

# MATERIAL SAFETY DATA SHEET

TRICALCIUM PHOSPHATE

## 1. CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

Brenntag Canada Inc.  
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WHMIS#: 00065606  
Index: HCl4746/10D  
Effective Date: 2010 November 17  
Date of Revision: 2010 November 17

Website: <http://www.brenntag.ca>

### EMERGENCY TELEPHONE NUMBERS (FOR EMERGENCIES INVOLVING CHEMICAL SPILLS OR RELEASE)

Toronto, ON (416) 226-6117  
Edmonton, AB (780) 424-1754

Montreal, QC (514) 861-1211  
Calgary, AB (403) 263-8660

Winnipeg, MB (204) 943-8827  
Vancouver, BC (604) 685-5036

### PRODUCT IDENTIFICATION

Product Name: Tricalcium Phosphate.  
Chemical Name: Tribasic Calcium Phosphate.  
Synonyms: Calcium Orthophosphate; Calcium Hydroxyapatite; Precipitated Calcium Phosphate  
Chemical Family: Inorganic Phosphate.  
Molecular Formula: Not available.  
Product Use: Food additive. Animal feed additive. Shampoos and detergents. Pharmaceutical. Fertilizer.

### WHMIS Classification / Symbol:

Not WHMIS Regulated.



READ THE ENTIRE MSDS FOR THE COMPLETE HAZARD EVALUATION OF THIS PRODUCT.

## 2. COMPOSITION, INFORMATION ON INGREDIENTS (Not Intended As Specifications)

<i>Ingredient</i>	<i>CAS#</i>	<i>ACGIH TLV</i>	<i>% Concentration</i>
Tricalcium Phosphate	7758-87-4	---	90 - 100
or			
Tricalcium Phosphate	1306-06-5	---	90 - 100

## 3. HAZARDS IDENTIFICATION

EMERGENCY OVERVIEW: Dust is mildly irritating to respiratory tract. See "Other Health Effects" Section. Can decompose at high temperatures forming toxic gases.

### POTENTIAL HEALTH EFFECTS

Inhalation: Product may be mildly irritating to the nose, throat and respiratory tract and may cause coughing and sneezing. Excessive contact with powder may cause drying of mucous membranes of nose and throat due to absorption of moisture and oils. See "Other Health Effects" Section.

Skin Contact: Skin contact can cause irritation, especially under the finger nails (and other confined spaces such as under rings or watch bands). May cause defatting, drying and cracking of the skin. Prolonged and repeated contact may lead to dermatitis.

Skin Absorption: Not likely to be absorbed through the skin.

**Eye Contact:** This product may cause irritation, redness and possible damage due to abrasiveness. Excessive contact with powder may cause drying of mucous membranes of the eyes due to absorption of moisture and oils.

**Ingestion:** This product may cause mild gastrointestinal discomfort. Ingestion of very high levels may cause kidney damage, diarrhea, abdominal cramps, nausea and vomiting.

**Other Health Effects:** Effects (irritancy) on the skin and eyes may be delayed, and damage may occur without the sensation or onset of pain. Strict adherence to first aid measures following any exposure is essential.

Ingestion of large quantities of phosphate salts (over 1.0 grams for an adult) may cause an osmotic catharsis resulting in diarrhea and probable abdominal cramps. Larger doses such as 4-8 grams will almost certainly cause these effects in everyone. In healthy individuals most of the ingested salt will be excreted in the feces with the diarrhea and, thus, not cause any systemic toxicity. Doses greater than 10 grams hypothetically may cause systemic toxicity. (3) Phosphate salts have been studied extensively since they are used in food additives. Toxic effects on the kidney, parathyroid glands and bones have been reported in experimental animals exposed to high oral doses. These high doses are not considered relevant to occupational exposure. (4) Signs and symptoms of kidney damage generally progress from oliguria, to blood in the urine, to total renal failure.

Since phosphates are slowly and incompletely absorbed in the gut, systemic reactions are unlikely when these salts are swallowed. Polyphosphates are thought to be hydrolyzed to orthophosphates before absorption, which may induce a metabolic acidosis. If appreciable amounts of the intact polymer are absorbed from the alimentary tract, hypocalcemic tetany (muscular contraction, pains, tingling, etc., caused by a deficiency of calcium salts) may be a danger due to the binding of ionized calcium. (3)

May cause hypercalcemia. Hypercalcemia is characterized by abnormally high levels of Calcium in the circulating blood.

