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MSDS Number: **C0352** \* \* \* \* \* *Effective Date: 11/26/07* \* \* \* \* \* *Supersedes: 08/16/05*

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**MSDS** MATERIAL SAFETY DATA SHEET

**CHEMTREC:** 800-424-9300 (USA)

703-527-3887(Outside USA and Canada)

**CANUTEC:** 613-996-6666

**From:** Mallinckrodt Baker, Inc  
222 Red School Lane  
Phillipsburg, NJ 08865

NOTE: Use CHEMTREC and CANUTEC  
phone numbers only in the event  
of a chemical emergency.

Emergency Telephone Number: 908-859-2151

All non-emergency questions should be directed to Customer Service (1-800-582-2537) for assistance.

**MALLINCKRODT**

**J. T. BAKER**

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# CALCIUM CHLORIDE DIHYDRATE

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## 1. Product Identification

**Synonyms:** Calcium Chloride

**CAS No.:** 10043-52-4 (Anhydrous); 10035-04-8 (Dihydrate)

**Molecular Weight:** 147.01

**Chemical Formula:** CaCl<sub>2</sub> · 2H<sub>2</sub>O

**Product Codes:**

J.T. Baker: 1332, 1335, 1336, 5566, 5831

Mallinckrodt: 3191, 3620, 4113, 4160, 4616, 4836, 4842, 4866, 6006, 7722

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## 2. Composition/Information on Ingredients

Ingredient	CAS No	Percent	Hazardous
Calcium Chloride	10043-52-4	99 - 100%	Yes

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## 3. Hazards Identification

### Emergency Overview

**WARNING! CAUSES IRRITATION TO SKIN, EYES AND RESPIRATORY TRACT. HARMFUL IF SWALLOWED OR INHALED.**

**SAF-T-DATA<sup>(tm)</sup>** Ratings (Provided here for your convenience)

Health Rating: 1 - Slight

Flammability Rating: 0 - None

Reactivity Rating: 2 - Moderate

Contact Rating: 3 - Severe

Lab Protective Equip: GOGGLES & SHIELD; LAB COAT & APRON; VENT HOOD; PROPER GLOVES

Storage Color Code: Green (General Storage)

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### Potential Health Effects

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**Inhalation:**

Granular material does not pose a significant inhalation hazard, but inhalation of dust may cause irritation to the respiratory tract, with symptoms of coughing and shortness of breath.

**Ingestion:**

Low toxicity material but ingestion may cause serious irritation of the mucous membrane due to heat of hydrolysis. Large amounts can cause gastrointestinal upset, vomiting, abdominal pain.

**Skin Contact:**

Solid may cause mild irritation on dry skin; strong solutions or solid in contact with moist skin may cause severe irritation, even burns.

**Eye Contact:**

Hazard may be either mechanical abrasion or, more serious, burns from heat of hydrolysis and chloride irritation.

**Chronic Exposure:**

No information found.

**Aggravation of Pre-existing Conditions:**

No information found.

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## 4. First Aid Measures

**Inhalation:**

Remove to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Get medical attention.

**Ingestion:**

Induce vomiting immediately as directed by medical personnel. Never give anything by mouth to an unconscious person. Get medical attention.

**Skin Contact:**

Wipe off excess material from skin then immediately flush skin with plenty of water for at least 15 minutes. Remove contaminated clothing and shoes. Get medical attention. Wash clothing before reuse. Thoroughly clean shoes before reuse.

**Eye Contact:**

Immediately flush eyes with plenty of water for at least 15 minutes, lifting lower and upper eyelids occasionally. Get medical attention immediately.

**Note to Physician:**

Oral ingestion may cause serum acidosis.

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## 5. Fire Fighting Measures

**Fire:**

Not considered to be a fire hazard.

**Explosion:**

Not considered to be an explosion hazard.

**Fire Extinguishing Media:**

Use any means suitable for extinguishing surrounding fire.

**Special Information:**

In the event of a fire, wear full protective clothing and NIOSH-approved self-contained breathing apparatus with full facepiece operated in the pressure demand or other positive pressure mode.

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## 6. Accidental Release Measures

Ventilate area of leak or spill. Wear appropriate personal protective equipment as specified in Section 8. Spills: Sweep up and containerize for reclamation or disposal. Vacuuming or wet sweeping may be used to avoid dust dispersal. Small amounts of residue may be flushed to sewer with plenty of water.

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## 7. Handling and Storage

Keep in a tightly closed container, stored in a cool, dry, ventilated area. Protect against physical damage. Moist calcium chloride and concentrated solutions can corrode steel. When exposed to the atmosphere, calcium chloride will absorb water and form a solution. Containers of this material may be hazardous when empty since they retain product residues (dust, solids); observe all warnings and precautions listed for the product.

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## 8. Exposure Controls/Personal Protection

### **Airborne Exposure Limits:**

None established.

### **Ventilation System:**

A system of local and/or general exhaust is recommended to keep employee exposures as low as possible. Local exhaust ventilation is generally preferred because it can control the emissions of the contaminant at its source, preventing dispersion of it into the general work area. Please refer to the ACGIH document, *Industrial Ventilation, A Manual of Recommended Practices*, most recent edition, for details.

### **Personal Respirators (NIOSH Approved):**

For conditions of use where exposure to dust or mist is apparent and engineering controls are not feasible, a particulate respirator (NIOSH type N95 or better filters) may be worn. If oil particles (e.g. lubricants, cutting fluids, glycerine, etc.) are present, use a NIOSH type R or P filter. For emergencies or instances where the exposure levels are not known, use a full-face positive-pressure, air-supplied respirator. **WARNING:** Air-purifying respirators do not protect workers in oxygen-deficient atmospheres.

