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Technical Data Sheet (TDS)

- Guar Gum (Food Grade)
Issue Date: 28 FEB 2026 | Version: V1.0

1. Product Overview

- **Product Name**: Guar Gum (Food Grade)
- **CAS Number**: 9000-30-0
- **EINECS/EC Number**: 232-536-8
- **Main Component**: Galactomannan polysaccharide (≥85%)
- **Source**: Refined endosperm extract of *Cyamopsis tetragonoloba* (Guar bean)
- **Product Characteristics**: High-purity food-grade guar gum (galactomannan ≥85%) processed by physical refining and grinding; off-white free-flowing powder, odorless, bland taste, slightly hygroscopic and highly viscous in aqueous solution. As a **multi-functional natural food additive**, it has excellent thickening, stabilizing, emulsifying, gelling and water retention properties; hydrates in water to form a stable colloidal solution with high viscosity at low concentrations (1% solution ≥5000 mPa·s). It is a natural plant polysaccharide (dietary fiber), compatible with all common food ingredients, stable under normal food processing conditions, and a green alternative to synthetic thickeners. FDA GRAS/EC E412 certified; compliant with GB 1886.307-2021/GB 2760/FDA/EC/CAC standards, widely used in various food production.
- **Core Application**: Food additive (thickener/stabilizer/emulsifier) for beverage, dairy, bakery, confectionery, meat, aquatic products, sauce, seasoning, frozen food and canned food industries; water retention agent for bakery, texture modifier for meat products, anti-syneresis agent for frozen food.

2. Technical Specifications (Compliant with GB 1886.307-2021 & FCC/USP)

Item	Standard Requirement
Appearance	Off-white to creamy white powder, free-flowing
Odor/Taste	Odorless, bland, no off-taste
Galactomannan Content	≥85.0%
Moisture (Loss on Drying)	≤10.0%
Ash Content	≤1.5%
Insoluble Matter in Water	≤1.0%
Viscosity (1% aq. sol, 25℃, 20rpm)	≥5000 mPa·s
Heavy Metals (as Pb)	≤1 ppm
Arsenic (As)	≤0.5 ppm
Cadmium (Cd)	≤0.05 ppm
Mercury (Hg)	≤0.01 ppm
Total Starch	≤0.5%
Total Bacterial Count	≤1000 CFU/g
Yeast & Mold	≤100 CFU/g
E. coli	Negative in 1g
Salmonella	Negative in 25g
pH Value (1% aqueous solution)	6.0-7.5
Water Dispersibility	Dispersible (forms viscous solution)
Hygroscopy	Slightly hygroscopic
Temperature Stability	Stable at 0-100℃
pH Stability	Stable at 4.0-9.0
Storage Stability	24 months (unopened), 6 months (after opening)

3. Product Advantages

1. **High Viscosity at Low Concentration**: 1% aqueous solution viscosity ≥5000 mPa·s; small dosage achieves excellent thickening effect, reduces production cost significantly.

2. **Multi-Functional Performance**: Integrates thickening, stabilizing, emulsifying, gelling and water retention; a single additive meets multiple food processing needs, simplifies formula design.

4. Application Fields & Recommended Dosage

(Adjust dosage according to food type, viscosity requirement and processing technology; all dosages are **w/w** based on food raw materials, comply with GMP dosage limits for all food categories.)

Application Field	Typical Products	Recommended Dosage	Core Effect
Dairy Products	Yogurt, milk beverage, ice cream, cheese	0.1-0.5%	Thickening, stabilization, anti-syneresis, improve texture
Beverage	Fruit juice, nectar, plant beverage, salad dressing	0.05-0.3%	Suspension stabilization, anti-sedimentation, thickening
Meat & Aquatic Products	Ham, sausage, frozen meat, surimi products	0.2-0.8%	Water retention, texture modification, improve elasticity
Bakery	Bread, cake, pastry, cookie	0.1-0.4%	Water retention, improve dough elasticity, prevent drying
Confectionery & Dessert	Candy, jelly, pudding, pastry filling	0.2-0.6%	Gelling, thickening, texture improvement, anti-collapse
Frozen Food	Ice cream, frozen dessert, frozen dumplings	0.1-0.5%	Anti-syneresis, stabilize texture, prevent ice crystal formation
Sauce & Seasoning	Ketchup, soy sauce, salad dressing, soup base	0.1-0.4%	Emulsion stabilization, thickening, improve mouthfeel
Canned Food	Fruit/vegetable cans, meat/aquatic cans	0.1-0.3%	Stabilization, prevent sedimentation, improve texture

5. Usage Methods & Formulation Guidelines

Key Tip: Guar gum hydrates slowly in cold water and easily forms clumps; **always add powder to stirring water (not water to powder)** and use high-speed stirring (≥500 rpm) for dispersion; pre-mix with dry ingredients (sugar/salt/starch) to prevent clumping for solid food systems.

1. **Aqueous Dispersion Method (Liquid Food)**: Add food-grade water to a mixing tank and start high-speed stirring (500-1000 rpm); slowly sift guar gum powder into the stirring water (avoid bulk addition); stir for 10-15 minutes until fully hydrated (no visible clumps); add the viscous solution to food and mix evenly.
2. **Dry Premix Method (Solid Food)**: Premix guar gum powder with dry food ingredients (sugar, salt, starch, flour) at a ratio of 1:10-20; mix thoroughly to form a uniform dry blend; add the blend to water/food system and stir to hydrate (no clumping).

6. Packaging, Storage & Transportation

- **Small Packaging**: 1 kg/5 kg food-grade aluminum foil bags (heat-sealed, moisture-proof; for small food factories and laboratory use)
- **Standard Packaging**: 25 kg food-grade HDPE plastic drums (inner PE bag, sealed cover; for industrial batch production)
- **Bulk Packaging**: 500 kg/1000 kg food-grade jumbo bags (moisture-proof film, dust-proof; for large food factories with bulk handling)

7. Quality Assurance & Technical Support

1. **Production Standards**: Manufactured in a GMP/HACCP-compliant food-grade production workshop; adopts physical refining and low-temperature grinding technology (no chemical solvents/additives); meets ISO 9001 (Quality Management) and ISO 22000 (Food Safety) standards; galactomannan ≥85%, high viscosity and good dispersibility.
2. **Batch Testing**: Every batch of guar gum is subject to **strict multi-index testing** (physical, chemical, microbiological, galactomannan content, viscosity, heavy metals); a detailed Certificate of Analysis (COA) is provided with each shipment to ensure compliance with GB 1886.307-2021/FCC/USP standards.