

Technical Data Sheet (TDS)

Issue Date: 27 FEB 2026 **Product Name:** Xylitol (Food Grade) **CAS Number:** 87-99-0

1. Product Overview

- **English Name:** Xylitol (Food Grade)
- **Chinese Name:** 木糖醇
- **CAS No.:** 87-99-0
- **Molecular Formula:** C₅ H₁₂O₅
- **Molecular Weight:** 152.15 g/mol
- **Source:** Synthesized by food-grade hydrogenation of xylose (from corn cob, bagasse, birch wood) and high-purity refinement process; complies with food safety production standards and infant food raw material requirements.
- **Product Characteristics:** White free-flowing crystalline powder/granule, odorless, sweet taste (≈90% sweetness of sucrose); food-grade polyol sweetener, naturally occurring in fruits and vegetables; freely soluble in water, extremely stable in food processing environments; insulin-independent metabolism, non-cariogenic, hygroscopic and stabilizing properties; non-toxic, fully biodegradable, meets national/international food safety standards, suitable for various low-sugar/sugar-free food and beverage production.

2. Technical Specifications (Complies with Food Industry Standard GB 2760-2021)

Item	Specification (Food Grade)
Appearance	White to off-white free-flowing crystalline powder/granule
Assay (Xylitol, HPLC)	≥ 99.5%
Melting Point	92-96°C
pH Value (25°C, 5% aqueous solution)	5.0-7.0
Loss on Drying (105°C, 2h)	≤ 0.3%
Ash Content	≤ 0.05%
Reducing Sugars (as glucose)	≤ 0.05%
Density (25°C)	1.52 g/cm ³
Bulk Density	0.6-0.9 g/cm ³
Heavy Metals (Pb)	≤ 1 ppm
Arsenic (As)	≤ 0.5 ppm
Cadmium (Cd)	≤ 0.1 ppm
Mercury (Hg)	≤ 0.01 ppm
Total Bacterial Count	≤ 100 CFU/g
Yeast & Mold	≤ 10 CFU/g
E. coli/Salmonella	Negative
Water Solubility	Freely soluble in water (≈160 g/L at 25°C)
Temperature Stability	Stable at 0-180°C (assay retention ≥ 99%)
pH Stability	Stable at pH 2.0-8.0 (assay retention ≥ 99%)
Hygroscopy	Slightly hygroscopic
Taste	Sweet, odorless (≈0.9× sucrose sweetness)

3. Product Advantages

1. **High Purity & Food Grade:** Assay ≥99.5%, ultra-low impurity and heavy metal content, meets national/international food safety and infant food raw material limits; no harmful residues, compliant with GB 2760-2021 and FDA GRAS standards.
2. **Ideal Sugar Substitute:** Sweetness close to sucrose, no bitter aftertaste; insulin-independent metabolism, no blood glucose fluctuation, suitable for diabetic patients, obese people and low-sugar diet groups.



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3. **Non-Cariogenic:** Inhibits the growth of oral cariogenic bacteria (*Streptococcus mutans*), does not produce acidic substances, prevents dental caries, widely used in oral care products and children's food.
4. **Extreme Stability:** Ultra-stable in food processing, no decomposition under high-temperature baking ($\leq 180^{\circ}\text{C}$), sterilization and acid/alkali treatment; no Maillard reaction, maintains food color and flavor.
5. **Multi-Functional Properties:** Integrates **sweetening, humectant, stabilizer** and **crystallization inhibitor**; improves food texture, extends shelf life, prevents drying and caking, suitable for various food systems.
6. **Excellent Processability:** Freely soluble in water, rapid dissolution without precipitation; uniform dispersion in liquid/solid food; compatible with all common food additives (vitamins, minerals, thickeners).

4. Application Fields

Xylitol is a high-efficiency multi-functional food-grade sugar substitute, suitable for various low-sugar/sugar-free confectionery, bakery, dairy, beverage, oral care products and nutritional food:

- **Confectionery Industry:** Sugar-free candy, chocolate, chewing gum, lollipop; non-cariogenic, good taste, prevents candy crystallization and caking.
- **Bakery Industry:** Sugar-free bread, cake, biscuit, pastry, moon cake; acts as sweetener and humectant, keeps products soft and moist, extends shelf life.
- **Dairy Industry:** Sugar-free milk, yogurt, cheese, ice cream, milk powder; improves taste and texture, stable under low/high temperature, no effect on dairy fermentation.
- **Beverage Industry:** Sugar-free fruit juice, sports drink, carbonated beverage, tea drink; rapid dissolution, no precipitation, maintains beverage clarity and flavor.

5. Usage Methods

Food Type	Recommended Addition Dosage
Sugar-Free Candy/Chewing Gum/Chocolate	30-80%
Sugar-Free Bread/Cake/Biscuit	5-30%
Sugar-Free Dairy/Ice Cream/Milk Powder	2-10%
Sugar-Free Beverage/Jam/Canned Food	1-8%
Oral Care Products (Toothpaste/Mouthwash)	5-20%
Diabetic/Elderly Nutritional Food	2-15%

- **Hygiene Note:** For high-humidity food production, adjust dosage appropriately to avoid excessive hygroscopy; combine with anti-caking agents (silicon dioxide) for solid food to prevent caking.

6. Packaging & Storage

- **Small Batch:** 1 kg / 5 kg / 10 kg: Food-grade aluminum foil bags (sealed, moisture-proof, oxygen-free) – for small-scale food production, health food, infant food and laboratory use.
- **Standard Batch:** 25 kg: Food-grade HDPE plastic drums with inner aluminum foil liner (sealed, dust-proof, moisture-proof) – for medium/large-scale food production and industrial use.
- **Bulk Batch:** 500 kg / 1000 kg: Food-grade FIBC bulk bags with moisture-proof PE liner (food-grade, sealed, moisture-proof valve) – for large-scale industrial production and export.
- **Custom Packaging:** Food-grade customized packaging (500 g/2 kg) and granule/powder specifications available upon request for health food, infant food and small-batch production.

7. Safety & Protection

- The product is food-grade, non-toxic and non-hazardous; no toxic side effects at normal food intake, safe for humans (including infants, pregnant women, diabetics) and animals; no irritation to skin, eyes and respiratory tract.
- Wear food-grade PPE (nitrile rubber gloves, non-slip food-grade safety shoes) during bulk handling and mixing; safety goggles are optional (no irritation risk); handling infant food raw material should wear disposable sterile protective equipment.