



## MATERIAL SAFETY DATA SHEET

### Calcium Chloride

#### SECTION 1 – CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

##### HOUSTON OFFICE

700 Louisiana Street, Suite 4300  
Houston, Texas 77002  
U.S. • 1-800-423-4117

**Product Name:** Calcium Chloride  
**CAS#:** 10043-52-4  
**MSDS Code:** CaCl<sub>2</sub>-e  
**Synonyms:** Calcium dichloride  
**Product Use:** Dust control, desiccant, de-icing, concrete treatment, water treatment, fruit preparation

**Major Update:** 01/18/03

#### Emergency Contacts (24 hr.)

FOR INFORMATION REGARDING ON SITE CHEMICAL EMERGENCIES INVOLVING A SPILL OR LEAK, CALL

**U.S.: 1-800-424-9300 – CHEMTREC**  
**Canada: 1-613-996-6666 – CANUTEC**

#### SECTION 2 – COMPOSITION / INFORMATION ON INGREDIENTS

Hazardous Ingredient(s)	% (w/w)	ACGIH	CAS NO.
Calcium Chloride	20 – 36	Not established	10043-52-4

#### SECTION 3 – HAZARD IDENTIFICATION

**Emergency Overview:** Eye irritant. Mild skin irritant. Harmful if swallowed. Odorless liquid.

##### Potential Health Effects:

**Inhalation:** Inhalation of mist may cause temporary irritation of the nose and throat. Severe exposures may cause nasal discharge and coughing.

**Skin Contact:** Single, short exposures are unlikely to cause significant skin irritation. Prolonged exposure to solutions may cause mild to moderate irritation.

**Eye Contact:** May cause temporary moderate to serious eye irritation or injury.

**Ingestion:** May cause irritation to the mouth and throat. Large doses may cause stomach pain, nausea or vomiting. Calcium chloride is low in oral toxicity, and it is unlikely that accidental ingestion could cause any toxic effects in the body.

**Chronic Effects:** Repeated and prolonged contact with mist can cause skin or eye irritation and discharge. Repeated and prolonged inhalation may cause burning sensation and pain in the nasal cavity, and occasionally nose bleeds and throat pain.

**Carcinogenicity:** Calcium chloride is not classified as carcinogenic by ACGIH (American Conference of Governmental Industrial Hygienists) or IARC (International Agency for Research on Cancer), not regulated as carcinogens by OSHA (Occupational Safety and Health Administration), and not listed as carcinogens by NTP (National Toxicology Program).

#### SECTION 4 – FIRST AID MEASURES

**General:** If you feel unwell, IMMEDIATELY seek medical advice (show this document).

**Inhalation:** If symptoms are experienced, move victim to fresh air and obtain medical advice.

**Skin Contact:** If irritation occurs, remove contaminated clothing, jewelry, and shoes immediately. Wash off with soap or mild detergent in lukewarm water for 5 minutes. If irritation persists repeat washing and seek medical advice.

**Eye Contact:** Flush with gently flowing lukewarm water immediately and continuously for 20 minutes. If irritation persists, obtain medical attention.

**Ingestion:** If swallowed, drink 240 to 300 mL (8 to 10 oz.) water and seek medical attention. Do not induce vomiting unless directed to do so by medical personnel. Rinse mouth and repeat administration of water. If person is unconscious, turn head to side. Obtain medical help immediately.

#### SECTION 5 – FIRE FIGHTING MEASURES

<b>Flash Point:</b>	Not applicable
<b>Flammable Limits (Lower):</b>	Not applicable
<b>Flammable Limits (Upper):</b>	Not applicable
<b>Auto Ignition Temperature:</b>	Not applicable
<b>Decomposition Temperature:</b>	1600°C
<b>Combustion and Thermal Decomposition Products:</b>	Hydrogen chloride at very high temperatures
<b>Rate of Burning:</b>	Does not burn
<b>Explosive Power:</b>	Not sensitive. Stable material.
<b>Sensitivity to Mechanical Impact:</b>	Not sensitive. Stable material.
<b>Sensitivity to Static Discharge:</b>	Not sensitive.

**Fire and Explosion Hazards:** Negligible fire hazard.

**Extinguishing Media:** Does not burn. Use media appropriate for the surrounding fire.

**NOTE:** Also see « Section 10 – Stability and Reactivity »

#### SECTION 6 – ACCIDENTAL RELEASE MEASURES

**Spills, Leaks, or Releases:** Restrict access to area until completion of clean up. Spills may be a slipping hazard. Wear adequate personal protective equipment. To prevent contamination of waterways, dike spill and collect using absorbent material or sand. Collect spilled material in appropriate container. Comply with Federal, Provincial/State and local regulations on reporting releases.

