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Technical Data Sheet (TDS)

Issue Date: 27 FEB 2026**Product Name:** Sodium Alginate (Food Grade)**CAS Number:** 9005-38-3

1. Product Overview

- **English Name**: Sodium Alginate (Food Grade)
- **Chinese Name**: 海藻酸钠（食品级）
- **CAS No.**: 9005-38-3
- **Molecular Formula**: $(C_6H_7NaO_6)_n$
- **Source**: Extracted from natural brown algae (Laminaria japonica, Sargassum), through water leaching, purification, neutralization, precipitation, drying and crushing; food-grade purified (no seaweed odor, tasteless), viscosity customizable (500-3000 mPa·s) according to application.
- **Core Characteristics**: Off-white to pale yellow fibrous powder/granule, odorless/tasteless; dissolves in water to form transparent viscous colloid (no precipitation); stable in most food pH/temperature systems; forms adjustable-strength gel with Ca^{2+} ; **ADI unrestricted** (FAO/WHO), non-toxic, safe for all population; natural biodegradable, environmentally friendly; multifunctional food additive (thickener, gelling agent, emulsifier, stabilizer, suspending agent) – the most widely used natural food colloid in the global food industry.

2. Technical Specifications (Complies with GB 2760-2021, GB 1886.242-2016 & International Standards)

Test Item	Food Grade Specification
Appearance	Off-white to pale yellow fibrous powder/granule, no visible impurities
Assay (Sodium Alginate)	≥ 90.0%
Moisture Content	≤ 15.0%
Ash Content (as Na_2CO_3)	30.0-36.0%
pH Value (25℃, 1% aqueous solution)	6.0-8.0
Viscosity (25℃, 1% aq. sol)	500-3000 mPa·s (customizable)
Insoluble Substances in Water	≤ 1.0%
Heavy Metals (Pb)	≤ 0.5 ppm
Arsenic (As)	≤ 0.1 ppm
Cadmium (Cd)	≤ 0.05 ppm
Mercury (Hg)	≤ 0.01 ppm
Total Plate Count	≤ 1000 CFU/g
Yeast & Mold	≤ 100 CFU/g
E. coli	Negative in 1g
Salmonella	Negative in 25g
Solubility	Soluble in water (viscous colloid), insoluble in ethanol/ether
Temperature Stability	Stable at <120℃, decomposes at >200℃
pH Stability	Stable at pH 4.0-9.0
Gel Property	Forms gel with Ca^{2+} /Mg^{2+} (gel strength adjustable)

3. Core Product Advantages

1. **100% Natural & Ultra-Safe**: Derived from renewable brown algae, no synthetic additives; FAO/WHO **ADI unrestricted** (no daily intake limit); safe for all population including infants, pregnant women and allergic constitution; no toxicity, no sensitization, no carcinogenicity – the safest food colloid.
2. **Multifunctional Performance**: Integrates **thickening, gelling, emulsifying, stabilizing and suspending** functions; one product replaces multiple food additives, reduces production cost and formula complexity; widely applicable to all food types.

3. **Excellent Process Adaptability**: Stable in neutral/weakly acidic/weakly alkaline food systems (pH 4.0-9.0); no viscosity loss at common processing temperature (<120℃) (pasteurization, boiling); stable in frozen/refrigerated storage; forms controllable gel with Ca^{2+} (hard/soft gel optional).
4. **Good Compatibility**: Compatible with all common food additives (sugars, sweeteners, acidulants, preservatives, colorants, emulsifiers) and food raw materials; no reaction with metal/non-metal processing equipment (no corrosion, no residue); can be used with other colloids (carrageenan, xanthan gum) to improve performance.
5. **Customizable Viscosity**: Viscosity range 500-3000 mPa·s, customizable according to application (low viscosity for beverages/sauces, medium viscosity for dairy/pastry, high viscosity for gelling/aquatic products); meets diverse food production needs.
6. **Environmentally Friendly & Renewable**: Natural seaweed-derived, fully biodegradable (no residual pollution); seaweed raw material is renewable marine resource, no resource depletion risk; waste can be used as microbial nutrient/animal feed – green and sustainable.

4. Wide Application Fields

Sodium Alginate is a multifunctional natural food colloid (ADI unrestricted, no dosage limit), suitable for **all types of food and beverage** (including infant food), with core applications in thickening, gelling, emulsification and stabilization:

- **Beverage Industry**: Fruit juice, fruit tea, milk drink, plant protein drink, carbonated beverage; as **stabilizer/suspending agent**, prevents pulp/particle precipitation, improves mouthfeel and stability; low viscosity type recommended (500-1000 mPa·s).
- **Dairy & Dessert Industry**: Yogurt, ice cream, pudding, jelly, mousse; as **thickener/stabilizer**, improves smoothness and creaminess, prevents ice crystal formation (ice cream), enhances structural stability; medium viscosity type recommended (1000-2000 mPa·s).

5. Usage Methods & Key Technical Tips

Food Type	Recommended Dosage (w/w)	Viscosity Selection	Core Function
Beverage/Plant Protein Drink	0.1-0.5%	500-1000 mPa·s	Stabilization/suspension
Yogurt/Ice Cream/Pudding	0.3-1.0%	1000-2000 mPa·s	Thickening/stabilization
Simulated Seafood/Fish Ball	1.0-3.0%	2000-3000 mPa·s	Gelling/binding
Salad Dressing/Tomato Sauce	0.2-0.8%	800-1800 mPa·s	Thickening/emulsification
Cake/Filling/Jam	0.5-1.5%	1500-2500 mPa·s	Thickening/water retention
Infant Nutritious Food	0.1-0.3%	800-1500 mPa·s	Thickening/stabilization

6. Packaging, Storage & Transportation

- **Small Batch**: 1kg/5kg/10kg – Food-grade aluminum foil vacuum bags (moisture-proof, oxygen-free) with outer carton; fibrous powder/granule optional, for small-scale production/laboratory/retail.
- **Standard Batch**: 25kg – Food-grade HDPE plastic drums (sealed) with inner plastic film, or woven bags with inner aluminum foil bag; granule type recommended (less dust, better flowability), for medium/large-scale production.
- **Bulk Batch**: 500kg/1000kg – Food-grade FIBC bulk bags (moisture-proof PE liner, sealed valve); for large-scale industrial production and export.

7. Safety & Quality Assurance

- The product is food-grade, non-toxic, non-irritating; wear **FFP1 dust mask, safety goggles and nitrile rubber gloves** during bulk processing (prevent dust inhalation and powder adhesion); wear non-slip food-grade safety shoes to prevent slipping.
- Operate in a well-ventilated area with dust suppression facilities (mist spray); avoid dry sweeping of spilled powder (reduce dust dispersion); wash hands with soap and water after handling.
- No special safety measures for small-scale use; keep the product out of reach of children (only to prevent accidental ingestion of large amount of powder).