

SAFETY DATA SHEET

Section 1. Identification of the material and the supplier

Product: **Calcium Chloride Horticultural Grade**
Synonyms: Calcium chloride dihydrate (flakes, powder); calcium chloride liquid; calcium dichloride.
Product Use: Agent for de-icing roads, sidewalks, stairs in the winter, to prevent the deposition of dust on unpaved roads, sports fields, tennis courts and speedway tracks; desiccant gases and liquids in chemical synthesis, as an additive to plastics to produce calcium; aid in drainage treatment plant; additive to speed up bond and sealing mortar and concrete and other (herbicides, pH adjusting agent, laboratory reagent).
Restriction of Use: Refer to Section 15
New Zealand Supplier: Horticulture Ltd
Address: 10 Firth Street
 Drury, 2113
Telephone: +64 9 294 8453
Fax Number: +64 9 294 7272
Emergency Telephone: **0800 764 766 (National Poison Centre)**
Date of SDS Preparation: 23 April 2024 v2

Section 2. Hazards Identification

This substance is hazardous according to the EPA Hazardous Substances (Classification) Notice 2020

EPA Approval No: Additives, Process Chemicals and Raw Materials – HSR002503

Pictograms



Signal Word: **Warning**

GHS Classification and Category	Hazard Code	Hazard Statement
Eye irritation Cat. 2	H319	Causes serious eye irritation.

Prevention Code	Prevention Statement
P264	Wash hands thoroughly after handling.
P280	Wear protective clothing as detailed in Section 8.

Response Code	Response Statement
P305 + P351+P338	IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
P337 + P313	If eye irritation persists: Get medical advice/attention.

Storage Code	Storage Statement
None allocated	

Disposal Code	Disposal Statement
P501	Dispose of according to Local Regulations or Authorities

Section 3. Composition / Information on Ingredients

Ingredients	Wt%	CAS NUMBER.
Calcium Chloride	To 100	10035-04-8

Section 4. First Aid Measures

Routes of Exposure:

If in Eyes	Rinse cautiously with water for 15 minutes. Remove contact lenses, if present and easy to do. Continue rinsing. If eye irritation persists, call doctor/physician.
If on Skin	Take off contaminated clothing and wash before re-use. Wash skin with plenty of soap and water. If skin irritation occurs: Get medical advice/attention.
If Swallowed	Wash out mouth with water. Never give anything to the mouth of an unconscious person. If vomiting occurs, place victim face downwards, with the head turned to the side and lower than the hips to prevent vomit entering the lungs. Call a POISON CENTER or doctor/physician if you feel unwell.
If Inhaled	Remove person to fresh air. Remove contaminated clothing and loosen remaining clothing. Allow person to assume most comfortable position and keep warm. Keep at rest until fully recovered. Get medical advice if breathing becomes difficult.

Most important symptoms and effects, both acute and delayed

Symptoms:

Ingestion:	After ingestion may damage the lining of the digestive tract, stomach pain, vomiting and diarrhea.
Inhalation:	Prolonged inhalation of dust may cause slight irritation to the respiratory system, irritation of mucous membranes of nose and mouth, coughing.
Skin:	Contact with skin may cause irritation, redness, dryness, itching.
Eyes:	Irritating to eyes. Significant concentrations of dust or direct ingress of substances into the eyes may cause irritation, redness, tearing, burning and conjunctivitis.

Treatment:	Remove affected person from the contaminated product of the environment. In the event of health problems, consult your doctor or the center of toxicological concern. Provide the information contained in the SDS. If unconscious do not give anything by mouth.
-------------------	-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------

Section 5. Fire Fighting Measures

Hazard Type	Non Flammable
Hazards from decomposition products	During combustion produce hazardous products (e.g. chlorine, hydrogen chloride). Avoid inhalation of combustion products, because they may pose a health risk.
Suitable Extinguishing media	Extinguishing media suitable to the burning media in the surrounding should be applied. Do not use water jet.
Precautions for firefighters and special protective clothing	Wear full protective equipment and self-contained breathing apparatus with independent air circulation. Containers exposed to fire or high temperature cool with water and if possible remove from the danger zone. Take up mechanically. Keep out of drains, surface waters and soil against pollution. Water from fire treated as hazardous pollution and accumulate in separate containers.
HAZCHEM CODE	None allocated

Section 6. Accidental Release Measures

Should restrict access to non-emergency personnel to the area of failure until the completion of the disposal of the product. Wear appropriate personal protective equipment. Do not drink, eat and smoke. Provide adequate local and general ventilation. Avoid direct contact with the substance. Avoid inhalation of dust.

