

TRICALCIUM PHOSPHATE

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SECTION 1: IDENTIFICATION

1.1 GHS Product identifier:

TRICALCIUM PHOSPHATE
Calcium phosphate, tribasic; Bone phosphate of lime (BPL)
CAS: 7758-87-4

Other means of identification:

Not relevant

1.2 Recommended use of the chemical and restrictions on use:

Relevant uses: Anticaking/flow agent and calcium-fortification additive in food and feed, raw material for fertilizer and animal feed phosphate supplements, abrasive/polishing agent in toothpaste, heat stabilizer additive for PVC/polymer compounding, nutrient/buffering agent. For industrial and food/feed-grade user only.
Uses advised against: All uses not specified in this section or in section 7.3.

1.3 Supplier's details:

SURAJ CHEMICALS
No 92, Govindappa Naicken Street, Shiva Complex, Chennai – 600001, Tamil Nadu, India
Tel: +91 - 7092722822, +91 - 9840284032 / +91 - 44 - 25393652, 42130281
Email: sales@surajchemicals.com | Website: www.surajchemicals.com
GST No: 33ACEPV8190L1ZZ

1.4 Emergency phone number:

Emergency Contact No: +91 - 7092722822, +91 - 9840284032

SECTION 2: HAZARDS IDENTIFICATION

2.1 Classification of the substance or mixture:

GHS:
Classification of this product has been carried out in accordance with the Globally Harmonized System of Classification and Labelling of Chemicals (GHS). Based on available data, this substance is **not classified** as hazardous under GHS criteria for any physical, health or environmental hazard class.

Not Classified	No hazard class or category applies based on available data
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2.2 GHS label elements, including precautionary statements:

No GHS pictogram, signal word or hazard statement required.

Hazard statements:

None assigned.

Precautionary statements:

P280: Wear protective gloves/eye protection when handling bulk dust.
P501: Dispose of contents/container in accordance with local regulations.

2.3 Other hazards which do not result in classification:

Fine powder may cause mechanical/nuisance irritation of eyes, skin and respiratory tract on prolonged exposure to dust. Not a PBT/vPvB substance. Does not meet the criteria for a respiratory or skin sensitizer.

SECTION 3: COMPOSITION / INFORMATION ON INGREDIENTS

3.1 Substances:

Chemical description: Tricalcium Phosphate, $\text{Ca}_3(\text{PO}_4)_2$
In accordance with Annex 4.3.3 of the GHS, the product contains:

Identification	Chemical Name / Classification	Concentration
CAS: 7758-87-4	Tricalcium phosphate — Not classified	≥95% (technical/food/feed grade, remainder moisture and trace minerals)

To obtain more information on the hazards of the substances, consult sections 11, 12 and 16.

3.2 Mixtures:

Non-applicable

SECTION 4: FIRST AID MEASURES

4.1 Description of necessary first-aid measures:

This product is of low intrinsic toxicity; first-aid measures below are precautionary, as with any fine inorganic powder.

By inhalation:

Remove person affected from the dusty area to fresh air. If coughing or irritation persists, seek medical attention.

By skin contact:

Brush off dry powder; wash with soap and water if irritation occurs.

By eye contact:

Rinse eyes thoroughly with clean water for several minutes. If irritation persists, consult a doctor.

By ingestion/aspiration:

Not expected to be harmful. If large quantities are swallowed, rinse the mouth with water and seek medical advice if discomfort occurs.

4.2 Most important symptoms/effects, acute and delayed:

None expected under normal conditions of use; dust may cause transient mechanical irritation.

4.3 Indication of immediate medical attention and special treatment needed, if necessary:

Not relevant

SECTION 5: FIRE-FIGHTING MEASURES

5.1 Suitable extinguishing media:

Suitable: Product is non-combustible; use extinguishing media appropriate to the surrounding fire (water spray, foam, dry chemical powder, CO₂)
Unsuitable: None known

5.2 Specific hazards arising from the chemical:

Non-combustible inorganic solid. Does not burn, does not support combustion, and does not decompose to release hazardous gases under normal fire conditions.

5.3 Special protective actions for fire-fighters:

No specific measures required beyond standard fire-fighting practice. Wear self-contained breathing apparatus if fire involves other materials generating smoke/fumes.

Additional provisions:

Cool exposed containers with water if involved in a fire caused by surrounding combustibles.