### **Skin Protection:**

Wear protective gloves and clean body-covering clothing.

### **Eye Protection:**

Use chemical safety goggles and/or full face shield where dusting or splashing of solutions is possible. Maintain eye wash fountain and quick-drench facilities in work area.

### **Other Control Measures:**

Maintain good housekeeping in work area. Dust deposits on floors and other surfaces may pick up moisture and cause the surfaces to become slippery and present safety hazards.

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## 9. Physical and Chemical Properties

### **Appearance:**

Coarse white powder or mixture of coarse white powder and medium sized granules.

### **Odor:**

Odorless.

### **Solubility:**

Freely soluble in water with heat liberation.

### **Density:**

0.835

### **pH:**

8 - 9 Aqueous solution

### **% Volatiles by volume @ 21C (70F):**

0

### **Boiling Point:**

> 1600C (> 2912F)

**Melting Point:**

ca. 260C (ca. 500F)

**Vapor Density (Air=1):**

No information found.

**Vapor Pressure (mm Hg):**

No information found.

**Evaporation Rate (BuAc=1):**

No information found.

## 10. Stability and Reactivity

**Stability:**

Stable under ordinary conditions of use and storage. Substance will pick up moisture from the air and go into solution if exposed in open containers.

**Hazardous Decomposition Products:**

Emits toxic chlorine fumes when heated to decomposition. May form hydrogen chloride in presence of sulfuric or phosphoric acids or with water at elevated temperatures.

**Hazardous Polymerization:**

Will not occur.

**Incompatibilities:**

Methyl vinyl ether, water, zinc, bromine trifluoride, mixtures of lime and boric acid, barium chloride, and 2-furan percarboxylic acid. Metals will slowly corrode in aqueous calcium chloride solutions. Aluminum (and alloys) and yellow brass will be attacked by calcium chloride.

**Conditions to Avoid:**

Incompatibles.

## 11. Toxicological Information

For calcium chloride anhydrous: oral rat LD50: 1000 mg/kg; investigated as a mutagen, tumorigen.

Ingredient	---NTP Carcinogen---		IARC Category
	Known	Anticipated	
Calcium Chloride (10043-52-4)	No	No	None

## 12. Ecological Information

**Environmental Fate:**

Based on available information for Calcium Chloride anhydrous, this material will not biodegrade or bioaccumulate.

**Environmental Toxicity:**

For Calcium Chloride Anhydrous:

48 hour EC50 Daphnia magna (water flea) : 52 mg/L.

96 hour LC50 Lepomis machrochirus (bluegill) : > 5000 mg/L [static].

## 13. Disposal Considerations

Whatever cannot be saved for recovery or recycling should be managed in an appropriate and approved waste disposal facility. Processing, use or contamination of this product may change the waste management options. State and local disposal regulations may differ from federal disposal regulations. Dispose of container and unused contents in accordance with federal, state and local requirements.

## 14. Transport Information

Not regulated.

## 15. Regulatory Information

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-----\Chemical Inventory Status - Part 1\-----
Ingredient                                TSCA  EC   Japan  Australia
-----
Calcium Chloride (10043-52-4)            Yes  Yes  Yes    Yes
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-----\Chemical Inventory Status - Part 2\-----
Ingredient                                Korea  DSL   NDSL  Phil.
-----
Calcium Chloride (10043-52-4)            Yes   Yes  No    Yes
```

```
-----\Federal, State & International Regulations - Part 1\-----
Ingredient                                -SARA 302-  -SARA 313-----
RQ   TPQ   List  Chemical Catg.
-----
Calcium Chloride (10043-52-4)            No    No    No    No
```

```
-----\Federal, State & International Regulations - Part 2\-----
Ingredient                                CERCLA  -RCRA-  -TSCA-
261.33  8(d)
-----
Calcium Chloride (10043-52-4)            No      No      No
```

Chemical Weapons Convention: No    TSCA 12(b): No    CDTA: No  
 SARA 311/312: Acute: Yes    Chronic: No    Fire: No    Pressure: No  
 Reactivity: No    (Pure / Solid)

**Australian Hazchem Code:** None allocated.

**Poison Schedule:** None allocated.

### WHMIS:

This MSDS has been prepared according to the hazard criteria of the Controlled Products Regulations (CPR) and the MSDS contains all of the information required by the CPR.

## 16. Other Information

**NFPA Ratings:** Health: **1** Flammability: **0** Reactivity: **1**

### Label Hazard Warning:

WARNING! CAUSES IRRITATION TO SKIN, EYES AND RESPIRATORY TRACT. HARMFUL IF SWALLOWED OR INHALED.

### Label Precautions:

Avoid contact with eyes, skin and clothing.

Wash thoroughly after handling.

Avoid breathing dust.

Keep container closed.

Use only with adequate ventilation.

### Label First Aid:

If swallowed, induce vomiting immediately as directed by medical personnel. Never give anything by mouth to an unconscious person. In case of contact, wipe off excess material from skin then immediately flush eyes or skin with plenty of water for at least 15 minutes. Remove contaminated clothing and shoes. Wash clothing before reuse. If inhaled, remove to fresh air. If not breathing, give artificial respiration. If breathing is difficult,

give oxygen. In all cases, get medical attention.

**Product Use:**

Laboratory Reagent.

**Revision Information:**

MSDS Section(s) changed since last revision of document include: 12.

**Disclaimer:**

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**Prepared by:** Environmental Health & Safety

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