Secure the gullies. Prevent contamination of surface water and ground. In the event of any serious pollution of the environment, notify the appropriate administrative authority, control and rescue services. Dispose of used packaging to deliver to eligible organizations.

Keep damaged packaging. Damaged container and place in a substitute container. Collect the spilled substance mechanically avoiding the formation of dust, transfer to a tightly sealed containers and be disposed of or recycled. Wash contaminated area with plenty of water.

Section 7. Handling and Storage

Precautions for Handling:

- Read label before use.
- Do not eat, drink or smoke when using this product.
- Avoid skin and eye contact.
- Avoid inhalation of dust.
- Wash your hands before break and after working with the product.
- The workplace should be equipped with a shower and eye wash position.
- Prevent against penetration into drains, surface and ground water and soil.
- Wear protective clothing as detailed in Section 8.

Precautions for Storage:

- Keep in properly labeled, factory tightly sealed, with a label which complies with current regulations.
- Store in dry, cool and well ventilated storage room.
- Avoid very high temperature.
- Protect against moisture (substance may be lumpy).
- Avoid contact with oxidants and reducing agents.
- Corrosive to metals in the aquatic environment.

Section 8 Exposure Controls / Personal Protection

WORKPLACE EXPOSURE STANDARDS (provided for guidance only)

Substance	TWA		STEL	
	ppm	mg/m ³	ppm	mg/m ³
Dusts		10 mg/m ³	(inhalable)	

Workplace Exposure Standard – Time Weighted Average (WES-TWA). The time-weighted average exposure standard designed to protect the worker from the effects of long-term exposure. Workplace Exposure Standard – Short-Term Exposure Limit (WESSTEL). The 15-minute average exposure standard. Applies to any 15- Minute period in the working day and is designed to protect the worker against adverse effects of irritation, chronic or irreversible tissue change, or narcosis that may increase the likelihood of accidents. The WES-STEL is not an alternative to the WES-TWA; both the short-term and time-weighted average exposures apply. Workplace Exposure Standards and Biological Exposure Indices NOV 2023 14TH EDITION.

Route of exposure	DNEL Workers				DNEL Consumers			
	Acute, local effect	Acute, systemic effect	Chronic, local effect	Chronic, systemic effect	Acute, local effect	Acute, systemic effect	Chronic, local effect	Chronic, systemic effect
Inhalation	10 mg/m ³	No threat identified	5 mg/m ³	No threat identified	5 mg/m ³	No threat identified	2.5 mg/m ³	No threat identified
Skin	No threat identified	No threat identified	No threat identified	No threat identified	No threat identified	No threat identified	No threat identified	No threat identified
Oral	No threat identified	No threat identified	No threat identified	No threat identified	No threat identified	No threat identified	No threat identified	No threat identified

PNEC:

The purpose of environmental protection
 Fresh water
 Freshwater sediments
 Marine water
 Marine sediments
 Food chain
 Microorganisms in wastewater treatment
 Soil (agricultural)
 Air

PNEC

No threat identified
 No threat identified
 No threat identified
 No threat identified
 No threat identified
 No threat identified
 No threat identified
 No threat identified

Engineering Controls

Mandatory general regulations on occupational health. Do not allow the crossing of the environment, the workplace concentration limits for hazardous constituents.

Personal Protection Equipment



Eyes	Wear suitable protective glasses of goggles type, eg. made of polycarbonate (EN 166).
Hands and Skin	In industrial usage wear protective clothing made of natural materials (cotton) or synthetic fibers and gloves (glove materials: nitrile-, butyl-, neoprene-rubber or PVC); glove thickness: 0.5 mm, break through time: ≥480 min (EN 374).
Respiratory	In the case of high concentrations of dust, use respiratory equipment with particle filter color-coded white and the symbol P.
General	After work, wash and clean the surface of the body and protective clothing. Do not eat, drink, smoke or take drugs at work. Remove contaminated clothing and clean before reuse. Wash hands and face before break and after working with the product. Avoid skin and eye contact. Avoid inhalation of dust. Provide adequate local and general ventilation. The workplace should be equipped with a shower and eye wash position.

