



# SAFETY DATA SHEET

## DICALCIUM PHOSPHATE DIHYDRATE

### Section 1 - CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

**CAS NUMBER:** 7789-77-7  
**PROPER SHIPPING NAME:** Not regulated  
**UN NUMBER:** Not regulated

**PRODUCT USE:** Used as animal feed supplement, in dentifrice, medicine, glass, fertiliser, stabiliser for plastics. Food grade: Food supplement, dough conditioner, yeast food.

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### Section 2 - HAZARDS IDENTIFICATION

#### STATEMENT OF HAZARDOUS NATURE

Classified as Non-Hazardous according to the criteria of the New Zealand Hazardous Substances and New Organisms legislation and GHS 7<sup>th</sup> Edition.

#### EMERGENCY OVERVIEW

Non-hazardous.

Health injuries are not known or expected under normal use.

Adverse ecological effects are not known or expected.

#### PRECAUTIONARY STATEMENTS

Avoid generating excessive dust. Do not breathe dust.

If in contact with eyes, rinse thoroughly.

### Section 3 - COMPOSITION / INFORMATION ON INGREDIENTS

NAME	CAS RN	%	HAZARDOUS
Calcium phosphate, dihydrate	7789-77-7	>98	No

**SYNOMYMS:** Calcium monohydrogen phosphate dihydrate; DCPD; Dicalcium orthophosphate dihydrate; Calcium phosphate, dibasic, dihydrate; Calcium hydrogen phosphate dihydrate; Phosphoric acid, calcium salt (1:1), dihydrate.

## Section 4 - FIRST AID MEASURES

### SWALLOWED

Rinse mouth. Give a glass of water to drink. First aid is not generally required. If unwell or in doubt, call a doctor.

### EYE

If this product comes in contact with eyes, wash out affected eye immediately with water for at least 15 minutes, while protecting the unimpaired eye. Ensure complete irrigation of the eye by keeping eyelids apart and away from eye and moving the eyelids by occasionally lifting the upper and lower lids. Seek medical attention.

### SKIN

If skin or hair contact occurs flush skin and hair with running water (and soap if available). Seek medical attention in the event of irritation.

### INHALED

If breathing becomes difficult, remove to fresh air. Encourage patient to blow nose to ensure clear passage of breathing. If necessary, use artificial respiration. Seek medical attention.

### NOTES TO PHYSICIAN

Treat symptomatically based on individual reactions of patient and judgement of doctor.  
NOTE: In an emergency dial 111, for advice, contact the National Poisons Centre (0800-764-766).

## Section 5 - FIRE FIGHTING MEASURES

### EXTINGUISHING MEDIA

In case of fire, use appropriate extinguishing media most suitable for surrounding fire conditions: water spray, dry powder, foam, carbon dioxide (CO<sub>2</sub>).

### FIRE FIGHTING

Alert Fire Brigade and tell them location and nature of hazard.

Use standard procedure for chemical fires.

Clear fire area of all non-emergency personnel. Stay upwind. Eliminate ignition sources.

Use water delivered as a fine spray to control fire and cool adjacent area.

DO NOT approach containers suspected to be hot.

Cool fire exposed containers with water spray from a protected location.

If safe to do so, remove containers from path of fire.

Equipment should be thoroughly decontaminated after use.

### FIRE/EXPLOSION HAZARD

Non-combustible. Not considered a significant fire risk, however containers may burn.

### HAZARDS FROM COMBUSTION PRODUCTS

Irritating gases may be emitted in the event of a fire, oxides of phosphorus and sodium oxides.

### PERSONAL PROTECTIVE EQUIPMENT

Firefighters should wear a positive-pressure self-contained breathing apparatus (SCBA) and protective firefighting clothing (includes firefighting helmet, coat, trousers, boots and gloves).

## Section 6 - ACCIDENTAL RELEASE MEASURES

Personal Protective Equipment advice is contained in Section 8 of the SDS.

### SPILL RESPONSE

Avoid generating dust. Increase ventilation. Move upwind.

Evacuate all unnecessary personnel. Eliminate all sources of ignition.  
 Personnel involved in the clean-up should wear full protective clothing.  
 Stop leak if safe to do so. Sweep up or vacuum up.  
 Collect in a labelled chemical waste container and seal for disposal. See section 13 of the SDS.  
 Do NOT let product reach drains or waterways. In large quantities may be damaging to plants. If a significant amount does enter a waterway advise your local waste authority.  
 Wash spill area with plenty of water after removal of contaminant.

#### PROTECTIVE ACTION CRITERIA (PAC) - Revision 29

Chemical (CAS Number)	PAC-1	PAC-2	PAC-3	Units
7789-77-7	12	130	790	mg/m <sup>3</sup>

PAC-1: Mild, transient health effects.

PAC-2: Irreversible or other serious health effects that could impair the ability to take protective action.

PAC-3: Life-threatening health effects.

## Section 7 - HANDLING AND STORAGE

#### PROCEDURE FOR HANDLING

Ensure an eye bath and safety shower are available and ready for use.

