

## Technical Data Sheet (TDS)

**Issue Date:** 27 FEB 2026 **Product Name:** Sodium Cyclamate (Food Grade, Anhydrous) **CAS Number:** 139-05-9

### 1. Product Overview

- **English Name:** Sodium Cyclamate (Food Grade, Anhydrous)
- **Chinese Name:** 环己基氨基磺酸钠（无水食品级）/ 甜蜜素
- **CAS No.:** 139-05-9
- **Molecular Formula:** C<sub>6</sub> H<sub>12</sub>NNaO<sub>3</sub>S
- **Molecular Weight:** 201.22 g/mol
- **Source:** Synthesized by food-grade chemical reaction of cyclohexylamine and sodium bisulfite, followed by purification, crystallization, granulation and drying; strict impurity control (cyclohexylamine ≤0.001%) in accordance with GB 1886.30-2019; complies with food GMP and high-intensity sweetener production requirements.
- **Core Characteristics:** White crystalline powder/granule, odorless, mild clean sweet taste (30-50× sucrose); **extremely stable** (acid/high temperature/alkali), no decomposition at all food processing temperatures; non-hygroscopic (excellent anti-caking performance); low-calorie (almost no energy intake), no blood sugar impact; highly soluble in water, compatible with all food additives; strict cyclohexylamine impurity limit; the most cost-effective and stable high-intensity sweetener for low-sugar/zero-sugar food, widely used in global food industry.

### 2. Technical Specifications (Complies with GB 2760-2021, GB 1886.30-2019 & International Standards)

| Test Item                                   | Food Grade Specification  |
|---|---|
| Appearance                                  | White crystalline powder/granule, free-flowing, no caking               |
| Assay (Sodium Cyclamate)                    | ≥ 99.0%   |
| pH Value (25°C, 10% aqueous solution)       | 5.5-7.5   |
| Loss on Drying (105°C, 2h)                  | ≤ 1.0%  |
| Ash Content                                 | ≤ 0.1%  |
| Chloride (as Cl <sup>-</sup> )              | ≤ 0.01%   |
| Sulfate (as SO <sub>4</sub> <sup>2-</sup> ) | ≤ 0.01%   |
| Heavy Metals (Pb)                           | ≤ 0.5 ppm   |
| Arsenic (As)                                | ≤ 0.1 ppm   |
| Cadmium (Cd)                                | ≤ 0.05 ppm  |
| Mercury (Hg)                                | ≤ 0.01 ppm  |
| Cyclohexylamine                             | ≤ 0.001%  |
| Total Bacterial Count                       | ≤ 10 CFU/g  |
| Yeast & Mold                                | ≤ 5 CFU/g   |
| E. coli / Salmonella                        | Negative  |
| Water Solubility                            | Freely soluble in water (≈200 g/L at 25°C), slightly soluble in ethanol |
| Temperature Stability                       | Stable at <300°C (all food processing temperatures)                     |
| pH Stability                                | Stable at pH 2.0-10.0 (acid/alkali food systems)                        |
| Hygroscopy                                  | Non-hygroscopic (no caking at RH<80%)                                   |

### 3. Core Product Advantages

1. **Extreme Stability & Wide Process Adaptability:** The most stable high-intensity sweetener – acid-stable (suitable for carbonated beverage/pickled food with pH 2.0), high-temperature stable (no decomposition in baking/boiling/sterilization), alkali-stable; no loss of sweetness in any food processing/storage condition, no special process control required (cost-saving for production).
2. **Mild Sweet Taste & Good Blending Performance:** Clean mild sweet taste with no bitter aftertaste/metallic taste; ideal for compound sweetener blending (mix with

aspartame/sucralose/stevia) – makes up for the harsh taste of other high-intensity sweeteners, achieves balanced and natural sweetness; also masks bitter/sour taste of food (flavor modifier function).

3. **Non-Hygroscopic & Excellent Processability:** Non-hygroscopic, no moisture absorption or caking even at RH<80%; free-flowing powder/granule, easy to mix and feed; no agglomeration in storage/processing, no need for anticaking agent (can add trace SiO<sub>2</sub> for bulk storage); reduces production loss and improves processing efficiency.

#### 4. Wide Application Fields

Sodium Cyclamate is a high-stability, cost-effective high-intensity sweetener, suitable for **all types of low-sugar/zero-sugar food and beverage** (no process restrictions due to extreme stability), especially for acid food, high-temperature processed food and mass-produced food (**not for infant food 0-12 months**):

- **Beverage Industry:** Carbonated beverage, fruit juice, tea drink, sports drink, pickled fruit drink, soy milk; core sweetener/flavor modifier, acid-stable (no sweetness loss in low pH beverage), masks sour taste, improves flavor balance; low dosage, cost-effective for mass production.

#### 5. Usage Methods & Recommended Dosage

| Food Type                                      | Recommended Addition Dosage | Key Application Note   |
|--|-----------------------------|--|
| Carbonated Beverage/Fruit Juice/Tea Drink      | 0.15-0.3 g/kg               | Acid-stable, mix with aspartame (10:1) for better sweetness        |
| Hard Candy/Soft Candy/Chewing Gum              | 0.5-1.0 g/kg                | High-temperature stable, non-hygroscopic, prevents caking          |
| Yogurt/Ice Cream/Pudding                       | 0.2-0.5 g/kg                | Masks sour taste, improves smoothness, stable in cold storage      |
| Soy Sauce/Vinegar/Salad Dressing               | 0.15-0.4 g/kg               | Acid/alkali stable, balances salty/sour taste                      |
| Pickled Vegetables/Preserved Fruit/Canned Food | 0.2-0.6 g/kg                | Stable in high salt/acid system, no sweetness loss in long storage |
| Bread/Cake/Cookie                              | 0.3-0.8 g/kg                | High-temperature stable, mix with sucrose to reduce sugar content  |

#### 6. Packaging, Storage & Transportation

- **Small Batch:** 1kg/5kg/10kg – Food-grade PE plastic bags (sealed) with outer carton; powder/granule type optional, for small-scale production/laboratory/retail use.
- **Standard Batch:** 25kg – Food-grade HDPE plastic drums/bags (sealed) with outer woven bag; granule type is recommended (better free-flowing performance), for medium/large-scale food production.
- **Bulk Batch:** 500kg/1000kg – Food-grade FIBC bulk bags (sealed valve) with inner PE liner; for large-scale industrial production and export, low packaging cost.
- **Custom Packaging:** 500g/1000g food-grade small packaging (sealed PE bag) available upon request for household and small-batch food preparation.

#### 7. Safety & Quality Assurance

- The product is food-grade, non-toxic, non-irritating for normal population (≥1 year old); no mandatory PPE for small-scale use; wear non-slip food-grade safety shoes for bulk handling to prevent slipping from spilled powder/granule; FFP1 dust mask is optional for heavy dust generation (only to prevent dust inhalation).
- **Key Note:** Post a prominent warning sign "**Not for Infant Food (0-12 Months) - Strictly Follow Dosage Limits**" in the operating area; avoid adding to infant food raw material systems.
- Follow food hygiene operation standards: wash hands with soap and water after handling; use dedicated food-grade equipment/containers; no special cleaning requirements for equipment (easily soluble in water, no residue).