



MSDS - Calcium Chloride Flake

Issued July 21, 2008

Section 1. Product Information

Product Name: Calcium Chloride Solid
Chemical Name: Calcium Chloride
Chemical Family: Inorganic Salt
Molecular Formula: CaCl₂ or CaCl₂·2 H₂O
Distributed By: Pestell Minerals & Ingredients, New Hamburg, Ontario, Canada
24 Hr. Emergency: (Canutec) 613-996-6666

Section 2. Composition/Information on Ingredients

Ingredient	CAS #	ACGIH TLV	% Concentration
Calcium Chloride	10043-52-4	-	75 - 100
Potassium Chloride	7447-40-7	-	1 - 3
Sodium Chloride	7647-14-5	-	1 - 3
May also contain		-	
Calcium Bromide	7789-41-5	-	0.1 - 1

Section 3. Hazards Identification

Emergency Overview: Causes skin and eye irritation. Dust is irritating to respiratory tract. See "Other Health Effects" Section. Can decompose at high temperatures forming toxic gases. Sealed containers may rupture from the pressure of water vapours released from crystals by intense heat.

Potential

Health Effects:

Inhalation:

Dust is irritating to respiratory tract. Excessive contact with powder may cause drying of mucous membranes of nose and throat due to absorption of moisture and oils. Dry Calcium Chloride can produce considerable amounts of heat when dissolving into water. Product may cause severe irritation of the nose, throat and respiratory tract. Repeated and/or prolonged exposures may cause productive cough, running nose, bronchopneumonia, pulmonary oedema (fluid build-up in lungs), and reduction of pulmonary function. See "Other Health Effects Section".

Skin Contact: This product may cause irritation due to abrasive action. Avoid handling when the skin is moist, wet or abraded. Dry Calcium Chloride can produce considerable amounts of heat when dissolving into water. In the presence of moisture (perspiration, humidity, tears) the dust dissolves to form a solution which may cause burns. Prolonged, confined (especially under the fingernails, under rings or watch bands) or repeated exposure may cause skin irritation and possibly lead to (chemical) burns.

Skin Absorption: A single, prolonged skin exposure is not likely to result in the absorption of toxic amounts of the material.

Eye Contact: This product may cause irritation, redness and possible damage due to abrasiveness. Contact can cause eye burns. May cause corneal damage and conjunctivitis. Single dose oral toxicity is considered to be low, and it is unlikely that accidental ingestion can cause any toxic effects in the body. Large doses of this product causes severe burning and pain in the mouth, throat and abdomen. Vomiting, diarrhea and perforation of the esophagus and stomach lining may occur.

Ingestion: Effects (irritancy) on the skin and eyes may be delayed, and damage may occur without the sensation of onset of pain. Strict adherence to first aid measures following any exposure is essential.

Other Health Effects: May cause perforated nasal septum, gastrointestinal irritation or ulceration and cardiac arrhythmia. Calcium Chloride may sensitize heart muscle causing cardiac arrhythmia in rare case

Section 4. First Aid Measures

First Aid Procedures

General Guidelines: Prompt removal of the material is essential

Inhalation: Move victim to fresh air. Give artificial respiration ONLY if breathing has stopped. Give cardiopulmonary resuscitation (CPR) if there is no breathing AND no pulse. Obtain medical attention IMMEDIATELY.

Skin Contact: Flush skin with running water and wash affected areas thoroughly with soap and water. Start flushing while removing contaminated clothing. Obtain medical attention IMMEDIATELY. If burn is present treat as a thermal burn, after decontamination.

Eye Contact: Immediately flush eyes with running water for a minimum of 20 minutes, Hold eyelids open during flushing. If irritation persists, repeat flushing. Obtain medical attention IMMEDIATELY.

Ingestion: Do not attempt to give anything by mouth to an unconscious person. If victim is alert and not convulsing, rinse mouth out and give 1/2 to 1 glass of water to dilute material. IMMEDIATELY contact local Poison Control Centre. Vomiting should only be induced under the direction of a physician or a poison control centre. If spontaneous vomiting occurs, have victim lean forward with head down to avoid breathing in of vomitus, rinse mouth and administer more water. IMMEDIATELY transport victim to an emergency facility.

