

CID 5284359

# Calcium dichloride

## Safety and Hazards ?

### 1.1 Hazards Identification ?

#### 1.1.1 GHS Classification ?

Showing 1 of 4 [View More](#) 

<b>Pictogram(s)</b>	 Irritant
<b>Signal</b>	<u>Warning</u>
<b>GHS Hazard Statements</b>	H319: Causes serious eye irritation [ <u>Warning</u> Serious eye damage/eye irritation]
<b>Precautionary Statement Codes</b>	P264+P265, P280, P305+P351+P338, and P337+P317 (The corresponding statement to each P-code can be found at the <a href="#">GHS Classification</a> page.)

[▶ EU REGULATION \(EC\) No 1272/2008](#)

#### 1.1.2 Hazard Classes and Categories ?

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Eye Irrit. 2

[▶ EU REGULATION \(EC\) No 1272/2008](#)

Eye Irrit. 2 (100%)

[▶ European Chemicals Agency \(ECHA\)](#)

#### 1.1.3 EPA Safer Chemical ?

Chemical: [Calcium chloride](#), anhydrous Green circle - The chemical has been verified to be of low concern based on experimental and modeled data.[▶ EPA Safer Choice](#)

#### 1.1.4 Health Hazards ?

Inhalation causes irritation of nose and throat. Ingestion causes irritation of mouth and stomach. Contact with eyes (particularly by dust) causes irritation and possible transient corneal injury. Contact of solid with dry skin causes mild irritation; strong solutions can cause marked irritation, even a superficial burn. (USCG, 1999)

*U.S. Coast Guard. 1999. Chemical Hazard Response Information System (CHRIS) - Hazardous Chemical Data. Commandant Instruction 16465.12C. Washington, D.C.: U.S. Government Printing Office.*

▶ [CAMEO Chemicals](#)

## 1.1.5 Hazards Summary



A skin and respiratory tract irritant; May cause ulcerations to nasal mucous membranes; May cause dry skin and redness; [ICSC] A skin, eye, and mucous membrane irritant; May cause lacrimation; [HSDB] May cause serious damage to eyes; [CHEMINFO] A severe irritant that may cause burns; [MSDSonline] See [Calcium](#).

▶ [Haz-Map, Information on Hazardous Chemicals and Occupational Diseases](#)

## 1.1.6 Skin, Eye, and Respiratory Irritations



Inhalation: Causes irritation of nose and throat.

*Environment Canada; Tech Info for Problem Spills: Calcium Chloride (Draft) p.2 (1981)*

▶ [Hazardous Substances Data Bank \(HSDB\)](#)

Contact with eyes, particularly by dust, causes irritation and possible transient corneal injury.

*Environment Canada; Tech Info for Problem Spills: Calcium Chloride (Draft) p.2 (1981)*

▶ [Hazardous Substances Data Bank \(HSDB\)](#)

Contact of solid with dry skin causes mild irritation; strong solutions cause marked irritation or burns.

*Environment Canada; Tech Info for Problem Spills: Calcium Chloride (Draft) p.2 (1981)*

▶ [Hazardous Substances Data Bank \(HSDB\)](#)

## 1.2 First Aid Measures



### 1.2.1 First Aid



INHALATION: move to fresh air; if discomfort persists, get medical attention. INGESTION: give large amounts of [water](#). EYES: promptly flood with [water](#) and continue washing for at least 15 min.; consult an ophthalmologist. SKIN: flush with [water](#). (USCG, 1999)

*U.S. Coast Guard. 1999. Chemical Hazard Response Information System (CHRIS) - Hazardous Chemical Data. Commandant Instruction 16465.12C. Washington, D.C.: U.S. Government Printing Office.*

▶ [CAMEO Chemicals](#)

## 1.3 Fire Fighting



### 1.3.1 Fire Fighting Procedures



Fire Control: Use [water](#), dry chemical, [carbon dioxide](#) or foam to extinguish. Do not extinguish fire unless release can be stopped. Cool fire-exposed containers with [water](#).

*Environment Canada; Tech Info for Problem Spills: Calcium Chloride (Draft) p.2 (1981)*

▶ [Hazardous Substances Data Bank \(HSDB\)](#)

## 1.4 Accidental Release Measures



### 1.4.1 Cleanup Methods



Spill Control: Restrict access to spill site, call fire department and notify manufacturer, stop the flow and contain spill if safe to do so, keep contaminated [water](#) from entering sewers or [water](#) courses, and avoid contact with liquid and solid.

