

## Technical Data Sheet (TDS)

### - D-Xylose (Food Grade)

Issue Date: 25 FEB 2026 | Version: V1.0

#### 1. Product Overview

- **Product Name:** D-Xylose (Food Grade)
- **CAS Number:** 58-86-6
- **EINECS/EC Number:** 200-400-7
- **Chemical Formula:** C<sub>5</sub> H<sub>10</sub> O<sub>5</sub>
- **Molecular Weight:** 150.13 Da
- **Chemical Name:** D-Xylopyranose / Wood sugar
- **Product Characteristics:** High-purity food-grade D-Xylose prepared by enzymatic hydrolysis of plant hemicellulose (corn cob, bagasse) and refined purification (non-GMO, no chemical synthesis). White free-flowing crystalline powder with slight sweet odor, highly water-soluble, low-calorie (1.6 kcal/g), and highly stable under normal food processing and storage conditions. As a multi-functional food additive, it acts as **low-calorie sweetener, bulking agent, flavor enhancer and humectant**; it provides mild sweetness, improves food texture and mouthfeel, enhances flavor layering, and maintains food moisture. Non-toxic, non-cariogenic, not metabolized to glucose, suitable for diabetic, low-sugar and weight-loss food. Environmentally friendly, fully biodegradable, compliant with GB 2760/FDA/EC/CAC/FCC/USP standards, suitable for various food production and processing.

#### 2. Technical Specifications (Compliant with GB 2760 & FCC/USP)

Item	Standard Requirement
Appearance	White crystalline powder; free-flowing, no caking
Odor	Odorless or slight sweet odor
Assay (D-Xylose)	≥ 99.0%
Specific Rotation (25°C, 10% in H <sub>2</sub> O)	+18.5° ~ +19.5°
Moisture Content	≤ 0.5%
Ash Content	≤ 0.1%
pH Value (5% aqueous, 25°C)	5.0-7.0
Heavy Metals (as Pb)	≤ 1 ppm
Arsenic (As)	≤ 0.5 ppm
Cadmium (Cd)	≤ 0.05 ppm
Mercury (Hg)	≤ 0.01 ppm
Reducing Sugars (as D-Xylose)	≥ 99.0%
Total Bacterial Count	≤ 100 CFU/g
E. coli	Negative
Salmonella	Negative in 25g
Water Solubility (25°C)	≥ 117 g/100mL (clear aqueous solution)
Bulk Density	0.75-0.95 g/cm <sup>3</sup>
Temperature Stability	Stable at 0-121 °C (short-time high temp sterilization; ≥98% activity retention)
pH Stability	Stable at pH 4.0-8.0 (≥98% activity retention)
Sweetness	~40% of sucrose (25°C, 5% aqueous solution)
Calorific Value	1.6 kcal/g
Storage Stability	36 months unopened (≤25°C, ≤60% RH)

#### 3. Product Advantages

- 1. Low-Calorie & Sugar-Free Friendly:** Only 40% sweetness of sucrose, calorific value is 40% of sucrose; not metabolized by human body to produce glucose, no blood sugar rise, suitable for diabetic, prediabetic and weight-loss population.
- 2. High Purity & Food Safety:** Assay ≥99.0%, heavy metal content far lower than national/FCC/USP standards; no impurities, no chemical additives; FDA GRAS certified, approved for use in infant food and health food.

#### 4. Application Fields & Recommended Dosage

(Adjust dosage according to food type, sweetness requirement, product positioning (low-sugar/sugar-free) and formula design; all dosages are **w/w** based on food raw materials)

Application Field	Typical Products	Recommended Dosage	Core Effect
Beverage	Low-sugar/sugar-free juice, carbonated drink, sports drink, soy milk, tea drink	1.0-5.0%	Low-calorie sweetening, humectancy, improve taste, no blood sugar rise
Bakery & Pastry	Low-sugar/sugar-free bread, cake, biscuit, cereal, steamed bun	2.0-8.0%	Bulking, sweetening, humectancy, improve dough texture, prevent staling
Confectionery	Low-sugar/sugar-free hard candy, soft candy, jelly, chocolate, chewing gum	5.0-20.0%	Mild sweetening, bulking, non-cariogenic, improve chewiness and texture
Dairy Products	Low-sugar/sugar-free yogurt, cheese, flavored milk, milk powder, ice cream	1.0-4.0%	Sweetening, humectancy, improve mouthfeel, stabilize emulsification system
Functional/Health Food	Diabetic food, weight-loss meal replacement, nutritional supplement, probiotic food	3.0-15.0%	Low-calorie sweetening, bulking, suitable for special population, improve taste
Infant Food	Infant rice flour, complementary food, milk powder	0.5-2.0%	Mild sweetening, non-cariogenic, safe for infant, improve flavor acceptance
Flavor & Raw Material	Food flavor synthesis, amino acid (xylitol) production, microbial culture medium	10.0-50.0%	Reaction raw material, carbon source, improve flavor yield and quality

#### 5. Usage Methods & Formulation Guidelines

- 1. Premixing Recommended:** For **solid food systems** (milk powder, bakery flour, seasoning powder, meal replacement powder), premix D-Xylose with other dry ingredients (starch, protein powder, other sweeteners) at a ratio of 1:10-1:20 to ensure uniform dispersion; avoid direct mixing with high-concentration strong oxidizing agents.
- 2. Dissolution Method:** For **liquid food systems** (beverage, milk, soy milk), dissolve D-Xylose in deionized water/liquid raw materials (20-40°C) with stirring (can be prepared as 20-50% stock solution); stir evenly to form a clear solution, then add to the food system (no precipitation); add slowly to avoid local concentration differences.

#### 6. Packaging, Storage & Transportation

- Small Packaging: 1 kg/5 kg food-grade aluminum foil bags (inner PE liner, vacuum sealed; for small food factories/laboratory use)
- Standard Packaging: 25 kg food-grade HDPE plastic drums (sealed, with inner PE bag; for industrial batch production)

#### 7. Quality Assurance & Technical Support

- 1. Production Standards:** Manufactured in a GMP/HACCP-compliant food-grade production workshop; comply with ISO 9001 (Quality Management System) and ISO 14001 (Environmental Management System); raw materials are renewable plant resources (corn cob, bagasse), enzymatic hydrolysis process (non-GMO), no chemical synthesis, meet infant food raw material requirements.