Safety Data Sheet (MSDS)

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

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

1.1 Product Identifiers

- Product Name: Sodium Citrate (Food Grade, Dihydrate)
- Product No.: SOD-20260228
- Brand: SIGALD
- CAS-No.: 68-04-2
- Synonyms: Trisodium citrate dihydrate; Food Grade Sodium Citrate; 柠檬酸钠（二水合物）

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 (sequestrant, emulsifier, pH regulator, stabilizer, anticaking agent); raw material for beverage, dairy, meat, bakery, confectionery; pharmaceutical excipient, food flavor synergist.
- **Uses Advised Against**: No restricted uses for food grade; avoid excessive use in low-pH food systems without pH adjustment.

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 (for accidental contact)

2.3 Hazard Summary

White free-flowing crystalline powder, odorless, slightly salty taste. **Non-toxic, non-irritating** under normal use conditions. No skin/eye irritation, no respiratory hazard. No flammability, no explosion risk. Excessive oral ingestion may cause mild gastrointestinal discomfort (bloating) in sensitive individuals. Environmentally friendly, fully biodegradable.

2.4 Physical & Chemical Hazards

No physical/chemical hazards under normal storage and use; non-combustible, non-explosive; hygroscopic; stable under normal temperature and pressure.

2.5 Health Hazards

No acute/chronic toxic effects at standard food additive dosages; no skin/eye/respiratory irritation; no sensitization, mutagenicity, carcinogenicity or reproductive toxicity; naturally metabolized in the human body.

2.6 Environmental Hazards

No adverse effects on aquatic/terrestrial organisms; fully biodegradable; no bioaccumulation potential; no eutrophication risk; acts as a microbial nutrient in natural environments.

SECTION 3: Composition/Information on Ingredients

- **Substance Type**: Pure chemical substance (food-grade organic sodium salt)

3.1 Main Component

Component	Content (w/w)	CAS No.	Formula
Sodium Citrate (Dihydrate)	≥99.0%	68-04-2	$C_6H_5Na_3O_7 \cdot 2H_2O$

3.2 Non-Hazardous Auxiliary Ingredients

- Food-grade anticaking agent (Silicon Dioxide): ≤0.3%
- Deionized water (trace): ≤0.2%
- **Total Hazardous Ingredients**: 0%

SECTION 4: First Aid Measures

4.1 First-Aid for Different Exposure Routes

- **If Inhaled**: Move to fresh air if slight discomfort occurs; no special treatment needed (no respiratory irritation).
- **In Case of Skin Contact**: Rinse skin with running water for 3-5 minutes if needed; no irritation, no residual effect.
- **In Case of Eye Contact**: Rinse eyes with plenty of clean water for 5 minutes (hold eyes open); no eye damage or irritation.
- **If Swallowed**: Rinse mouth with water and drink a small amount of warm water. Normal food intake is safe; if excessive ingestion causes mild bloating, stop intake and symptoms will disappear spontaneously.

4.2 Most Important Symptoms & Effects

No acute toxic symptoms; mild gastrointestinal discomfort only in sensitive individuals with extreme excessive ingestion.

4.3 Medical Attention Note

No specific medical treatment required for any exposure under normal use conditions; consult a doctor only if gastrointestinal discomfort persists (extremely rare).

SECTION 5: Firefighting Measures

5.1 Suitable Extinguishing Media

Water spray, foam, carbon dioxide (CO_2), dry chemical powder – all applicable with no limitations.

5.2 Special Hazards from the Substance

Non-combustible; decomposes only at extreme high temperature (>350℃) to produce non-toxic carbon dioxide, sodium oxide and water vapor; no hazardous combustion gases or fumes.

5.3 Advice for Firefighters

Wear standard fire-fighting protective gear (gloves, goggles); avoid inhalation of thermal decomposition dust in large-scale fire; fight fire from a safe distance and ensure good ventilation.

SECTION 6: Accidental Release Measures

6.1 Personal Precautions

Wear non-slip shoes for large spills (powder may cause slippery floors); FFP1 dust mask is optional for heavy dust generation; no other PPE required for normal spills.