Wear appropriate eye protection, skin protection and respiratory protection.

Avoid generating and breathing dust. Avoid contact with eyes.

Do not eat, drink or smoke when handling chemicals.

Wash hands with soap and water after handling.

Keep packaging closed until ready for use.

#### SUITABLE PACKAGING

Original packaging. Multi ply paper bag with sealed plastic liner or heavy gauge plastic bag.

Check all packaging is clearly labeled and free from leaks.

#### STORAGE INCOMPATIBILITY

Incompatible with strong oxidizing agents, strong acids.

Store away from moisture sources.

#### STORAGE REQUIREMENTS

Store in a dry, cool, well ventilated area out of direct sunlight.

Protect from moisture. Keep containers tightly closed.

Protect against physical damage and check regularly for leaks.

## Section 8 - EXPOSURE CONTROLS/PERSONAL PROTECTION

#### EXPOSURE CONTROLS

Source	Material	Measurement	Limit
New Zealand WES 2025	total dust	time weighted average (TWA)	10 mg/m <sup>3</sup>
New Zealand WES 2025	respirable dust	time weighted average (TWA)	3 mg/m <sup>3</sup>

No exposure limits set for calcium phosphate, dihydrate by WorkSafe New Zealand or Safe Work Australia.

#### ENGINEERING CONTROLS

#### 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. Refer to the 'Local exhaust ventilation' guide found on the WorkSafe New Zealand website.

## PERSONAL PROTECTION EQUIPMENT (PPE)

### PERSONAL RESPIRATORS

An approved dust mask e.g. a *P1* respirator, is recommended when using this product in dusty conditions. For more information see Australian/New Zealand Standard, AS/NZS 1715 and AS/NZS 16900.2. If in doubt, seek expert occupational hygiene advice.

### SKIN PROTECTION

Wear impervious protective clothing, including boots, gloves, lab coat, apron or coveralls, as appropriate, to prevent skin contact. Refer to AS/NZS 2161 Occupational Protective Gloves. Dispose of contaminated gloves after use. Ensure there is ready access to an emergency shower.

### EYE PROTECTION

Use chemical safety glasses or goggles as required to protect eyes from dust exposure. Refer to Personal eye protection Part 1: Eye and face protectors for occupational applications, Australian/New Zealand Standard: AS/NZS 1337. Maintain eye wash fountain in work area.

## Section 9 - PHYSICAL AND CHEMICAL PROPERTIES

### APPEARANCE

White solid, granular or powdered, hygroscopic.

### PHYSICAL PROPERTIES

Sparingly soluble in water; readily soluble in dilute hydrochloric acid and nitric acid, insoluble in alcohol. Sinks in water. Loses water of crystallization below 100°C.

PROPERTY	VALUE
State:	Solid
Odour:	Odourless
Molecular Weight:	172.09
Melting Range (°C):	Not applicable
Boiling Range (°C):	Not applicable
Solubility in water (g/L, 20°C):	0.32
pH (20% slurry, 25°C):	7.0-8.0
Specific Gravity (water=1):	2.31
Volatile Component (%vol):	Not applicable
Relative Vapor Density(air=1):	Not applicable
Vapour Pressure (kPa):	Not applicable
Autoignition Temp (°C):	Not applicable
Flash Point (°C):	Not applicable
Lower Explosive Limit (%):	Not applicable
Upper Explosive Limit (%):	Not applicable
Decomposition Temp (°C):	>190
Viscosity:	Not available
Evaporation Rate:	Not applicable

## Section 10 - CHEMICAL STABILITY AND REACTIVITY

### CHEMICAL STABILITY

Product is stable under normal conditions of use, storage and temperature.

### CONDITIONS TO AVOID

Avoid excessive heat, direct sunlight, moisture, and temperature extremes. Keep containers dry and tightly closed to avoid moisture absorption and contamination.

**INCOMPATIBLE MATERIALS**

Incompatible with strong oxidising agents and acids.

**HAZARDOUS DECOMPOSITION PRODUCTS**

Under intense heat or fire conditions, toxic fumes of phosphorus oxides and calcium oxide are released.

**HAZARDOUS REACTIONS**

Hazardous polymerization will not occur.

**Section 11 - TOXICOLOGICAL INFORMATION****ACUTE HEALTH EFFECTS****SWALLOWED**

May be mildly discomforting to the gastro-intestinal tract if large amounts are swallowed.

**EYE**

If in contact with the eyes can cause irritation, redness and pain due to the abrasive nature of the dust.

**SKIN**

If in contact with skin may produce dryness and cracking, which can lead to mild skin irritation.

**INHALED**

May be discomforting to the upper respiratory tract if dust is generated and inhaled.

**CHRONIC HEALTH EFFECTS**

No established data available from chronic occupational exposure.

Repeat or chronic exposure to any nuisance dust can aggravate pre-existing respiratory conditions.

**TOXICITY AND IRRITATION DATA****TOXICITY**

Acute Oral Toxicity, (rat) LD<sub>50</sub>: >2000 mg/kg.

