SAFETY DATA SHEET

Calcium Chloride 35% Soln

SECTION 1: IDENTIFICATION

Product identifier used on a label:	**Calcium Chloride 35% Soln**
Product code:	5003
Recommended use of the chemical and restrictions on use:	Brewery additive, sequestrant and firming agent in food processing and firmness and enhancement flavour for pickles.
Chemical family:	
Name, address and phone # of supplier:	Aqua Bond Inc. 440 Passmore Ave. Toronto, ON, M1V 5J8 (416) 754-7211
24 Hr. Emergency phone #	**CANUTEC (613) 996-6666**

SECTION 2: HAZARDS IDENTIFICATION

Classification of the chemical: This material is classified as hazardous under U.S. OSHA regulations (29CFR 1910.1200) (Hazcom 2012) and Canadian WHMIS regulations (Hazardous Products Regulations) (WHMIS 2015).

Hazard classification:
SKIN IRRITATION - CATEGORY 2
SERIOUS EYE IRRITATION - CATEGORY 2A

Label elements:



Signal word: Warning

Hazard statements:
H315 causes skin irritation
H319 causes serious eye irritation

Precautionary statements:
P264 Wash hands thoroughly after handling.
P280 Wear protective gloves/eye protection/face protection.
P302+P352 If on skin: wash with plenty of water.
P305+P351+P338 If in eyes: rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
P332 If skin irritation occurs: get medical attention.
P337+P313 If eye irritation persists: get medical advice.
P362 Take off contaminated clothing
P364 Wash contaminated clothing before reuse.

Other hazards: Not available.

SECTION 3: COMPOSITION/INFORMATION ON INGREDIENTS

Pure substance/ mixture:	Mixture	**Concentration (%)**
Ingredient name	**CAS Number**	
Calcium Chloride 80 - 87% Flake	10035-04-8	34-36
Water	7732-18-5	Balance

Concentrations are shown as ranges due to batch variation.

SECTION 4: FIRST-AID MEASURES

Description of first aid measures:

Ingestion — Rinse mouth. Do NOT induce vomiting. Give plenty of water to drink. Get medical help immediately.

Inhalation — Get medical attention immediately. Call a poison center or physician. Remove victim to fresh air and keep at rest in a position comfortable for breathing. If it is suspected that mists are still present, the rescuer should wear an appropriate mask or self-contained breathing apparatus. If not breathing, if breathing is irregular or if respiratory arrest occurs, provide artificial respiration or oxygen by trained personnel. It may be dangerous to the person providing aid to give mouth-to-mouth resuscitation. If unconscious, place in recovery position and get medical attention immediately. Maintain an open airway.

Skin contact — If on skin, wash with plenty of water. If skin irritation occurs: Get medical advice/ attention. Take off contaminated clothing and wash before reuse. SPECIFIC TREATMENT: Wash with lots of water.

Eye contact — Get medical attention immediately. Call a poison center or physician. Check for and remove any contact lenses. Immediately flush eyes with running water for at least 30 minutes, keeping eyelids open. Chemical burns must be treated promptly by a physician. Washing eyes within several seconds of exposure is essential to minimize damage.

Most important symptoms and effects, both acute and delayed:

Acute Symptoms/Effects: Listed below.
Inhalation (Breathing): Inhaling mist, spray, or vapor may cause irritation to upper respiratory tract (nose and throat). Nasal mucosal and oropharyngeal erythema.
Skin: Skin Irritation. Skin exposure may cause slight irritation, redness, itching, and swelling. May cause more severe response if skin is damp, abraded (scratched or cut), or covered by clothing, gloves, or footwear. Prolonged contact may cause more severe symptoms. Damage is localized to contact areas.
Eye: Eye Irritation. Eye exposure may cause serious eye irritation and pain. May cause conjunctival swelling and cornea opacification from hypertonic solution. Corneal eye pain, redness, acute corneal thickening or whitening.
Ingestion (Swallowing): Consumption of solids or hypertonic solutions causes nausea, vomiting, and increased thirst.

Delayed Symptoms/Effects: Chronic exposures to skin and mucus membranes that cause irritation may cause a chronic dermatitis or mucosal membrane problem

Interaction with Other Chemicals Which Enhance Toxicity: None known.
Medical Conditions Aggravated by Exposure: Any skin condition that disrupts the skin, such as abrasions, cuts, psoriasis, fungal infections, etc. Any eye condition that compromises tear production, conjunctiva, or normal corneal homeostasis.
Protection of First-Aiders: At minimum, treating personnel should utilize PPE sufficient for prevention of blood borne pathogen transmission. If potential for exposure exists refer to Section 8 for specific personal protective equipment.
Notes to Physician: Due to irritant properties, swallowing may result in burns/ulceration of mouth, stomach and lower gastrointestinal tract with subsequent stricture. Aspiration of vomitus may cause lung injury. Suggest endotracheal/esophageal control if lavage is done. If burn is present, treat as any thermal burn, after decontamination. No specific antidote. Treatment of exposure should be directed at the control of symptoms and the clinical condition of the patient.

