



MATERIAL SAFETY DATA SHEET

Calcium chloride 94% Mushroom Grade

MSDS Date of Issue: 12/01/15

SECTION 1: PRODUCT AND COMPANY IDENTIFICATION

PRODUCT NAME: Calcium chloride 94% Mushroom Grade

MANUFACTURER / DISTRIBUTOR: TerraLink Horticulture Inc.
ADDRESS: 464 Riverside Road, Abbotsford, BC. Canada V2S 7M1
PHONE: 604-864-9044

PRODUCT USE: Fertilizer
PREPARED BY: Regulatory Affairs
REVISION DATE: January 12, 2015.

In the event of an emergency involving dangerous goods, call CANUTEC at 613-996-6666 or *666 on a cellular phone.

SECTION 2: COMPOSITION / INFORMATION ON INGREDIENTS

<u>REPORTABLE INGREDIENT(S)</u>	<u>CAS NO.</u>	<u>EXPOSURE LIMITS OSHA PEL-TWA</u>	<u>% VOL/WT</u>
Calcium chloride	10043-52-4	NA	>94 - <97
Potassium chloride	7447-40-7	NA	>2 - <3
Calcium bromide (CaBr ₂)	7789-41-5	NA	<1.0
Water	7732-18-5	NA	<1.0
Sodium chloride	7647-14-5	NA	>1 - <2

SECTION 3: HAZARDS IDENTIFICATION

EMERGENCY OVERVIEW

CAUTION: KEEP OUT OF REACH OF CHILDREN

ROUTES OF ENTRY: Eyes, skin, inhalation, ingestion

Potential Acute Health Effects:

Eye Contact: For solid: May cause slight eye irritation, mechanical injury only. Dust formation should be avoided, as dust can cause severe eye irritation with corneal injury.

Skin Contact: Brief contact is essentially non-irritating to skin. Prolonged contact may cause skin irritation, even a burn. Not classified as corrosive to the skin according to DOT guidelines. May cause more severe response if skin is damp. May cause more severe response if skin is abraded (scratched or cut). May cause more severe response on covered skin (under clothing, gloves).

Inhalation: Dust may cause irritation to upper respiratory tract (nose and throat)

Ingestion: Low toxicity. May cause gastrointestinal irritation, nausea, vomiting and diarrhea. Small amounts swallowed incidental to normal handling operations are not likely to cause injury.

CHRONIC HEALTH HAZARDS: For the minor component(s): POTASSIUM CHLORIDE: In animals, effects have been reported on the following organs after ingestion: Gastrointestinal tract, heart and kidney. Dose levels producing these effects were many times higher than any dose levels expected from exposure due to use. SODIUM CHLORIDE: Medical experience with sodium chloride has shown a strong association between elevated blood pressure and prolonged dietary overuse. Related effects could occur in the kidneys.

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SECTION 4: FIRST AID MEASURES

Eye Contact: Immediately flush with plenty of water. After initial flushing, remove any contact lenses and continue flushing for at least 15 minutes. If effects occur, consult a physician, preferably an ophthalmologist. May cause injury due to mechanical action.

Skin Contact: In case of contact, immediately flush skin with plenty of water for at least 15 minutes. Get medical attention. Remove contaminated clothing and launder before reuse.

Inhalation: Remove person to fresh air. If not breathing, give artificial respiration. If breathing is difficult, get immediate medical attention.

Ingestion: Do NOT induce vomiting. Never give anything by mouth to an unconscious or convulsive person. Give one cup (8 ounces or 240 ml) of water or milk if available and seek immediate medical attention. If vomiting occurs spontaneously, keep head below hips to prevent aspiration of liquid into the lungs.

Protection of First-Aiders: 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 the 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: Does not burn. Use extinguishing media appropriate for surrounding fire.

Fire Fighting: Keep unnecessary people away, isolate hazard area and deny entry. This material does not burn. Fight fire for other material that is burning. Water should be applied in large quantities as fine spray. Wear NIOSH approved positive-pressure self-contained breathing apparatus operated in pressure demand mode. Wear protective fire fighting clothing (includes fire fighting helmet, coat, trousers, boots and gloves). Avoid contact with this material during fire fighting operations. If contact is likely, change to full chemical resistant fire fighting clothing with self-contained breathing apparatus and fight fire from a remote location. For protective equipment in post-fire or no-fire clean-up situations, refer to the relevant sections.