Section 9 Physical and Chemical Properties

Appearance	Solid - flakes approx. 2 mm thick, powder or monolithic mass
Colour	Calcium chloride flakes - white or slightly cream Calcium chloride powder - white, slightly grey or slightly cream shade acceptable Cast calcium chloride - white, acceptable shade of slightly grey, slightly creamy, slightly aquamarine or slightly pink Road calcium chloride - white, cream, pink or grey
Odour	Odourless

Odour Threshold	Not available
pH	8 - 9 (5 % water solution)
Boiling Point	Initial boiling point and boiling range: In accordance with column 2 of REACH Annex VII, the boiling point study does not need to be conducted, as the substance has a melting point >300°C. However, data are available showing that calcium chloride has a boiling point >1600°C
Melting/Freezing Point	782°C
Freezing Point	Not available
Flash Point	Not available
Flammability	Non-flammable substance. In accordance with Annex XI of REACH the study is scientifically unjustified, as the substance is commonly known to be a stable inorganic salt. Flammability essentially reflects the ability of the substance to react with oxygen in air at elevated temperatures in a strong exothermic reaction. In CaCl ₂ the metal cation is already present in the highest possible oxidation state and thus cannot be further oxidized by oxygen. Chloride anion cannot be oxidized by oxygen due to its high electronegativity, which is only slightly lower than that of oxygen itself. Thus, as a reaction with oxygen is not possible, calcium chloride can be considered non-flammable. The substance does not exhibit water reactivity or pyrophoric properties.
Upper and Lower Explosive Limits	Not available
Vapour Pressure	In accordance with column 2 of REACH Annex VII (section 7.5), a vapour pressure study does not need to be conducted as the melting point is above 300°C. Calcium chloride is an inorganic salt, and therefore the value of the vapor pressure can be considered as negligible
Vapour Density	Not applicable (calcium chloride is an inorganic salt)
Relative Density	2.15 g/cm ³ at 20°C (calcium chloride) 1.8 g/cm ³ at 20°C (calcium chloride dihydrate)
Solubilities	In water: 745 g/l at 20°C, 1590 g/l at 100°C. Solubility in other solvents: soluble in ethanol
Partition Coefficient:	Not available
Auto-ignition Temperature	In accordance with Annex XI of REACH the study is scientifically unjustified. The self-ignition temperature of a substance is defined as a minimum temperature at which the substance will ignite at predefined conditions. However, as the metal ion is already present in the highest possible oxidation state and chloride cannot be oxidized by oxygen at normal conditions due to its high electronegativity, the interaction with oxygen is not possible, thus the substance is essentially non-flammable. Therefore the performance of the test on auto ignition temperature is considered to be not necessary.
Decomposition Temperature	The temperature of 175°C CaCl ₂ · 2H ₂ O loses one molecule of water. At a temperature of 260°C followed by complete dehydration. No decomposition below 1600°C
Kinematic Viscosity	Not available
Particle Size	Not available
Evaporation Rate	Negligible, because calcium chloride is an inorganic salt (vapor pressure is practically equal to 0)

Section 10. Stability and Reactivity

Stability of Substance	Under the conditions of storage and handling as intended - no reactivity. Product is hygroscopic. Reaction with water is exothermic.
-------------------------------	--------------------------------------------------------------------------------------------------------------------------------------

Hazardous Reactions	Reaction with water is exothermic.
Conditions to Avoid	High temperature, moisture (substance may be lumpy).
Incompatible Materials	Oxidants and reducing agents. Corrosive to metals in the aquatic environment.
Hazardous Decomposition Products	Vapors of the chlorine and hydrogen chloride are generated after heating to the melting point.

Section 11 Toxicological Information

Acute Effects:

