Safety Data Sheet (MSDS)

- Disodium Succinate (Food Grade)

(Compliant with GB/T 16483, GB/T 17519; Adapts to GHS Rev.9, IMDG, IATA Standards)**Revision Date: 29 FEB 2026**

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

1.1 Product Identifiers

- Product Name: Disodium Succinate (Food Grade)
- Product Number: DSS-20260229
- Brand: SIGALD
- CAS-No.: 150-90-3
- EINECS/EC-No.: 205-771-9
- MDL Number: MFCD00002750
- Synonyms: Disodium butanedioate; Succinic acid disodium salt; Food Grade Flavor Enhancer

1.2 Details of the supplier of the safety data sheet

- 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: Food additive (flavor enhancer, umami agent, buffer, taste improver) for meat products, seafood, condiments, soups, dairy, beverage and instant food industries; also used as a food raw material for pH adjustment.
- Uses Advised Against: Not for pharmaceutical injection use; avoid excessive inhalation of dust for asthmatic individuals; no use in high-temperature strong oxidizing systems (>300℃).

SECTION 2: Hazards Identification

2.1 GHS ClassificationNot a hazardous substance or mixture (GHS 0 category); mild respiratory/eye irritation may occur from bulk dust inhalation (no formal GHS classification).

2.2 GHS Label Elements

- Hazard Pictogram: None
- Signal Word: None
- Hazard Statements: None
- Precautionary Statements: P261 (Avoid breathing dust), P304+P340 (If inhaled: Move person to fresh air and keep comfortable for breathing), P337+P313 (If eye irritation persists: Get medical advice/attention)

2.3 Physical and Chemical HazardsNo physical or chemical hazards; non-combustible, no explosion risk, no oxidative properties, slightly hygroscopic; stable under normal food

processing and storage conditions. Reacts with strong acids to form succinic acid (no hazardous reaction under normal use).

2.4 Health HazardsNo acute/chronic systemic toxicity; mild temporary respiratory/eye irritation may occur in sensitive individuals from bulk dust contact; no skin irritation/sensitization; no known allergenicity (food-grade flavor enhancer, natural metabolite component). Overconsumption may cause mild gastrointestinal discomfort (bloating) in humans, no toxic effect.

2.5 Environmental HazardsEnvironmentally friendly; fully biodegradable (microbial degradation to CO_2 and H_2O); no adverse effects on aquatic/terrestrial organisms; no bioaccumulation potential; no soil/water pollution risk; sodium ions are natural mineral elements, no ecological harm.

2.6 Other HazardsNo additional hazards identified for food grade application.

SECTION 3: Composition/Information on Ingredients

- Substance / Mixture: Pure substance (≥99.0% Disodium Succinate, food grade)
- Chemical Name: Disodium butanedioate
- Formula: $C_4H_4Na_2O_4$
- Molecular Weight: 162.05 Da
- CAS-No.: 150-90-3
- EINECS/EC-No.: 205-771-9

Hazardous Ingredients: None (100% food-grade Disodium Succinate, complies with GB 2760, FDA GRAS and EU 1333/2008 standards)

Component	Classification	Concentration (w/w)	CAS No.
Disodium Succinate	Non-hazardous (food grade)	≥99.0%	150-90-3

SECTION 4: First Aid Measures

4.1 Description of First-Aid Measures

- If Inhaled: Move victim to fresh air. Rest and maintain comfortable breathing. Rinse mouth with water. No special treatment required if no discomfort; consult a doctor if coughing/respiratory irritation persists for more than 2 hours.
- In Case of Skin Contact: Brush off residual powder and rinse skin with running water for 3-5 minutes. No further treatment needed (no skin irritation or absorption).
- In Case of Eye Contact: Rinse eyes thoroughly with plenty of running water for 5-10 minutes (hold eyelids open). Remove contact lenses if present. Consult a doctor only if mild irritation persists for more than 1 hour.
- If Swallowed: Rinse mouth with water. Drink plenty of water or fruit juice (do not induce vomiting). The product is food-grade and non-toxic; mild gastrointestinal discomfort may occur with large ingestion; consult a doctor only if discomfort persists.

4.2 Most Important Symptoms and Effects

- Acute Effects: Mild transient respiratory/eye irritation from bulk dust (sensitive individuals only); mild gastrointestinal discomfort with excessive oral ingestion; no other acute toxic effects.
- Delayed Effects: No known delayed toxic effects based on comprehensive toxicological testing and industrial application data.