Acute Dermal Toxicity, (rabbit) LD<sub>50</sub>: >2000 mg/kg.

Acute Inhalation Toxicity: No data available.

**IRRITATION**

Eye: Not classified.

Skin: Not classified.

**Carcinogenic effects:** Not classified or listed by IARC, NIOSH, CaProp65 or NTP.

**Mutagenic effects:** Not available.

**Reproductive or developmental effects:** Not available.

**Aspiration hazard:** Not available.

**Specific target organ toxicity:** Not available.

**Sensitisation (respiratory/contact):** Not available.

**Section 12 - ECOLOGICAL INFORMATION****ECOTOXICITY**

Classified as non-hazardous in the aquatic environment.

**ECOTOXICITY DATA**

Fish, (*Oryzias latipes*), 96h LC<sub>50</sub>: >100 mg/L

Crustacean, (*Daphnia magna*), 48h LC<sub>50</sub>: >100 mg/L

Algae, (*Pseudokirchneriella subcapitata*), 72h EC<sub>50</sub>: >100 mg/L

**Persistence and Degradability**

No data available. Inorganic substance.

**Mobility**

Sparingly soluble.

**Environmental Fate (Exposure)**

No data available.

**Bioaccumulative Potential**

No data available. Risk of bioaccumulation is considered as minimal.

DO NOT discharge into sewer or waterways.

The addition of large quantities of phosphates to waterways accelerates algae and plant growth in natural waters resulting in reduction in the water quality and depleting the water body of oxygen.

## Section 13 - DISPOSAL CONSIDERATIONS

Recycle wherever possible.

Consult local or regional waste management authority for disposal if no suitable treatment or disposal facility can be identified.

Dispose of by: Burial in a licensed landfill or incineration in a licensed apparatus (after admixture with suitable combustible material).

Empty contaminated packaging should be taken for local recycling, recovery or waste disposal. Plastic packaging should not be incinerated in an uncontrolled manner.

## Section 14 - TRANSPORT INFORMATION

NOT REGULATED FOR TRANSPORT OF DANGEROUS GOODS: UN, IATA, IMDG.

Not classified as a Dangerous Good under NZS 5433:2020 Transport of Dangerous Goods on Land.

## Section 15 - REGULATORY INFORMATION

**REGULATIONS**

Non-hazardous.

Dicalcium phosphate dihydrate (CAS 7789-77-7) is found on the following inventory lists:  
NZIoC, TSCA, DSL, EINECS, AIIC

## Section 16 - OTHER INFORMATION

NEW ZEALAND POISON CENTRE 0800 POISON (0800 764 766)

NZ EMERGENCY SERVICES: 111

**Abbreviations:**

ACGIH - American Conference of Governmental Industrial Hygienists.

ACVM - Agricultural Chemicals and Veterinary Medicines.

AIIC - Australian Inventory of Industrial Chemicals.

AOX - Absorbable organic halogens.

APF - Assigned Protection Factor.

BOD - Biochemical Oxygen Demand.

China IECSC - Inventory of Existing Chemical Substances Produced or Imported in China.

COD - Chemical Oxygen Demand.

DSL - Canadian Domestic Substances List.

EINECS - European Inventory of Existing Commercial Chemical Substances.

ENCS - Japanese Existing and New Chemical substances.

GHS - Globally Harmonized System of Classification and Labelling of Chemicals.

GRAS - Generally Recognized as Safe

IARC - International Agency for Research on Cancer.

ISHL - Japanese Industrial Safety and Health Law List of Chemicals.

Koc - soil organic carbon-water partition coefficient

Kow - octanol/water partition coefficient

LOEL - Lowest Observed Effect Level.

LD<sub>LO</sub> - Lethal Dose Low (the lowest dosage per unit of bodyweight of a substance known to have resulted in fatality in a particular animal species).

NOEC - No Observed Effect Concentration.

NTP - National Toxicology Program.

NZIoC - New Zealand Inventory of Chemicals.

OECD HPV - The Organisation for Economic Co-operation and Development High Production Volume Chemicals.

PEL - Permissible exposure limit.

PPE - Personal Protective Equipment.

Prop 65 - California Proposition 65 List of Chemicals.

RTECS - Registry of Toxic Effects of Chemical substances.

STEL - Short term exposure limit.

TOC - Total Organic Carbon.

TSCA - US Toxic Substances Control Act Existing Chemicals.

TWA - The time-weighted average airborne concentration over an eight-hour working day, for a five-day working week over an entire working life.

VOC - Volatile Organic Compounds.

#### Sources of key data used to compile the datasheet:

Manufacturer's SDS

GESTIS substance database

NIH PubMed Central

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For the avoidance of doubt, this safety data sheet has been prepared for the purpose of providing safety information, not to give specific usage or regulatory advice. Nothing contained herein can or should be construed as advice on the suitability of the product for a particular purpose. It is the user's sole responsibility to determine whether the product meets the user's specific requirements and is fit for those purposes.

End of SDS