*Environment Canada; Tech Info for Problem Spills: Calcium Chloride (Draft) p.2 (1981)*

▶ [Hazardous Substances Data Bank \(HSDB\)](#)

Emergency control Procedures: Soil; Construct barriers to contain spill and remove material by manual or mechanical means. [Water](#); Contain by damming, [water](#) diversion or natural barriers.

*Environment Canada; Tech Info for Problem Spills: Calcium Chloride (Draft) p.2 (1981)*

▶ [Hazardous Substances Data Bank \(HSDB\)](#)

When solid [calcium chloride](#) is spilled on land, shovel into containers (avoid dusting) for recovery or disposal.

*Dow Chemical Company; Dow Chemical Resistance Guide for Dow Plastic Lined Piping Products (1978) as cited in Environment Canada; Tech Info for Problem Spills: Calcium Chloride (Draft) p.69 (1981)*

▶ [Hazardous Substances Data Bank \(HSDB\)](#)

### 1.4.2 Disposal Methods



SRP: The most favorable course of action is to use an alternative chemical product with less inherent propensity for occupational harm/injury/toxicity or environmental contamination. Recycle any unused portion of the material for its approved use or return it to the manufacturer or supplier. Ultimate disposal of the chemical must consider: the material's impact on air quality; potential migration in soil or [water](#); effects on animal and plant life; and conformance with environmental and public health regulations.

▶ [Hazardous Substances Data Bank \(HSDB\)](#)

Waste [calcium chloride](#) must never be discharged directly into sewers or surface waters.

*Environment Canada; Tech Info for Problem Spills: Calcium Chloride (Draft) p.70(1981)*

▶ [Hazardous Substances Data Bank \(HSDB\)](#)

### 1.4.3 Preventive Measures



SRP: The scientific literature for the use of contact lenses by industrial workers is inconsistent. The benefits or detrimental effects of wearing contact lenses depend not only upon the substance, but also on factors including the form of the substance, characteristics and duration of the exposure, the uses of other eye protection equipment, and

the hygiene of the lenses. However, there may be individual substances whose irritating or corrosive properties are such that the wearing of contact lenses would be harmful to the eye. In those specific cases, contact lenses should not be worn. In any event, the usual eye protection equipment should be worn even when contact lenses are in place.

▶ [Hazardous Substances Data Bank \(HSDB\)](#)

SRP: Local exhaust ventilation should be applied wherever there is an incidence of point source emissions or dispersion of regulated contaminants in the work area. Ventilation control of the contaminant as close to its point of generation is both the most economical and safest method to minimize personnel exposure to airborne contaminants. Ensure that the local ventilation moves the contaminant away from the worker.

▶ [Hazardous Substances Data Bank \(HSDB\)](#)

WHERE POSSIBLE, PROCESSES SHOULD BE MECHANISED & ENCLOSED TO PREVENT DUST FORMATION ... ADEQUATE VENTILATION SHOULD BE INSTALLED TO COLLECT AIRBORNE DUST. ... SMOKING, DRINKING & EATING PROHIBITED @ WORKPLACE.

*International Labour Office. Encyclopedia of Occupational Health and Safety. Vols. I&II. Geneva, Switzerland: International Labour Office, 1983., p. 358*

▶ [Hazardous Substances Data Bank \(HSDB\)](#)

## 1.5 Handling and Storage



### 1.5.1 Storage Conditions



Storage space should be well ventilated.

*Allied Chemical Inc; Technical and Engineering Service Bulletin No 16, Calcium Chloride (1958) as cited in Environment Canada; Tech Info for Problem Spills: Calcium Chloride (Draft) p.71 (1981)*

▶ [Hazardous Substances Data Bank \(HSDB\)](#)

Dry bulk **calcium chloride** can be stored in bins fabricated from most construction-grade steel materials. Care should be taken to minimize moisture. Venting should be limited to times of filling and discharging **calcium chloride** from the storage bin.

