

Technical Data Sheet (TDS)

1. Product Overview

- Product Name: Sodium Alginate
- English Name: Sodium Alginate
- CAS Number: 9005-38-3
- Formula: $(C_6 H_7 O_6 Na)_n$
- Molecular Weight: Variable (10,000–200,000 Da)
- Product Characteristics: Natural polysaccharide polymer extracted from brown seaweed; free-flowing powder, soluble in water to form high-viscosity gel; gelation with divalent cations (Ca^{2+} / Mg^{2+}); non-toxic, biodegradable, FDA/EU approved for food use. Excellent thickening, gelling, emulsifying and film-forming properties; stable under neutral/alkaline conditions, incompatible with strong acids.

2. Technical Specifications

Item	Specification
Appearance	White to pale yellow free-flowing powder
Viscosity (1% aq. solution, 25°C)	200–1000 mPa·s
Moisture Content	≤ 15.0%
Ash Content (550°C)	30.0–38.0%
pH Value (1% aq. solution, 25°C)	6.0–8.0
Heavy Metals (Pb)	≤ 5 ppm
Heavy Metals (As)	≤ 2 ppm
Total Bacterial Count	≤ 1000 CFU/g
E. coli	Negative
Insoluble Matter in Water	≤ 1.0%
Bulk Density	0.3–0.5 g/cm ³
Solubility	Soluble in water, insoluble in organic solvents

3. Product Advantages

1. **Natural & Safe:** Renewable seaweed origin, non-toxic, FDA/EU GRAS for food/cosmetic use; no harmful residues.
2. **Multi-functional:** Thickener, gelling agent, emulsifier, film-former and flocculant in one product.
3. **Gelation Control:** Reversible gel formation with divalent cations; adjustable gel strength via concentration/ Ca^{2+} dosage.
4. **Eco-friendly:** Fully biodegradable, no environmental pollution; sustainable raw material.
5. **Stable Performance:** Good thermal/mechanical stability in neutral/alkaline systems; compatible with most food/cosmetic additives.

4. Application Fields

- **Food Industry (E401):** Thickener/gelling agent for jellies, ice cream, salad dressings, canned food, seafood; film-forming for edible food coatings.
- **Cosmetics & Personal Care:** Texture modifier for creams/lotions, facial masks, hair gels; thickener for bath products.



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- **Pharmaceuticals:** Excipient for tablets/capsules (binder), sustained-release drug carriers, wound dressing (hydrogel).
- **Textile & Printing:** Thickener for textile printing pastes (dyestuff fixation); film-forming for fabric finishing.
- **Water Treatment:** Flocculant for heavy metal ion removal and suspended solid precipitation.
- **Agriculture:** Soil conditioner (water retention), seed coating agent (germination protection).
- **Other:** Paper coating (strength improvement), biodegradable film production, welding rod coating.

5. Usage Methods

- **General Dispersion:** Add 1–5% sodium alginate to cold water **slowly** with continuous high-speed stirring (1000–2000 rpm) to prevent clumping; stir for 10–20 minutes until fully dissolved (no lumps).
- **Food Gelling:** Prepare 1–2% aq. solution; add 0.1–0.5% calcium chloride (CaCl_2) solution to trigger gelation (adjust Ca^{2+} dosage for gel strength).
- **Thickening (Food/Cosmetics):** Add 0.2–1.0% to formulations, stir evenly (no high-speed stirring needed for low concentration).
- **Flocculation (Water Treatment):** Dilute to 0.5% aq. solution; add 50–200 ppm to wastewater, stir for 5–10 minutes (floc formation).
- **Optimal Conditions:** Use cold water for dissolution; avoid strong acids ($\text{pH} < 3$) and high temperature ($> 80^\circ\text{C}$ for long-term use); stir continuously to prevent clumping.

6. Packaging & Storage

- **Packaging:** 1 kg/bag (food grade, aluminum foil), 25 kg/HDPE drum (moisture-proof), 50 kg/fiber drum, 1000 kg/IBC tote (bulk industrial use).
- **Storage:** Cool, dry, well-ventilated warehouse ($\leq 30^\circ\text{C}$); keep sealed in moisture-proof packaging; avoid direct sunlight, high humidity and strong acids; store separately from divalent cation salts.
- **Shelf Life:** 24 months (unopened, under specified conditions); 6 months after opening (seal tightly after use).
- **Transportation:** Non-dangerous goods; avoid moisture, collision and high humidity during transport; keep sealed.

7. Safety & Protection

- Wear nitrile gloves, safety goggles and dust mask during bulk powder handling; avoid dust inhalation and skin/eye contact.
- Rinse skin/eyes with plenty of water immediately if contact occurs; consult a doctor if irritation persists.
- Do not mix with strong acids directly (forms insoluble clumps); dilute acids before adding if necessary.
- Food grade and industrial grade must be stored separately (dedicated areas).

8. Quality Assurance

- Manufactured under ISO 9001 quality management system, GMP (food/cosmetic grade) and HACCP (food grade).
- Multiple grades available: Food, Cosmetic, Industrial (all with corresponding COA).
- Each batch is strictly tested for viscosity, heavy metals and microbiology; consistent performance guaranteed.
- Provide technical support for formulation optimization (gel strength, dissolution method) and application scheme design.