# Safety Data Sheet (MSDS)

(Complies with GB/T 16483, GB/T 17519; Adapts to GHS Rev.9, IMDG, IATA Standards)**Product Name:** Sodium Alginate (Food Grade)**Revision Date:** 26 FEB 2026

## SECTION 1: Identification of the Substance/Mixture and of the Company/Undertaking

### 1.1 Product Identifiers

- Product Name: Sodium Alginate (Food Grade)
- Product No.: ALG-20260228
- Brand: SIGALD
- CAS-No.: 9005-38-3
- Synonyms: Alginic acid sodium salt; Seaweed sodium salt; Food Grade Sodium Alginate; 海藻酸钠（食品级）

### 1.2 Supplier Details

- Company: NEWAY SINOPHC TECH. LIMITED
- Address: RM. 204, BUILDING 3, NO. 188, AONA RD., CHINA (SHANGHAI) PILOT FREE TRADE ZONE
- Telephone: +86-021-50350029
- Fax: +86-021-50350029

### 1.3 Emergency Telephone

Emergency Phone #: +86-021-50350029 (CHEMTREC Cooperative Line)

### 1.4 Identified Uses & Uses Advised Against

- **Identified Uses**: Food additive (thickener, gelling agent, emulsifier, stabilizer, suspending agent); raw material for food, beverage, dairy, pastry, aquatic product, condiment; pharmaceutical/cosmetic auxiliary material (thickener/stabilizer); industrial water treatment flocculant (non-food grade).
- **Uses Advised Against**: No restricted uses for food grade when used in compliance with national dosage standards; avoid mixing with strong oxidants in high concentration (no hazard for food use).

## SECTION 2: Hazards Identification

### 2.1 GHS Classification

**Not a hazardous substance or mixture (GHS 0 Category)**

### 2.2 GHS Label Elements

- Hazard Pictogram: None
- Signal Word: None
- Hazard Statements: None
- Precautionary Statements: P261, P271, P302+P352, P405, P501

### 2.3 Hazard Summary

Off-white to pale yellow fibrous powder/granule, odorless, tasteless; forms transparent viscous colloid when dissolved in water. **Non-toxic, non-irritating** under all food use conditions; no skin/eye/respiratory irritation, no acute/chronic toxicity for all population (including infants and

pregnant women). Inhalation of large amount of dust may cause mild respiratory discomfort (cough) in sensitive individuals; excessive oral ingestion may cause mild gastrointestinal bloating (no long-term harm). Non-combustible, no explosion risk; biodegradable, derived from natural seaweed (brown algae), environmentally friendly.

**2.4 Physical & Chemical Hazards**

No physical/chemical hazards for food use; non-combustible, no decomposition at common food processing temperature (<120℃); stable in neutral/weakly acidic/weakly alkaline food systems (pH 4.0-9.0); forms gel with divalent metal ions ($Ca^{2+}$ /$Mg^{2+}$ ); insoluble in organic solvents (ethanol/ether); no reaction with common food additives.

**2.5 Health Hazards**

No acute/chronic toxic effects for all population (FAO/WHO, CFDA/FDA certified); no sensitization, mutagenicity, carcinogenicity or reproductive toxicity; dietary fiber-like properties, non-digestible in human body, no calorie intake. **Minor Risks**: ① Inhalation of bulk dust may cause mild cough (alleviated by ventilation); ② Excessive ingestion may cause mild bloating (disappears spontaneously); ③ No skin/eye irritation upon contact.

**2.6 Environmental Hazards**

Derived from natural brown algae, fully biodegradable ($BOD_5$ /COD >0.95); no adverse effects on aquatic/terrestrial organisms at any concentration; no bioaccumulation potential, no eutrophication risk; decomposes into natural polysaccharides and inorganic salts in the environment, no residual pollution; safe for water environment (can be used as water treatment flocculant).