*Kemp R, Keegan SE; Ullmann's Encyclopedia of Industrial Chemistry. 7th ed. (1999-2011). New York, NY: John Wiley & Sons; Calcium chloride. Online Posting Date: 15 June 2000*

▶ [Hazardous Substances Data Bank \(HSDB\)](#)

Liquid **calcium chloride** can be stored in either horizontal or vertical cylindrical tanks constructed of steel. Fiberglass and plastic may also be used within limits of strength and temperature.

*Kemp R, Keegan SE; Ullmann's Encyclopedia of Industrial Chemistry. 7th ed. (1999-2011). New York, NY: John Wiley & Sons; Calcium chloride. Online Posting Date: 15 June 2000*

▶ [Hazardous Substances Data Bank \(HSDB\)](#)

## 1.6 Exposure Control and Personal Protection



### 1.6.1 Allowable Tolerances



Residues of **calcium chloride** are exempted from the requirement of a tolerance when used in accordance with good

agricultural practice as inert (or occasionally active) ingredients in pesticide formulations applied to animals. Use: stabilizer. Limit: none.

40 CFR 180.930 (USEPA); U.S. National Archives and Records Administration's Electronic Code of Federal Regulations. Available from, as of October 7, 2011: <https://www.ecfr.gov>

▶ [Hazardous Substances Data Bank \(HSDB\)](#)

Residues of the following chemical substances are exempted from the requirement of a tolerance when used in accordance with good manufacturing practice as ingredients in an antimicrobial pesticide formulation, provided that the substance is applied on a semi-permanent or permanent food-contact surface (other than being applied on food packaging) with adequate draining before contact with food. ... (b) The following chemical substances when used as ingredients in an antimicrobial pesticide formulation may be applied to: Dairy processing equipment, and food-processing equipment and utensils. **Calcium chloride** is included on this list. Limit: When ready for use, the end-use concentration is not to exceed 17 ppm.

40 CFR 180.940(b) (USEPA); U.S. National Archives and Records Administration's Electronic Code of Federal Regulations. Available from, as of October 7, 2011: <https://www.ecfr.gov>

▶ [Hazardous Substances Data Bank \(HSDB\)](#)

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40 CFR 180.940(c) (USEPA); U.S. National Archives and Records Administration's Electronic Code of Federal Regulations. Available from, as of October 7, 2011: <https://www.ecfr.gov>

▶ [Hazardous Substances Data Bank \(HSDB\)](#)

## 1.6.2 Personal Protective Equipment (PPE)



Safety glasses or face shield, dust-type respirator, rubber gloves (USCG, 1999)

U.S. Coast Guard. 1999. Chemical Hazard Response Information System (CHRIS) - Hazardous Chemical Data. Commandant Instruction 16465.12C. Washington, D.C.: U.S. Government Printing Office.

▶ [CAMEO Chemicals](#)

SUITABLE PROTECTIVE CLOTHING INCL OVERALLS, GLOVES & HEADWEAR SHOULD BE WORN TO PREVENT DUST & SPLASHES OF ... SOLN COMING IN CONTACT WITH SKIN & MUCOUS MEMBRANES. WHERE CONCEN ARE ELEVATED, GOGGLES & RESPIRATORY PROTECTIVE EQUIPMENT ARE NECESSARY.

International Labour Office. Encyclopedia of Occupational Health and Safety. Vols. I&II. Geneva, Switzerland: International Labour Office, 1983., p. 358

▶ [Hazardous Substances Data Bank \(HSDB\)](#)

SAFETY GLASSES OR FACE SHIELD, DUST-TYPE RESPIRATOR, RUBBER GLOVES.

U.S. Coast Guard, Department of Transportation. CHRIS - Hazardous Chemical Data. Volume II. Washington, D.C.: U.S. Government Printing Office, 1984-5.

▶ [Hazardous Substances Data Bank \(HSDB\)](#)

Rubber boots, bootees, or well-oiled leather shoes are desirable when handling any [calcium chloride](#) product. Canvas gloves or gauntlets ordinarily are satisfactory in handling flake [calcium chloride](#), but rubber gloves, rubberized or latex coated canvas gauntlets are preferred for handling solutions. A rubber or rubberized raincoat is suggested where clothing may become wet with [calcium chloride](#) solution.