Swallowed	Not triggered. After ingestion may damage the lining of the digestive tract, stomach pain, vomiting and diarrhea. LD50(rat) = 2301 mg/kg
Dermal	Not applicable. LD50 = 5000mg/kg (rabbits)
Inhalation	Not triggered however prolonged inhalation of dust may cause slight irritation to the respiratory system, irritation of mucous membranes of nose and mouth, coughing.
Eye	Causes serious eye irritation. In available studies with calcium chloride anhydrous in rabbits, conducted according to OECD 405 guidelines, the observed signs of eye irritation after a 100 mg dose were not fully reversible within a 21-day observation period (Koopman et al. 1986). This suggests that the anhydrous substance should be classified as Category 1, H318 (Causes serious eye damage). In the case of hydrated forms of calcium chloride, this classification is considered unjustified based on the following considerations: <ul style="list-style-type: none"> · No examples of calcium chloride causing irreversible damage to eyes in humans have been reported, despite its long history of widespread use. · It is feasible that eye irritating properties of calcium chloride are directly related to its hygroscopic properties. Anhydrous calcium chloride is a highly hygroscopic substance, and its dissolution in water is a highly exothermic process (heat of dissolution 81.3 kJ/mol), while calcium chloride hydrates are significantly less hygroscopic and their dissolution in water is only slightly exothermic. · Available studies have been performed in accordance with OECD Guideline 401 adopted in 1981, which stated that eyes can be rinsed 24 hours post-instillation. According to the modern version of the guideline, rinsing of eyes 1 hour post-instillation is allowed. It is thus feasible that more severe effects have been observed due the longer presence of the test substance in a conjunctival sac. Due to the fact that calcium chloride is already classified in category 2, H319 (eye irritation) in Annex VI to the CLP Regulation, in accordance with Article 4(3) of the CLP Regulation, if a substance is subject to harmonized classification and labelling in accordance with Title V, in conjunction with an entry in Part 3 of Annex VI, the substance shall be classified according to that entry, the classification of this substance in accordance with Title II shall not be carried out for hazard classes including further differentiations covered by this entry. On this basis, the registrant classified calcium chloride as an eye irritant.
Skin	Not applicable. Calcium chloride is considered not to have any sensitizing properties, based on the physiological role of both its constituent ions, as well as the fact that sensitizing effects of both ions have never been reported, despite long-term historical and wide dispersive use (e.g. via food and medication).

Chronic Effects:

Carcinogenicity	Not applicable.
Reproductive Toxicity	Not applicable.

Germ Cell Mutagenicity	Not applicable.
Aspiration	Not applicable.
STOT/SE	Not applicable.
STOT/RE	Not applicable.

Based on available data,

Section 12. Ecotoxicological Information

Not classified as hazardous to the environment.

Persistence and degradability	Degradation Hydrolysis: In accordance with point 1 of REACH Annex XI, the study does not need to be conducted as in water; calcium chloride is dissociated. Biodegradation: In accordance with column 2 of Annex XI of the REACH Regulation, the ready biodegradability test, the simulation test on ultimate degradation in surface water, the sediment simulation test and the soil simulation test are not need to be conducted as the substance is inorganic.
Bioaccumulation	In accordance with point 1 of REACH Annex XI, the study does not need to be conducted as in water, calcium chloride is easily dissociated into calcium and chloride ions and both ions are essential constituents of the body of all animals. Octanol-water partition coefficient (Kow): Not applicable (calcium chloride is salt of inorganic). Bioconcentration factor (BCF): Not applicable (calcium chloride is salt of inorganic).
Mobility in Soil	Calcium chloride should not be absorbed in the soil, it can function as free ions or it can form stable inorganic or organic salts. Calcium chloride is soluble in water and its vapor pressure is negligible. This fact indicates that the calcium chloride released into the environment is distributed to the water compartment in the form of calcium and chloride ions. The chloride ion is mobile in the soil and eventually flows to surface waters because it dissolves easily in water.
Other adverse effects	No data available.

