Core Status and Core Competitive Advantages of Chinese Erythritol in the Global Supply Chain

I. Core Status: The "Stabilizer" of the Global Supply Chain

China has become the absolute core supplier and stable growth pole of the global **erythritol** supply chain. It has built an industrial ecosystem with **absolute leading production capacity, independent and controllable technologies, global export coverage and full-industry chain self-control**, driving the global industrial pattern to form a stable system of "China-led and globally supported", and serving as an indispensable core pillar of the global sugar reduction industry.

1. Production Capacity Scale and Supply Capacity

• Absolute Dominance in Production Capacity:

By the end of 2025, China's total erythritol production capacity has exceeded 350,000 tons, accounting for more than 70% of the global total and ranking first worldwide. It is expected that the production capacity will expand to 400,000 tons in 2026, covering full-specification products including food-grade, pharmaceutical-grade and crystalline-grade, fully meeting global rigid demand with sufficient reserve capacity.

• Leadership of Leading Enterprise Clusters:

Leading enterprises such as Sanyuan Biology, Baolingbao, Dongxiao Biology, Layn Natural Ingredients and Jinhe Industry have built 10,000-ton intelligent production lines. The combined production capacity of the top five manufacturers accounts for over 75% of China's total domestic capacity. Among them, Sanyuan Biology boasts the world's largest single-plant production capacity. Relying on the industrial cluster advantages in Shandong Province, Baolingbao and Dongxiao Biology maintain top global production capacity, with continuous improvement in industry concentration.

• Highly Resilient Supply Chain:

Relying on functional sugar industrial clusters in Yucheng and Binzhou of Shandong, Zhangjiagang of Jiangsu, Qinhuangdao of Hebei and other regions, a complete closed-loop industrial chain of **corn - starch - glucose - fermentation - purification - crystallization** has been formed, with the raw material self-sufficiency rate exceeding 95%. Enterprises within the cluster realize raw material sharing, energy supporting and logistics coordination, ensuring long-term stable and bulk delivery for global customers with world-leading risk resistance.

2. Global Market and Export Pattern

• Leading Export Scale:

China's erythritol export volume reached 93,000 tons in 2025, a year-on-year increase of 16.2%; the export value exceeded 2 billion RMB with a year-on-year growth of 18%, accounting for over 65% of the total global erythritol trade volume, making China the world's largest erythritol exporter.

• Extensive Global Coverage:

Products are sold to more than 80 countries and regions including the European Union (38.5%), the United States (24.1%), Southeast Asia (19.7%), Japan, South Korea, the Middle East and Latin America. The EU and the United States act as core high-end markets, while Southeast Asia and the Middle East are emerging growth markets, with in-depth covered international channel networks and strong customer loyalty.

• Complete International Qualifications:

All leading enterprises have passed mainstream global regulatory certifications including **US FDA GRAS, EU EFSA Novel Food, Korea KFDA, Japan MHLW, JECFA, Halal/Kosher**, gaining worldwide recognition for product compliance and realizing "global access with unified certifications".

3. Domestic Industrial Policy Support

• Strong Policy Support:

Included in key supported fields such as the **14th Five-Year Plan for Bioeconomic Development** and the **Healthy China 2030 Outline**. The National Health Commission of China has clearly defined erythritol as a safe and legal food additive with applicable scope covering all categories of food and beverages, releasing continuous policy dividends.

• Sound Standard System:

The national standard **Erythritol (GB/T 24309-2024)** was officially implemented in 2024, clarifying core indicators including purity ≥99.5%, heavy metals and microorganisms. A three-level standard system led by national standards, supplemented by association standards and refined by enterprise standards has been established to standardize high-quality industrial development.

II. Core Competitive Advantages: Seven Major Barriers Building Global Moat

The competitive advantages of Chinese erythritol stem from in-depth coordination across seven dimensions: **technology, cost, industrial chain, compliance, application, production capacity and internationalization**, forming irreplicable comprehensive competitiveness for global peers.

1. Technological & Process Advantages: World-Class Biomanufacturing

• Independently Controllable Strains:

Enterprises including Sanyuan Biology, Baolingbao and Dongxiao Biology have independently selected and bred high-yield and temperature-resistant yeast strains, breaking overseas monopoly on strains. The glucose conversion rate of strains has increased from the traditional industry level of 58% to 68%-72%, reaching 75% in some leading enterprises, maintaining an absolute world-leading level.

• Globally Advanced Process Routes:

🔵 Continuous Fermentation Technology: Leading enterprises pioneered the integrated technology combining low-temperature continuous fermentation, membrane separation and continuous crystallization, cutting the fermentation cycle by 20%, reducing unit energy consumption by 12.7%, and stabilizing product purity at 99.8%, achieving high-efficiency, low-carbon and stable mass production.