Note To Physician: Due to the severely irritating or corrosive nature of the material, swallowing may lead to ulceration and inflammation of the upper alimentary tract with hemorrhage and fluid loss. Also, perforation of the esophagus or stomach may occur, leading to mediastinitis or peritonitis and the resultant complications.

Treatment for Thermal/Surface: Immerse the burned part immediately in ice water to relieve pain and to prevent swelling and blistering. Place cold packs, ice or wet cloths on the burned area if

Burns: immersion is not possible.

Remove anything that is constrictive, such as rings, bracelets or footwear, before swelling begins.

Cover the burn with a clean, preferably sterile, lint free dressing.

For severe burns, immediately seek medical attention and monitor breathing and treat for shock.

Calcium Chloride: Vasopressor drugs (eg epinephrine, ephedrine, etc) **should not** be given on their own as there may be danger of cardiac arrhythmia.

Medical conditions that may be aggravated by exposure to this product include diseases of the skin, eyes or respiratory tract, neurological, cardiovascular and skin disorders.

Section 5. Fire Fighting Measures

Non-Combustible: Not applicable

Flammability Class: Not regulated

Hazardous Combustion Products: Thermal decomposition products are toxic and may include hydrochloric acid, oxides of chlorine, sodium, potassium, calcium and irritating gases.

Unusual Fire or Explosion Hazards: Dry Calcium Chloride can produce considerable amounts of heat when dissolving into water. Not normally a fire or dust explosion hazard. Sealed containers may rupture from the pressure of water vapours released from crystals by intense heat. Minimize airborne spreading of dust. Spilled material may cause floors and contact surfaces to become slippery. Do not flush with water as aqueous solutions or powders that become wet render surfaces extremely slippery.

Sensitivity to Mechanical Impact: Not expected to be sensitive to mechanical impact.

Rate of Burning: Not available

Explosive Power: Not available

Sensitivity to Static Discharge: Not expected to be sensitive to static discharge

Extinguishing Media: Use media appropriate for surrounding fire and/or materials: Foam, dry chemical, carbon dioxide or water spray

Fire Fighting Instructions: Fire-exposed containers should be kept cool by spraying with water to reduce pressure. Spilled material may cause floors and contact surfaces to become slippery. Do not flush with water as aqueous solutions or powders that become wet render surfaces extremely slippery.

Fire Fighting PPE: Use self contained breathing apparatus and protective clothing.

Section 6. Accidental Release Measures

Information in this section is for responding to spills, leaks or releases in order to prevent or minimize the adverse effects on persons, property and the environment. There may be specific reporting requirements associated with spills, leaks or releases, which range from region to region.

Containment and Clean-Up Procedures: In all cases of leak or spill contact Emergency Number shown on the front of this MSDS. Minimize air borne spreading of dust. Do not flush with water as aqueous solutions of powders that become wet render surfaces extremely slippery. Wear respirator, protective clothing and gloves. Avoid dry sweeping. Do not use compressed air to clean surfaces. Vacuuming is preferred. Return all material possible to container for proper disposal. Collect product for recovery or disposal. Ventilate enclosed spaces. Notify applicable government authority if release is reportable or could adversely affect the environment.

Where a package (drum or bag) is damaged and/or leaking, repair it, or place it into an over-pack drum immediately so as to avoid or minimize material loss and contamination of surrounding environment.

Section 7. Handling and Storage

Handling Practices: Use normal "good" industrial hygiene and housekeeping practices. Dry Calcium Chloride can produce considerable amounts of heat when dissolving into water. Use cool water when diluting or dissolving (temperature less than 27 degrees celsius). Always add product slowly to liquid surface, with constant stirring to assure that product is completely dissolved as it is added to dissipate heat

Ventilation Requirements: Minimize air borne spreading of dust. Do not use in poorly ventilated areas without proper respiratory protection. Ventilation should be corrosion proof.

Other Precautions: Use only with adequate ventilation and avoid breathing dusts. Avoid contact with eyes, skin or clothing. Wash thoroughly with soap and water after handling. Wash contaminated clothing thoroughly before re-use.