**Deactivating Chemicals:** Not required.

## SECTION 7 – HANDLING AND STORAGE

- Δ **Handling:** Keep containers closed when not in use. Avoid generating mists. Wear appropriate Personal Protective Equipment (Refer to Section 8). People working with this chemical should be properly trained regarding its hazards and its safe use.

**Storage Requirements:** Store in suitable, labeled containers, preferably the supplier container. Most synthetic rubbers, plastics, stainless steels designed for high chloride service and fiberglass are adequate for solution handling and storage. Protect from damage. Keep storage containers closed when not in use. Read the label before use.

## SECTION 8 – EXPOSURE CONTROLS / PERSONAL PROTECTION

### PREVENTIVE MEASURES

Recommendations listed in this section indicate the type of equipment which will provide protection against over exposure 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:** Provide general and/or local exhaust ventilation to control airborne levels. Use a corrosion-resistant ventilation system separate from other exhaust ventilation systems. Exhaust directly to the outside.

### PERSONAL PROTECTIVE EQUIPMENT

**Eye Protection:** Wear splash resistant chemical goggles. Provide an emergency eye wash fountain and quick drench shower in the immediate work area.

**Skin Protection:** Wear impervious gloves of preferably rubber, rubberized or latex coated canvas for handling solutions. A rubber or rubberized raincoat is suggested where clothing may become wet with calcium chloride solution

**Respiratory Protection:** An approved NIOSH/MSHA air purifying respirator suitable for protection from mists.

### EXPOSURE GUIDELINES

**PRODUCT :** Calcium Chloride

ACGIH / OSHA : Not established

## SECTION 9 – PHYSICAL AND CHEMICAL PROPERTIES

Alternate Name(s):	Calcium Dichloride
Chemical Name:	Calcium Chloride
Chemical Family:	Alkaline Earth Chloride
Molecular Weight:	110.99
Molecular Formula:	Ca-Cl <sub>2</sub>
Appearance:	Clear to amber solution
Odor:	Odorless
pH:	8.0 to 9.0 (35% solution)
Vapour Pressure (mm Hg at 20 °C):	Practically zero
Boiling Point:	35%: 120°C (248°F)
Freezing Point:	-40°C (-40°F)
Solubility (Water):	100%
Solubility (Other):	Ethanol, acetic acid, acetone
Specific Gravity:	1.4 @ 60°F (15.6°C)
% Volatile by Volume:	Zero
% Volatile Organic Compounds:	Zero
Viscosity:	35.5%: 5.81 mPa.s @20°C
Coefficient of Oil/Water distribution	Not available

## SECTION 10 – STABILITY AND REACTIVITY

**Hazardous Decomposition Products:** None known

**Chemical Stability:** Stable.

**Conditions to Avoid:** Mildly corrosive to metals such as zinc, copper, brass, and galvanized iron causing the slow evolution of flammable hydrogen gas.

**Corrosivity To Metals:** Solution is mildly corrosive to many metals including copper, brass, mild iron, steel, and some stainless steels.

**Incompatibility with other Substances:**

- Bromine trifluoride: Possible violent reaction.
- Furan-2-Peroxy-carboxylic Acid – may react violently or explosively
- Methyl Vinyl Ether – may react to initiate self-polymerization

**Hazardous Polymerization:** Will not occur.

## SECTION 11 – TOXICOLOGICAL INFORMATION

For more toxicological information, refer to Section 3.

### **TOXICOLOGICAL DATA**

**Acute Toxicity:** Calcium Chloride

LD<sub>50</sub> (oral) = 1000 mg/kg rat

LD<sub>50</sub> (oral) = 1940 mg/kg mouse

**Eye Irritation** (rabbit): Application of 2% to 10% solutions caused no permanent damage

**Mutagenicity:** No human information available. There is evidence of mutagenic potential. Both positive and negative results in mammalian in-vitro cell tests.

**Reproductive Effects:** No information is available.

**Teratogenicity and Fetotoxicity:** No information is available.

**Synergistic Materials:** No information is available.

**Skin and Respiratory Sensitization:** No information is available.

**Irritancy:** Moderate to strong eye irritant. Significant skin irritant.

### **SECTION 12 – ECOLOGICAL INFORMATION**

**Ecotoxicological Information:** Dangerous to aquatic life in high concentrations

555 ppm/168 hr/rock bass/killed/tap water

10,650 ppm/96 hr/sunfish / LD<sub>50</sub> / fresh water

2,400 ppm/48 hr/marine fish/TLm/sea water

LC<sub>50</sub> Nitzschia linearia: 3,130 mg/l/120 hr in static water

**Persistence and Degradation:** Calcium chloride does not biodegrade and does not bioaccumulate.

### **SECTION 13 – DISPOSAL CONSIDERATIONS**

Review federal, state and local government requirements prior to disposal. Disposal by secure landfill may be acceptable.

