

Technical Data Sheet (TDS)

Issue Date: February 28, 2026 **Product Name:** Dipotassium Phosphate (DKP, Feed Grade) **CAS Number:** 16788-57-1

1. Product Overview

Dipotassium Phosphate (DKP, K_2HPO_4) is a high-purity, water-soluble inorganic phosphate salt manufactured by the neutralization of food-grade phosphoric acid with potassium hydroxide (or potassium carbonate), followed by crystallization, drying and screening.

As a key feed additive, DKP provides animals with two essential macrominerals: **potassium (K)** and **phosphorus (P)**. It acts as an effective pH buffer (alkaline) to stabilize feed pH, improves the bioavailability of other minerals, and supports critical physiological functions including muscle contraction, nerve conduction, bone development, and energy metabolism. Its high water solubility makes it ideal for both dry feed formulations and liquid feed/drinking water supplementation.

2. Core Technical Parameters

Parameter	Specification (Feed Grade, Anhydrous)
CAS Number	16788-57-1
Chemical Formula	K_2HPO_4
Molecular Weight	174.18 g/mol
Assay (as K_2HPO_4)	≥ 98.0%
Total Phosphorus (P)	≥ 17.0%
Potassium (K)	≥ 40.0%
pH (1% w/v Aqueous Solution)	8.5 - 9.5
Water Solubility (25°C)	≥ 160 g/100 mL
Appearance	White crystalline powder/granules
Hygroscopy	Moderately hygroscopic
Shelf Life	24 months (unopened, moisture-proof storage)

3. Quality Specifications

Test Item	Strict Feed Grade Standard
Assay (K_2HPO_4)	≥ 98.0%
Loss on Drying	≤ 1.0%
Insoluble Matter in Water	≤ 0.1%
Fluoride (F)	≤ 180 ppm
Arsenic (As)	≤ 2 ppm
Lead (Pb)	≤ 10 ppm
pH Value (1% w/v)	8.5 - 9.5
Microbiological Limits	Total Plate Count ≤ 10^4 CFU/g; Yeast & Mold ≤ 10^2 CFU/g
Pathogens	E. coli (-), Salmonella (-)

4. Product Advantages

- High Bioavailability:** 100% water-soluble, ensuring rapid absorption of potassium and phosphorus in the animal gastrointestinal tract (superior to insoluble phosphates).
- Dual Mineral Supplement:** Simultaneously provides potassium (critical for electrolyte balance) and phosphorus (critical for bone health), reducing the need for multiple additives.
- pH Buffering Capacity:** Alkaline nature helps neutralize excess acid in feed and animal intestines, improving gut health and feed palatability.
- Low Impurities:** Strict control of fluoride, heavy metals and pathogens meets global feed safety standards (EU, US FDA, China).
- Versatile Form:** Available as powder (for dry feed) or granules (for anti-dusting and improved mixing), suitable for all feed processing technologies.

5. Applications & Recommended Dosage

DKP is suitable for swine, poultry, aquaculture, ruminants and pet feed, especially for animals with potassium/phosphorus deficiency or under stress conditions.

Animal Species	Growth Stage	Recommended Dosage (per ton of complete feed)
Swine	Weaned Piglets	2 - 5 kg
	Grow-Finish Pigs	1 - 3 kg
	Lactating Sows	3 - 6 kg (supports milk production)
Poultry	Broilers (Starter/Grower)	1 - 3 kg
	Layers (Peak Production)	2 - 4 kg (improves eggshell quality)
Aquaculture	Fish/Shrimp (All Stages)	5 - 10 kg (ideal for water-soluble feed)
Ruminants	Dairy Cattle (Lactation)	3 - 8 kg (maintains electrolyte balance)
Drinking Water	All Livestock/Poultry	0.5 - 2 g/L (for stress relief)

6. Usage Methods & Compatibility

- Dry Mixing (Recommended):** Mix the powder/granules evenly with feed raw materials. For powder, pre-dilute with 5-10 times carrier (e.g., corn meal) to ensure uniform distribution.
- Liquid Supplementation:** Dissolve completely in drinking water or liquid feed (stir well; solubility is high, no precipitation).
- Pelleting Compatibility:** Excellent stability during feed pelleting (temperatures up to 90°C); no degradation or loss of nutrients.
- Incompatibilities:** Avoid direct concentrated mixing with strong acidic additives (e.g., citric acid, fumaric acid) to prevent exothermic reactions and caking.

7. Packaging & Storage

7.1 Packaging Specifications

- Small Batch:** 1 kg, 5 kg, 10 kg sealed aluminum foil bags (moisture-proof, light-proof) – for trials and small-scale use.
- Standard Batch:** 25 kg multi-ply paper bags with inner PE liner (moisture-proof, anti-caking) – for industrial feed production.
- Bulk Batch:** 500 kg / 1000 kg FIBC bulk bags with PE liner (with moisture-proof valve) – for large-scale users.

7.2 Storage Conditions (Critical for Quality)

- Storage:** Store in a cool, dry, well-ventilated warehouse. Keep the package tightly closed at all times to prevent moisture absorption (hygroscopic) and caking.
- Environmental Requirements:** Temperature $\leq 30^{\circ}\text{C}$, relative humidity $\leq 70\%$; avoid direct sunlight and contact with water.
- After Opening:** Seal the package immediately with a clip or tape after each use; use within 1 month to prevent moisture damage.

8. Regulatory Compliance & Quality Assurance

- Certifications:** Manufactured in accordance with ISO 9001 (Quality Management System) and GMP for feed additives.
- Global Compliance:** Meets China GB 13078, EU EC 1831/2003, US FDA 21 CFR Part 573 feed safety standards.
- Quality Guarantee:** Each batch is tested by an independent third-party laboratory and accompanied by a Certificate of Analysis (COA) to ensure compliance with stated specifications.
- Technical Support:** Provide customized dosage schemes, feed pH optimization and electrolyte balance solutions for different animal species and stress conditions.