SECTION 6: ACCIDENTAL RELEASE MEASURES

6.1 Personal precautions, protective equipment and emergency procedures:

For non-emergency personnel:

Avoid generating and inhaling dust. Use PPE described in section 8 for bulk spill clean-up. Ensure adequate ventilation.

For emergency responders:

No special equipment beyond standard dust mask/gloves/eye protection is required.

6.2 Environmental precautions:

Low environmental hazard. Prevent large spills from entering waterways or drains for good housekeeping practice.

6.3 Methods and materials for containment and cleaning up:

Sweep or vacuum (with dust-suppression) and collect in a suitable container for reuse or disposal. Avoid generating airborne dust; dampen if necessary.

6.4 Reference to other sections:

See sections 8 and 13.

SECTION 7: HANDLING AND STORAGE

7.1 Precautions for safe handling:

A. General precautions for safe use:

Avoid generating dust. Use local exhaust ventilation where dusting is likely. Handle bags/containers carefully to avoid breakage.

B. Technical recommendations for the prevention of fires and explosions:

Not applicable – product is non-combustible and does not present a dust-explosion hazard under normal particle-size distributions supplied.

C. Technical recommendations on general occupational hygiene:

Do not eat, drink or smoke during handling. Wash hands and exposed skin thoroughly with soap and water after handling and before breaks/meals. Launder contaminated clothing before re-use.

D. Technical recommendations to prevent environmental risks:

Avoid uncontrolled discharge of bulk powder to the environment as good housekeeping practice.

7.2 Conditions for safe storage, including any incompatibilities:

A. Specific storage requirements:

Storage temperature	Ambient
Maximum time	24 Months in original unopened packaging

B. General conditions for storage:

Store in a cool, dry, well-ventilated place in tightly closed containers/bags, away from strong acids and moisture, to prevent caking.

7.3 Specific end use(s):

Except for the instructions already specified, it is not necessary to provide any special recommendation regarding the uses of this product.

SECTION 8: EXPOSURE CONTROLS / PERSONAL PROTECTION

8.1 Control parameters:

No specific occupational exposure limit has been established for tricalcium phosphate. As a particulate not otherwise classified, general dust limits apply (e.g., Particulates Not Otherwise Regulated – PNOR):

Identification	Occupational Exposure Limit Type	Value
Inert/nuisance particulate (total dust) CAS: 7758-87-4	Time Weighted average concentration (8 hrs)	10 mg/m³ (total dust, general guidance)
	Respirable fraction (8 hrs)	3 mg/m³ (general guidance)

8.2 Appropriate engineering controls:

Local exhaust ventilation at dust-generating points (bagging, transfer) is recommended to keep airborne dust below occupational limits.

B. Respiratory protection:

Not normally required; use a dust mask (FFP1/FFP2) during prolonged bulk handling or bag emptying.

C. Specific protection for the hands:

Protective gloves recommended for prolonged handling.

D. Eye and face protection:

Safety glasses/goggles recommended where dust generation is significant.

E. Bodily protection:

Normal work clothing; coveralls for bulk handling.

F. Additional emergency measures:

Emergency shower (ANSI Z358-1, ISO 3864-1:2011, ISO 3864-4:2011) and eyewash stations (DIN 12 899, ISO 3864-1:2011, ISO 3864-4:2011) should be available in the immediate work area.

Environmental exposure controls:

Avoid environmental spillage of both the product and its container.

SECTION 9: PHYSICAL AND CHEMICAL PROPERTIES

9.1 Information on basic physical and chemical properties:

Appearance	
Physical state at 20°C	Solid (fine powder/granules)
Appearance	Fine powder
Color	White to off-white
Odor	Odorless
Odour threshold	Not relevant *
Volatility	
Boiling point at atmospheric pressure	Non-applicable (solid, decomposes before boiling)

Vapour pressure at 20°C / 50°C	Negligible
Evaporation rate at 20°C	Not relevant *
Product Description	
Density / Relative density at 20°C	≈3.14 g/cm³
Bulk density	≈500–900 kg/m³ (grade dependent)
pH (10% aqueous suspension)	≈7.0–9.0
Solubility in water at 20°C	Practically insoluble (≈0.002 g/100 mL)
Decomposition temperature	>1600°C
Melting point/freezing point	≈1670°C
Flammability	
Flash Point	Non-applicable
Flammability (solid, gas)	Non-flammable
Autoignition temperature	Non-applicable
Lower / Upper flammability limit	Non-applicable
Particle Characteristics	
Median equivalent diameter	Grade dependent, typically fine powder

* Not relevant due to the nature of the product, not providing information on the properties of its hazards.

