

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 (H₂O=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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