D-Allulose Product Specification Sheet

I. Basic Information

- Chinese Name: D-Allulose
- English Name: D-Allulose, D-Psicose
- CAS No.: 551-68-8
- INS No.: 962
- CNS No.: 21.037
- UN No.: None (Non-Dangerous Goods)
- Product Type: Food Additive (Sweetener), Low-Calorie Functional Monosaccharide
- Compliance Standards: T/CBFIA 05003—2023 (China), US FDA GRAS, EU Novel Food Standard, JECCA, FCC
- Production Process: High-purity crystalline product manufactured by using fructose as raw material, catalytic conversion via D-allulose 3-epimerase, followed by purification, crystallization, drying, sieving and other processes

II. Appearance & Characteristics

- Appearance: White crystalline powder, free of visible impurities, with good flowability
- Odor & Taste: Pure sweet taste, no off-odor or abnormal taste, refreshing mouthfeel, no bitter aftertaste or metallic taste
- Solubility: Very soluble in water, slightly soluble in ethanol; rapidly dissolves in water at room temperature without precipitation
- Sweetness Property: Approximately 70% sweetness of sucrose, with a sweetness profile highly consistent with sucrose; no flavor adjustment required when replacing sucrose
- Caloric Value: Approximately 0.2–0.4 kcal/g, classified as a near-zero-calorie sweetener, meeting the demand for low-calorie foods
- GI Value: ≈0; does not participate in human blood glucose metabolism or stimulate insulin secretion, suitable for sugar-controlled populations

III. Physical & Chemical Specifications

Item	Standard Requirement
D-Allulose Content (Dry Basis)	≥99.0% (HPLC)
Moisture	≤1.0%
Ash	≤0.1%
pH (10% Aqueous Solution)	4.5–6.5
Specific Rotation $[\alpha]_n^{20}$	+4.5° ~ +5.5° (c=10, H_2O)
Heavy Metals (as Pb)	≤0.3 mg/kg
Total Arsenic (As)	≤0.3 mg/kg
Cadmium (Cd)	≤0.1 mg/kg
Mercury (Hg)	≤0.05 mg/kg
Residual Protein	≤50 mg/kg

IV. Microbiological Limits

Item	Standard Requirement
Total Plate Count	≤1000 CFU/g
Coliforms	≤0.3 MPN/g
Molds & Yeasts	≤10 CFU/g
Salmonella	Absent in 25g
Staphylococcus aureus	Absent in 25g

V. Safety & Compliance

- China: Novel Food Ingredient (Announcement No. 4 of 2025), daily intake ≤20 g
- Unsuitable Populations: Infants and young children, pregnant women, lactating women
- International Recognition:
- United States: FDA GRAS (Generally Recognized as Safe)
- Canada, Australia, New Zealand: Approved as novel food ingredient
- European Union: Approved by EFSA safety assessment
- Labeling Statement: Must be labeled with “D-Allulose”, daily limit ≤20g, and unsuitable populations

VI. Packaging & Storage

- Packaging: 25 kg/fiber drum (food-grade PE inner bag); customizable to 1 kg, 5 kg, 10 kg
- Storage: Sealed, stored in a cool, dry and ventilated place; avoid direct sunlight, high temperature and humidity
- Transportation: Conventional transport, protected from rain, moisture, sunlight and odor contamination
- Shelf Life: 24 months under sealed storage

VII. Applications

- Beverages: Sugar-free tea, coffee, carbonated drinks, sports drinks
- Baking: Biscuits, cakes, bread, pastries (capable of Maillard reaction, excellent browning)
- Dairy Products: Yogurt, ice cream, cheese, milk drinks
- Confectionery & Snacks: Hard candies, soft candies, chocolate, meal replacements, energy bars
- Functional Foods: Sugar-controlled foods, weight management products, health foods for middle-aged and elderly people
- Pet Food: Low-calorie sweetener (safe, non-cariogenic)

VIII. Key Advantages

- Zero Calorie & Zero GI: Barely absorbed and metabolized by human body, ideal choice for sugar and weight control
- Sucrose-Like Taste: Pure sweet taste with no off-flavors; no flavor adjustment needed for sucrose replacement
- Excellent Thermal Stability: Resists high-temperature baking and cooking at 120℃ without decomposition or discoloration
- Maillard Reaction: Enables browning, coloring and flavor enhancement, suitable for baking and sauces