SECTION 5: FIRE-FIGHTING MEASURES

Extinguishing media: Use extinguishing agents appropriate for surrounding fire.

Suitable	
Unsuitable	None known.
Special hazards arising from the substance:	This material does not burn.
Hazardous thermal decomposition products:	Formed under fire conditions: hydrogen chloride gas, calcium oxide Promptly isolate the scene by removing all persons from the vicinity of the incident if there is a fire. No action shall be taken involving any personal risk or without suitable training. Move containers from fire area if this can be done without risk. Use water spray to keep fire-exposed containers cool.
Special protective actions for fire-fighters:	
Special protective equipment for fire-fighters:	Fire-fighters should wear appropriate protective equipment and self-contained breathing apparatus (SCBA) with a full face-piece operated in positive pressure mode.

SECTION 6: ACCIDENTAL RELEASE MEASURES

Personal precautions, protective equipment and emergency procedures:	No action shall be taken involving any personal risk or without suitable training. Evacuate surrounding areas. Keep unnecessary and unprotected personnel from entering. Spilled material may cause a slipping hazard on some surfaces. Do not touch or walk through spilled material.
Environmental precautions:	Avoid dispersal of spilled material and runoff and contact with soil, waterways, drains and sewers. Prevent entry into sewers, water courses, basements or confined areas. Inform the relevant authorities if the product has caused environmental pollution (sewers, waterways, soil or air). Contain spilled material if possible. Absorb with materials such as sand. Collect in suitable and properly labeled containers. Stop leak if without risk. Move containers from spill area. Flush residue with plenty of water. Dispose of via a licensed waste disposal contractor.
Methods and materials for containment and cleaning up:	

Special spill response procedures:	In case of transportation accident, contact CHEMTREC at 1-800-424-9300.

SECTION 7: HANDLING AND STORAGE

Precautions for safe handling:	Put on appropriate personal protective equipment. Avoid exposure -obtain special instructions before use. Do not handle until all safety precautions have been read and understood. Do not get in eyes or on skin or clothing. Do not breathe vapor or mist. Do not ingest. Use only with adequate ventilation. Wash thoroughly after handling. Wear personal protective equipment as described in Exposure Controls/Personal Protection (Section 8) of the SDS.
Conditions for safe storage:	Store in accordance with local regulations. Store in a segregated and approved area. Protect from atmospheric moisture. Keep containers closed when not in use. Keep separated from incompatible substances (see below or Section 10 of the Safety Data Sheet).Do not store in unlabeled containers.

Incompatible materials: Avoid contact with: bromide trifluoride, 2-furan percarboxylic acid because calcium chloride is incompatible with those substances. Contact with zinc forms flammable hydrogen gas, which can be explosive. Catalyzes exothermic polymerization of methyl vinyl ether. May release flammable hydrogen gas. Reaction of bromide impurity with oxidizing materials may generate trace levels of impurities such as bromates.

SECTION 8: EXPOSURE CONTROLS/PERSONAL PROTECTION

Control parameters:

Exposure limits

Ingredient	**Exposure limits**
Calcium Chloride	**OSHA Final PEL** **TWA** 15mg/m^3 (Total) 5mg/m^3 (Respirable) **ACGIH** **TWA** 10mg/m^3 (Inhalable) 3mg/m^3 (Respirable)

Engineering controls: Use with proper ventilation to keep worker exposure to airborne contaminants below any recommended or statutory limits. Use local exhaust ventilation, or other engineering controls to maintain airborne levels below exposure limit requirements or guidelines. If there are no applicable exposure limit requirements or guidelines, general ventilation should be sufficient for most operations. Local exhaust ventilation may be necessary for some operations.

Individual protection measures:

Eyes/face: Chemical splash goggles and face shield.

Skin: Chemical-resistant, impervious gloves complying with an approved standard should be worn at all times when handling chemical products if a risk assessment indicates this is necessary. Personal protective equipment for the body should be selected based on the task being performed and the risks involved and should be approved by a specialist before handling this product.