**SECTION 3: Composition/Information on Ingredients**

- **Substance Type**: Natural anionic polysaccharide salt (extracted from brown algae, food-grade purified), high molecular weight polymer

**3.1 Main Component**

| Component | Content (w/w) | CAS No. | Description |
|---|---|---|---|
| Sodium Alginate | ≥90.0% | 9005-38-3 | Food-grade purified, viscosity 500-3000 mPa·s |

**3.2 Minor Components (Non-Hazardous, Natural Impurities)**

- Moisture: ≤15.0%
- Ash ($Na_2CO_3$): 30.0-36.0%
- Food-grade anti-caking agent ($SiO_2$): ≤0.5% (trace, optional)
- **Total Hazardous Ingredients**: 0%
- **Source Note**: Extracted from natural brown algae (Laminaria, Sargassum), no synthetic additives, food-grade purified.

**SECTION 4: First Aid Measures**

**4.1 First-Aid for Different Exposure Routes**

- **If Inhaled**: Move to well-ventilated area immediately; rest and keep warm; mild cough can be relieved by drinking warm water, no special treatment needed (no respiratory damage).

- **In Case of Skin Contact**: Rinse skin with running water for 3-5 minutes to remove residual powder; no irritation, no redness/itching, no emollients required.
- **In Case of Eye Contact**: Rinse eyes with plenty of clean water for 5-10 minutes (hold eyes open) to flush out powder; no eye irritation/damage, no medical treatment needed.
- **If Swallowed**: Normal ingestion (food dosage) is safe for all population; drink warm water if excessive ingestion causes mild bloating (promotes excretion); no induced vomiting required, symptoms disappear spontaneously within 24h.

**4.2 Most Important Symptoms & Effects**

Only mild, temporary respiratory cough (dust inhalation) or gastrointestinal bloating (excessive ingestion) in sensitive individuals; no acute toxic symptoms, no long-term health hazards for any population.

**4.3 Medical Attention Note**

No specific treatment for any exposure under food use conditions; consult a doctor only if cough/bloating persists for more than 48h (extremely rare); inform doctor of the ingredient if necessary (no specific antidote required).

**SECTION 5: Firefighting Measures**

**5.1 Suitable Extinguishing Media**

Water spray, foam, carbon dioxide ($CO_2$), dry chemical powder – all applicable with no limitations; water spray is preferred for cooling and dust suppression.

**5.2 Special Hazards from the Substance**

**Non-combustible**; no combustion, no explosive gases, no toxic fumes at common fire temperature; decomposes only at ultra-high temperature (>200℃) to produce trace non-toxic carbon dioxide, water and sodium carbonate; no secondary hazards, leaves light ash residue (sodium carbonate).

**5.3 Advice for Firefighters**

Wear standard fire-fighting protective gear (gloves, goggles, dust mask) to prevent dust inhalation; ensure good ventilation at fire scene; cool surrounding containers with water to prevent physical damage; no special fire-fighting measures required (no combustion risk).

**SECTION 6: Accidental Release Measures**

**6.1 Personal Precautions**

Wear non-slip shoes and FFP1 dust mask for large spills (to prevent dust inhalation and slipping); wear safety goggles if necessary (to prevent powder from entering eyes); no other PPE required.

**6.2 Environmental Precautions**

No special environmental measures; the product is natural and biodegradable; sweep up spilled powder to avoid direct entry into water sources (no environmental risk if entered, rapidly degraded by microorganisms).

**6.3 Containment & Cleaning Up**

- **Small Spill**: Gently sweep up with a brush, collect in a sealed plastic container for reuse; wipe the floor with a damp cloth to suppress dust and prevent resuspension.
- **Large Spill**: Contain with plastic barriers to prevent spread; transfer to sealed HDPE drums for recycling/disposal; clean the area with a damp mop (avoid dry sweeping to reduce dust).

**6.4 Disposal Reference**

See Section 13 for waste disposal requirements.

**SECTION 7: Handling and Storage**

**7.1 Safe Handling Precautions**

- Operate in a well-ventilated area with dust suppression facilities (e.g., mist spray); use low-speed mixing during dissolution to avoid dust dispersion and clumping (key for uniform dissolution).
- **Dissolution Tip**: Add powder slowly to stirring water (do not add water to powder) to prevent formation of insoluble lumps; heat to 40-60℃ to accelerate dissolution (no viscosity loss).
- **Hygiene Measures**: Wash hands with soap and water after handling; wear dust mask during bulk processing; do not eat/drink/smoke while operating the product to avoid dust ingestion.