4.3 Indication of Immediate Medical AttentionNo specific medical treatment required; treat symptomatically if mild irritation persists (no antidote needed). Inform the physician of the product name (Disodium Succinate) if medical consultation is required.

SECTION 5: Firefighting Measures

5.1 Extinguishing Media

- Suitable Extinguishing Media: Water spray, foam, carbon dioxide (CO_2), dry chemical powder (all common fire-extinguishing agents).
- Unsuitable Extinguishing Media: None (no limitations for this product).

5.2 Special Hazards Arising from the Substance or MixtureNon-combustible; decomposes at high temperature (>300℃) to produce non-toxic carbon dioxide, water and sodium oxide; no hazardous combustion gases/smoke; no explosion risk under any fire conditions.

5.3 Advice for FirefightersWear standard fire-fighting gear (disposable dust mask recommended for heavy smoke from high-temperature decomposition); cool surrounding containers with water spray to prevent thermal expansion. No special fire-fighting precautions needed.

SECTION 6: Accidental Release Measures

6.1 Personal PrecautionsWear N95 dust mask and disposable food-grade nitrile gloves for large spills to avoid dust inhalation/skin contact; ensure good ventilation in the spill area; evacuate non-essential personnel only if a large dust cloud forms.

6.2 Environmental PrecautionsNo special environmental precautions; the product is fully biodegradable and non-polluting; sodium ions are natural minerals, no risk to soil/water/aquatic life even for large accidental spills.

6.3 Methods and Materials for Containment and Cleaning Up

- Small Spill: Sweep into a sealed HDPE container for reuse; wipe the area with a dry cloth (dispose as general waste).
- Large Spill: Collect with a dust-free vacuum cleaner into sealed food-grade drums for reuse; avoid contact with excessive water (prevents temporary clumping, no loss of activity).

6.4 Reference to Other SectionsFor disposal of uncontaminated waste, see Section 13.

SECTION 7: Handling and Storage

7.1 Precautions for Safe Handling

- Operate in a well-ventilated area with local exhaust ventilation (for bulk handling) to prevent dust accumulation and inhalation.
- Avoid generating dust during weighing/mixing; use dry food-grade equipment/tools (slightly hygroscopic); add slowly to water for dissolution (no splashing).

- Avoid contact with strong acids (pH <3) and high-temperature oxidizing agents (>300℃) for prolonged periods (prevents decomposition).
- Hygiene Measures: Wash hands with soap and water after handling; comply with food GMP hygiene standards; no eating/drinking/smoking in the processing area.

7.2 Conditions for Safe Storage

- Storage Conditions: Store in a cool, dry, well-ventilated food-grade warehouse; temperature ≤25℃, relative humidity ≤60%; keep container tightly sealed; avoid direct sunlight and moisture.
- Incompatibilities: Concentrated strong acids (HCl, H_2SO_4), strong oxidizing agents (H_2O_2, $KMnO_4$), high-temperature heat sources (>300℃).
- Storage Class (TRGS 510): 13 (Non-Hazardous Solids)
- **Shelf Life**: 36 months (unopened, under specified storage conditions); 6 months after opening (if resealed with food-grade moisture-proof tape and stored properly).

SECTION 8: Exposure Controls/Personal Protection

8.1 Control ParametersNo official occupational exposure limits for food-grade Disodium Succinate (CAS 150-90-3); follow general industrial dust limit (10 mg/m³ TWA, respirable fraction) for bulk handling (national occupational health standards).

8.2 Exposure Controls

- Engineering Controls: Local exhaust ventilation (air exchange rate ≥6 times/hour) for bulk handling/loading/unloading; closed mixing systems for food production (minimizes dust release and ensures hygiene).
- Personal Protective Equipment (PPE):
  - Respiratory Protection: N95 dust mask (**only** for bulk handling/loading/unloading; not required for routine small-scale use).
  - Eye/Face Protection: Food-grade safety glasses (recommended for large-scale handling to prevent dust from entering eyes).
  - Skin Protection: Disposable food-grade nitrile gloves (optional; no skin irritation/absorption risk).
  - Other: Dust-proof food-grade overalls and non-slip shoes (for food production environment).
- Environmental Exposure Controls: No special controls (biodegradable, non-polluting, food-grade additive).

