



Safety Data Sheet

Section 01 - Product And Company Identification

Product Identifier	Calcium Hypochlorite, Granular
Other Means of Identification	Calcium oxychloride; chlorinated lime; hypochlorous acid; Chlortabs; bleaching powder; calcium chlorohydrochlorite; lime chloride.
Product Use and Restrictions on Use	Disinfection in swimming pools and drinking water supplies; slime and odour control. Sanitizer and oxidizer.
Initial Supplier Identifier	ClearTech Industries Inc. 1500 Quebec Avenue Saskatoon, SK. Canada S7K 1V7
Prepared By	ClearTech Industries Inc. Technical Writer Phone: 1 (800) 387-7503
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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 for extinction.

P260 – Do not breathe dust.

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

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

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

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

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

P363 – Wash contaminated clothing before reuse.

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

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
Calcium Hypochlorite	7778-54-3	60-80%	
Sodium Chloride	7647-14-5	10-20%	
Calcium Chlorate	10137-74-3	0-5%	
Calcium Chloride	10043-52-4	0-5%	
Calcium Hydroxide	1305-62-0	0-4%	
Calcium Carbonate	471-34-1	0-5%	
Water	7732-18-5	5.5-10%	

Section 04 - First Aid Measures

Inhalation	Remove victim to fresh air. Give oxygen only if breathing has stopped. If breathing is difficult, give oxygen. Seek immediate medical attention.
Skin Contact / Absorption	Remove contaminated clothing under running water. Rinse skin with lukewarm, gently flowing water for at least 30 minutes. If irritation persists, repeat flushing. DO NOT INTERRUPT FLUSHING. Seek immediate medical attention. Completely decontaminate clothing, shoes and leather goods before reuse or discard.
Eye Contact	Immediately flush the contaminated eye(s) with lukewarm, gently flowing water for at least 30 minutes. 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 thoroughly with water. DO NOT INDUCE VOMITING. Have victim drink 240 to 300mL of water to dilute material in stomach. If vomiting occurs naturally, repeat water administration. Seek immediate medical attention.
Additional Information	Can release corrosive chlorine gas. Take proper precautions to ensure your own safety before attempting rescue. DO NOT allow victim to move about unnecessarily. Symptoms of pulmonary edema can be delayed up to 48 hours after exposure. Avoid mouth-to-mouth contact by using mouth guards or shields.

Section 05 - Fire Fighting Measures

Suitable Extinguishing Media	Use extinguishing agents suitable for the surrounding fire and not contraindicated for use with calcium hypochlorite. Calcium hypochlorite is an oxidizing agent. Therefore, flooding quantities of water spray or fog should be used to fight fires involving calcium hypochlorite.
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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 Calcium hypochlorite can undergo accelerated decomposition with the release of significant amounts of heat, chlorine and oxygen, forming an oxygen-rich atmosphere. Calcium hypochlorite is a serious fire and explosion hazard when contaminated with, or comes in contact, with oxidizable, combustible materials. Combustion and thermal decomposition products include: chlorine, hydrogen chloride gas, oxygen gas and calcium oxides.

Special Protective Equipment and Precautions for Fire-Fighters Wear NIOSH-approved self-contained breathing apparatus and protective gear.

Further Information Decomposition products are extremely hazardous to health.

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. Flush with water to remove any residue.

Environmental Precautions Prevent material from entering sewers, waterways or confined spaces. Chlorine is highly toxic to all forms of aquatic life.

Methods and Materials for Containment and Cleaning Up SMALL SPILLS: Collect, using a clean, dry shovel. Transfer to a container, that contains water. Carefully destroy the hypochlorite by adding hydrogen peroxide. Hydrogen peroxide reacts with calcium hypochlorite to form calcium chloride and oxygen gas. Do not close container. Other chemicals that can be used are sodium sulfite and sodium bisulfite. Once calcium hypochlorite is reduced, the remaining solution should be neutralized cautiously with dilute hydrochloric or sulfuric acid.
LARGE SPILLS: Contact fire and emergency services and the supplier for advice.
NOTE: Oxygen may be released during neutralization. Decontamination should be done in an open container, in a well-ventilated area away from sources of ignition.

Section 07 - Handling and Storage

Precautions for Safe Handling This material is a MODERATE to STRONG OXIDIZER and is 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 Keep product tightly sealed in original containers. Store product in a cool, dry, well-ventilated area. Store away from combustible or flammable products. Do not store product where the average daily temperature exceeds 35°C/95°F. Storage above this temperature may result in rapid decomposition, evolution of chlorine gas and heat sufficient to ignite combustible products.

Incompatibilities Flammable and combustible materials, ammonia, primary amines, urea, acids, ammonium chloride, ethanol or methanol, hydroxyl compounds, acetylene, acetic acid and potassium cyanide, reducing agents, metal oxides, charcoal, metals, organic sulfur compounds, sulfur, turpentine.

Section 08 - Exposure Controls and Personal Protection

Exposure Limit(s)

Component	Regulation	Type of Listing	Value
Calcium hypochlorite	Not Established		
Chlorine	ACGIH	TLV-TWA	0.5ppm

	ACGIH	TLV-STEL	1ppm
Calcium hydroxide	ACGIH	TLV-TWA	5mg/m ³
	OSHA	PEL-T-TWA	15mg/m ³
Calcium carbonate	OSHA	PEL-TWA	15mg/m ³

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 goggles, full-face shield, or a full-face respirator should be worn at all times when product is handled. 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

For chlorine:

Wear NIOSH-approved self-contained breathing apparatus and protective clothing.