**7.2 Safe Storage Conditions**

- **Storage**: Cool, dry, well-ventilated food-grade warehouse; keep container tightly sealed to prevent moisture absorption (moisture causes caking and viscosity reduction).
- **Temperature & Humidity**: Storage temp ≤25℃; relative humidity ≤60%; avoid direct sunlight and high humidity environment (critical for viscosity stability).
- **Incompatibilities**: Strong oxidants (high concentration), strong mineral acids (pH<2.0); compatible with all common food additives (sugars, sweeteners, acidulants, preservatives, emulsifiers) in food pH range.
- **Storage Class**: TRGS 510 Class 13 (Non-Hazardous Solids)
- **Shelf Life**: 24 months (unopened, specified dry conditions); 12 months after opening (re-seal tightly, use as soon as possible) – viscosity decreases if exposed to moisture.
- **Labeling Requirement**: Mark storage area/container with **"Food Grade - Keep Dry - Seal Tightly - Viscosity 1250 mPa·s"**.

**SECTION 8: Exposure Controls/Personal Protection**

**8.1 Occupational Exposure Limits**

No specific OEL for food-grade Sodium Alginate; follow general food additive dust exposure limit (TWA 10 mg/m³) for bulk processing only.

**8.2 Exposure Controls & PPE**

- **Engineering Controls**: Local exhaust ventilation (LEV) and dust suppression mist spray for large-scale powder processing; closed mixing equipment for dissolution to reduce dust; maintain good ventilation in production area.
- **Personal Protective Equipment**:

- Eye/Face: Safety goggles with side shields (mandatory for bulk handling, prevent powder from entering eyes).
- Skin: Nitrile rubber gloves (food grade, ≥0.11mm) (mandatory for prolonged contact, prevent powder adhesion).
- Respiratory: FFP1 dust mask (mandatory for bulk processing/dust cleaning, prevent inhalation).
- Foot: Non-slip food-grade safety shoes (mandatory for all handling, prevent slipping from spilled powder).
- Hygiene: Food-grade hand washing facilities with pure water and soap at the workplace; provide clean work clothes.

**SECTION 9: Physical and Chemical Properties**

a) Physical State: Off-white to pale yellow fibrous powder/granuleb) Color: Stable color, no discoloration at <120℃c) Odor: Odorless (food grade, no seaweed odor after purification)d) Taste: Tasteless, no bitter/salty tastee) Melting Point: N/A (decomposes at >200℃, no melting)f) Boiling Point: N/A (decomposes before boiling)g) Flammability: Non-combustible (no flash point, no autoignition temperature)h) Flash Point: Not applicable (non-combustible)i) Autoignition Temperature: Not applicable (non-combustible)j) pH Value (25℃, 1% aq. sol): 6.0-8.0 (neutral/weakly alkaline)k) Solubility: Soluble in water (forms viscous colloid, solubility ≥10 g/L); insoluble in ethanol, ether, chloroform and other organic solventsl) Bulk Density: 0.3-0.6 g/cm³ (fibrous powder), 0.5-0.8 g/cm³ (granule)m) Hygroscopy: Hygroscopic (absorbs moisture easily, causes caking)n) Vapor Pressure (25℃): Negligible (<0.00001 hPa)o) Viscosity: 500-3000 mPa·s (25℃, 1% aqueous solution, customizable by molecular weight)p) Gel Property: Forms stable gel with divalent metal ions ($Ca^{2+}$ /$Mg^{2+}$ ), gel strength adjustableq) Explosive Properties: Not explosive (no explosion risk under any normal condition)r) Oxidizing Properties: None (no oxidizing/reducing properties)

**SECTION 10: Stability and Reactivity**

**10.1 Chemical Stability**

**Stable** under normal food storage/use conditions; stable in neutral/weakly acidic/weakly alkaline systems (pH 4.0-9.0) (suitable for most food); stable at common food processing temperature (<120℃) (pasteurization, boiling); viscosity remains stable in frozen/refrigerated storage. Degrades only in strong acid (pH<2.0) or ultra-high temperature (>200℃); forms irreversible gel with $Ca^{2+}$ (controllable for food gelling).

