Core Competitive Advantages and Market Development Prospects of Maltitol

Overview

Maltitol is a natural disaccharide alcohol produced from corn starch through enzymatic hydrolysis, hydrogenation and refining. It takes **high sweetness, low glycemic response, high moisture retention, high stability and high tolerance** as core barriers, which highly conforms to the mainstream global consumption trends including sugar reduction and calorie control, healthy baking, oral care and clean labels. It effectively solves the industry pain points of traditional sweeteners: *poor taste, rapid blood sugar rise, easy crystallization, short shelf life and weak stability*.

Relying on four major strengths including natural properties, full-scenario processing adaptability, global compliance endorsement and controllable costs, maltitol has become a core functional sweetening solution in sugar-free baking, confectionery and chocolate, dairy products, oral care and pharmaceutical preparations. The global **CAGR** will reach 6.4%–6.6% from 2025 to 2031. As the world's largest production and supply base, China accounts for more than 60% of global production capacity with a market growth rate exceeding 8.7%. It is a high-quality track with both certainty and growth potential in the sugar substitute industry.

I. Core Competitive Advantages

(I) Health & Functional Barriers: Natural Low-Calorie with Multi-Dimensional Health Values

1. Physiological Metabolic Superiorities

- Its sweetness is close to sucrose (75%–90%), with mild and pure sweet taste and no bitter aftertaste, delivering better taste compatibility than most sugar alcohols.
- The calorie content is about 2.1 kcal/g, only 50% of sucrose; with a GI value of approximately 35. Its metabolism is insulin-independent, and the postprandial blood sugar peak is far lower than glucose, making it suitable for diabetics and sugar-controlled groups.
- Powerful dental protection: It cannot be metabolized by oral bacteria, will not produce acid to erode tooth enamel and inhibits dental plaque formation. Long-term consumption reduces the incidence of dental caries and it is recognized by dental associations worldwide.
- Intestinal-friendly: The small intestinal absorption rate is about 60%, and the unabsorbed part promotes the proliferation of bifidobacteria. Adults have no obvious gastrointestinal discomfort with a daily intake ≤80g, showing better tolerance than sorbitol and erythritol.
- Additional benefits: Promotes calcium absorption and reduces calcium loss to support bone health; inhibits excessive fat accumulation, ideal for weight management groups.

2. Compliance & Label Dividends

- U.S. FDA: Granted GRAS certification, allowed to be labeled with "low glycemic response" and "beneficial to dental health", and excluded from added sugar labeling restrictions.
- Chinese National Standards: GB 2760-2024 stipulates that it can be appropriately used in all types of food according to production demands with no special dosage limits.
- European EFSA: Certified as E965, with no genotoxicity or carcinogenicity, fully compliant for all food categories.
- International Organizations: JECFA has not specified an ADI value. It is fully compliant in Japan, South Korea, Australia, New Zealand and Southeast Asia with no policy risks for export.

(II) Processing & Technological Barriers: Full-Scenario Adaptation to Maximize Commercial Value

1. Irreplaceable in the Baking Industry

- Achieves 1:1 substitution with sucrose without formula or process adjustments, applicable to cakes, biscuits, bread and fillings, with sucrose-like taste and no bitter aftertaste.
- Excellent moisture retention: Delays starch aging, extends shelf life by 30%–50%, improves the softness of baked goods and inhibits microbial reproduction, solving the pain points of dry and hard texture and short shelf life of sugar-free baked products.
- Strong stability: Resistant to acid, alkali and high temperature (≤220℃); no decomposition or browning during baking with stable color, compatible with high-temperature baking processes.

2. Highly Adaptable in Confectionery & Chocolate Industries

- Excellent anti-crystallization performance: Not easy to precipitate and sand, suitable for hard candy, soft candy, chewing gum and chocolate with smooth taste and uniform texture.
- Moderate heat absorption upon dissolution: No strong cooling sensation, meeting the delicate taste demands of chocolate and improving the bitterness and blooming problems of sugar-free chocolate.
- High compatibility: Good synergistic effect with cocoa butter, milk powder and colloidal raw materials, enhancing product stability and taste layers.

3. Collaborative Expansion in Multiple Fields

- Beverages / Dairy Products: Suitable for sugar-free tea drinks, sparkling water, yogurt and ice cream; optimizes taste, stabilizes system performance, lowers freezing

point and inhibits lactose crystallization.

- Pharmaceutical Industry: Applied in tablets, lozenges, probiotic preparations and children's medicines; improves taste, provides moisture-proof stability and enhances medication compliance.
- Oral Care: Used in toothpaste, mouthwash and throat lozenges; exerts bacteriostatic and dental protection effects and increases product added value.
- Blending advantages: Synergizes with erythritol, steviol glycosides and allulose to optimize sweetness, cut costs, improve taste and expand application boundaries.

