



Safety Data Sheet

Section 01 - Identification

Product Identifier	Lithium Shock
Other Means of Identification	None
Product Use and Restrictions on Use	Bacteria and algae control in swimming pools.
Initial Supplier Identifier	ClearTech Industries Inc. 1500 Quebec Avenue Saskatoon, SK. Canada S7K 1V7
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Section 02 - Hazard Identification

GHS-Classification

Acute Toxicity-Oral	Category 4
Skin Corrosion/Irritation	Category 1B
Serious Eye Damage/Irritation	Category 1

Physical Hazards

Oxidizing Solid	Category 2
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Danger

Hazards Statements

H302 – Harmful if swallowed.
H314 – Causes severe skin burns and eye damage.
H272 – May intensify fire; oxidiser.

Pictograms



Precautionary Statements

P405 – Store locked up.
P210 – Keep away from heat, sparks, open flames, and hot surfaces. — No smoking.
P220 – Keep/Store away from clothing, incompatible and combustible materials.
P280 – Wear protective gloves, protective clothing, eye protection, and face protection.

P370 + P378 – In case of fire: Use flooding quantities of water spray or fog for extinction.

P260 – Do not breathe dust.

P270 – Do not eat, drink or smoke when using this product.

P301 +P330 + P331 – IF SWALLOWED: Rinse mouth. Do NOT induce vomiting.

P303 + P361 + P353 – IF ON SKIN (or hair): Remove/Take off immediately all contaminated clothing. Rinse skin.

P363 – Wash contaminated clothing before reuse.

P304 + P340 – IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing.

P310 – Immediately call a POISON CENTER or doctor/physician.

P305 + P351 + P338 – IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.

P501 – Dispose of contents/container in accordance with all federal, provincial, and/or local regulations including the Canadian Environmental Protection Act.

Section 03 - Composition / Information on Ingredients

Chemical Name	CAS Number	Weight %	Unique Identifiers
Lithium Hypochlorite	13840-33-0	30-40%	

Section 04 - First Aid Measures

Inhalation	Can release chlorine gas. Remove victim to fresh air. Give artificial respiration only if breathing has stopped. If breathing is difficult, give oxygen. Seek immediate medical attention.
Skin Contact / Absorption	Flush contaminated area with lukewarm, gently flowing water for at least 30 minutes. Under running water, remove contaminated clothing, shoes and leather goods. Seek immediate medical attention. Completely decontaminate clothing, shoes and leather goods before reuse or discard.
Eye Contact	Flush immediately with water for at least 30 minutes while forcibly holding the eyelids open to ensure complete irrigation of the eye tissue. If a contact lens is present, remove only if easy to do so. Neutral saline solution may be used as soon as it is available. Seek immediate medical attention.
Ingestion	NEVER give anything by mouth if victim is rapidly losing consciousness, is unconscious or convulsing. Have victim rinse mouth with water. DO NOT INDUCE VOMITING. Have victim drink 240 to 300mL of water to dilute material in stomach. If vomiting occurs naturally, rinse mouth and repeat administration of water. Seek immediate medical attention.
Additional Information	Not Available.

Section 05 - Fire Fighting Measures

Suitable Extinguishing Media	Use extinguishing agents suitable for surrounding fire and is not contraindicated for use with lithium hypochlorite. Lithium hypochlorite is an oxidizing agent. Therefore, flooding quantities of water spray or fog should be used.
Unsuitable Extinguishing Media	DO NOT use dry chemical fire extinguishing agents containing ammonium compounds (such as some A:B:C agents), since an explosive compound can be formed. DO NOT use carbon dioxide, dry chemical powder or other extinguishing agents that smother flames.
Specific Hazards Arising From the Chemical	Chlorine, hydrogen chloride gas, oxygen gas and lithium oxides.
Special Protective Equipment and Precautions for Fire-Fighters	Wear NIOSH-approved self-contained breathing apparatus and protective clothing.
Further Information	Not Available.

Section 06 - Accidental Release Measures

Personal Precautions / Protective Equipment / Emergency Procedures	Wear appropriate personal protective equipment. Ventilate area. Only enter area with PPE. Stop or reduce leak if safe to do so.
Environmental Precautions	Prevent material from entering sewers.
Methods and Materials for Containment and Cleaning Up	Contain spill with earth, sand or absorbent material which does not react with spilled material. SMALL SPILLS: Shovel into clean, dry, labelled containers and cover. Flush area with water. Contaminated absorbent material may pose the same hazards as the spilled product. LARGE SPILLS: Contact fire and emergency service and supplier for advice.