Flash Point: Not applicable

Upper Flammability Level (air): Not applicable

Lower Flammability Level (air): Not applicable

Autoignition Temperature: Not applicable

SECTION 6: ACCIDENTAL RELEASE MEASURES

Personal Precautionary Measures: Spilled material may cause a slipping hazard. Isolate area. Keep unnecessary and unprotected personnel from entering the area. Use appropriate safety equipment. For additional information, refer to Section 8, Exposure Controls and Personal Protection. Refer to Section 7, Handling, for additional precautionary measures.

Environmental Precautionary Measures: Prevent from entering into soil, ditches, sewers, waterways and/or groundwater. Consult local authorities.

Procedure for Clean Up: Small and large spills: Contain spilled material if possible. Collect in suitable and properly labeled containers. Flush residue with plenty of water. See Section 13, Disposal Considerations, for additional information

SECTION 7: HANDLING AND STORAGE

Handling: Heat developed during diluting or dissolving is very high. Use cool water when diluting or dissolving (temperature less than 80°F, 27°C). Avoid contact with eyes, skin and clothing. Do not swallow. Wash thoroughly after handling. See Section 8, Exposure Controls and Personal Protection.

Storage: Keep containers tightly closed. Store in an area that is cool and dry. Protect against moisture. Prolonged storage may cause product to cake and become damp from atmospheric moisture. Store in accordance with good industrial practices.

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SECTION 8: EXPOSURE CONTROLS/PERSONAL PROTECTION

Regulatory Exposure Limit(s): As listed below

Component	OSHA final PEL TWA	OSHA Final PEL STEL	OSHA Final PEL Ceiling
Particles not otherwise regulated	TWA 15 mg/m ³ (total) TWA 5 mg/m ³ (resp)	-----	-----

OEL: Occupational Exposure Limit; OSHA: United States Occupational Safety and Health Administration; PEL: Permissible Exposure Limit; TWA: Time Weighted Average; STEL: Short Term Exposure Limit

Non-Regulatory Exposure Limit(s): As listed below

Component	CAS Number	ACGIH TWA	ACGIH STEL	ACGIH Ceiling	OSHA TWA (Vacated)	OSHA STEL (Vacated)	OSHA Ceiling (Vacated)
Particles Not Otherwise Specified (pnos)	Not Assigned	TWA 10 mg/m ³ (inhalable) TWA 3 mg/m ³ (respirable)	-----	-----	-----	-----	-----

- The Non-Regulatory United States Occupational Safety and Health Administration (OSHA) limits shown in the table are the Vacated 1989 PEL's (vacated by 58 FR 35338, June 30, 1993).
- The American Conference of Governmental Industrial Hygienists (ACGIH) is a voluntary organization of professional industrial hygiene personnel in government or educational institutions in the United States. The ACGIH develops and publishes recommended occupational exposure limits each year called Threshold Limit Values (TLVs) for hundreds of chemicals, physical agents and biological exposure indices.

Additional Advice: Ingestion: Use good personal hygiene. Do not consume or store food in the work area. Wash hands before smoking or eating.

Engineering Controls: 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.

Respiratory Protection: 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 applicable regulatory requirements must be followed whenever workplace conditions warrant use of a respirator.

Skin Protection: Wear clean, body-covering clothing.

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.

Eyes: Wear safety glasses with side-shields. For dusty operations or when handling solutions of the material, wear chemical goggles.

Other Personal Protection Data: Ensure that eyewash stations and safety showers are proximal to the work-station location.

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SECTION 9: PHYSICAL AND CHEMICAL PROPERTIES

Physical State: Pellets

Colour: White

Odour: Odourless

pH: Not applicable to solids.

Specific Gravity (water=1): Not applicable to solids

Melting Point/Range: 772°C (1,422°F) Literature Approximately

Freezing Point/Range: Not applicable to solids

Vapour Pressure: Literature negligible at ambient temperature

Vapour Density (air=1): Not Applicable

Solubility: Readily soluble

Hygroscopic: Yes

SECTION 10: STABILITY AND REACTIVITY

Chemical Stability: Stable. Hygroscopic.

Hazardous Polymerization: Will not occur.

Conditions to Avoid: None known. Avoid moisture.

Materials to Avoid: Heat is generated when mixed with water. Spattering and boiling can occur. Avoid contact with: Sulfuric Acid. Corrosive when wet. Flammable hydrogen may be generated from contact with metals such as: Zinc. Sodium. Reaction of bromide impurity with oxidizing materials may generate trace levels of impurities such as bromate.