(III) Technological & Cost Barriers: China-Led Development Driven by Scale and Green Production

1. Technological Moat

- Mainstream process: High-pressure catalytic hydrogenation (accounting for over 85%), adopting high-maltose syrup from corn starch enzymatic hydrolysis as raw material for high-pressure hydrogenation and refining. The emerging bio-enzymatic method is rapidly penetrating the market, with the conversion rate increased to 95%, product purity reaching 98.5%–99.9% and energy consumption reduced by 20%.
- Core technologies: Efficient liquefaction and saccharification of starch, localized production of nickel-based / palladium-based catalysts, continuous crystallization and high-value utilization of by-products (such as sorbitol and isomaltitol purification). Leading enterprises hold patents covering the entire industrial chain.
- Product forms: **Dual supply of crystalline type (59.6% share) and liquid type (40.4% share)**. The liquid type is suitable for ready-to-drink products and fillings, delivering significant cost reduction and efficiency improvement.

2. Scale & Cost Advantages

- Concentrated production capacity: China's total production capacity reached 280,000 tons in 2025. The CR3 of Shandong Lvjian, Huakang Co., Ltd. and Baolingbao exceeds 60%, and large-scale production cuts unit costs by 15%–25%.
- Controllable raw materials: Relying on major corn producing areas in Northeast and North China, self-built starch supply bases and long-term price-locking contracts reduce raw material cost fluctuations compared with imported sugar alcohols.
- Green manufacturing: Leading enterprises have deployed photovoltaic power generation, wastewater recycling and low-carbon hydrogenation processes. Unit carbon emissions will decrease by more than 20% in 2030 compared with 2025, complying with the dual-carbon strategy and lowering environmental protection costs.

3. **Industrial Chain Premium Capability**
   - Upstream: Full industrial chain layout covering starch, syrup, hydrogenation, refining and crystallization with a self-sufficiency rate exceeding 80%, ensuring strong risk resistance.
   - Midstream: Graded products (food grade / pharmaceutical grade / high-end customized grade); pharmaceutical grade products enjoy a premium of over 40%, and high-end baking-specific materials have a premium of more than 25%.
   - Downstream: In-depth cooperation with leading food enterprises such as Yili, Mengniu and Mars; customized blending solutions ensure high customer stickiness and stable capital recovery.

II. Market Supply-Demand Pattern and Growth Drivers

(I) Global Market Scale and Growth Rate

- The global market sales volume reached approximately 263 million US dollars in 2024 and is expected to hit 404 million US dollars by 2031, with a **CAGR** of 6.4% from 2025 to 2031. Global production capacity exceeded 450,000 tons in 2025, and the Asia-Pacific region accounts for over 60% of the total.
- Chinese Market: China's consumption volume stood at about 180,000 tons in 2025 with a market size of nearly 40 billion RMB. Consumption is projected to exceed 220,000 tons by 2030 with a market capacity close to 50 billion RMB and a **CAGR** of 5.8% from 2025 to 2030.

(II) Downstream Consumption Structure Ratio

- Sugar-free Baking: 35% share (largest application sector), with a market size of about 14 billion RMB in 2025 and an annual growth rate exceeding 15%.
- Confectionery & Chocolate: 22% share, with a market size of 8.8 billion RMB in 2025; chewing gum and sugar-free chocolate achieve a growth rate above 12%.
- Beverages / Dairy Products: 18% share, with a market size of 7.2 billion RMB in 2025; sugar-free tea drinks and high-protein yogurt grow by over 18% annually.
- Pharmaceuticals / Daily Chemicals: 15% share, with a market size of 6 billion RMB in 2025; demand for children's medicines, mouthwash and probiotic preparations is rising rapidly.
- Others (Pet Food, Health Products): 10% share with an annual growth rate exceeding 20%.

(III) Growth Highlights of Segmented Tracks

1. Sugar-free Baking: Achieving a market size of 14 billion RMB in 2025 and accounting for 35% of total demand. The annual growth rate of sugar-free cakes, biscuits and bread exceeds 15%. Healthy baking has become a new trend, with the penetration rate of maltitol exceeding 60%.
2. Functional Dairy Products: Reaching a market size of 5 billion RMB in 2025 with an annual growth rate above 18%. Low-GI yogurt, high-protein ice cream and children's growth milk tablets are in strong demand, and maltitol presents better adaptability than other sugar alcohols.
3. Pharmaceuticals & Oral Care: Accounting for approximately 15% of market demand in 2025. Pharmaceutical-grade maltitol enjoys a premium of over 40%, and children's oral care products (sugar-free toothpaste, mouthwash) grow by more than 22%.
4. Blended Sugar Substitute Market: Maintaining an annual growth rate above 25%. Blended products of maltitol with erythritol and steviol glycosides have seen rapid penetration in sugar-free beverages and baked goods, solving the taste and cost pain points of single sugar alcohols.

