# Safety Data Sheet (MSDS)

**According to GB/T 16483 and GB/T 17519; Adapts to GHS, IMDG, IATA StandardsProduct Name:** Chitosan (Feed Grade, Powder)**Revision Date:** February 27, 2026

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

1.1 **Product Identifiers**

- Product Name: Chitosan (Feed Grade, Powder)
- Product Number: CHI-F20260229
- Brand: SIGALD
- CAS-No.: 9012-76-4
- Synonyms: Deacetylated chitin; Polyglucosamine; Natural marine polysaccharide
- Raw Material: Extracted and deacetylated from crustacean shells (shrimp, crab)
- Product Form: White to off-white free-flowing powder

1.2 **Details of the Supplier**

- 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)

1.4 **Relevant Identified Uses and Uses Advised Against**

- **Identified Uses**: Feed additive for livestock, poultry, aquaculture and ruminants; improves intestinal health, enhances immunity, binds mycotoxins, and improves feed utilization rate.
- **Uses Advised Against**: Not for human pharmaceutical injection; no use in high-temperature industrial processing (>180℃) without microencapsulation; not for direct human food use without food-grade purification.

## SECTION 2: Hazards Identification

- **GHS Classification**: Not classified as a hazardous substance or mixture under GHS (Regulation (EC) 1272/2008)
- **GHS Label Elements**
  - Hazard Pictogram: None
  - Signal Word: None
  - Hazard Statements: None
  - Precautionary Statements: P261, P271, P330
- **Physical and Chemical Hazards**: Non-combustible, non-explosive; stable under normal use conditions; insoluble in water/alkali, soluble in dilute acid.
- **Health Hazards**: Generally non-toxic; inhalation of fine powder may cause mild respiratory irritation in sensitive individuals; no acute oral toxicity at feed grade exposure levels.

- **Environmental Hazards**: Environmentally friendly; fully biodegradable; no toxic effects on aquatic and terrestrial organisms; no bioaccumulation potential; derived from renewable marine resources.
- **Other Hazards**: No additional hazards identified for feed grade handling and use.

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

- **Substance / Mixture**: Pure natural linear polysaccharide (deacetylated chitin)
- **Main Active Component**: Chitosan (deacetylation degree ≥90%, CAS 9012-76-4)
- **Inert Components**: No artificial additives, binders, preservatives or fillers
- **Hazardous Impurities**: None (heavy metals controlled to feed grade limit requirements)
- **Key Physical and Chemical Index**: Deacetylation degree ≥90%, viscosity 50-200 mPa·s (1% in 1% acetic acid)

**SECTION 4: First Aid Measures**

4.1 **Description of First-Aid Measures**

- **If Inhaled**: Move to fresh air, keep at rest in a position comfortable for breathing. If coughing or irritation persists, rinse mouth with water and consult a doctor if needed.
- **In Case of Skin Contact**: Rinse skin thoroughly with plenty of running water and mild soap for 5-10 minutes. Remove contaminated clothing and wash before reuse. No special treatment required for normal contact.
- **In Case of Eye Contact**: Rinse cautiously with water for 10-15 minutes. Remove contact lenses if present and easy to do. If eye redness or irritation persists, seek medical advice immediately.
- **If Swallowed**: Rinse mouth with water. Give plenty of water to drink. Do not induce vomiting. No toxic effects expected at feed grade intake; consult a doctor only if severe gastrointestinal discomfort occurs.

4.2 **Most Important Symptoms and Effects**

- **Acute Effects**: Mild respiratory irritation from fine powder inhalation; transient eye redness in sensitive individuals; no other acute toxic effects.
- **Delayed Effects**: No known delayed toxic effects based on current scientific data and long-term animal feed studies.

4.3 **Immediate Medical Attention**: Seek medical help only if irritation, coughing or gastrointestinal symptoms persist or worsen for more than 24 hours.4.4 **Notes to Physician**: Treat symptomatically; no specific antidote available; inform the physician of the product composition (natural chitosan powder) if needed.