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## 4. FIRST AID MEASURES

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### FIRST AID PROCEDURES

**Inhalation:** Move victim to fresh air. Give artificial respiration ONLY if breathing has stopped. Give cardiopulmonary resuscitation (CPR) if there is no breathing AND no pulse. Obtain medical attention IMMEDIATELY.

**Skin Contact:** Start flushing while removing contaminated clothing. Wash affected areas thoroughly with soap and water. If irritation, redness, or a burning sensation develops and persists, repeat flushing and obtain medical attention.

**Eye Contact:** Immediately flush eyes with running water for a minimum of 20 minutes. Hold eyelids open during flushing. If irritation persists, repeat flushing. Obtain medical attention IMMEDIATELY.

**Ingestion:** Do not attempt to give anything by mouth to an unconscious person. If victim is alert and not convulsing, rinse mouth out and give 1/2 to 1 glass of water to dilute material. IMMEDIATELY contact local Poison Control Centre. Vomiting should only be induced under the direction of a physician or a poison control centre. If spontaneous vomiting occurs, have victim lean forward with head down to avoid breathing in of vomitus, rinse mouth and administer more water. IMMEDIATELY transport victim to an emergency facility.

**Note to Physicians:** Medical conditions that may be aggravated by exposure to this product include diseases of the skin, eyes or respiratory tract, preexisting liver and kidney disorders.

Calcium salts have a hypothetical risk of hypercalcemia. Calcium levels should be monitored.

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## 5. FIRE-FIGHTING MEASURES

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<b>Flashpoint (°C)</b>	<b>Autolgnition Temperature (°C)</b>	<b>Flammability Limits in Air (%):</b>	
		<b>LEL</b>	<b>UEL</b>
Non-combustible (does not burn).	Not available.	Not applicable.	Not applicable.
Flammability Class (WHMIS):	Not regulated.		
Hazardous Combustion Products:	Thermal decomposition products are toxic and may include oxides of calcium, and phosphorous and irritating gases.		
Unusual Fire or Explosion Hazards:	Minimize air borne spreading of dust.		
Sensitivity to Mechanical Impact:	Not expected to be sensitive to mechanical impact.		
Rate of Burning:	Not available.		

Explosive Power: Not available.  
Sensitivity to Static Discharge: Not expected to be sensitive to static discharge.

#### EXTINGUISHING MEDIA

Fire Extinguishing Media: Use media appropriate for surrounding fire and/or materials.

#### FIRE FIGHTING INSTRUCTIONS

Instructions to the Fire Fighters: Isolate materials that are not involved in the fire and protect personnel. Spilled material may cause floors and contact surfaces to become slippery.

Fire Fighting Protective Equipment: Use self-contained breathing apparatus and protective clothing.

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## 6. ACCIDENTAL RELEASE MEASURES

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Information in this section is for responding to spills, leaks or releases in order to prevent or minimize the adverse effects on persons, property and the environment. There may be specific reporting requirements associated with spills, leaks or releases, which change from region to region.

Containment and Clean-Up Procedures: In all cases of leak or spill contact vendor at Emergency Number shown on the front page of this MSDS. Minimize air borne spreading of dust. Eliminate all sources of ignition. Wear respirator, protective clothing and gloves. Avoid dry sweeping. Do not use compressed air to clean surfaces. Vacuuming or wet sweeping is preferred. Return all material possible to container for proper disposal.

Any recovered product can be used for the usual purpose, depending on the extent and kind of contamination. Where a package (drum or bag) is damaged and / or leaking, repair it, or place it into an over-pack drum immediately so as to avoid or minimize material loss and contamination of surrounding environment. Replace damaged containers immediately to avoid loss of material and contamination of surrounding atmosphere.

Collect product for recovery or disposal. Ventilate enclosed spaces. Notify applicable government authority if release is reportable or could adversely affect the environment.

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## 7. HANDLING AND STORAGE

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#### HANDLING

Handling Practices: Use normal "good" industrial hygiene and housekeeping practices.

Ventilation Requirements: See Section 8, "Engineering Controls".

Other Precautions: Use only with adequate ventilation and avoid breathing dusts. Avoid contact with eyes, skin or clothing. Wash thoroughly with soap and water after handling. Wash contaminated clothing thoroughly before re-use.

#### STORAGE

Storage Temperature (°C): See below.