Storage Store in a cool, dry, well ventilated area. Keep away from heat, sparks and flames. Keep containers closed. Avoid moisture contamination. Prolonged storage may result in lumping or caking. Hygroscopic.

Ventilation Requirements: Ventilation should be corrosion proof.

Special Materials to be Used for Packaging or Containers: Materials of construction for storing the product include: 304 stainless steel, titanium or polyethylene. Equipment for storage, handling or transport should NOT be made from the following material, or, where applicable, its alloys: brass, zinc, mild steel, aluminum or iron. Confirm suitability of any material before using.

Section 8. Exposure Controls/Personal Protection

Recommendations listed in this section indicate the type of equipment which will provide protection against overexposure to this product. Conditions of use, adequacy of engineering or other control measures, and actual exposures will dictate the need for specific protective devices at your workplace.

Engineering Controls: Local exhaust ventilation required. Ventilation should be corrosion proof. Make up of air should be supplied to balance air that is removed by local or general exhaust ventilation. Ventilate low lying areas such as sumps or pits where dense dust may collect.

Personal Protective Equipment

Eye Protection: Safety glasses with side shields are recommended to prevent eye contact. Use chemical safety goggles when there is potential for eye contact. Contact lenses should not be worn when working with this material.

Skin Protection: Gloves and protective clothing made from neoprene, PVC, nitrile rubber, rubber or plastic should be impervious under conditions of use. Prior to use, user should confirm impermeability. Do not use gloves or protective clothing made from leather. Discard contaminated gloves.

Respiratory Protection: No specific guidelines available. A NIOSH/MSHA approve dust mask for concentrations of nuisance dust up to 100 mg/m³ particulate. An air supplied respirator if concentrations are higher or unknown.

If while wearing a respiratory protection you can smell, taste or otherwise detect anything unusual, or in the case of a full face-piece respirator you can experience eye irritation, leave the area immediately. Check to make sure the respirator to face seal is still good. If it is, replace the filter, cartridge or canister. If the seal is no longer good, you may need a new respirator.

Other PPE: Particulate Not Otherwise Classified:

ACGIH: 10 mg/m³ - Inhalable particulate

OSHA: 50 mppcf or 15 mg/m³ - Total Dust

ACGIH: 3 mg/m³ - Respirable particulate Fraction

OSHA: 15 mppcf or 5 mg/m³ - Respirable

(mppcf = million particles per cubic foot)

Section 9. Physical and Chemical Properties

Physical State: Solid

Appearance:	White briquettes, pellets, flakes, granules or powder
Odour:	Odourless
Odour Threshold:	Not applicable
Boiling Range:	>815 - 1 600. °C
Melting/Freezing Point:	174 °C(Dihydrate) 772 °C(Anhydrous)
Vapour Pressure	<1.0 @ 25 C - (mm Hg at 20°C)
Vapour Density (Air=1.0)	Not applicable
Relative Density (g/cc):	0.835 - 2.22
Bulk Density:	51 - 68 lb/ft ³
Viscosity:	Not available
Evaporation Rate:	Not applicable
Solubility:	Soluble in water. Hygroscopic (readily absorbs water)
% Volatile by Volume:	Not applicable
pH:	8 - 9 (34% solution)
Coefficient of Water/Oil	Not available
Flashpoint:	Non-combustible (does not burn)

Section 10. Stability and Reactivity

Under Normal Conditions:	Stable
Under Fire Conditions:	Not flammable
Hazardous Polymerization:	Will not occur
Conditions to Avoid:	High temperatures, sparks, open flames and all other sources of ignition. Minimize air borne spreading of dust. Clean up immediately to eliminate slipping hazard. Avoid moisture contamination. Hygroscopic.
Materials to Avoid:	Strong oxidizers. Lewis or mineral acids. Alkali metals. Methyl Vinyl Ether. Boric Acid. Calcium Oxide. Bromine trifluoride. Dry calcium chloride can produce considerable amounts of heat when dissolving into water.