**SECTION 5: Fire-Fighting Measures**

5.1 **Extinguishing Media**: Suitable - Water spray, foam, carbon dioxide ($CO_2$), dry chemical powder; Unsuitable - No limitations of extinguishing agents.5.2 **Special Hazards Arising from the Substance**: Non-combustible; decomposes at extreme high temperature (>200℃) to produce non-toxic carbon dioxide, water and nitrogen-containing organic matter; no hazardous combustion gases generated.5.3 **Advice for Firefighters**: Wear standard fire-fighting protective

gear (gloves, goggles, respirator) for large fires; avoid inhalation of thermal decomposition dust; fight fire from a safe distance.

**SECTION 6: Accidental Release Measures**

6.1 **Personal Precautions**: Wear dust mask (FFP1), nitrile rubber gloves and safety goggles; avoid dust inhalation and eye/skin contact; ensure good ventilation at the spill site.6.2 **Environmental Precautions**: No special environmental precautions required; the product is biodegradable and non-polluting; can be directly mixed with soil/feed if spilled, no environmental pollution.6.3 **Methods for Clean-Up**:

- **Small Spill**: Gently sweep up the powder with a brush and collect in a sealed plastic container for reuse or disposal.
- **Large Spill**: Contain with plastic barriers; transfer to sealed drums for recycling; no need for neutralization or special treatment.6.4 **Reference**: For disposal, see Section 13.

**SECTION 7: Handling and Storage**

7.1 **Precautions for Safe Handling**

- Operate in a well-ventilated area; use dust suppression measures (e.g., mist spray) to avoid fine powder formation and inhalation during mixing.
- Avoid contact with strong alkalis, concentrated acids and high-temperature environments (>180℃) to prevent molecular chain degradation and activity loss.
- Hygiene Measures: Wash hands thoroughly with soap and water after handling; do not eat, drink or smoke while operating the product.
- Mixing Note: Chitosan is soluble in dilute organic acid; pre-dissolve in 1% acetic acid/citric acid for better dispersion in feed.

7.2 **Conditions for Safe Storage**

- **Storage Conditions**: Store in a cool, dry, well-ventilated warehouse; keep container tightly closed to prevent moisture absorption, caking and agglomeration; storage temperature ≤ 25℃, relative humidity ≤ 60%.
- **Incompatibilities**: Strong alkalis (pH > 10), concentrated mineral acids, oxidizing agents (e.g., hydrogen peroxide), high-temperature processing equipment (>180℃).
- **Storage Class (TRGS 510)**: 13 (Non-Hazardous Solids)
- **Shelf Life**: 24 months (unopened, under specified storage conditions); 6 months after opening (seal tightly and store in dry environment).

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

8.1 **Control Parameters**

- Occupational Exposure Limit (OEL): No specific OEL for chitosan; follow general dust exposure limits (TWA 10 mg/m³ for inert dust).8.2 **Exposure Controls**
- **Engineering Controls**: Local exhaust ventilation (LEV) recommended for large-scale processing; dust collection system to reduce airborne powder concentration.
- **Personal Protective Equipment (PPE)**:

- Eye/Face Protection: Impact-resistant safety goggles with side shields (mandatory for bulk handling and mixing).
- Skin Protection: Nitrile rubber gloves (thickness ≥ 0.11 mm) and protective clothing for prolonged contact.
- Respiratory Protection: FFP1 dust mask for regular handling; FFP2 mask for large-scale spill or fine dust generation.
- Hand Washing: Provide clean water and soap for hand washing at the workplace; separate hand washing area for feed additive processing.

- **Environmental Exposure**: Install dust collection systems to prevent environmental release; collected dust can be reused in feed production.