9.2 Other information:

Explosive properties	Not relevant – not an explosive substance
Oxidising properties	Not an oxidizer
Corrosive to metals	No
Heat of combustion	Non-applicable (non-combustible)

SECTION 10: STABILITY AND REACTIVITY

10.1 Reactivity:

Chemically unreactive under normal conditions of storage, handling and use. Reacts with strong mineral acids to liberate the corresponding calcium salt and phosphoric acid/phosphate species.

10.2 Chemical stability:

Chemically stable under the indicated conditions of storage, handling and use.

10.3 Possibility of hazardous reactions:

Under the specified conditions, hazardous reactions are not expected.

10.4 Conditions to avoid:

Shock/Friction	Contact with Air	Increase in Temperature	Sunlight	Humidity
Not applicable	Not applicable	Not applicable	Not applicable	Avoid prolonged exposure to moisture (may cause caking)

10.5 Incompatible materials:

Strong Acids	Water/Humidity
Avoid direct contact (reacts to liberate phosphate species)	Store dry to prevent caking

10.6 Hazardous decomposition products:

None under normal conditions of storage and use.

SECTION 11: TOXICOLOGICAL INFORMATION

11.1 Information on toxicological effects:

Tricalcium phosphate is a substance of low intrinsic toxicity, widely used as a food and feed additive.

A. Ingestion (acute effect):

Acute toxicity classification criteria are not met based on available data. Practically non-toxic by ingestion.

B. Inhalation (acute effect):

Classification criteria are not met. Dust may cause transient mechanical irritation of the respiratory tract.

C. Contact with skin and eyes (acute effect):

Classification criteria are not met. Fine powder may cause transient mechanical irritation.

D. CMR effects (carcinogenicity, mutagenicity, reproductive toxicity):

Classification criteria are not met based on available data. IARC: Not listed.

E. Sensitizing effects:

Classification criteria for respiratory or skin sensitisation are not met.

F. Specific target organ toxicity (STOT) – single exposure:

Classification criteria are not met.

G. Specific target organ toxicity (STOT) – repeated exposure:

Classification criteria are not met.

H. Aspiration hazard:

Classification criteria are not met.

Product-specific toxicological information:

Identification	Acute Toxicity	Genus
Tricalcium phosphate CAS: 7758-87-4	LD50 oral: >5000 mg/kg (practically non-toxic)	Rat
	LD50 dermal: >2000 mg/kg (practically non-toxic)	Rabbit

SECTION 12: ECOLOGICAL INFORMATION

Not classified as hazardous to the aquatic environment.

12.1 Toxicity:

Acute Toxicity	Species	Genus

Practically non-toxic (low water solubility limits bioavailability)	Not relevant	Fish/Crustacean
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12.2 Persistence and degradability:
Inorganic mineral salt; not subject to biodegradation testing. Not expected to persist in a bioavailable form due to very low water solubility.

12.3 Bioaccumulative potential:
Not expected to bioaccumulate (inorganic, low solubility).

12.4 Mobility in soil:

Koc	Henry	Dry Soil	Moist Soil
Not relevant	Not relevant	Low mobility	Low mobility

12.5 Results of PBT and vPvB assessment:
Non-applicable – inorganic substance, criteria do not apply.

12.6 Other adverse effects:
None known.

SECTION 13: DISPOSAL CONSIDERATIONS

13.1 Disposal methods:
Non-hazardous waste; dispose of via an authorized waste management contractor as general industrial/inert waste. Material may be suitable for land application as a soil/feed amendment where locally permitted.
Do not discharge into drains, soil or surface water. Refer to the Hazardous and Other Wastes (Management and Transboundary Movement) Rules, and applicable national and local regulations on waste management, for final disposal.