- Anti-Caries: Not fermented by oral bacteria to produce acid, protecting tooth enamel
- Global Compliance: Approved in multiple regions worldwide, suitable for export food products

IX. Quality Assurance

- COA (Certificate of Analysis) provided for each batch
- Compliant with HACCP, ISO 22000, FSSC 22000
- Non-GMO, Halal and Kosher certifications available

Nutrition Facts of D-Allulose

Basic Information

- Product Name: D-Allulose (D-Psicose)
- Product Specification: Crystalline Grade / Liquid Grade (D-Allulose content ≥ 98.0 g/100 g)
- Implementation Standards: Announcement No. 4 of 2025 by the National Health Commission (New Food Raw Material), *Guidelines for the Use of D-Allulose as a Food Additive*
- Daily Intake Limit: ≤ 20 g per day
- Unsuitable Populations: Infants and young children, pregnant women, lactating women

Nutrition Facts (Per 100 g)

Item	Per 100 g	NRV%
Energy	167 kJ	2%
Protein	0 g	0%
Fat	0 g	0%
Carbohydrate	99.0 g	33%
— Including: D-Allulose (Sugars)	≥ 98.0 g	—
Dietary Fiber	0 g	0%
Sodium	0 mg	0%

Labeling Specifications

1. **Nutrition Facts Labeling**: The table format of this version shall be strictly followed for labeling, in compliance with GB 28050-2011 *National Food Safety Standard - General Rules for Nutrition Labeling of Prepackaged Foods*. Items, values and NRV% calculation results shall not be arbitrarily modified; corresponding values per 100 mL shall be labeled synchronously for liquid-grade products.
2. **Warning Statement Labeling**: A warning must be prominently labeled next to the Nutrition Facts (font size no less than 1/2 of the product name font size): Unsuitable populations: infants and young children, pregnant women, lactating women; daily intake ≤ 20 grams. The statement shall not be omitted or altered.
3. **Compliance Declaration Labeling**: A compliance declaration shall be labeled, with the recommended wording: This product complies with Chinese new food raw material standards (Announcement No. 4 of 2025 by the National Health Commission), and can be used as a food raw material. Its scope of application and dosage limit shall follow the *Guidelines for the Use of D-Allulose as a Food Additive*.
4. **Product Name Labeling**: Both the Chinese name "D - 阿洛酮糖" and English name "D-Allulose (D-Psicose)" shall be labeled simultaneously; crystalline grade/liquid grade shall be clearly indicated, and the content of ≥ 98.0 g/100 g shall be clearly reflected in the specification column.
5. **Other Labeling**: If used as a food additive, "Food Raw Material" or "Food Additive" shall be additionally labeled (according to actual application). Medical or health claims such as "blood sugar reduction", "weight loss" and "disease treatment" are prohibited. Claims such as "low calorie" and "does not raise blood glucose" (in line with national standard requirements) are allowed.

Key Notes

1. **Basis for NRV% Calculation**: Calculated in accordance with GB 28050-2011 *National Food Safety Standard - General Rules for Nutrition Labeling of Prepackaged Foods*: Energy NRV = 8400 kJ, Protein NRV = 60 g, Fat NRV = 60 g, Carbohydrate NRV = 300 g, Dietary Fiber NRV = 25 g, Sodium NRV = 2000 mg. Calculation results are rounded to integers, meeting national standard rounding requirements.
2. **Basis for Energy Value**: Implemented in accordance with Announcement No. 4 of 2025 by the National Health Commission. The energy coefficient of D-Allulose is 1.67 kJ/g, energy of 100 g product = 167 kJ, NRV% = (167 ÷ 8400) × 100% ≈ 2%, strictly complying with domestic compliance standards.
3. **Instructions for Carbohydrate and Sugar Labeling**: D-Allulose is a monosaccharide and shall be included in the "Total Carbohydrate" item, with its content labeled separately under "Including: Sugars". As it does not participate in human blood glucose metabolism and is not absorbed by the intestinal tract (approximately 80% is excreted through urine), although included in total carbohydrates, it does not contribute to blood glucose elevation and is not classified as cariogenic sugar, so it is not required to be labeled as "added sugar" on the label.
4. **Precautions for Label Use**: This version of label instructions and Nutrition Facts can be directly applied to product packaging. Fonts shall be clear, warning statements prominent, and key information shall not be covered. For export overseas, supplementary compliance labeling of the corresponding country/region shall be added (e.g., FDA GRAS, EU Novel Food certification marks).