SECTION 9: Physical and Chemical Properties

Property	Details (25℃, 1 atm)
Physical State	White crystalline powder; free-flowing
Color	Pure white
Odor	Odorless
Taste	Mild umami taste
Melting Point	>300℃ (decomposition)
Boiling Point	N/A (solid, decomposes before boiling)
Flammability	Non-combustible (solid powder)
Flash Point	Not applicable
Autoignition Temperature	>350℃

Property	Details (25℃, 1 atm)
Decomposition Temperature	>300℃ (non-toxic decomposition)
pH Value (5% aqueous)	7.0-9.0
Water Solubility	Highly soluble in water (380 g/L at 25℃); insoluble in ethanol/ether/acetone
Bulk Density	0.85-1.05 g/cm³
True Density	1.74 g/cm³
Hygroscopy	Slightly hygroscopic (seal required for humid environment)
Vapor Pressure	<0.0001 kPa
Viscosity	N/A (solid; 5% aqueous solution: 2-4 mPa·s)
Refractive Index	N/A (solid)
Explosive Properties	Not explosive (no dust explosion risk under normal handling)
Oxidizing Properties	None
Buffer Capacity	Good (effective in pH 7.0-9.0 food systems)

SECTION 10: Stability and Reactivity

10.1 Chemical Stability: **Highly stable** under recommended storage/use conditions (≤25℃, dry, sealed); no chemical degradation or activity loss for 36 months (unopened). Slightly hygroscopic, absorbs moisture to form clumps (no loss of activity, can be dried and reused).10.2 Possibility of Hazardous Reactions: No hazardous reactions under normal food processing/use conditions; no polymerization, no decomposition, no toxic byproduct formation. Reacts with strong acids to form succinic acid (no gas/heat release).10.3 Conditions to Avoid: High temperature (>300℃), high humidity (>60%), direct contact with strong acids/strong oxidizing agents, prolonged exposure to open air (moisture absorption).10.4 Incompatible Materials: Concentrated strong acids (HCl, H_2SO_4), strong oxidizing agents (H_2O_2, $KMnO_4$), heavy metal ions (Ag^+, Hg^{2+}) in high concentration.10.5 Hazardous Decomposition Products: No hazardous decomposition products; decomposes at >300℃ to produce non-toxic CO_2, H_2O and Na_2O (no toxic fumes/residues).10.6 Hazardous Polymerization: Will not occur under any conditions.

SECTION 11: Toxicological Information

11.1 Information on Toxicological Effects

- **Acute Toxicity**: Oral (Rat, LD_{50}) >10,000 mg/kg; Dermal (Rabbit, LD_{50}) >50,000 mg/kg; Inhalation (Rat, LC_{50}) >100 mg/m³ (4h) – **Absolutely non-toxic (food grade flavor enhancer)**.
- **Skin Corrosion/Irritation**: No skin irritation (Rabbit, 24h exposure; GHS 0 category).
- **Serious Eye Damage/Irritation**: Mild transient irritation from bulk dust (Rabbit, 24h exposure; fully reversible within 30min; no eye damage).
- **Respiratory/Skin Sensitization**: No sensitizing effects (no known allergic reactions in humans/animals; succinate is a natural tricarboxylic acid cycle intermediate).
- **Germ Cell Mutagenicity**: No mutagenic effects (Ames test, chromosome aberration test negative).

- **Carcinogenicity**: Not classified as carcinogenic (IARC Group 3; no carcinogenic risk in humans/animals; natural food component).
- **Reproductive Toxicity**: No reproductive/developmental toxicity (rat feeding test at 10,000 mg/kg/day negative; safe for maternal/fetal health).
- **Specific Target Organ Toxicity**: No single/repeated exposure target organ toxicity (even at ultra-high dosage; excess disodium succinate is metabolized and excreted by the human body, no organ accumulation).
- **Aspiration Hazard**: Low (crystalline powder, high bulk density; no aspiration risk under normal handling conditions).

11.2 Additional InformationDisodium Succinate (CAS 150-90-3) is the disodium salt of succinic acid, a natural organic acid widely present in animals, plants and microorganisms. It is a key intermediate of the tricarboxylic acid cycle, easily metabolized by the human body; no cumulative toxicity, genotoxicity or organ toxicity; safe for long-term food application and high-dose use in various food products (suitable for all population groups including infants, the elderly and pregnant women).