*Allied Chemical Inc; Technical and Engineering Service Bulletin No 16, Calcium Chloride (1958) as cited in Environment Canada; Tech Info for Problem Spills: Calcium Chloride (Draft) p.70-71 (1981)*

▶ [Hazardous Substances Data Bank \(HSDB\)](#)

## 1.7 Stability and Reactivity



### 1.7.1 Air and Water Reactions



Deliquescent. [Water](#) soluble. Adding [calcium chloride](#) to hot [water](#) caused violent boiling, [MCA Case History No. 69].

▶ [CAMEO Chemicals](#)

### 1.7.2 Reactive Group



Salts, Acidic

▶ [CAMEO Chemicals](#)

### 1.7.3 Reactivity Profile



[Bromine trifluoride](#) rapidly attacks [calcium chloride](#) [Mellor 2 Supp. 1:164, 165 1956]. Long term exposure of [calcium chloride](#) solution upon a [zinc](#) coated galvanized [iron](#) vessel caused slow evolution of [hydrogen](#) which ignited and exploded [Bretherick, 5th Ed., 1995].

▶ [CAMEO Chemicals](#)

### 1.7.4 Hazardous Reactivities and Incompatibilities



Exothermic reaction with [water](#).

*Lewis, R.J. Sr. (ed) Sax's Dangerous Properties of Industrial Materials. 11th Edition. Wiley-Interscience, Wiley & Sons, Inc. Hoboken, NJ. 2004., p. 670*

▶ [Hazardous Substances Data Bank \(HSDB\)](#)

Reaction with [zinc](#) releases explosive [hydrogen](#) gas.

*Lewis, R.J. Sr. (ed) Sax's Dangerous Properties of Industrial Materials. 11th Edition. Wiley-Interscience, Wiley & Sons, Inc. Hoboken, NJ. 2004., p. 670*

▶ [Hazardous Substances Data Bank \(HSDB\)](#)

Catalyzes exothermic polymerization of [methyl vinyl ether](#).

*Lewis, R.J. Sr. (ed) Sax's Dangerous Properties of Industrial Materials. 11th Edition. Wiley-Interscience, Wiley & Sons, Inc. Hoboken, NJ. 2004., p. 670*

▶ [Hazardous Substances Data Bank \(HSDB\)](#)

**Bromine** trifluoride rapidly attacks ... **calcium chloride** ...

*National Fire Protection Association; Fire Protection Guide to Hazardous Materials. 14TH Edition, Quincy, MA 2010, p. 491-36*

▶ [Hazardous Substances Data Bank \(HSDB\)](#)

For more Hazardous Reactivities and Incompatibilities (Complete) data for **CALCIUM CHLORIDE** (8 total), please visit the [HSDB record page](#).

▶ [Hazardous Substances Data Bank \(HSDB\)](#)

## 1.8 Regulatory Information



### 1.8.1 FIFRA Requirements



Residues of **calcium chloride** are exempted from the requirement of a tolerance when used in accordance with good agricultural practice as inert (or occasionally active) ingredients in pesticide formulations applied to animals. Use: stabilizer. Limit: none.

*40 CFR 180.930 (USEPA); U.S. National Archives and Records Administration's Electronic Code of Federal Regulations. Available from, as of October 7, 2011: <https://www.ecfr.gov>*

▶ [Hazardous Substances Data Bank \(HSDB\)](#)

Residues of the following chemical substances are exempted from the requirement of a tolerance when used in accordance with good manufacturing practice as ingredients in an antimicrobial pesticide formulation, provided that the substance is applied on a semi-permanent or permanent food-contact surface (other than being applied on food packaging) with adequate draining before contact with food. ... (b) The following chemical substances when used as ingredients in an antimicrobial pesticide formulation may be applied to: Dairy processing equipment, and food-processing equipment and utensils. **Calcium chloride** is included on this list. Limit: When ready for use, the end-use concentration is not to exceed 17 ppm.

*40 CFR 180.940(b) (USEPA); U.S. National Archives and Records Administration's Electronic Code of Federal Regulations. Available from, as of October 7, 2011: <https://www.ecfr.gov>*

▶ [Hazardous Substances Data Bank \(HSDB\)](#)

Residues of the following chemical substances are exempted from the requirement of a tolerance when used in accordance with good manufacturing practice as ingredients in an antimicrobial pesticide formulation, provided that the substance is applied on a semi-permanent or permanent food-contact surface (other than being applied on food packaging) with adequate draining before contact with food. ... (c) The following chemical substances when used as ingredients in an antimicrobial pesticide formulation may be applied to: Food-processing equipment and utensils. **Calcium chloride** is included on this list. Limit: When ready for use, the end-use concentration is not to exceed 17 ppm.