Hazardous Decomposition Products: Does not decompose.

SECTION 11: TOXICOLOGICAL INFORMATION

Acute Oral LD50: Typical for this family of materials. LD50, Rat 918 – 1,668 mg/kg

Acute Dermal LD50: For the major component(s): LD50, Rabbit . 5,000 mg/kg

Chronic Toxicity: For the minor component(s): Potassium chloride – In animals, effects have been reported on the following organs after ingestion: Gastrointestinal tract, Heart and Kidney. Dose levels producing these effects were many times higher than any dose levels expected from exposure due to use. Medical experience with sodium chloride has shown a strong association between elevated blood pressure and prolonged dietary overuse.

Carcinogenicity: This product is not classified as a carcinogen by NTP, IARC or OSHA.

Mutagenic data: The data presented are for the following material: Calcium chloride (CaCl₂) – In vitro genetic toxicity studies were negative. The data presented are for the following material: Potassium chloride – In vitro genetic toxicity studies were positive. However, the relevance of this to humans is unknown. For the minor component(s): Sodium chloride – In vitro genetic toxicity studies were predominantly negative.

Developmental toxicity: for the major component(s): Did not cause birth defects or any other fetal effects in laboratory animals.

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SECTION 12: ECOLOGICAL INFORMATION

Ecotoxicity data:

- **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: KD50, Bluegill (*Lepomis macrochirus*): 8,350 – 10,650 mg/l
Potassium Chloride: EC50, Rainbow trout (*Onchorhynchus mykiss*), 96 h: 4,236 mg/l
Sodium Chloride: LC50, fathead minnow (*Pimephales promelas*): 10,610 mg/l
- **Invertebrate toxicity:**
Calcium Chloride: LC50, water flea (*Daphnia magna*): 759 – 3,005 mg/l
Potassium Chloride: EC50, water flea (*Daphnia magna*): 24h, Immobilization: 590 mg/l
LC50, water flea (*Ceriodaphnia dubia*), 96 h: 3,470 mg/l
Sodium Chloride: LC50, water flea (*Daphnia magna*): 4,571 mg/l
- **Other Toxicity:**
Sodium Chloride: IC50, OECD 209 Test: activated sludge, respiration inhibition: >1,000 mg/l

Fate and Transport:

- **Biodegradation:** Biodegradation is not applicable
- **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.

SECTION 13: DISPOSAL CONSIDERATIONS

Reuse or recycle if possible. All disposal practices must be in compliance with all Federal, State/Provincial and local laws and regulations. Regulations may vary in different locations. Report spills if applicable. Waste characterizations and compliance with applicable laws are the responsibility solely of the waste generator. AS YOUR SUPPLIER, WE HAVE NO CONTROL OVER THE MANAGEMENT PRACTICES OR MANUFACTURING PRECESSES OF PARTIES HANDLING OR USING THIS MATERIAL. THE INFORMATION PRESENTED HERE PERTAINS ONLY TO THE PRODUCT AS SHIPPED IN ITS INTENDED CONDITION AS DESCRIBED IN MSDS SECTION: Composition Information. FOR UNUSED & UNCONTAMINATED PRODUCT, the preferred options include sending to a licensed, permitted: Landfill and waste water treatment system.

SECTION 14: TRANSPORT INFORMATION

U.S. DOT 49 CFR 172.101:

Status: Not regulated

CANADIAN TRANSPORTATION OF DANGEROUS GOODS:

Status: Not regulated



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SECTION 15: REGULATORY INFORMATION

U.S. TSCA Inventory Status: All components of this product are either on the Toxic Substances Control Act (TSCA) Inventory List or exempt.

Tsac 12(B): This product is not subject to export notification

Canadian DSL Inventory Status: All components of this product are either on the Domestic Substances List (DSL), the Non-Domestic Substances List (NDSL) or exempt.