Section 07 - Handling and Storage

Precautions for Safe Handling	This material is a MILD TO MODERATE OXIDIZER and is also CORROSIVE. Use proper equipment for lifting and transporting all containers. Use sensible industrial hygiene and housekeeping practices. Wash thoroughly after handling. Avoid all situations that could lead to harmful exposure.
Conditions for Safe Storage	Store in a cool, dry, well-ventilated area, out of direct sunlight and away from heat sources. Protect from moisture and keep away from incompatible materials.
Incompatibilities	Flammable and combustible materials, acids, ammonium salts, ammonia, urea, phenylacetonitrile, primary amines, reducing agents, finely powdered metals, ethyleneimine, methanol.

Section 08 - Exposure Controls and Personal Protection

Exposure Limit(s)

Component	Regulation	Type of Listing	Value
Lithium hypochlorite	Not Established		

Engineering Control(s)

Ventilation Requirements	Mechanical ventilation (dilution or local exhaust), process or personnel enclosure and control of process conditions must be provided in accordance with all fire codes and regulatory requirements. Supply sufficient replacement air to make up for air removed by exhaust systems.
Other	Emergency shower and eyewash must be available and tested in accordance with regulations and be in close proximity.

Protective Equipment

Eyes/Face	Chemical safety goggles. A face shield may also be necessary. Contact lenses should not be worn; they may contribute to severe eye injury.
Hand Protection	Impervious gloves of chemically resistant material (rubber or PVC) should be worn at all times. Wash contaminated clothing and dry thoroughly before reuse.
Skin and Body Protection	Body suite, aprons, and/or coveralls of chemical resistant material should be worn at all times. Wash contaminated clothing and dry thoroughly before reuse. Impervious boots of chemically resistant material should be worn at all times. No special footwear is required other than what is mandated at place of work.

Respiratory Protection

NIOSH RECOMMENDATIONS FOR CHLORINE CONCENTRATIONS IN AIR:

Up to 5 ppm:

(APF = 10) Chemical cartridge respirator; SAR.

Up to 10 ppm:

(APF = 25) SAR operated in a continuous-flow mode; Powered, air-purifying respirator with cartridge(s).

(APF = 50) Chemical cartridge respirator with a full facepiece and cartridge(s); Air-purifying, full-facepiece respirator (gas mask) with a chin-style, front- or back-mounted canister; SCBA with a full facepiece; Full facepiece SAR.

Emergency or planned entry into unknown concentrations or IDLH conditions:

(APF = 10,000) SCBA that has a full facepiece and is operated in a pressure-demand or other positive-pressure mode; SAR that has a full facepiece and is operated in a pressure-demand or other positive-pressure mode in combination with an auxiliary SCBA

Escape:

(APF = 50) Any air-purifying, full-facepiece respirator (gas mask) with a chin-style, front- or back-mounted canister;

Any appropriate escape-type SCBA.

NOTE: The IDLH concentration for chlorine is 10 ppm.

Thermal Hazards

Not Available.

Section 09 - Physical and Chemical Properties

Appearance

Physical State Solid, granules

Colour White

Odour Chlorine odour

Odour Threshold Not Available

Property

pH 11 (40% solution)

Melting Point/Freezing Point Decomposes above 100°C to give off oxygen

Initial Boiling Point and Boiling Range Decomposes above 100°C

Flash Point Not Applicable

Evaporation Rate Not Available

Flammability Non-flammable. Product is a strong oxidizer and contact with combustible material may cause fire.

Upper Flammable Limit Not Applicable

Lower Flammable Limit Not Applicable

Vapour Pressure (mm Hg, 20°C) Very low

Vapour Density (Air=1) Not Available

Relative Density Not Available

Solubility(ies)	Very soluble in water. Reacts with some organic solvents.
Partition Coefficient: n-octanol/water	Not Available
Auto-ignition Temperature	Not Applicable
Decomposition Temperature	Not Available
Viscosity	Not Available
Explosive Properties	Not Available
Specific Gravity (Water=1)	Not Available
% Volatiles by Volume	Not Available
Formula	LiOCl
Molecular Weight	58.4

Section 10 - Stability and Reactivity

Reactivity	The National Fire Protection Association (NFPA) lists lithium hypochlorite ($\leq 39\%$ available chlorine) as a Class 1 Oxidizer and lithium hypochlorite ($>39\%$ available chlorine) as a Class 2 Oxidizer. Class 1 Oxidizers do not moderately increase the burning rate of combustible materials with which they come into contact. Class 2 Oxidizers cause a moderate increase in the burning rate of combustible materials with which they come into contact. Lithium hypochlorite releases oxygen when exposed to sunlight. Dry lithium hypochlorite decomposes above 100°C giving off oxygen.
Stability	Normally stable. At normal temperatures, reacts slowly with moist air or carbon dioxide to give off low concentrations of corrosive chlorine gas.
Possibility of Hazardous Reactions	Polymerization does not occur.
Conditions to Avoid	Heat, sunlight, moisture/high humidity, acidic conditions, the presence of metals and other impurities.
Incompatible Materials	Flammable and combustible materials, acids, ammonium salts, ammonia, urea, phenylacetonitrile, primary amines, reducing agents, finely powdered metals, ethyleneimine, methanol.
Hazardous Decomposition Products	Chlorine, oxygen, lithium chlorate, lithium chloride.

