

## MATERIAL SAFETY DATA SHEET

### I - PRODUCT IDENTIFICATION

Product: Calcium Chloride  
Chemical Family: Inorganic Salt

### II - TRANSPORTATION DATA

U.S. Department of Transportation - 49 CFR

Not regulated for transport  
Emergency Telephone Number: Chemtrec 800-424-9300

### III - HAZARDOUS INGREDIENTS/IDENTITY INFORMATION

Chemical Name: Calcium Chloride  
CAS Number: 10043-52-4  
RTECS Number: EV9800000  
Percentage: 75 – 85%  
Probable Contaminants: calcium carbonate, calcium hydroxide, calcium oxide, alkali metal chlorides, alkaline earth metal chlorides

### IV - PHYSICAL/CHEMICAL CHARACTERISTICS

Appearance: colorless to white, deliquescent crystals  
Molecular Weight: 147.02, dihydrate  
129, monohydrate  
Solubility in Water: approximately 40% weight at 20°C with evolution of heat  
Solubility in Solvent: Soluble in alcohol, acetic acid, and acetone  
Specific Gravity (H<sub>2</sub>O=1): 2.15 at 25°C for calcium anhydrous  
Boiling Point (@ 760 mm Hg): 2912°F for calcium anhydrous  
Melting Point: 1440°F for calcium anhydrous

### V - FIRE AND EXPLOSION HAZARD DATA

Extinguishing Media:  
Dry chemical, carbon dioxide, water spray or regular foam. For larger fires, use water spray, fog or regular foam  
Special Fire-fighting Procedures:  
Move container from fire area if you can do so without risk. Apply cooling water to sides of containers that are exposed to flames until well after fire is out.

Extinguish fire using agent suitable for type of surrounding fire. Do not use water directly on material. Avoid breathing corrosive vapors; keep upwind

Special Respirator:

- Any self-contained breathing apparatus that has a full facepiece and is operated in a pressure-demand or other positive-pressure mode
- Any supplied-air respirator that has a full facepiece and is operated in a pressure-demand or other positive-pressure mode in combination with any auxiliary self-contained breathing apparatus operated in pressure-demand or other positive pressure mode

Hazardous Combustion Products:

Thermal decomposition products may include toxic and corrosive fumes of chlorine, and hydrogen chloride

Unusual Explosion Hazards:

Negligible fire hazard when exposed to heat of flame

## **VI - REACTIVITY DATA**

Reactivity:

Anhydrous form reacts exothermically with water

Stability:

Unstable       Stable

Conditions to Avoid:

May burn but does not ignite readily. Flammable, poisonous gases may accumulate in tanks and hopper cars. May ignite combustibles (wood, paper, oil, etc.)

Incompatibility:

Boric oxide + Calcium Oxide:	possible violent incandescent reaction
Bromine Trifluoride:	possible violent reaction
Furan-2-peroxycarboxylic acid:	explodes
Metals:	corrosive in the presence of moisture
Methyl Vinyl ether:	may initiate exothermic polymerization
Zinc:	corrodes, releasing flammable hydrogen gas

Hazardous Decomposition or By-Products:

Thermal decomposition products may include toxic and corrosive fumes of chlorine

Hazardous Polymerization:

May Occur       Will Not Occur

## **VII - PRECAUTIONS FOR SAFE HANDLING AND USE**

Steps To Be Taken In Case Material Is Spilled Or Released:

Do not touch spilled material. Stop leak if you can do it without risk. For small spills, take up with sand or other absorbent. Material and place into containers for later disposal. For small dry spills, with clean shovel place material into

clean, dry container and cover. Move containers from spill area. For larger spills, dike far ahead of spill for later disposal. Keep unnecessary people away. Isolate hazard area and deny entry

**Waste Disposal Method:**

Observe all federal, state and local regulations when disposing of this substance

**Precautions to Be Taken in Handling and Storage:**

Observe all federal, state and local regulations when storing this substance.

Store in a tightly closed container. Store away from incompatible substances

**VIII - HEALTH HAZARD DATA**

**NFPA Ratings:**

Health: 1

Fire: 0

Reactivity: 1

**Potential Health Effects:**

**Inhalation:**

Short Term: May cause irritation. Additional effects may include coughing and shortness of breath

Long Term: May cause perforation of the nose and nose bleed

**Skin Contact:**

Short Term: May cause irritation, possibly severe. Additional effects may include blisters and sores

Long Term: Same effects as short term exposure

**Eye Contact:**

Short Term: May cause irritation. Additional effects may include tearing.

Long Term: Same effects as short term exposure

**Ingestion:**

Short Term: May cause nausea.

Long Term: No information available on significant adverse effects

**Emergency Overview:**

Colorless to white, deliquescent crystals. May cause skin burns and respiratory tract and eye irritation. Do not get in eyes, on skin, or on clothing. Reacts with water to liberate heat. Do not allow water to get in container. Avoid breathing dust. Keep container tightly closed. Wash thoroughly after handling. Use only with adequate ventilation

**Emergency and First Aid Procedures:**

**Ingestion:** if vomiting occurs, keep head lower than hips to help prevent aspiration. Treat symptomatically and supportively. Get medical attention immediately

**Inhalation:** remove from exposure area to fresh air immediately. Perform artificial respiration if necessary. Keep person warm and at rest. Treat symptomatically and supportively. Get medical attention immediately

**Skin Contact:** remove contaminated clothing and shoes

immediately. Wash affected area with soap or mild detergent and large amounts of water until no evidence of chemical remains (at least 15-20 minutes). In case of burns, cover area with sterile, dry dressing. Bandage securely, but not too tightly. Get medical attention immediately

