

Technical Data Sheet (TDS)

- Feed Grade Monocalcium Phosphate (MCP) Issue Date: 18 FEB 2026 | Version: V1.0

1. Product Overview

- **Product Name:** Monocalcium Phosphate (Feed Grade, MCP)
- **CAS Number:** 7758-23-8 | **Molecular Formula:** $\text{Ca}(\text{H}_2\text{PO}_4)_2 \cdot \text{H}_2\text{O}$ | **Molecular Weight:** 252.07 g/mol
- **Chemical Nature:** An inorganic mineral salt and the **most water-soluble form** of calcium phosphate. It is a premium source of both calcium (Ca) and phosphorus (P) for animals.
- **Core Characteristics:** High water solubility (superior to DCP/TCP), excellent bioavailability, balanced Ca/P ratio (1:2.2), low fluoride content, and compliant with global feed safety standards.
- **Core Application:** Essential feed additive for all livestock, poultry and aquatic animals. Prevents mineral deficiencies, promotes bone and eggshell formation, and improves growth performance. Ideal for young animals with immature digestive systems.

2. Technical Specifications (Feed Grade)

Item	Standard Requirement (GB/T 22549)	Test Method
Calcium (Ca) Content	16.5% - 18.0%	Complexometric Titration
Phosphorus (P) Content	19.0% - 19.9%	UV-Vis Spectrophotometry
Water Soluble Phosphorus	≥39.0%	Gravimetric Method
Appearance	White crystalline powder	Visual Inspection
pH Value (1% Aqueous)	3.0 - 4.0	Digital pH Meter
Loss on Drying	8.0% - 10.0%	105°C Constant Weight Method
Fluoride (F ⁻)	≤180 ppm	Ion Selective Electrode
Heavy Metals (as Pb)	≤5 ppm	Atomic Absorption Spectrometry (AAS)
Arsenic (As)	≤2 ppm	Atomic Fluorescence Spectrometry (AFS)
Cadmium (Cd)	≤1 ppm	AAS
Microbiological Limits	Meet GB 13078.1	Plate Count & Detection
Particle Size (Typical)	80-120 mesh (customizable)	Sieve Analysis

3. Product Advantages (Feed Grade Focus)

1. **Superior Bioavailability:** Over **90%** of the phosphorus is water-soluble and immediately available for absorption, even in young animals with low stomach acid. Outperforms dicalcium phosphate (DCP) in digestibility.
2. **Balanced Nutrition:** Provides both calcium and phosphorus in an optimal ratio for bone development, eggshell strength and muscle function.
3. **Low Anti-Nutrients:** Strictly controlled fluoride content (<180 ppm) prevents fluorine toxicity and ensures animal health.
4. **Acidifying Effect:** Mildly acidic nature helps lower stomach pH in young monogastric animals (e.g., piglets, chicks), enhancing protein digestion and reducing pathogen load (e.g., E. coli).
5. **Processing Stability:** Resistant to high temperatures during feed pelleting and extrusion; no degradation of nutrients.

4. Application & Dosage Guide (Feed Formulation)

4.1 Target Species & Core Benefits

- **Piglets/Weaners:** Critical for bone development; high solubility offsets low digestive enzyme activity; reduces rickets.
- **Layers/Broilers:** Improves eggshell thickness and strength; prevents leg disorders in fast-growing broilers.
- **Aquaculture (Fish/Shrimp):** Water-soluble phosphorus is readily absorbed through gills and intestines; promotes skeletal development and survival.

- **Ruminants:** Enhances milk production and bone health in young calves.

4.2 Recommended Inclusion Levels (w/w, based on total compound feed)

Species	Growth/Production Stage	Recommended Dosage of MCP
Pigs	Weaners (7-30 kg)	1.5% - 2.5%
Pigs	Growers/Finishers	1.0% - 1.5%
Poultry	Layers (Peak Production)	1.5% - 2.0%
Poultry	Broilers (Starter)	1.0% - 1.5%
Aquaculture	Fish/Shrimp (All Stages)	2.0% - 3.5%
<i>Note: Adjust dosage based on the animal's age, production stage and the phosphorus content of other feed ingredients (e.g., corn, soybean meal).</i>		

5. Handling & Formulation Guidelines

1. **Easy to Mix:** As a free-flowing powder, it blends uniformly with other dry feed ingredients without the need for special premixing (though premixing is recommended for accuracy in small batches).
2. **Compatibility:** Fully compatible with amino acids, vitamins, probiotics and other minerals. **Note:** Avoid direct pre-blending with strong alkaline ingredients (e.g., sodium bicarbonate) in high concentrations, as this may reduce phosphorus solubility.
3. **Processing:** Can be added at any stage of feed production (mixing, pelleting, extrusion). Its thermal stability ensures no loss of nutritional value at standard processing temperatures.
4. **Hygiene:** The low microbial load ensures it does not introduce pathogens into the feed matrix.

6. Packaging, Storage & Shelf Life

- **Packaging Specifications:**
 - **Standard Packaging:** 25 kg moisture-proof paper drums or PP woven bags with inner PE liners (sealed to prevent caking).
 - **Bulk Packaging:** 500 kg / 1000 kg jumbo bags with inner PE liners (for large feed mills).
 - **Sample Packaging:** 100 g / 500 g HDPE plastic bottles (sealed).
- **Storage Requirements:**
 - Store in a cool, dry, well-ventilated warehouse; temperature $\leq 25^{\circ}\text{C}$, relative humidity $\leq 60\%$.
 - Keep the package tightly sealed at all times to prevent **moisture absorption and caking**. Caked product can be crushed and reused without loss of nutritional value.
 - Shelf Life: **36 months (unopened, under specified conditions)**; 12 months after opening (if resealed tightly).
- **Transportation Requirements:** Non-hazardous goods. Transport in covered, dry ordinary cargo vehicles. Protect from rain, snow and high humidity to prevent package dampening and product caking.

7. Quality Assurance & Control

1. **Production Standards:** Produced in a GMP-compliant facility with ISO 9001 (Quality Management) and ISO 22000 (Food Safety) certifications. Using food/feed grade raw materials.
2. **Batch Testing:** Every batch undergoes rigorous testing for calcium, phosphorus, solubility, fluoride, heavy metals and microbiology. A detailed English COA is provided with each shipment.
3. **Third-Party Validation:** Accepts testing by international authoritative laboratories (SGS, Intertek) to verify compliance with China, EU and US feed safety standards.
4. **Technical Support:** A professional nutrition team provides guidance on feed formulation, phosphorus requirement calculation and MCP application technology to help customers optimize feed costs.