Hand Protection: Use gloves chemically resistant to this material. If hands are cut or scratched, use gloves chemically resistant to this material even for brief exposures. Examples of preferred glove barrier materials include: Neoprene, Polyvinyl chloride ("PVC" or "vinyl"), Nitrile/ butadiene rubber ("nitrile" or "NBR"). NOTICE: The selection of a specific glove for a particular application and duration of use in a workplace should also take into account all relevant workplace factors such as, but not limited to: Other chemicals which may be handled, physical requirements (cut/puncture protection, dexterity, thermal protection), potential body reactions to glove materials, as well as the instructions/specifications provided by the glove supplier.

Respiratory: Wear appropriate respirator when ventilation is inadequate. Be sure to use a NIOSH approved respirator or equivalent. Respiratory protection should be worn when there is a potential to exceed the exposure limit requirements or guidelines. If there are no applicable exposure limit requirements or guidelines, wear respiratory protection when adverse effects, such as respiratory irritation or discomfort have been experienced, or where indicated by your risk assessment process. In dusty or misty atmospheres, use an approved particulate respirator. The following should be effective types of air-purifying respirators: High efficiency particulate air (HEPA) N95. A respiratory protection program that meets 29 CFR 1910.134 must be followed whenever workplace conditions warrant use of a respirator.

SECTION 9: PHYSICAL AND CHEMICAL PROPERTIES

Appearance:	Colourless liquid
Odour:	Odourless
Odor threshold:	Not applicable
Decomposition Temperature:	Not applicable
Boiling Point/Range:	110°C - 122°C
Melting point:	Not applicable
Freezing Point/Range:	- 47°C
Specific Gravity:	1.32 to 1.40 @ 20°C
pH:	9
Flash point:	Not applicable
Upper and Lower Flammability:	Not applicable
Auto-ignition temperature:	Not applicable
Water Solubility:	Completely miscible
Density:	11.01 - 11.67 lbs./gal @ 20°C
Hygroscopic:	Yes

SECTION 10: STABILITY AND REACTIVITY

Reactivity:	Hygroscopic
Chemical stability:	Stable at normal temperatures and pressures.
Possibility of hazardous reactions:	No data available.
Conditions to avoid:	None known - static discharge, shock, or vibration.
Incompatible materials:	Avoid contact with: bromide trifluoride, 2-furan percarboxylic acid because calcium chloride is incompatible with those substances. Contact with zinc forms flammable hydrogen gas, which can be explosive. Catalyzes exothermic polymerization of methyl vinyl ether. May release flammable hydrogen gas. Reaction of bromide impurity with oxidizing materials may generate trace levels of impurities such as bromates.
Hazardous decomposition products:	Formed under fire conditions: hydrogen chloride gas, calcium oxide

Hazardous Polymerization: Will not occur.

SECTION 11: TOXICOLOGICAL INFORMATION

TOXICITY DATA:

PRODUCT TOXICITY DATA: Calcium Chloride 35% Soln

LD50 Oral:	LD50 Dermal:	LD50 Inhalation:
2282 mg/kg - Oral Acute Toxicity Estimate (ATE)	6013 mg/kg - Dermal Acute Toxicity Estimate (ATE)	No data available

COMPONENT TOXICITY DATA: Calcium chloride CAS no. 10043-52-4

LD50 Oral:	LD50 Dermal:	LD50 Inhalation:
1000 mg/kg (Rat)	2630 mg/kg (Rat)	No data available

Potential health effects (acute):

Eye contact:	May cause serious eye irritation. May cause slight corneal injury. Effects may be slow to heal.
Skin contact:	Brief contact is essentially nonirritating to skin. Prolonged contact may cause skin irritation, even a burn. May cause more severe response if skin is damp, abraded (scratched or cut), or covered by clothing, gloves, or footwear. Not classified as corrosive to the skin according to DOT guidelines.
Inhalation:	Vapors are unlikely due to physical properties. Mist may cause irritation to upper respiratory tract (nose and throat).
Ingestion:	Low toxicity if swallowed. Small amounts swallowed incidentally as a result of normal handling operations are not likely to cause injury; however, swallowing larger amounts may cause injury. Swallowing may result in gastrointestinal irritation or ulceration.
Chronic Effects:	Chronic exposures to calcium chloride that cause irritation may cause a chronic dermatitis or mucosal membrane problem.

SIGNS AND SYMPTOMS OF EXPOSURE:

Solution and or solids may be visible on the skin and or eyes. Localized redness, warmth, and irritation consistent with mechanism of injury: abrasion, burn, hypertonic solution.

Inhalation (Breathing): Inhaling mist, spray, or vapor may cause irritation to upper respiratory tract (nose and throat). Nasal mucosal and oropharyngeal erythema.