May react violently with metals such as sodium, potassium and barium particularly if they are finely divided. Hydrogen gas may be produced on prolonged contact with metals such as aluminum, tin, lead and zinc.

Decomposition or Combustion Products:	Thermal decomposition products are toxic and may include hydrochloric acid, oxides of chlorine, sodium, potassium, calcium and irritating gases.
--	--

Section 11. Toxicological Information

	LD50 (Oral, Rat) - 900-2 100 mg/kg
Calcium Chloride	LD50 (Dermal, Rabbit) - >5,000 mg/kg
Potassium Chloride:	LD50 (Oral, Rat) - 2500 mg/kg LD50 (Oral, Rat) - 3,000 mg/kg
Sodium Chloride:	LD50 (Dermal, Rabbit) - >10,000 mg/kg
Carcinogenicity Data:	The ingredient(s) of this product is (are) not classed as carcinogenic by ACGIH, OSHA or NTP
Reproductive Data:	No adverse reproductive effects are anticipated.
Mutagenicity Data:	Mutagenicity tests have been negative or inconclusive
Teratogenicity:	No adverse teratogenic effects are anticipated
Respiratory/Sin Sensitization:	None known
Synergistic Materials:	None known
Other Relevant Studies:	Calcium chloride is a non to mild skin irritant when tested in rabbits No studies using live animals were located. Negative results were obtained in an unconfirmed study in cultured mammalian cells and in confirmed and unconfirmed tests using bacteria. Positive results were obtained in yeast. No developmental effects were seen in rats, mice or rabbits following oral exposure to doses that caused no maternal toxicity.

Section 12. Ecological Information

Ecotoxicity	Calcium Chloride 96-hour LC50 (Sunfish, Fresh water) = 10,650 ppm 96-hour LC50 (Bluegill) = >5,000 - 10,650 mg/l LC50 (water Flea) = 759 - 3,005 mg/l EC50 (activated sludge, respiratory inhibition) > 1,000 mg/l
Environmental Fate:	This material is not expected to bio-accumulate. Can be hazardous if allowed to enter drinking water intakes. Do not contaminate domestic or irrigation water supplies, lakes, streams, ponds or rivers.

Section 13. Disposal Considerations

Deactivating Chemicals: Not available

Waste Disposal Methods: This information applies to the material as manufactured. Dispose of waste material at an approved (hazardous) waste treatment/disposal facility in accordance with applicable local, provincial and federal regulations. Do not dispose of waste with normal garbage, or to sewer system.

Disposal of Packaging: Empty containers retain product residue and can be hazardous. Do not dispose of package until thoroughly washed out. Dispose of waste material at an approved landfill site.

Section 14. Transportation Information

Canadian TDG: This product is not regulated by TDG

Labels: Not applicable Placard: Not applicable

US DOT: This product is not regulated by DOT

Labels: No applicable Placard: Not applicable

Section 15. Regulatory Information

Canada CEPA-NSNR: All constituents of this product are included on the DSL

CEPA-NPRI: Not available

Controlled Products Regulations Classification (WHMIS):

D-2B: Toxic (skin & eye irritant)

USA EPA: All constituents of this product are included on the TSCA inventory

OSHA HCS (29CFR 1910.1200): Skin and eye irritant

NDPA: 1 Health, 0 Fire, 1 Reactivity

HMIS: 1 Health, 0 Fire, 0 Reactivity

International: The following component or components of this product appear on the European Inventory of Existing Commercial Chemical Substances: Calcium Chloride

Molecular Formula: CaCl₂ or CaCl₂·2 H₂O

Disclaimer

This information contained herein is accurate to the best of our knowledge. We do not suggest or guarantee that any hazards listed herein are the only ones which exist. Pestell Minerals & Ingredients makes no warranty of any kind, expressed or implied, concerning the safe use of this material in your process or combination with any other substances. Effects can be aggravated by other materials and/or this material may aggravate or add to the effects of other materials. This material may be released from gas, liquid or solid materials made directly or indirectly from it. User has the sole responsibility to determine the suitability of the materials for any use and the manner of use contemplated. User must meet all applicable safety and health standards.