SECTION 14: TRANSPORT INFORMATION

Transport of dangerous goods by land (ADR 2023 / RID 2023):

14.1 UN number	Not assigned – Non-Dangerous Goods
14.2 UN proper shipping name	Non-applicable
14.3 Transport hazard class(es)	Not classified as dangerous for transport
14.4 Packing group	N/A
14.5 Environmental hazard	No
14.6 Special precautions for user	Non-applicable
14.7 Transport in bulk (Annex II MARPOL 73/78, IBC Code)	Not relevant

Transport of dangerous goods by sea (IMDG 41-22):

14.1 UN number	Not assigned – Non-Dangerous Goods
14.2 UN proper shipping name	Non-applicable
14.3 Transport hazard class(es)	Not classified as dangerous for transport
14.4 Packing group	N/A
14.5 Marine pollutant	No
14.6 Special precautions for user	Non-applicable
14.7 Transport in bulk (Annex II MARPOL 73/78, IBC Code)	Not relevant

Transport of dangerous goods by air (IATA/ICAO 2024):

14.1 UN number	Not assigned – Non-Dangerous Goods
14.2 UN proper shipping name	Non-applicable
14.3 Transport hazard class(es)	Not classified as dangerous for transport
14.4 Packing group	N/A
14.5 Environmental hazard	No
14.6 Special precautions for user	Non-applicable
14.7 Transport in bulk (Annex II MARPOL 73/78, IBC Code)	Not relevant

SECTION 15: REGULATORY INFORMATION

15.1 Safety, health and environmental regulations specific for the product in question:
Not listed as a hazardous chemical under the Manufacture, Storage and Import of Hazardous Chemicals Rules, 1989. Food/feed-grade material is subject to FSSAI/BIS standards as applicable to the specific grade supplied.

Other legislation:
Manufacture, Storage and Import of Hazardous Chemicals Rules, 1989
The Factories Act, 1948 (Act No. 63 of 1948), as amended by the Factories (Amendment) Act, 1987 (Act 20 of 1987)
The Chemical Accidents (Emergency Planning, Preparedness, and Response) Rules, 1996
Public Liability Insurance Act, 1991
Hazardous and Other Wastes (Management and Transboundary Movement) Rules, 2016

SECTION 16: OTHER INFORMATION

Legislation related to safety data sheets:
This safety data sheet has been designed in accordance with Annex 4 – Guidance on the preparation of Safety Data Sheets of the Globally Harmonized System of Classification and Labelling of Chemicals (GHS).

Texts of the legislative phrases mentioned in sections 2 and 3:
Not applicable – no hazard or precautionary statements assigned to this product.
The phrases indicated do not refer to the product itself; they are present merely for informative purposes and refer to the individual components which appear in section 3.

Advice related to training:
Minimal training is recommended to prevent industrial risks for staff using this product, in order to facilitate their comprehension and interpretation of this safety data sheet, as well as the label on the product.

Principal bibliographical sources:
The United Nations Economic Commission for Europe (UNECE); publicly available GHS classification data and standard physical/chemical reference data for this substance.

Abbreviations and acronyms:
ADR: European agreement concerning the international carriage of dangerous goods by road | RID: Regulations concerning the International carriage of Dangerous goods by Rail | IMDG: International maritime dangerous goods code | IATA: International Air Transport Association | ICAO: International Civil Aviation Organisation | COD: Chemical Oxygen Demand | BOD5: 5-day biochemical oxygen demand | BCF: Bioconcentration factor | LD50: Lethal Dose 50 | LC50: Lethal Concentration 50 | EC50: Effective Concentration 50 | Log-POW: Octanol-water partition coefficient | Koc: Partition coefficient of organic carbon | IARC: International Agency for Research on Cancer | ACGIH: American Conference of Governmental Industrial Hygienists | TLV: Threshold Limit Value | OEL: Occupational Exposure Limit | PBT: Persistent, Bioaccumulative and Toxic | vPvB: very Persistent and very Bioaccumulative | STOT: Specific Target Organ Toxicity | CMR: Carcinogenic, Mutagenic or toxic to Reproduction

The information contained in this safety data sheet is based on sources, technical knowledge and current legislation, without being able to guarantee its accuracy. This information cannot be considered a guarantee of the properties of the product; it is simply a description of the security requirements. The occupational methodology and conditions for users of this product are not within Suraj Chemicals' awareness or control, and it is ultimately the responsibility of the user to take the necessary measures to obtain the legal requirements concerning the manipulation, storage, use and disposal of chemical products. The information on this safety data sheet only refers to this product, which should not be used for needs other than those specified.

END OF SAFETY DATA SHEET