Skin: Skin Irritation. Skin exposure may cause slight irritation, redness, itching, and swelling. May cause more severe response if skin is damp, abraded (scratched or cut), or covered by clothing, gloves, or footwear. Prolonged contact may cause more severe symptoms. Damage is localized to contact areas.

Eye: Eye Irritation. Eye exposure may cause serious eye irritation and pain. May cause conjunctival swelling and cornea opacification from hypertonic solution. Corneal eye pain, redness, acute corneal thickening or whitening.

Ingestion (Swallowing): Consumption of solids or hypertonic solutions causes nausea, vomiting, and increased thirst.

MUTAGENIC DATA:

Not classified as a mutagen per GHS criteria. The data presented are for the following material: Calcium chloride ($CaCl_2$) - In vitro genetic toxicity studies were negative.

DEVELOPMENTAL TOXICITY:

Not classified as a developmental or reproductive toxin per GHS criteria. Did not cause birth defects or any other fetal effects in laboratory animals.

SECTION 12 ECOLOGICAL INFORMATION

Aquatic Toxicity:

Material is practically non-toxic to aquatic organisms on an acute basis. (LC50/EC50/EL50/LL50 >100 mg/L in the most sensitive species tested).

Freshwater Fish Toxicity:

Calcium Chloride: LC50, bluegill (Lepomis macrochirus): 8,350 - 10,650 mg/l

Invertebrate Toxicity:

Calcium Chloride: LC50, water flea Daphnia magna: 759 - 3,005 mg/l

FATE AND TRANSPORT:

BIODEGRADATION: This material is inorganic and not subject to biodegradation.

PERSISTENCE: Calcium chloride is believed not to persist in the environment because it is readily dissociated into calcium and chloride ions in water. Calcium chloride released into the environment is thus likely to be distributed into water in the form of calcium and chloride ions. Calcium ions may remain in soil by binding to soil particulate or by forming stable salts with other ions. Chloride ions are mobile and eventually drain into surface water. Both ions originally exist in nature, and their concentrations in surface water will depend on various factors, such as geological parameters, weathering, and human activities.

BIOCONCENTRATION: No bioconcentration is expected because of the relatively high water solubility. Potential for mobility in soil is very high (Koc between 0 and 50). Partitioning from water to n-octanol is not applicable.

BIOACCUMULATIVE POTENTIAL: Calcium chloride and its dissociated forms (calcium and chloride ions) are ubiquitous in the environment. Calcium and chloride ions can also be found as constituents in organisms. Considering its dissociation properties, calcium chloride is not expected to accumulate in living organisms.

MOBILITY IN SOIL: Calcium chloride is not expected to be absorbed in soil due to its dissociation properties and high water solubility. It is expected to dissociate into calcium and chloride free ions or it may form stable inorganic or organic salts with other counter ions, leading to different fates between calcium and chloride ions in soil and water components. Calcium ions may bind to soil particulate or may form stable inorganic salts with sulfate and carbonate ions. The chloride ion is mobile in soil and eventually drains into surface water because it is readily dissolved in water.

SECTION 13: DISPOSAL CONSIDERATIONS

Disposal methods: The generation of waste should be avoided or minimized wherever possible. 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 local authority requirements. Dispose of surplus and nonrecyclable products via a licensed waste disposal contractor. Waste should not be disposed of untreated to the sewer unless fully compliant with the requirements of all authorities with jurisdiction. Waste packaging should be recycled. Incineration or landfill should only be considered when recycling is not feasible. This material and its container must be disposed of in a safe way. Care should be taken when handling emptied containers that have not been cleaned or rinsed out. Empty containers or liners may retain some product residues. Avoid dispersal of spilled material and runoff and contact with soil, waterways, drains and sewers.

SECTION 14: TRANSPORT INFORMATION

CANADIAN TRANSPORTATION OF DANGEROUS GOODS:

Status: Not regulated

SECTION 15: REGULATORY INFORMATION

Canada inventory (DSL): All components are listed.

SECTION 16: OTHER INFORMATION

Revision date: June 30, 2021

ATE = Acute Toxicity Estimate
BCF = Bioconcentration Factor
GHS = Globally Harmonized System of Classification and Labelling of Chemicals
IATA = International Air Transport Association
IMDG = International Maritime Dangerous Goods
LogPow = logarithm of the octanol/water partition coefficient
MARPOL = International Convention for the Prevention of Pollution from Ships, 1973as modified by the Protocol of 1978. ("Marpol" = marine pollution)
UN = United Nations

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