**10.2 Hazardous Reactions**

No hazardous reactions under food production/use conditions; no polymerization, no decomposition in food pH/temperature range; reacts with $Ca^{2+}$ to form gel (intentional use in food processing, no hazard); no reaction with common food additives, metals or non-metal processing equipment.

**10.3 Conditions to Avoid**

High humidity (moisture absorption/caking), strong acid (pH<2.0, degradation), ultra-high temperature (>200℃, decomposition), direct sunlight (long-term exposure reduces viscosity).

**10.4 Incompatible Materials**

Concentrated strong mineral acids (HCl, $H_2SO_4$), high-concentration strong oxidants ($KMnO_4$, $H_2O_2$); no incompatibility with food-grade raw materials/additives in normal use ratio.

**10.5 Hazardous Decomposition Products**

Trace non-toxic carbon dioxide, water and sodium carbonate at ultra-high temperature (>200℃); no hazardous decomposition products under normal food storage/use conditions.

**SECTION 11: Toxicological Information**

**11.1 Key Toxicological Effects**

- **Acute Toxicity**: Oral (Rat, $LD_{50}$) >100,000 mg/kg (practically non-toxic, highest level); Dermal (Rabbit, $LD_{50}$) >50,000 mg/kg; Inhalation (Rat, $LC_{50}$) >50 mg/m³ (4h).
- **Skin/Eye Irritation**: No irritation (Rabbit test, 24h continuous exposure); no corrosivity, no allergic reaction (human skin patch test negative).
- **Sensitization**: No skin/respiratory sensitization (long-term human/animal use data, FAO/WHO certified); no allergic reaction in any population (including allergic constitution).
- **Mutagenicity/Carcinogenicity**: No mutagenic effects (Ames test, chromosome aberration test); IARC Class 3 (not classifiable as carcinogenic to humans); FDA/CFDA GRAS certified (no carcinogenic risk).
- **Reproductive Toxicity**: No adverse reproductive/developmental effects in animal tests; safe for pregnant/lactating women, infants and children at all food dosages.
- **Target Organ Toxicity**: No target organ toxicity for any population; non-digestible polysaccharide, passes through the digestive tract unchanged (dietary fiber-like), no absorption, no calorie intake.
- **Aspiration Hazard**: Low (fibrous powder/granule, low bulk density, but dust inhalation causes mild cough only).

**11.2 Additional Information**

Approved by FAO/WHO/Codex Alimentarius, **ADI: Unrestricted** (no daily intake limit); natural seaweed-derived colloid, the safest food thickener/gelling agent; widely used in global food industry with proven long-term safety for all population.

**SECTION 12: Ecological Information**

**12.1 Ecotoxicity**

- Fish (Zebrafish, $LC_{50}$): >100,000 mg/L (96h)
- Daphnia ($EC_{50}$): >50,000 mg/L (48h)
- Algae ($EC_{50}$): >100,000 mg/L (72h)No toxic effects on aquatic organisms at any concentration; non-toxic to soil microorganisms, plants and terrestrial animals; natural polysaccharide, can be used as microbial nutrient.

**12.2 Persistence & Degradability**

Fully biodegradable ($BOD_5$ /COD >0.95) in aquatic/soil environments; degraded by microorganisms (alginate lyase-producing bacteria/fungi) into monosaccharides and inorganic salts within 3-5 days; further decomposed into $CO_2$ and water; no residual pollution, no persistent organic pollutants.

**12.3 Bioaccumulative Potential**

None; natural high molecular weight polysaccharide, cannot be absorbed by organisms; rapidly degraded by microorganisms in the environment; no bioaccumulation in food chain, aquatic/terrestrial organisms or soil.

**12.4 Mobility in Soil**

Low mobility (fibrous powder, low water solubility in undissolved state); dissolved colloid is rapidly degraded by soil microbes; no long-term accumulation, no groundwater pollution risk.

**12.5 PBT/vPvB Assessment**

Not classified as PBT/vPvB (fully biodegradable, practically non-toxic, no bioaccumulation); the most environmentally friendly natural food colloid, derived from renewable seaweed resources.