6.2 Environmental Precautions

No special environmental measures; the product is biodegradable and non-polluting; sweep up spilled powder to avoid direct entry into drinking water sources (no environmental risk if entered).

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 prevent slipping.
- **Large Spill**: Contain with plastic barriers to prevent spread; transfer to sealed HDPE drums for recycling/disposal; clean the area with a damp mop and dry thoroughly.

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; use dust suppression measures (mist spray) during bulk mixing/transfer to avoid fine powder formation.
- Avoid prolonged exposure to high humidity (caking risk); follow food hygiene operation standards for food production use.
- **Hygiene Measures**: Wash hands with soap and water after handling; do not eat/drink/smoke while operating the product.

7.2 Safe Storage Conditions

- **Storage**: Cool, dry, well-ventilated food-grade warehouse; keep container tightly sealed to prevent moisture absorption, caking and contamination.
- **Temperature & Humidity**: Storage temp ≤25℃, relative humidity ≤60%; install dehumidification equipment for long-term storage.

- **Incompatibilities**: Strong acids (concentrated HCl/H_2SO_4), strong oxidizing agents (high-concentration peroxide).
- **Storage Class**: TRGS 510 Class 13 (Non-Hazardous Solids)
- **Shelf Life**: 36 months (unopened, specified conditions); 12 months after opening (seal tightly, dry storage).

SECTION 8: Exposure Controls/Personal Protection

8.1 Occupational Exposure Limits

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

8.2 Exposure Controls & PPE

- **Engineering Controls**: Local exhaust ventilation (LEV) for large-scale processing; dust collection system; dehumidification equipment for storage area.
- **Personal Protective Equipment**:
  - Eye/Face: Safety goggles with side shields (optional for bulk handling, no irritation risk).
  - Skin: Nitrile rubber gloves (food grade, ≥0.11mm) for prolonged contact; disposable protective clothing (optional).
  - Respiratory: FFP1 dust mask for bulk processing; no respiratory protection for small-scale use.
  - Foot: Non-slip food-grade safety shoes (mandatory for all handling to prevent slipping).
  - Hygiene: Food-grade hand washing facilities with pure water and soap at the workplace.

SECTION 9: Physical and Chemical Properties

a) Physical State: Crystalline powder/granuleb) Color: White to off-whitec) Odor: Odorlessd) Taste: Slightly salty, tastelesse) Melting Point: 150℃ (loses water of crystallization); decomposes at >350℃f) Boiling Point: N/A (decomposes before boiling)g) Flammability: Non-combustibleh) Flash Point: >150℃ (Closed Cup)i) Autoignition Temperature: >450℃j) pH Value (25℃, 5% aq. solution): 7.5-9.0k) Solubility: Freely soluble in water (≈720 g/L at 25℃); insoluble in ethanol/ether/chloroforml) Density (25℃, solid): 1.79 g/cm³m) Bulk Density: 0.8-1.1 g/cm³n) Hygroscopy: Moderately hygroscopico) Vapor Pressure (25℃): Negligible (<0.0001 hPa)p) Viscosity: N/A (solid); 8-12 mPa·s (10% aq. solution, 25℃)q) Partition Coefficient (log Kow): -3.2 (highly hydrophilic)r) Explosive Properties: Not explosives) Oxidizing Properties: None

SECTION 10: Stability and Reactivity

10.1 Chemical Stability

Stable under recommended storage/use conditions; extremely stable in food system pH (3.0-10.0); no decomposition in high-temperature food processing (≤180℃, sterilization/baking).

10.2 Hazardous Reactions

No hazardous reactions under normal food production use; no polymerization; reacts with strong acids to form citric acid (non-hazardous); no other dangerous reactions.

10.3 Conditions to Avoid

Extreme high temperature (>350℃), direct contact with strong concentrated acids, prolonged high humidity (caking).

10.4 Incompatible Materials

Concentrated strong acids (HCl, H_2SO_4), high-concentration strong oxidizing agents, anhydrous organic solvents (in large amounts).