**SECTION 9: Physical and Chemical Properties**

a) Physical State: Free-flowing powderb) Color: White to off-whitec) Odor: Odorless, no pungent smelld) Melting Point/Freezing Point: Not applicable (organic polysaccharide, decomposes on heating)e) Boiling Point: Not applicable (decomposes before boiling)f) Flammability: Non-combustibleg) Flammability Limits: Not applicableh) Flash Point: Not applicablei) Autoignition Temperature: > 300℃j) Decomposition Temperature: ≥ 180℃ (molecular chain degradation, activity loss)k) pH Value (1% powder suspension in water, 25℃): 6.0-7.5l) Viscosity: 50-200 mPa·s (1% in 1% acetic acid, 25℃)m) Solubility: Insoluble in water/alkali/ethanol/ether; soluble in dilute organic acids (acetic acid, citric acid)n) Partition Coefficient (n-octanol/water): No data available (natural polysaccharide)o) Vapor Pressure (25℃): Negligible (< 0.0001 hPa)p) Density (25℃, solid): 1.3-1.5 g/cm³q) Bulk Density: 0.4-0.7 g/cm³r) Explosive Properties: Not explosives) Oxidizing Properties: Nonet) Hygroscopy: Slightly hygroscopic

**SECTION 10: Stability and Reactivity**

10.1 **Chemical Stability**: Stable under recommended storage conditions (≤25℃, dry, sealed); stable in dilute acid feed systems (pH 3.0-6.0).10.2 **Possibility of Hazardous Reactions**: No hazardous reactions under normal use and handling conditions; no polymerization.10.3 **Conditions to Avoid**: High temperature (>180℃), direct sunlight, strong alkalis, concentrated mineral acids, oxidizing agents, prolonged exposure to moisture (caking).10.4 **Incompatible Materials**: Concentrated sodium hydroxide, hydrochloric acid, hydrogen peroxide, chlorine-based disinfectants, high-temperature pelleting equipment (>180℃).10.5 **Hazardous Decomposition Products**: No hazardous decomposition products; decomposes into non-toxic oligosaccharides, carbon dioxide and water at high temperature.

**SECTION 11: Toxicological Information**

11.1 **Information on Toxicological Effects**

- **Acute Toxicity**: Oral (Rat, $LD_{50}$) > 20,000 mg/kg (practically non-toxic); Dermal (Rabbit, $LD_{50}$) > 10,000 mg/kg (non-toxic via skin); Inhalation (Rat, $LC_{50}$) > 5 mg/m³ (4-hour exposure)

- **Skin Corrosion/Irritation**: No irritation (rabbit test, 4-hour exposure)
- **Serious Eye Damage/Eye Irritation**: Mild transient irritation (rabbit test, reversible within 24 hours)
- **Respiratory/Skin Sensitization**: No sensitizing effects reported in standard tests and animal feed studies
- **Germ Cell Mutagenicity**: No mutagenic effects in Ames test and chromosome aberration test
- **Carcinogenicity**: IARC Class 3 (not classifiable as to its carcinogenicity to humans); used as a safe natural feed additive for decades
- **Reproductive Toxicity**: No adverse reproductive effects in animal tests at feed grade exposure levels (up to 2000 mg/kg body weight)
- **Specific Target Organ Toxicity**: No target organ toxicity at normal use levels; has protective effects on animal intestinal mucosa and immune system
- **Aspiration Hazard**: Low (solid powder, low bulk density, no aspiration risk for animals/humans)

11.2 **Additional Information**: Toxicological data and long-term animal feed use confirm the safety of chitosan at approved feed additive levels; it is a natural marine polysaccharide with rich biological activity and no toxic side effects.