**12.6 Other Ecological Effects**

Degrades into microbial nutrients, promotes the growth of beneficial soil/aquatic microorganisms; no adverse impact on ecosystem balance; seaweed raw material is renewable, no resource depletion risk.

**SECTION 13: Disposal Considerations**

**13.1 Waste Treatment Methods**

- **Product Waste**: Uncontaminated waste can be fully reused as food additive; slightly contaminated waste can be used as microbial culture nutrient (polysaccharide source) or animal feed additive; heavily contaminated waste can be disposed of as non-hazardous solid waste in accordance with local regulations; aqueous colloid waste can be directly treated by biological wastewater treatment systems (rapidly biodegradable).
- **Packaging Waste**: Rinse empty containers with pure water (rinse water usable for food production if qualified); dispose of rinsed packaging as food-grade non-hazardous waste or recycle (HDPE/paper/aluminum foil/carton); no special disposal requirements.

**13.2 Disposal Notes**

No special disposal requirements; incineration is acceptable (produces only $CO_2$, water and sodium carbonate, no toxic fumes); landfilling is also acceptable (rapidly degraded by soil microorganisms); no neutralization or other pretreatment needed for any waste (non-toxic, non-corrosive).

**SECTION 14: Transport Information**

**14.1 UN Classification & Number**

ADR/RID/IMDG/IATA-DGR: **Not dangerous goods** (no UN number)

**14.2 Transport Details**

- UN Proper Shipping Name: Non-dangerous goods (Food Additive - Sodium Alginate)
- Transport Hazard Class: None
- Packaging Group: None
- Marine Pollutant: No (IMDG)

**14.3 Transport Precautions**

- Transport at ≤25℃; use sealed, moisture-proof food-grade packaging (inner plastic film + outer carton/woven bag/HDPE drum); avoid rain, moisture, direct sunlight and package collision (prevent moisture absorption/caking).
- Prevent powder leakage; use pallets for loading to avoid ground contact and moisture absorption; no mixing with strong acids/oxidants during transport (separate loading).
- Can be transported with other food additives/food raw materials (no separation required); ensure good ventilation in transport vehicle (reduce dust accumulation).
- Mark package with **"Food Grade"**, **"Moisture Proof"**, **"Keep Dry"**, **"Non-Dangerous Goods"** and **"Viscosity 1250 mPa·s"**.

**SECTION 15: Regulatory Information**

**15.1 National Regulations (China)**

- Hazardous Chemical Safety Management Regulation (Non-hazardous classification)
- National Food Safety Standard for Food Additives (GB 2760-2021) – approved as thickener, gelling agent, emulsifier, stabilizer (**no dosage limit, ADI unrestricted**)
- National Food Safety Standard for Sodium Alginate (GB 1886.242-2016) – strict quality requirements for food grade
- Food Hygiene Law of the People's Republic of China
- **Key Provisions**: No dosage limit for all food types; can be used in infant food, dairy, pastry and all other food (the safest food colloid).

**15.2 International Regulations**

- GHS Rev.9: Non-hazardous (0 Category)
- REACH (EU): Registered; not in SVHC Candidate List; complies with EC 1333/2008 (ADI unrestricted)
- TSCA (US): Listed on Inventory; FDA GRAS certified (21 CFR 172.620); no dosage limit
- Codex Alimentarius (FAO/WHO): Approved as food thickener/gelling agent (Codex STAN 192-1995), **ADI: Unrestricted** (no daily intake limit); no use restrictions.

**15.3 Other Requirements**

Comply with local food safety/transport/environmental regulations; follow GB 1886.242-2016 for food grade quality control; no special labeling requirement for finished food (non-toxic, no allergen).

**SECTION 16: Other Information**

**16.1 Document Validity**

This MSDS is based on current scientific and technical knowledge, compliant with international and national standards. It is for the safe handling, storage, transport and disposal of food-grade Sodium Alginate, with special attention to moisture-proof storage and dust suppression during processing.

**16.2 Revision History**

First Version - 26 FEB 2026 (No subsequent revisions)