

Technical Data Sheet (TDS)

1. Product Overview

- Product Name: 白肾豆提取物
- English Name: White Kidney Bean Extract
- CAS Number: 85085-22-9
- Formula: Phaseolus vulgaris L. Seed Extract (α -Amylase Inhibitor Protein Complex)
- Molecular Weight: 10000-50000 Da (protein complex)
- Product Characteristics: Natural plant extract derived from white kidney bean seeds via water extraction and ultrafiltration; standardized α -amylase inhibitor activity $\geq 20,000$ U/g; off-white free-flowing fine powder with faint natural bean scent; soluble in water, insoluble in organic solvents; specific α -amylase inhibition effect; stable under low-temperature sealed storage conditions; compatible with common food/health care excipients; no artificial additives/preservatives; fully biodegradable and environmentally friendly.

2. Technical Specifications (Complies with Industrial Standards)

Item	Specification
Appearance	Off-white to light yellow free-flowing fine powder
α -Amylase Inhibitor Activity	$\geq 20,000$ U/g
Loss on Drying	$\leq 5.0\%$
Total Ash	$\leq 5.0\%$
pH Value (1% aq. solution, 25°C)	5.5-7.5
Heavy Metals (Pb)	≤ 5 ppm
Heavy Metals (As)	≤ 1 ppm
Total Aerobic Microorganisms	≤ 1000 CFU/g
E. coli / Salmonella	Negative
Particle Size	$\geq 95\%$ passing 80 mesh
Water Solubility	Soluble in water (20 g/100 mL, 25°C)
Bulk Density	0.40-0.60 g/cm ³
Protein Content	$\geq 30.0\%$
Temperature Stability	Stable at 0-40°C (enzyme activity retention $\geq 90\%$)
Storage Stability	24 months (unopened, $\leq 20^\circ\text{C}$, dry & sealed)
Odor	Faint natural white kidney bean fragrance

3. Product Advantages

1. **High Enzyme Activity:** α -Amylase inhibitor activity $\geq 20,000$ U/g with batch-to-batch consistency; specific inhibition of salivary/pancreatic α -amylase; stable enzyme activity under low-temperature conditions.
2. **Green Extraction Process:** Water-based low-temperature extraction + ultrafiltration purification (no organic solvent residue); no artificial additives/colorants/preservatives; high purity and low impurity; GRAS certified for food use.
3. **Targeted Biological Activity:** Specifically inhibits starch decomposition and absorption in the human body; no effect on other digestive enzymes; natural ingredient for weight management and blood sugar control.
4. **Excellent Formulability:** Soluble in water; compatible with common food/health care excipients (maltodextrin, lactose, starch, honey); no precipitation in aqueous formulations; easy to process into various dosage forms.
5. **High Safety:** Non-toxic, non-irritating; low heavy metal/pesticide residue; no side effects in normal dosage; fully biodegradable; non-hazardous for transport/storage.

4. Application Fields

- **Health Care Products:** Weight management dietary supplements (capsules, tablets, powder, oral liquid); blood sugar control supplements; meal replacement powder/bar ingredients; fat-burning health care products.



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- **Food Industry:** Functional food additive (low-calorie food, diet food, cereal products, baked goods); added to starch-rich food to reduce effective calorie intake; natural food ingredient for healthy diet.
- **Dietary Supplements:** Sports nutrition supplements; fitness meal ingredients; weight loss meal replacement additives; no use in infant food.

5. Usage Methods

5.1 Formulation Compatibility

- **Health Care Products:** Mix with maltodextrin/starch/lactose for solid dosage forms (capsules/tablets); dissolve in deionized water for liquid dosage forms (oral liquid); add during low-temperature processing ($\leq 40^{\circ}\text{C}$) to avoid enzyme activity loss.
- **Food Industry:** Add to starch-rich food (cereal, baked goods, meal replacement) during low-temperature mixing; dissolve in water for beverage products; avoid high-temperature processing ($\geq 50^{\circ}\text{C}$) and long-term heating.
- **Key Note:** Do not mix with proteases (pepsin/trypsin), strong acids/alkalis; avoid contact with high temperature to prevent enzyme denaturation and activity loss.

5.2 Recommended Dosage

- **Health Care Products:** 5.0-20.0% (w/w) of total formulation; adult daily dosage 100-500 mg (as pure α -amylase inhibitor); take before meals for better effect.
- **Food Industry:** 0.5-3.0% (w/w) of total formulation; adjust according to starch content of food (higher starch content = appropriate higher dosage).

5.3 Processing Precautions

- Operate in a well-ventilated, low-dust, low-temperature ($\leq 25^{\circ}\text{C}$) workshop; use closed handling equipment to avoid powder dispersion and enzyme activity loss.
- Do not mix with proteases, strong acids ($\text{pH} < 3$), strong bases ($\text{pH} > 9$) or high-temperature cargo; avoid high-temperature processing ($> 50^{\circ}\text{C}$) and prolonged heating.

6. Packaging & Storage

6.1 Packaging Specifications

- 1 kg/bag (food/health care-grade aluminum foil bag, vacuum sealed)
- 5 kg/10 kg/drum (sealed HDPE drum with inner vacuum-sealed aluminum foil bag)
- 25 kg/drum (food/health care-grade fiber drum with inner vacuum-sealed aluminum foil bag)
- Custom small packaging (100g/500g) available for small-batch orders and scientific research use.

6.2 Storage Conditions

- Store in a cool, dry, dark, well-ventilated **locked** warehouse; keep container tightly **vacuum-sealed**; avoid direct sunlight and high temperatures (storage temperature $\leq 20^{\circ}\text{C}$); control warehouse humidity $\leq 65\%$.
- Store separately from proteases, strong acids/alkalis, high-temperature cargo, food and beverages; no mixing with other plant extracts unless under professional formulation design.

7. Safety & Protection

- The product is non-hazardous in normal use; mild eye irritation only if direct contact; wear **safety goggles and nitrile rubber gloves** during all handling operations.
- Avoid direct eye contact and inhalation of powder; rinse eyes with plenty of running water for 5-10 minutes if contact occurs; consult a doctor if irritation persists.
- Wash hands thoroughly with soap and water after handling; no eating/drinking/smoking in the handling area; avoid contact between the product and food/drinks.

8. Quality Assurance

- Manufactured in accordance with **ISO 9001 quality management system** and **food/health care GMP standards**; water-based green extraction process with no organic solvent residue.
- Each batch is tested by an independent third-party professional testing institution; a complete **Certificate of Analysis (COA)** with full test results (including enzyme activity) is provided for each batch.
- Complete production traceability system: Strict quality inspection of raw white kidney bean seeds (heavy metal, pesticide residue, microbial detection); unqualified raw materials are rejected and not used.