*40 CFR 180.940(c) (USEPA); U.S. National Archives and Records Administration's Electronic Code of Federal Regulations. Available from, as of October 7, 2011: <https://www.ecfr.gov>*

▶ [Hazardous Substances Data Bank \(HSDB\)](#)

As the federal pesticide law FIFRA directs, EPA is conducting a comprehensive review of older pesticides to consider their health and environmental effects and make decisions about their continued use. Under this pesticide reregistration program, EPA examines newer health and safety data for pesticide active ingredients initially registered before November 1, 1984, and determines whether the use of the pesticide does not pose unreasonable risk in accordance to newer safety standards, such as those described in the Food Quality Protection Act of 1996. Pesticides

for which EPA had not issued Registration Standards prior to the effective date of FIFRA '88 were divided into three lists based upon their potential for human exposure and other factors, with List B containing pesticides of greater concern than those on List C, and with List C containing pesticides of greater concern than those on List D. **Calcium chloride** is found on List D. Case No: 4051; Pesticide type: Insecticide (Molluscicide), Fungicide, Herbicide, Antimicrobial; Case Status: RED Approved 09/93; OPP has made a decision that some/all uses of the pesticide are eligible for reregistration, as reflected in a Reregistration Eligibility Decision (RED) document.; Active ingredient (AI): **Calcium chloride**; AI Status: The active ingredient is no longer contained in any registered pesticide products ... "cancelled."

*United States Environmental Protection Agency/ Prevention, Pesticides and Toxic Substances; Status of Pesticides in Registration, Reregistration, and Special Review. (1998) EPA 738-R-98-002, p. 317*

▶ [Hazardous Substances Data Bank \(HSDB\)](#)

## 1.8.2 FDA Requirements



Substance added directly to human food affirmed as generally recognized as safe (GRAS).

*21 CFR 184.1193 (USFDA); U.S. National Archives and Records Administration's Electronic Code of Federal Regulations. Available from, as of October 7, 2011: <https://www.ecfr.gov>*

▶ [Hazardous Substances Data Bank \(HSDB\)](#)

**Calcium chloride** used as a general purpose food additive in animal drugs, feeds, and related products is generally recognized as safe when used in accordance with good manufacturing or feeding practice.

*21 CFR 582.1193 (USFDA); U.S. National Archives and Records Administration's Electronic Code of Federal Regulations. Available from, as of October 7, 2011: <https://www.ecfr.gov>*

▶ [Hazardous Substances Data Bank \(HSDB\)](#)

**Calcium chloride** used as a sequestrant in animal drugs, feeds, and related products is generally recognized as safe when used in accordance with good manufacturing or feeding practice.

*21 CFR 582.6193 (USFDA); U.S. National Archives and Records Administration's Electronic Code of Federal Regulations. Available from, as of October 7, 2011: <https://www.ecfr.gov>*

▶ [Hazardous Substances Data Bank \(HSDB\)](#)

The Approved Drug Products with Therapeutic Equivalence Evaluations identifies currently marketed prescription drug products, including **calcium chloride**, approved on the basis of safety and effectiveness by FDA under sections 505 of the Federal Food, Drug, and Cosmetic Act.

*DHHS/FDA; Electronic Orange Book-Approved Drug Products with Therapeutic Equivalence Evaluations. Available from, as of October 7, 2011: <https://www.accessdata.fda.gov/scripts/cder/ob/docs/queryai.cfm>*

▶ [Hazardous Substances Data Bank \(HSDB\)](#)

## 1.9 Other Safety Information



### 1.9.1 Toxic Combustion Products



Poisonous gases are produced in fire including **chlorine**.

*Sittig, M. Handbook of Toxic and Hazardous Chemicals and Carcinogens, 2002. 4th ed.Vol 1 A-H Norwich, NY: Noyes Publications, 2002., p. 456*

▶ [Hazardous Substances Data Bank \(HSDB\)](#)

## 1.9.2 Special Reports

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Environment Canada; Tech Info for Problem Spills: [Calcium Chloride](#) (Draft) (1981)

- ▶ [Hazardous Substances Data Bank \(HSDB\)](#)