Ventilation Requirements: General exhaust is acceptable.

Storage Requirements: Store in a cool, dry and well-ventilated area. Keep away from heat, sparks and flames. Keep containers closed. Avoid moisture contamination. Prolonged storage may result in lumping or caking. Protect from direct sunlight. Protect against physical damage.

Special Materials to be Used for Packaging or Containers: Confirm suitability of any material before using.

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## 8. EXPOSURE CONTROLS / PERSONAL PROTECTION

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Recommendations listed in this section indicate the type of equipment, which will provide protection against overexposure 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

Engineering Controls: General exhaust is acceptable. Local exhaust ventilation preferred. Make up air should be supplied to balance air that is removed by local or general exhaust ventilation. Ventilate low lying areas such as sumps or pits where dense dust may collect.

#### PERSONAL PROTECTIVE EQUIPMENT (PPE)

Eye Protection:	Safety glasses with side shields are recommended to prevent eye contact. Use chemical safety goggles when there is potential for eye contact. Contact lenses should not be worn when working with this material.
Skin Protection:	Gloves and protective clothing made from cotton, canvas, rubber or plastic should be impervious under conditions of use. Prior to use, user should confirm impermeability. Discard contaminated gloves.
Respiratory Protection:	No specific guidelines available. A NIOSH/MSHA approved dust mask for concentrations of nuisance dust up to 100 mg/m <sup>3</sup> particulate. An air-supplied respirator if concentrations are higher or unknown.
Other Personal Protective Equipment:	Wear an impermeable apron and boots. Locate safety shower and eyewash station close to chemical handling area. Take all precautions to avoid personal contact.

#### EXPOSURE GUIDELINES

##### Particulate Not Otherwise Classified:

ACGIH	OSHA
10 mg/m <sup>3</sup> - Inhalable particulate	50 mppcf* or 15 mg/m <sup>3</sup> - Total Dust
3 mg/m <sup>3</sup> - Respirable particulate	15 mppcf* or 5 mg/m <sup>3</sup> - Respirable Fraction

\* mppcf = million particles per cubic foot

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## 9. PHYSICAL AND CHEMICAL PROPERTIES (Not intended as Specifications)

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Physical State:	Solid.
Appearance:	Odourless, white granular solid.
Odour:	Odourless.
Odour Threshold (ppm):	Not available.
Boiling Range (°C):	Not applicable.
Melting/Freezing Point (°C):	> 1670.
Vapour Pressure (mm Hg at 20° C):	< 0.01.
Vapour Density (Air = 1.0):	Not applicable.
Relative Density (g/cc):	3.14
Bulk Density:	Not applicable.
Viscosity:	Not applicable.
Evaporation Rate (Butyl Acetate = 1.0):	Not applicable.
Solubility:	0.002 g/100g (H <sub>2</sub> O)
% Volatile by Volume:	Not available.
pH:	5.5 - 7.5.
Coefficient of Water/Oil Distribution:	< 1
Volatile Organic Compounds (VOC):	Not applicable.
Flashpoint (°C):	Non-combustible (does not burn).

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## 10. STABILITY AND REACTIVITY

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### CHEMICAL STABILITY

Under Normal Conditions:	Stable.
Under Fire Conditions:	Not flammable.
Hazardous Polymerization:	Will not occur.
Conditions to Avoid:	High temperatures, sparks, open flames and all other sources of ignition. Keep tightly closed to protect quality. Avoid contact with water. Minimize air borne spreading of dust. Clean up immediately to eliminate slipping hazard.
Materials to Avoid:	Strong oxidizers. Strong acids. Bases. Alkali metals and their hydroxides.
Decomposition or Combustion Products:	Thermal decomposition products are toxic and may include oxides of calcium, and phosphorous and irritating gases.

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## 11. TOXICOLOGICAL INFORMATION

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### TOXICOLOGICAL DATA:

Meaningful toxicological test data could not be found for this product.

<b>SUBSTANCE</b>	<b>LD50 (Oral, Rat)</b>	<b>LD50 (Dermal, Rabbit)</b>	<b>LC50 (Inhalation, Rat, 4h)</b>
Tricalcium Phosphate	> 10 000 mg/kg (3)	> 7 940 mg/kg (3)	---
Carcinogenicity Data:	The ingredient(s) of this product is (are) not classed as carcinogenic by ACGIH, IARC, OSHA or NTP.		
Reproductive Data:	No adverse reproductive effects are anticipated.		
Mutagenicity Data:	No adverse mutagenic effects are anticipated.		
Teratogenicity Data:	No adverse teratogenic effects are anticipated.		
Respiratory / Skin Sensitization Data:	None known.		
Synergistic Materials:	None known.		
Other Studies Relevant to Material:	None known.		

