate = 1):	Not applicable
Flammability:	Not combustible
Flammable limits:	Not applicable
Vapor pressure:	Not applicable
Vapor density (air = 1):	Not applicable
Specific gravity:	2.1 g/ml
Solubility in water:	1.3 g/100 cc @ 20ºC
Partition coefficient n-octanol/ water:	Not available
Autoignition temperature:	Not applicable
Decomposition temperature:	Decomposes at 1310°C (2390°F)
Viscosity:	Not applicable
Explosive properties:	Not explosive
Oxidizing properties:	Not an oxidizer

9.2 Other information

Self-reactive properties	Does not meet classification criteria.
Pyrophoric properties	Does not meet classification criteria.
Self-heating properties	Does not meet classification criteria.
Water reactive properties	Does not meet classification criteria.
Corrosive to metals	Does not meet classification criteria.
Molecular weight:	73.89

10. Stability and Reactivity

10.1	**Reactivity**	Reacts with acids
10.2	**Chemical stability**	Stable
10.3	**Possibility of hazardous reaction**	Hazardous polymerization will not occur.
10.4	**Conditions to avoid**	Contact with acids
10.5	**Incompatible materials**	Acids
10.6	**Hazardous decomposition products**	None

11. Toxicological Information

11.1 Information on toxicological effects

(a) acute toxicity	Lithium carbonate acute oral toxicity > 525 mg/kg (rat) Lithium carbonate acute inhalation toxicity LC_{50}: >0.80 mg/L (4 hr. rat); No mortality at maximum attainable concentration Lithium carbonate acute dermal toxicity LD_{50}: >2000 mg/kg (rat),
(b) skin corrosion/irritation	Classified as not irritating to skin on the basis of lithium carbonate
(c) serious eye damage/irritation	Classified as irritant to eyes on the basis of lithium carbonate
(d) respiratory/skin sensitisation	Classed as not sensitizing to skin on the basis of lithium carbonate
(e) germ cell mutagenicity	Classified as not mutagenic based on lithium carbonate.
(f) carcinogenicity	Classified as not carcinogenic based on lithium carbonate.
(g) reproductive toxicity	Classified as not a reproductive toxin based on lithium carbonate.
(h) STOT-single exposure	Classified as not causing organ damage based on lithium carbonate

(i) STOT-repeated exposure	Classified as not causing organ damage on repeat exposure based on lithium carbonate.
(j) aspiration hazard	Lithium carbonate, a solid, does not present an aspiration hazard.

Lithium carbonate has been extensively tested for REACH registration

Acute Effects From Overexposure:
No data available for the formulation.
No envisaged effects other than acute effects from local irritation

Chronic Effects From Overexposure:
No data available for product.

Carcinogenicity Listings

EH40: Not listed.
IARC: Not listed.
NTP: Not listed.
OSHA: Not considered a carcinogen under OSHA.
ACGIH: Not listed.

12. Ecological Information

12.1 Toxicity: No classification
Lithium carbonate Daphnia magna: 48 hr. EC_{50} = 33.2 mg/L
Rainbow trout: 96 hr. LC_{50} = 30.3 mg/L

12.2 Persistence and degradability
Inorganic salt.

12.3 Bioaccumulative potential
Inorganic. Lithium salts are not bioaccumulative

12.4 Mobility in soil
No data available for the product.

12.5 Results of PBT and vPvB assessment
Based on the available test results, lithium carbonate was considered as a non PBT and a non vPvB substance

12.6 Other adverse effects
None

13. Disposal Considerations

13.1 Waste treatment methods
Use a qualified industrial waste disposal facility. Dispose of waste according to local and Federal laws and regulations.

14. Transport Information

14.1	**UN Number**	None
14.2	**UN proper shipping name (IMDG, ICAO, ADR, DOT)**	None
14.3	**Transport hazard class(es) (IMDG, ICAO, ADR, DOT)**	Based on available data, the classification criteria are not met.
14.4	**Packing group (IMDG, ICAO, ADR, DOT)**	None
14.5	**Environmental hazards**	Based on available data, the classification criteria are not met.
14.6	**Special precautions for user**	None

14.7 Transport in bulk according to Annex II of MARPOL73/78 and the IBC Code
None

15. Regulatory Information

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

EUROPEAN UNION:

German Wassergefährdungsklasse (water hazard class)

Lithium carbonate	1

UNITED STATES:

Section 311 Hazard Category (40 CFR 370):	Immediate (acute) health hazard,
Section 313 Reportable Ingredients (40 CFR 372):	This product contains lithium carbonate which is subject to the reporting requirements of Section 313 of the Emergency Planning and Right-To-Know Act of 1986. This information must be included in all SDS's that are copied and distributed for this material.
Section 302 Extremely Hazardous Substances (40 CFR 355):	Not listed
CERCLA Hazardous Substance (40 CFR 302.4):	Not listed
TSCA Sec 12b Export Notification:	This product is not subject to TSCA 12 (b) Export Notification Requirements.
NFPA Rating:	**Health:** 1 **Flammability:** 0 **Reactivity:** 0 **Special:** None

INTERNATIONAL INVENTORY STATUS:

Inventory/Country	Product Status
EINECS (EU)	Listed
TSCA (US)	Listed
ECL (Korea)	Listed
DSL (Canada)	Listed

15.2 Chemical Safety Assessment

The Chemical Safety Assessment has been completed for lithium carbonate.

16. Other Information

European Union:

R Phrases:

Harmful if swallowed	R22
Irritating to eyes	R36

List of Abbreviations used in this SDS:

PBT	Persistent, Bioaccumulative and Toxic
vPvB	very Persistent, very Bioaccumulative
PEC	Predicted environmental concentration
PNEC	Predicted no effect concentration
DNEL	Derived no effect level

REVISION SUMMARY: Revision # 2. Sections 2, 3 12 and 16 modified. Aquatic toxicity classification revised to show no classification. Exposure scenarios added.

This SDS has been prepared to meet U. S. OSHA Hazard Communication Standard requirements.
type 1b

Specific uses identified for Exposure Scenarios

ES1	Industrial use Formulation
ES2	Industrial use Chemical processing
ES3	Consumer use Consumer products