U.S. Regulatory Rules

Calcium chloride	
California Proposition 65 Cancer WARNING:	Not Listed
California Proposition 65 CRT List – Male reproductive toxin:	Not Listed
California Proposition 65 CRT List – Female reproductive toxin:	Not Listed
Massachusetts Right to Know Hazardous Substance List	Not Listed
New Jersey Right to Know Hazardous Substance List	Not Listed
New Jersey Special Health Hazards Substance List	Not Listed
New Jersey – Environmental Hazardous Substance List	Not Listed
Pennsylvania Right to Know Hazardous Substance List	Not Listed
Pennsylvania Right to Know Special Hazardous Substances	Not Listed
Pennsylvania Right to Know Environmental Hazard List	Not Listed
Rhode Island Right to Know Hazardous Substance List	Not Listed
Potassium Chloride	
California Proposition 65 Cancer WARNING:	Not Listed
California Proposition 65 CRT List – Male reproductive toxin:	Not Listed
California Proposition 65 CRT List – Female reproductive toxin:	Not Listed
Massachusetts Right to Know Hazardous Substance List	Not Listed
New Jersey Right to Know Hazardous Substance List	Not Listed
New Jersey Special Health Hazards Substance List	Not Listed
New Jersey – Environmental Hazardous Substance List	Not Listed
Pennsylvania Right to Know Hazardous Substance List	Not Listed
Pennsylvania Right to Know Special Hazardous Substances	Not Listed
Pennsylvania Right to Know Environmental Hazard List	Not Listed
Rhode Island Right to Know Hazardous Substance List	Not Listed
Calcium bromide (CaBr2)	
California Proposition 65 Cancer WARNING:	Not Listed
California Proposition 65 CRT List – Male reproductive toxin:	Not Listed
California Proposition 65 CRT List – Female reproductive toxin:	Not Listed
Massachusetts Right to Know Hazardous Substance List	Not Listed
New Jersey Right to Know Hazardous Substance List	Not Listed
New Jersey Special Health Hazards Substance List	Not Listed
New Jersey – Environmental Hazardous Substance List	Not Listed
Pennsylvania Right to Know Hazardous Substance List	Not Listed
Pennsylvania Right to Know Special Hazardous Substances	Not Listed
Pennsylvania Right to Know Environmental Hazard List	Not Listed
Rhode Island Right to Know Hazardous Substance List	Not Listed
Sodium chloride	
California Proposition 65 Cancer WARNING:	Not Listed
California Proposition 65 CRT List – Male reproductive toxin:	Not Listed
California Proposition 65 CRT List – Female reproductive toxin:	Not Listed
Massachusetts Right to Know Hazardous Substance List	Not Listed
New Jersey Right to Know Hazardous Substance List	Not Listed
New Jersey Special Health Hazards Substance List	Not Listed
New Jersey – Environmental Hazardous Substance List	Not Listed
Pennsylvania Right to Know Hazardous Substance List	Not Listed
Pennsylvania Right to Know Special Hazardous Substances	Not Listed
Pennsylvania Right to Know Environmental Hazard List	Not Listed
Rhode Island Right to Know Hazardous Substance List	Not Listed



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CANADIAN REGULATIONS

This product has been classified in accordance with the hazard criteria of the Controlled Products Regulations and the SDS contains all the information required by the Controlled Products Regulations.

WHMIS Hazardous Class:

D2B – Poisonous and Infectious Material; Materials causing other toxic effects – Toxic material.

SECTION 16: OTHER INFORMATION

Additional Information: This product has been classified in accordance with the hazard criteria of the Canadian Controlled Products Regulations (CPR) and the MSDS contains all the information required by the CPR.

HMIS: (SCALE 0-4) (Rated using National Paint and Coatings Association HMIS: Rating Instructions, 2nd Edition)

Health: 2 Flammability: 0 Reactivity: 0

NFPA 704 – Hazard Identification Ratings (SCALE 0-4)

Health: 1 Flammability: 0 Reactivity: 0

Abbreviations used throughout the MSDS are: NA = Not available
NAb = Not available for blend
NAp = Not applicable
N/E = None established

Company references utilized in preparation of the MSDS.

DISCLAIMER:

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Terralink Horticulture Inc. provides the information contained herein in good faith, but makes no representation as to its comprehensiveness or accuracy. This document is intended only as a guide to the appropriate precautionary handling of the material by a properly trained person using this product. Individuals receiving the information must exercise their independent judgement in determining its appropriateness for a particular purpose. TERRALINK HORTICULTURE INC. MAKES NO REPRESENTATIONS OR WARRANTIES OF MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE WITH RESPECT TO THE INFORMATIONS SET FORTH HEREIN OR THE PRODUCT TO WHICH THE INFORMATION REFERS. ACCORDINGLY, TERRALINK HORTICULTURE INC. WILL NOT BE RESPONSIBLE FOR DAMAGES RESULTING FROM THE USE OF OR RELIANCE UPON THIS INFORMATION.
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