Section 11 - Toxicological Information

Acute Toxicity

Component	Oral LD ₅₀	Dermal LD ₅₀	Inhalation LC ₅₀
Lithium hypochlorite	Not Available	Not Available	Not Available

Chronic Toxicity – Carcinogenicity

Component	IARC
Lithium hypochlorite	Not considered carcinogenic to humans.

Skin Corrosion/Irritation	Irritating to moist skin and may cause corrosive injury.
Ingestion	High doses can result in vomiting, diarrhea, abdominal pain, central nervous system effects, kidney injury and death.
Inhalation	Chlorine can cause severe irritation of the nose, throat and lungs. Severe lung damage and even death can result.
Serious Eye Damage/Irritation	Dust is probably irritating to the eye, and may cause corrosive injury. Lithium hypochlorite solutions decompose slowly on contact with air and release chlorine gas. Chlorine is severely irritating to the eyes at concentrations of 1ppm and higher.
Respiratory or Skin Sensitization	Not Available
Germ Cell Mutagenicity	Not considered mutagenic.
Reproductive Toxicity	Not enough evidence to suggest that lithium hypochlorite causes reproductive toxicity. The lithium ion is capable of crossing the placenta and can pass freely into breast milk.
STOT-Single Exposure	Not Available
STOT-Repeated Exposure	Not Available
Aspiration Hazard	Not Available
Synergistic Materials	Not Available

Section 12 – Ecological Information

Ecotoxicity

Component	Toxicity to Algae	Toxicity to Fish	Toxicity to Daphnia and Other Aquatic Invertebrates
Lithium hypochlorite	Not Available	LC ₅₀ (Oncorhynchus mykiss, 96hr): 0.20mg/L	EC ₅₀ (Daphnia magna, 48hr): 0.004mg/L
Biodegradability	Not Available		
Bioaccumulation	Not Available		
Mobility	Not Available		
Other Adverse Effects	Not Available		

Section 13 – Disposal Considerations

Waste From Residues/Unused Products	Dispose in accordance with all federal, provincial, and/or local regulations including the Canadian Environmental Protection Act.
Contaminated Packaging	Dispose in accordance with all federal, provincial, and/or local regulations including the Canadian Environmental Protection Act.

Section 14 – Transport Information

UN Number	UN1471
UN Proper Shipping Name	LITHIUM HYPOCHLORITE, DRY
Transport Hazard Class(es)	5.1
Packaging Group	II
Environmental Hazards	Not listed as a marine pollutant under Canadian TDG Regulations, schedule III.
Special Precautions	Not Available
Transport in Bulk	Not Available

Additional InformationPacking GroupLimited Quantity Index

II

1 Kg

III

5 Kg

TDG**Other**

Secure containers (full and/or empty) with suitable hold down devices during shipment and ensure all caps, valves, or closures are secured in the closed position.

TDG PRODUCT CLASSIFICATION: This product has been classified on the preparation date specified at section 14 of this MSDS / SDS, for transportation in accordance with the requirements of part 2 of the Transportation of Dangerous Goods Regulations. If applicable, testing and/or published test data regarding the classification of this product are listed in the references at section 16 of this MSDS / SDS.

Section 15 – Regulatory Information

NOTE: THE PRODUCT LISTED ON THIS SDS HAS BEEN CLASSIFIED IN ACCORDANCE WITH THE HAZARD CRITERIA OF THE CANADIAN CONTROLLED PRODUCTS REGULATIONS. THIS SDS CONTAINS ALL INFORMATION REQUIRED BY THOSE REGULATIONS.

Section 16 – Other Information

Preparation Date

September 10, 2015

Note: The responsibility to provide a safe workplace remains with the user. The user should consider the health hazards and safety information contained herein as a guide and should take those precautions required in an individual operation to instruct employees and develop work practice procedures for a safe work environment. The information contained herein is, to the best of our knowledge and belief, accurate. However, since the conditions of handling and use are beyond our control, we make no guarantee of results, and assume no liability for damages incurred by the use of this material. It is the responsibility of the user to comply with all applicable laws and regulations.

Attention: Receiver of the chemical goods / SDS coordinator

As part of our commitment to the Canadian Association of Chemical Distributors (CACD) Responsible Distribution[®] initiative, ClearTech Industries Inc. and its associated companies require, as a condition of sale, that you forward the attached Safety Data Sheet(s) to all affected employees, customers, and end-users. ClearTech will send any available supplementary handling, health, and safety information to you at your request.

If you have any questions or concerns please call our customer service center.

References:

- 1) CHEMINFO
- 2) eChemPortal
- 3) TOXNET
- 4) Transportation of Dangerous Goods Canada
- 5) HSDB
- 6) ECHA
- 7) PAN

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