III. Future Development Prospects

(I) Industry Trend: From "Sweetness Substitute" to "Functional Healthy Ingredient"

- Sugar Substitute Upgrading: Artificial sweeteners → natural sugar alcohols → functional natural sweeteners (represented by maltitol), with combined values of low calorie, dental protection, metabolic friendliness, moisture retention and stability.
- Application Expansion: Extending from baking and confectionery to pharmaceutical excipients, daily chemicals, pet food, health products and sports nutrition with continuously expanding application boundaries.
- Technological Iteration: Bio-enzymatic methods (high-yield strains), green hydrogenation (low-carbon processes), high-purity crystallization (pharmaceutical grade standards) and high-value utilization of by-products have become core development directions.
- Global Compliance: Accelerated approval in Southeast Asia, the Middle East and Latin America. RCEP policy dividends drive export growth, and the export proportion is expected to rise to 40% by 2030.

(II) Competitive Pattern: Dual Development of China's Leading Enterprises and Global Giants

- Dominance of Chinese Leading Enterprises: Shandong Lvjian Biological (80,000 tons production capacity, 28% market share), Huakang Co., Ltd. (60,000 tons production capacity, 21% market share) and Baolingbao (50,000 tons production capacity, 18% market share) jointly form a CR3 ratio exceeding 60%. They boast full industrial chain layout and prominent advantages in cost and quality control.
- In-Depth Layout of International Giants: Roquette (France), Mitsubishi Chemical (Japan) and CJ CheilJedang (South Korea) focus on pharmaceutical grade and high-

end food grade markets, relying on brand and technological barriers to maintain strong premium capabilities.

- Competition Focus: Competition has shifted from price wars to technological barriers (strains / processes), production capacity scale, global certification, customized customer services and sustainable production capacity.

(III) Downstream Customer Value (Commercial Benefits)

1. Product Upgrading and Premium Gain: Realizing product upgrading from sugar-free to low-calorie, dental-friendly, natural, moisturizing and stable performance, bringing a product premium of 25%–50% and covering segmented markets such as baking, dairy products and children's food.
2. Reliable Compliance and Safety: Full global scenario compliance with zero policy risks, high consumer trust and reduced brand costs in compliance management and public opinion control.
3. Process Cost Reduction and Efficiency Improvement: 1:1 sucrose substitution requires no production line renovation or formula adjustment, adapting to large-scale production. Liquid maltitol can be added directly to reduce dissolution procedures, cutting production costs and material loss.
4. Differentiated Competitive Barriers: Natural attributes, moisture retention & stability, dental protection functions and high tolerance jointly build brand moats and help enterprises escape homogeneous price competition.

(IV) Risks and Countermeasures

- Risk 1: Excessively rapid capacity expansion and intensified price wars → Focus on high-end markets including pharmaceutical grade, high-purity food grade and professional high-end baking materials; reduce costs by optimizing bio-enzymatic processes; provide customized blending solutions and technical services.
- Risk 2: Intestinal tolerance limitations and biased consumer cognition → Clearly mark the recommended daily intake (adults ≤80g); develop blended products (blended with erythritol and steviol glycosides to reduce single dosage); strengthen popular science to clarify misunderstandings about digestive discomfort.
- Risk 3: Raw material price fluctuations and rising environmental protection costs → Build full industrial chain layout with self-built corn starch bases; stabilize costs through long-term price-locking contracts and futures hedging; upgrade environmental protection processes to reduce energy consumption and wastewater discharge and apply for green policy subsidies.
- Risk 4: Substitution impact from emerging sugar substitutes (allulose, trehalose) → Strengthen differentiated functions such as moisture retention, stability, dental protection and calcium absorption; deepen layout in rigid-demand scenarios including baking and pharmaceuticals; promote blending innovation to build synergistic competitive advantages.

IV. Summary

With healthy attributes of natural low calorie, process advantages of full-scenario adaptability, policy dividends of global compliance and cost-scale barriers led by China, maltitol has become a core functional sweetening solution in global sugar-free baking, confectionery and chocolate, dairy products, pharmaceutical preparations and oral care fields.

As the core global supply base, China continues to lead the world in market growth driven by technological iteration and green manufacturing upgrading, and its market size is expected to exceed 50 billion RMB by 2030. For downstream enterprises, maltitol is not only a raw material for sweetness substitution, but also a core strategic pillar for product health upgrading, differentiated barrier building and segmented market expansion (sugar-free baking, children’s oral care, sugar-controlled groups). It presents a clear long-term growth logic and huge commercial value and development potential.