## 12. ECOLOGICAL INFORMATION

Ecotoxicity:	Not available. May be harmful to aquatic life. Although a principal problem of phosphates in the environment is not directly related to human health, there is considerable concern about the effects of phosphorous from various sources on water quality. Phosphate is a major cause of the eutrophication process in lakes and ponds.  Eutrophication is a process where an ecosystem, rich in nutrients and therefore supporting a dense plant population, kills animal life by depriving it of oxygen.
Environmental Fate:	Not available. May be hazardous if allowed to enter drinking water intakes. Inorganic phosphates in contact with the soil, sub-surface or surface waters may be taken up by plants and utilized as essential nutrients. Phosphates may also form precipitates usually with calcium or magnesium. The resultant compounds are insoluble in water and become a part of the soil or sediment. The term biodegradability, as such, is not applicable to inorganic compounds. (3) Do not contaminate domestic or irrigation water supplies, lakes, streams, ponds, or rivers.

## 13. DISPOSAL CONSIDERATIONS

Deactivating Chemicals:	Not available.
Waste Disposal Methods:	This information applies to the material as manufactured. Reevaluation of the product may be required by the user at the time of disposal since the product uses, transformations, mixtures and processes may influence waste classification. Dispose of waste material at an approved (hazardous) waste treatment/disposal facility in accordance with applicable local, provincial and federal regulations. Do not dispose of waste with normal garbage, or to sewer systems.
Safe Handling of Residues:	See "Waste Disposal Methods".
Disposal of Packaging:	Empty containers retain product residue and may be hazardous. Treat package in the same manner as the product. Dispose of waste material at an approved landfill site in accordance with applicable local, provincial and federal regulations.

## 14. TRANSPORTATION INFORMATION

### CANADIAN TDG ACT SHIPPING DESCRIPTION:

This product is not regulated by DOT.

Label(s): Not applicable. Placard: Not applicable.

ERAP Index: ----- Exemptions: None known.

### US DOT CLASSIFICATION (49CFR 172.101, 172.102):

This product is not regulated by DOT.

Label(s): Not applicable. Placard: Not applicable.

CERCLA-RQ: Not available. Exemptions: None known.

## 15. REGULATORY INFORMATION

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## CANADA

CEPA - NSNR: This material is included on the DSL under the CEPA.  
CEPA - NPRI: Not included.  
Controlled Products Regulations Classification (WHMIS):  
Not WHMIS Regulated.

## USA

Environmental Protection Act: This material is included on the TSCA Inventory.  
OSHA HCS (29CFR 1910.1200): Not regulated.  
NFPA: 0 Health, 0 Fire, 0 Reactivity (3)  
HMIS: 0 Health, 0 Fire, 0 Reactivity (3)

## INTERNATIONAL

Not available.

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## 16. OTHER INFORMATION

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### REFERENCES

1. RTECS-Registry of Toxic Effects of Chemical Substances, Canadian Centre for Occupational Health and Safety RTECS database.
2. Clayton, G.D. and Clayton, F.E., Eds., Patty's Industrial Hygiene and Toxicology, 3rd ed., Vol. IIA,B,C, John Wiley and Sons, New York, 1981.
3. Supplier's Material Safety Data Sheet(s).
4. CHEMINFO chemical profile, Canadian Centre for Occupational Health and Safety, Hamilton, Ontario, Canada.
5. Guide to Occupational Exposure Values, 2008, American Conference of Governmental Industrial Hygienists, Cincinnati, 2008.
6. Regulatory Affairs Group, Brenntag Canada Inc.
7. The British Columbia Drug and Poison Information Centre, Poison Managements Manual, Canadian Pharmaceutical Association, Ottawa, 1981.

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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 Brenntag Canada Inc. will not be liable for any damages, losses, injuries or consequential damages which may result from the use of or reliance on any information contained herein. This Material Safety Data Sheet is valid for three years.

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To obtain revised copies of this or other Material Safety Data Sheets, contact your nearest Brenntag Canada Regional office.

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Phone: (604) 513-9009 Facsimile: (604) 513-9010

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