### **SECTION 14 – TRANSPORT INFORMATION**

	<b>TDG CLR</b>	<b>DOT</b>
<b>Shipping Name</b>	Not regulated	Not regulated
<b>Hazard Class / Division</b>	Not applicable	Not applicable
<b>Identification No.</b>	Not applicable	Not applicable
<b>Packing Group</b>	Not applicable	Not applicable

**IMO:** Not regulated

**IATA/ICAO Class:** Not regulated

**SECTION 15 – REGULATORY INFORMATION**

**USA CLASSIFICATION**

**OSHA Classification:** This product is not a “Hazardous Chemical” by definition of Hazard Communication Standard (29 CFR 1910.1200)

**SARA Regulations sections 313 and 40 CFR 372:** This product does not contain any chemicals subject to reporting requirements.

**Ozone Protection and 40 CFR 42:** This product does not contain nor is it manufactured with ozone depleting substances.

**TSCA:** Y

**EINECS:** 233-140-8

**CANADIAN CLASSIFICATION**

This product has been classified in accordance with the hazard criteria of the CPR (Controlled Products Regulations) and this MSDS (Material Safety Data Sheet) contains all the information required by the CPR.

**Controlled Products Regulations (WHMIS) Classification:**

Class D2B: Toxic material with other toxic effects

**CEPA / Canadian Domestic Substances List (DSL):** The substance in this product is on the Canadian Domestic Substances List (CEPA DSL).

**SECTION 16 – OTHER INFORMATION**

The information contained herein is offered only as a guide to the handling of this specific material and has been prepared in good faith by technically knowledgeable personnel. It is not intended to be all-inclusive and the manner and conditions of use and handling may involve other and additional considerations. No warranty of any kind is given or implied and PIONEER will not be liable for any damages, losses, injuries or consequential damages that may result from the use of or reliance on any information contained herein. This Material Safety Data Sheet is valid for three years.

**Revision Indicators:**

△ In the left margin indicates a revision or addition of information since the previous issue.

**National Fire Protection Association (NFPA) Rating  
Hazardous Materials Identification System (HMIS) Rating**

	NFPA	HMIS
HEALTH	1	1
FIRE	0	0
REACTIVITY	0	0

4 = Extreme/Severe  
3 = High/Serious  
2 = Moderate  
1 = Slight  
0 = Minimum

## **REFERENCE**

1. AWWA Standard for Calcium Chloride, American Water Works Association, ANSI/AWWA B550-90, Sept 1990.
2. RTECS-Registry of Toxic Effects of Chemical Substances, On-line search, Canadian Centre for Occupational Health and Safety RTECS database, Doris V. Sweet, Ed., National Institute for Occupational Safety and Health, U.S. Dept. of Health and Human Services, Cincinnati, 2003.
3. "CHEMINFO", through "CCINFODisc", Canadian Centre for Occupational Health and Safety, Hamilton, Ontario, Canada, (2003).
4. Chemlist, STN Database, Chemical Abstract Service, 1999
5. CHEMICAL HAZARDS RESPONSE INFORMATION , United States Coast Guard, Canadian Centre for Occupational Health and Safety (2003)
6. HSDB, On-line search, (November 1999).
7. Dangerous Properties of Industrial Materials, 4<sup>th</sup> Edition, N. Irving Sax, 1989.
8. Threshold Limit Values (TLVs) for Chemical Substances and Physical Agents and Biological Exposure Indices (BEIs), ACGIH, 2003

## **LEGEND**

CAS #	- Chemical Abstracts Service Registry Number
CFR	- Code of Federal Regulations
DOT	- Department of Transportation
EINECS	- European Inventory of Existing Commercial Chemical Substances
EPA	- Environmental Protection Agency
LC <sub>50</sub>	- The concentration of material in air expected to kill 50% of a group of test animals
LD <sub>50</sub>	- Lethal Dose expected to kill 50% of a group of test animals
LEL	- Lower Explosive Limit
MSHA	- Mine Safety and Health Administration
NIOSH	- National Institute for Occupational Safety and Health
PEL	- Permissible Exposure Limit
RCRA	- Resource Conservation and Recovery Act
SARA	- Superfund Amendments and Reauthorization Act of the U.S. EPA
STEL	- Short Term Exposure Limit
TC	- Transport Canada
TDG	- Transportation of Dangerous Goods Act/Regulations
TLV	- Threshold Limit Value
TSCA	- Toxic Substances Control Act
TWA	- Time-Weighted Average
UEL	- Upper Explosive Limit
WHMIS	- Workplace Hazardous Material Information System