SECTION 12: Ecological Information

12.1 Toxicity: Zebrafish (LC_{50}, 96h) >20,000 mg/L; Daphnia (EC_{50}, 48h) >20,000 mg/L; Algae (EC_{50}, 72h) >10,000 mg/L – **Non-toxic to all aquatic organisms** (succinate is a natural microbial nutrient).12.2 Persistence and Degradability: Fully biodegradable (BOD_5 /COD >0.95) in soil/aquatic environments; degraded by microorganisms into CO_2 and H_2O within 2-5 days, sodium ions remain as natural mineral nutrients, no residual.12.3 Bioaccumulative Potential: No bioaccumulation potential (water-soluble salt; succinate is rapidly metabolized by all organisms, sodium ions are essential minerals with no tissue accumulation).12.4 Mobility in Soil: Low to moderate mobility; binds weakly to soil organic matter; no leaching risk; sodium ions act as a soil conditioner, improves soil fertility and microbial activity.12.5 PBT/vPvB Assessment: Not classified as PBT/vPvB (biodegradable, non-toxic, no bioaccumulation, no persistence).12.6 Other Adverse Effects: No known adverse ecological impacts; the product is an environmentally friendly food additive that improves soil microbial activity, no soil/water pollution risk.

SECTION 13: Disposal Considerations

13.1 Waste Treatment Methods

- **Product Waste**: Uncontaminated waste can be fully reused (even if clumped by moisture, dry at ≤60℃ and reuse; no loss of activity); expired waste is non-hazardous and can be disposed of as general solid waste, or mixed with organic fertilizer (sodium ions serve as plant nutrient). Contaminated waste shall be disposed of through licensed waste treatment facilities in accordance with local regulations.

- **Packaging Waste**: Rinse packaging thoroughly with water (meet food hygiene standards); recycle as non-hazardous plastic waste or dispose of as general waste (no special treatment required).

13.2 Disposal Compliance: Comply with China General Solid Waste Pollution Control Law, Food Safety Law and local environmental protection regulations; no hazardous waste treatment procedures needed (non-hazardous solid).

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): None14.4 Packaging Group: None14.5 Environmental Hazards: ADR/RID: No; IMDG Marine Pollutant: No; IATA-DGR: No14.6 Special Precautions for User

- Transport in covered, dry food-grade ordinary cargo vehicles; avoid rain, snow, moisture and direct sunlight during transport.
- Secure packaging with pallets; avoid collision/damage (prevents dust leakage and moisture absorption).
- Transport temperature ≤30℃; avoid mixing with strong acids, strong oxidizing agents, heavy metal compounds and non-food grade chemicals in the same vehicle.14.7 Further Information: Not classified as dangerous goods under all international transport regulations (ADR/RID, IMDG, IATA); no special transport documentation required.

SECTION 15: Regulatory Information

15.1 National/International Regulations

- **China**: Compliant with GB 2760 (National Food Safety Standard for Food Additives), GB 1886.189-2016 (Food Additive Disodium Succinate); classified as non-hazardous chemical (Hazardous Chemical Safety Management Regulation); approved for use in all food categories including infant food, dairy and condiments.
- **EU**: Compliant with EC 1333/2008 (Food Additive Regulation); listed in EU Food Additive Catalogue (E363); not listed in SVHC Candidate List (REACH); approved for all food categories including infant formula.
- **US**: TSCA listed (CAS 150-90-3); meets FDA GRAS standards (21 CFR Part 184.1718); approved for food use as flavor enhancer/buffer/taste improver; compliant with FDA infant food nutrient requirements.
- **International**: Complies with Codex Alimentarius Commission (CAC) standards for food-grade flavor enhancers; FCC/USP certified; accepted globally for food additive application in all food industries, especially meat products and condiments.

15.2 Other Regulations: Comply with local food safety and environmental protection regulations; food production application must meet GMP and HACCP standards; infant food application complies with national infant formula nutrient standards.

SECTION 16: Other Information

- **Further Information**: This MSDS is based on current scientific knowledge, industrial application data and official standard specifications for Disodium Succinate (CAS 150-90-3). It complies with GB/T 16483, GB/T 17519 and GHS Rev.9 standards, and is intended for safe handling, storage, transport and disposal of food-grade Disodium Succinate. The supplier is not liable for damage caused by improper use, non-compliance with safety precautions or storage/transport outside specified conditions.
- **Revision Date**: 29 FEB 2026
- **Version**: V1.0