Toxicity

The lowest L(E)C50 value is >100 mg/l (48-h EC50 is 2,400 mg/l in daphnids (*Daphnia magna*)) and the lowest chronic value is >0.1 mg/l (21-d EC16 is 320 mg/l in daphnids (*Daphnia magna*)). Therefore calcium chloride needs not to be classified according to EU Classification, Labelling and Packaging of Substances and Mixtures (CLP) Regulation (EC) No. 1272/2008. Acute toxicity to fish: LC50 (*Pimephales promelas*) 4630 mg/l/96h (method according to EPA/600/4-90/027, EPA/600/6-91/003) (Mount, D.R., Gulley, D.D., Hockett, J.R., Garrison, T.D. and Evans, J.M., 1997). Chronic toxicity to fish: NOEC (*Oncorhynchus mykiss*) 230 mg/l/25d (method according to OECD 210) (William D. Hintz Rick A. Relyea, 2017) LOEC (*Oncorhynchus mykiss*) 860 mg/l/25d (method according to OECD 210) (William D. Hintz Rick A. Relyea, 2017) Acute toxicity to aquatic invertebrates: EC50 (*Daphnia magna*) 2400 mg/l/48h (method according to OECD 202) (de Groot, W.A. and Groeneveld, A.H.C., 1998) Chronic toxicity to aquatic invertebrates: LOEC (*Daphnia magna*) 240 mg/l/21d (method according to OECD 211) (Biesinger and Christensen 1972 and Mazuran N. et al., 2015) Algae and aquatic plants: EC50 (*Pseudokirchneriella subcapitata*) 2900 mg/l/72h (method according to OECD 201) (de Groot W.A., 1998) EC20 (*Pseudokirchneriella subcapitata*) 1000 mg/l/72h (method according to OECD 201) (de Groot W.A., 1998) Toxicity to birds: In accordance with point 1 of REACH Annex XI, the study does not need to be conducted as calcium chloride is easily dissociated into calcium and chloride ions in water. The absorption, the distribution and the excretion of the ions in animals are regulated separately. Both ions are essential constituents of the body of all animals. Calcium is essential for e.g. the formation of skeletons, neural transmission, muscle contraction,

coagulation of the blood, and so on. Chloride is required for regulating intracellular osmotic pressure and buffering

Section 13. Disposal Considerations

Disposal Method:

Collect spilt substance into appropriate sealable containers. Ensure the containers are labelled with "Hazardous Waste" along with appropriate pictograms, hazard statements and the contact details of the business. Send for disposal to an appropriate disposal company.

Precautions or methods to avoid: Avoid release to the environment.

Section 14 Transport Information

This product is NOT classified as a Dangerous Good for transport in NZ ; NZS 5433:2020

Section 15 Regulatory Information

This substance is hazardous according to the EPA Hazardous Substances (Classification) Notice 2020

EPA Approval No: Additives, Process Chemicals and Raw Materials – HSR002503

HSWA & EPA Controls	Trigger Quantity
Certified Handler	Not required
Location Certificate	Not required
Tracking Trigger Quantities	Not required
Signage Trigger Quantities	Not required
Emergency Response Plan	Not required
Secondary Containment	Not required
Restriction of Use	Use as intended.

Section 16 Other Information

Glossary

EC ₅₀	Median effective concentration.
EEL	Environmental Exposure Limit.
EPA	Environmental Protection Authority
HSNO	Hazardous Substances and New Organisms.
LC ₅₀	Lethal concentration that will kill 50% of the test organisms inhaling or ingesting it.
LD ₅₀	Lethal dose to kill 50% of test animals/organisms.
LEL	Lower explosive level.
OSHA	American Occupational Safety and Health Administration.
TEL	Tolerable Exposure Limit.
TLV	Threshold Limit Value-an exposure limit set by responsible authority.
UEL	Upper Explosive Level
WES	Workplace Exposure Limit

References:

1. EPA Hazardous Substances (Safety Data Sheets) Notice 2017
2. Workplace Exposure Standards and Biological Exposure Indices Nov 2023 14th edition.
3. Assigning a hazardous substance to a HSNO Approval (Aug 2013).
4. Transport of Dangerous goods on land NZS 5433:2020
5. HSW (Hazardous Substances) Regulations 2017

Disclaimer

This document has been prepared by TCC (NZ) Ltd and serves as the suppliers Safety Data Sheet ('SDS'). It is based on information concerning the product which has been provided to

Product Name: Calcium Chloride
Date of SDS: 23 April 2024

SDS Prepared by: Technical Compliance Consultants (NZ) Ltd
Tel: 64 9 475 5240 www.techcomp.co.nz

TCC (NZ) Ltd or obtained from third party sources and is believed to represent the current state of knowledge as to the appropriate safety and handling precautions for the product at the time of issue. Further clarification regarding any aspect of the product should be obtained directly from the manufacturer. While TCC (NZ) have taken all due care to include accurate and up-to-date information in this SDS, it does not provide any warranty as to accuracy or completeness. As far as lawfully possible, TCC (NZ) Ltd accept no liability for any loss, injury or damage (including consequential loss) which may be suffered or incurred by any person as a consequence of their reliance on the information contained in this SDS

The information herein is given in good faith, but no warranty, express or implied is made.

Please contact the New Zealand distributor, if further information is required.

Issue Date: 23 April 2024

Review Date: 23 April 2029