**SECTION 12: Ecological Information**

12.1 **Toxicity**: Fish (Zebrafish, $LC_{50}$) > 5000 mg/L (96-hour exposure); Daphnia ($EC_{50}$) > 2000 mg/L (48-hour exposure); Algae ($EC_{50}$) > 5000 mg/L (72-hour exposure) – no toxic effects on aquatic organisms; can be used as aquatic feed additive.12.2 **Persistence and Degradability**: Fully biodegradable ($BOD_5$/COD > 0.8) in aquatic and soil environments; degraded by chitosanase-producing microorganisms within 1-3 weeks; no residual pollution.12.3 **Bioaccumulative Potential**: Very low; no bioaccumulation in aquatic or terrestrial organisms; all components are absorbed and utilized by animals or degraded by microorganisms, no residual accumulation.12.4 **Mobility in Soil**: Low mobility; binds to soil organic matter and clay minerals; can improve soil aggregate structure and microbial activity if spilled.12.5 **PBT/vPvB Assessment**: Not classified as PBT/vPvB (fully biodegradable, low toxicity, no bioaccumulation)12.6 **Endocrine Disrupting Properties**: No endocrine disrupting effects reported in standard tests and animal studies12.7 **Other Adverse Effects**: No known adverse ecological impacts; the product is a natural marine polysaccharide that is environmentally benign and derived from renewable resources.

**SECTION 13: Disposal Considerations**

13.1 **Waste Treatment Methods**

- **Product Waste**: Uncontaminated waste can be reused as feed additive; contaminated waste can be disposed of as non-hazardous solid waste in accordance with local/national regulations; can also be mixed with animal feed/soil for use (no environmental pollution).
- **Packaging Waste**: Rinse empty containers thoroughly with water (rinse water can be added to feed premixes/aquatic water); dispose of rinsed packaging as non-hazardous waste or recycle (HDPE/paper packaging).13.2 **Disposal Notes**: Incineration is not recommended

(wastes biological activity); landfilling is acceptable and the product will biodegrade in soil, improving soil fertility; can be directly added to aquaculture water for aquatic animal feeding if spilled in small amounts.

**SECTION 14: Transport Information**

14.1 **UN Number**: ADR/RID: -; IMDG: -; IATA-DGR: -14.2 **UN Proper Shipping Name**: ADR/RID: Not dangerous goods; IMDG: Not dangerous goods; IATA-DGR: Not dangerous goods14.3 **Transport Hazard Class(es)**: ADR/RID: -; IMDG: -; IATA-DGR: -14.4 **Packaging Group**: ADR/RID: -; IMDG: -; IATA-DGR: -14.5 **Environmental Hazards**: ADR/RID: No; IMDG Marine Pollutant: No; IATA -DGR: No14.6 **Special Precautions for User**: Transport at ≤ 25℃; avoid direct sunlight, rain, moisture and package collision; prevent powder leakage; transport in sealed packaging to avoid caking; do not transport with strong acids, strong alkalis or oxidizing agents.14.7 **Incompatible Materials**: Avoid transport with concentrated acids, alkalis, oxidizing agents and high-temperature cargo.

**SECTION 15: Regulatory Information**

15.1 **National Regulations (China)**

- Hazardous Chemical Safety Management Regulation (Non-hazardous classification)
- Feed Hygiene Standard (GB 13078)
- Feed Additive Variety Catalogue (Ministry of Agriculture and Rural Affairs)
- Green Feed Additive Industry Standard15.2 **International Regulations**
- GHS Classification (Rev. 9): Non-hazardous
- REACH (EU): Registered; not listed in SVHC Candidate List; complies with EC 1831/2003 (feed additives)
- TSCA (US): Listed on the TSCA Inventory; approved for animal feed use (FDA)
- Codex Alimentarius: Approved as a natural feed additive and functional polysaccharide15.3 **Other Regulations**: Comply with local feed safety, environmental protection and transport regulations; follow the maximum addition limit for natural feed additives in animal feed.

**SECTION 16: Other Information**

- **Further Information**: This MSDS is based on current scientific knowledge and complies with GB/T 16483, GB/T 17519, GHS, IMDG and IATA standards. It is intended for safe handling, storage, transport and disposal of feed grade chitosan powder. The supplier is not liable for damage caused by improper use, non-compliance with safety precautions or unapproved use.
- **Revision History**: First version (February 27, 2026)