10.5 Hazardous Decomposition Products

Non-toxic CO_2, sodium oxide and water vapor (only at >350℃); no hazardous by-products under normal use.

SECTION 11: Toxicological Information

11.1 Key Toxicological Effects

- **Acute Toxicity**: Oral (Rat, LD_{50}) >10,000 mg/kg (practically non-toxic); Dermal (Rabbit, LD_{50}) >20,000 mg/kg; Inhalation (Rat, LC_{50}) >20 mg/m³ (4h).
- **Skin/Eye Irritation**: No irritation (Rabbit test, 24h exposure); no corrosivity.
- **Sensitization**: No skin/respiratory sensitization (long-term human/animal use data).
- **Mutagenicity/Carcinogenicity**: No mutagenic effects (Ames test, chromosome aberration test); IARC Class 3 (not classifiable as carcinogenic to humans); FDA GRAS certified.
- **Reproductive Toxicity**: No adverse reproductive/developmental effects in animal tests; safe for pregnant/lactating women.
- **Target Organ Toxicity**: No target organ toxicity; metabolized to citrate and sodium ions in the human body, fully excreted.
- **Aspiration Hazard**: Low (crystalline powder, moderate bulk density, no aspiration risk).

11.2 Additional Information

Sodium Citrate is a common food additive approved by FAO/WHO/Codex Alimentarius; naturally present in human body fluid; long-term use in food/pharmaceutical industry confirms high safety at standard dosages.

SECTION 12: Ecological Information

12.1 Ecotoxicity

- Fish (Zebrafish, LC_{50}): >10,000 mg/L (96h)
- Daphnia (EC_{50}): >5,000 mg/L (48h)
- Algae (EC_{50}): >10,000 mg/L (72h)No toxic effects on aquatic organisms; non-toxic to soil microorganisms.

12.2 Persistence & Degradability

Fully biodegradable (BOD_5 /COD >0.95) in aquatic/soil environments; degraded by microorganisms into inorganic substances within 1-2 days; no residual pollution.

12.3 Bioaccumulative Potential

None; highly water-soluble, rapidly metabolized/utilized by organisms; no bioaccumulation in food chain/aquatic/terrestrial organisms.

12.4 Mobility in Soil

High mobility (freely soluble in water); readily dissolves in soil water, but 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, non-toxic, no bioaccumulation).

12.6 Other Ecological Effects

Acts as a microbial nutrient in natural environments; no adverse impact on ecosystem balance.

SECTION 13: Disposal Considerations

13.1 Waste Treatment Methods

- **Product Waste**: Uncontaminated waste can be reused as food/feed additive; contaminated waste can be disposed of as non-hazardous solid waste in accordance with local food safety regulations; aqueous waste can be directly treated by biological wastewater treatment systems.
- **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).

13.2 Disposal Notes

Incineration is acceptable (produces only non-toxic by-products); landfilling is also acceptable (biodegrades rapidly in soil); no special disposal requirements for food-grade Sodium Citrate.

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 Citrate)
- 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; avoid rain, moisture, direct sunlight and package collision.
- Prevent powder leakage/caking; use pallets for loading to avoid ground contact/contamination.
- Avoid transport with strong concentrated acids, strong oxidizing agents and non-food grade hazardous chemicals.
- Mark package with **"Food Grade"**, **"Moisture Proof"** and **"Non-Dangerous Goods"**.

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)
- Food Hygiene Law of the People's Republic of China
- GB 10765/GB 10767 (Infant Formula Food Standards)

15.2 International Regulations

- GHS Rev.9: Non-hazardous
- REACH (EU): Registered; not in SVHC Candidate List; complies with EC 1333/2008
- TSCA (US): Listed on Inventory; FDA GRAS certified (21 CFR 184.1744)
- Codex Alimentarius (FAO/WHO): Approved as food sequestrant/stabilizer (Codex STAN 192-1995)

15.3 Other Requirements

Comply with local food safety/transport/environmental regulations; follow GB 2760-2021 maximum addition limits for different food types.

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 Citrate.

16.2 Revision History

First Version - 26 FEB 2026 (No subsequent revisions)