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
Colour	White
Odour	Slight chlorine odour
Odour Threshold	Not Available

Property

pH	10.4-10.8
Melting Point/Freezing Point	100°C
Initial Boiling Point and Boiling Range	Product decomposes @ 100°C
Flash Point	Not combustible
Evaporation Rate	Not Available
Flammability	Not flammable. Calcium hypochlorite is a strong oxidizing agent and can increase the risk of fire or the intensity of a fire.
Upper Flammable Limit	Not Applicable
Lower Flammable Limit	Not Applicable
Vapour Pressure (mm Hg, 20°C)	Does not form vapour.
Vapour Density (Air=1)	Not Applicable.
Relative Density	67-71kg/m ³
Solubility(ies)	217g/L @ 27°C in water
Partition Coefficient: n-octanol/water	Log K _{ow} = -2.46
Auto-ignition Temperature	Not Applicable
Decomposition Temperature	170-180°C
Viscosity	Not Applicable
Explosive Properties	Not sensitive to mechanical impact or static discharge.
Specific Gravity (Water=1)	2.35
% Volatiles by Volume	Not Available
Formula	Ca(ClO) ₂
Molecular Weight	142.98

Section 10 - Stability and Reactivity

Reactivity	The National Fire Protection Association (NFPA) lists calcium hypochlorite (over 50% by weight) as a class 3 oxidizer. Class 3 Oxidizers cause a sever increase in the burning rate of combustible materials with which they came into contact.
Stability	Inherently unstable. The rate of decomposition of the pure, dry material is extremely low at room temperature. Decomposition is accelerated in the presence of small amounts of water, moist air, carbon dioxide and/or the presence of contaminants.
Possibility of Hazardous Reactions	Small quantities will not usually undergo self-heating or spontaneous ignition under normal conditions of storage and handling. However, small quantities may spontaneously ignite, either through self-heating due to decomposition or due to the presence of contaminants.
Conditions to Avoid	Heat, sunlight (a heat source), contamination with combustible materials, moisture/high humidity, acidic conditions, the presence of metals and other impurities.
Incompatible Materials	Flammable and combustible materials, ammonia, primary amines, urea, acids, ammonium chloride, ethanol or methanol, hydroxyl compounds, acetylene, acetic acid and potassium cyanide, reducing agents, metal oxides, charcoal, metals, organic sulfur compounds, sulfur, turpentine.
Hazardous Decomposition Products	Chlorine, oxygen, dichlorine monoxide, calcium chlorate, calcium hydroxide, calcium carbonate.

Section 11 - Toxicological Information

Acute Toxicity Estimate

Component	Oral LD ₅₀	Dermal LD ₅₀	Inhalation LC ₅₀
Calcium Hypochlorite, HTH Tablets	951 mg/kg	2210 mg/kg	482 mg/m ³

This product has been classified in accordance with the Hazardous Products Regulations using ATE formula documented in the GHS standard.

Chronic Toxicity – Carcinogenicity

Component	IARC
Calcium hypochlorite	Group 3: Not classifiable to its carcinogenicity to humans.
Skin Corrosion/Irritation	Corrosive to the skin.
Ingestion	Ingestion can cause burning of the mouth and throat. Product can be fatal if swallowed.
Inhalation	Inhalation of dust and deposition of particales in the respiratory tract can lead to irritation of the tissue and cause a variety of effects.
Serious Eye Damage/Irritation	Corrosive to the eyes.
Respiratory or Skin Sensitization	Not known to be a skin or respiratory sensitizer.
Germ Cell Mutagenicity	There is no human or animal information available. Calcium hypochlorite was mutagenic in bacteria and cultured mammalian cells.
Reproductive Toxicity	Not known to be toxic to reproduction.
STOT-Single Exposure	Severely irritating to respiratory system.
STOT-Repeated Exposure	Calcium hypochlorite can irritate the lungs.
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
Calcium hypochlorite	EC ₅₀ (Green algae, 72hr): 0.983mg/L	LC ₅₀ (Lepomis macrochirus, 96hr): 0.057mg/L	EC ₅₀ (Daphnia magna, 48hr): 0.073mg/L
Sodium chloride	EC ₅₀ (Duckweed, 7d): 4880mg/L	LC ₅₀ (Lepomis macrochirus, 96hr): 5840mg/L	EC ₅₀ (Daphnia magna, 48hr): 40.26mg/L
Calcium chloride	EC ₅₀ (Diatom, 96hr): 3130mg/L	LC ₅₀ (Pimephales promelas, 96hr): 4630mg/L	EC ₅₀ (Daphnia magna, 48hr): 759mg/L
Calcium hydroxide	EC ₅₀ (Blue-green algae, 22hr): 84mg/L	LC ₅₀ (Gambusia affinis, 96hr): 160mg/L	LC ₅₀ (Crangon septemspinosa, 96hr): 158mg/L
Calcium carbonate	Not Available	LC ₅₀ (Gambusia affinis, 96hr): >56000mg/L	Not Available

Biodegradability

Product is not biodegradable. Chlorine can however be converted to chloride by reducers in the natural environment. Presence of light will accelerate dissipation of chlorine in water.

Bioaccumulation

There is no potential for bioaccumulation.

Mobility

Not Available.

Other Adverse Effects

Chlorine is highly toxic to all forms of aquatic life.

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	UN2880	
UN Proper Shipping Name	CALCIUM HYPOCHLORITE, HYDRATED MIXTURE	
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 Information	<u>Packing Group</u>	<u>Limited Quantity Index</u>
	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

March 1, 2016

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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