Eye Contact: wash eyes immediately with large amounts of water or normal saline solution, occasionally lifting upper and lower lids until no evidence of chemical remains (approximately 15-20 minutes). Get medical attention immediately

Note to Physician: no specific antidote. Treat symptomatically and supportively

Carcinogenity Listings:

OSHA: ( )

NTP: ( )

IARC: ( )

## **IX - CONTROL MEASURES**

Exposure Control/Personal Protection:

Exposure Limits: no occupational limits established by OSHA/ACGIH/NIOSH  
Respiratory: the specific respirator selected must be based on contamination levels found in the work place and on the specific incident. They must not exceed the working limits of the respirator. They must also be jointly approved by the National Institute for Occupational Safety and Health and the Mine Safety and Health Administration (NIOSH/MSHA). These respirators are ranked from minimum to maximum respiratory protection as listed below:

- Any dust and mist respirator with full facepiece
- Any air-purifying full facepiece respirator with high-efficiency particulate filter
- Any powered airpurifying respirator with tight-fitting facepiece and high-efficiency particualte filter
- Any Tye 'C' supplied-air respirator with a full facepiece operated in pressure-demand or other possitive-pressure mode or with a full facepiece, helmet or hood operated in continuous-flow mode
- Any self-contained breathing apparatus with a full facepiece operated in pressure-demand or other positive-pressure mode

Ventilation: provide local exhaust ventilation system

Skin: employee must wear appropriate protective (impervious) clothing and equipment to prevent repeated or prolonged skin contact with this substance

Gloves: employee must wear appropriate protective gloves to

Eye: prevent contact with this substance  
employee must wear safety glasses with splash shields or safety goggles to prevent contact with this substance

Hygiene: where there is any possibility that an employee's eyes and/or skin may be exposed to this substance, the employer should provide an eye wash fountain and quick drench shower within the immediate work area for emergency use

## **X - TOXICOLOGICAL INFORMATION**

### Toxicity Data:

#### Anhydrous Calcium Chloride:

TDLO: 112 g/kg, oral, 20 weeks, rat

LDLO: 274 mg/kg, subcutaneous, dog

LD50: 1,000 mg/kg, oral, rat

LD50: 264 mg/kg, intraperitoneal, rat

#### Dihydrate Calcium Chloride:

LD50: 20,500 mg/kg, intraperitoneal, mouse

### Carcinogen Status:

None

### Local Effects:

irritant – inhalation, skin, eye

### Acute Toxicity Level:

Moderately toxic by ingestion, slightly toxic by dermal absorption

### Target Effects:

No data available

### Inhalation:

Acute: inhalation of dust may cause irritation with coughing and shortness of breath

Chronic: reported cases of burning sensation and pain in the nasal cavities, occasional nose bleed, and tickling in the throat. Perforation of the nasal septum has been reported

### Skin:

Acute: single, short exposure not likely to cause significant skin irritation. However, direct contact with dust or solutions may cause severe irritation, erythema, blistering, exfoliation, ulceration, necrosis, and scarring. The degree of irritation depends on the concentration and duration of contact.

Chronic: effects depend on concentration and duration of exposure. Repeated or prolonged contact with corrosive substances may result in dermatitis or effects similar to those in acute exposure

### Eye:

Acute: direct contact with the dust may cause irritation with redness and pain and superficial injury. Lacrimation and eye discharge may also occur. Direct contact of calcium chloride in solution is

essentially innocuous. Application of 1 – 10 % solution to rabbit eyes caused no permanent injury  
Chronic: repeated or prolonged exposure may result in conjunctivitis  
Ingestion:  
Acute: may cause abdominal spasms and nausea. Overdose may cause gastrointestinal or cardiovascular irregularities. The fatal dose is estimated to be 30 grams  
Chronic: no adverse effects have been reported from its use as a food additive

## **XI – ECOLOGICAL INFORMATION**

Environmental Impact Rating:  
No data available  
Acute Aquatic Toxicity:  
No data available  
Degradability:  
No data available  
Log Bioconcentration Factor:  
No data available  
Log Octanol/Water Partition Coefficient:  
No data available

## **XII – REGULATORY INFORMATION**

TSCA STATUS – yes  
DSL STATUS – yes  
EINECS STATUS – yes  
40 CFR 302.4 CERCLA SECTION 103 – no  
40 CFR 355.30 SARA SECTION 302 – no  
40 CFR 355.40 SARA SECTION 304 – no  
40 CFR 372.65 SARA SECTION 313 – no  
29 CFR 1910.119 OSHA Process Safety – no  
California Proposition 65 – no  
40 CFR 370.21 SARA HAZARD CATEGORIES,  
SARA SECTIONS 311/312  
ACUTE HAZARD – YES  
CHRONIC HAZARD – NO  
FIRE HAZARD – NO  
REACTIVITY HAZARD – YES  
SUDDEN RELEASE HAZARD – NO

## **XIII - ADDITIONAL INFORMATION**

**ALWAYS COMPLY WITH ALL APPLICABLE INTERNATIONAL, FEDERAL, STATE**

**AND LOCAL REGULATIONS REGARDING THE TRANSPORTATION, STORAGE, USE AND DISPOSAL OF THIS CHEMICAL.**

Due to the changing nature of regulatory requirements, the REGULATORY INFORMATION listed in Section XII of this document should NOT be considered all-inclusive or authoritative. International, Federal, State and Local regulations should be consulted to determine compliance with all required reporting requirements.

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