🔵 Green Purification Technology: Integrating nanofiltration, ion exchange and activated carbon decolorization processes, with an impurity removal rate exceeding 99% and mother liquor recycling rate increased to 40%, which greatly reduces environmental protection costs and realizes green and low-carbon production.

• Patent & Standard Discourse Power:

Leading enterprises have accumulated more than 150 erythritol-related patents covering core links such as strain breeding, fermentation technology, purification & crystallization and equipment manufacturing. Sanyuan Biology and Baolingbao take the lead in drafting national and industrial standards, mastering global industrial technological discourse power.

2. Cost Advantages: The Lowest Full-Chain Cost Worldwide

• Overwhelming Raw Material Cost Advantages:

Relying on China’s world-leading corn production capacity, core raw materials such as corn starch and glucose are in sufficient supply with stable prices. The raw material cost is 25%-30% lower than that of Europe and the United States, and 15%-20% lower than that of Southeast Asia, laying a solid cost advantage from the source.

• Continuous Cost Reduction by Scale Effect:

Large-scale production of 10,000-ton units drives the continuous decline of unit costs. The average industrial cost per ton in 2025 dropped by 23.4% compared with 2023. With a high operating rate of 80%-90%, leading enterprises enjoy 15%-20% lower costs than small and medium-sized manufacturers, possessing the strongest price competitiveness globally.

• Cost Reduction and Efficiency Improvement via Industrial Clusters:

Industrial clusters in Yucheng and Binzhou of Shandong gather more than 40 upstream and downstream enterprises, realizing nearby raw material procurement, centralized energy supply, localized logistics supporting and collaborative technology sharing, with comprehensive costs 10%-15% lower than non-cluster areas.

3. Full Industrial Chain Advantages: Closed-Loop and Independent Control

• Upstream Raw Material Self-Sufficiency:

Leading enterprises have built self-operated corn deep processing bases. Dongxiao Biology boasts an annual corn processing capacity of 1.6 million tons, achieving self-sufficiency in starch and glucose. The stable raw material supply and controllable costs are free from the impact of international raw material price fluctuations.

• Midstream Manufacturing Cluster:

A complete manufacturing chain of **strain - enzyme preparation - fermentation - purification - crystallization - packaging** has been formed. The localization rate of core equipment (fermenters, crystallizers, membrane separation equipment) exceeds 85%, with complete supporting industries and the world's highest production efficiency.

• Downstream Application Collaboration:

In-depth strategic cooperation has been established with global leading food and beverage enterprises such as Genki Forest, Nongfu Spring, Yili, Mengniu, Danone, Coca-Cola and Nestlé, enabling rapid response to downstream demands and promoting collaborative innovation of "raw materials - application".

4. Global Compliance Advantages: Full Certification Coverage & Integrated Services

• Comprehensive Coverage of International Certifications:

All leading enterprises have obtained mainstream global certifications including FDA GRAS, EFSA Novel Food, KFDA and JECFA as well as Halal/Kosher qualifications, meeting market access requirements of all mainstream regions including Europe, America, Japan, South Korea and Southeast Asia with world-leading compliance thresholds.

• Strong Domestic Compliance Endorsement:

The three-level standard system of national standards, association standards and enterprise standards is well improved. Product quality and safety indicators are officially recognized by national authorities, providing "Chinese compliance endorsement" for export products and greatly enhancing the trust of global customers.

• One-Stop Compliance Services:

Enterprises provide supporting documents including toxicological reports, process compliance statements, label compliance solutions and impurity detection reports, meeting global customers' compliance needs in one stop and reducing customers' compliance costs and operational risks.

5. Application Innovation Advantages: Full-Scenario Adaptation & Customized Services

• Irreplaceable Functional Properties:

Erythritol features zero calories (0.24kcal/g, labeled as 0 calorie per regulation), 60%-70% sweetness of sucrose, no blood sugar elevation, no insulin stimulation, anti-caries performance and high stability. It perfectly caters to the global trends of sugar reduction and healthy consumption, serving as a "star product" in the sugar substitute industry.

• In-Depth Penetration in Full Scenarios:

Widely applied in sugar-free beverages (accounting for over 55%), baked foods, dairy products, confectionery, health products, oral care, pet food and other fields. It adapts to sparkling water, tea drinks and functional beverages in the beverage sector, can 100% replace sucrose in baking, and meets hypoallergenic and low-calorie demands in pet food.

• Customized Solution Services:

Tailored services including compound formula design (erythritol + steviol glycoside / sucralose), flavor optimization, stability improvement and cost optimization are provided for different product categories and customer demands, helping customers develop differentiated products and form a positive cycle of "application - production capacity - technology".

6. Production Capacity Expansion & Capital Advantages: Continuous Consolidation of Global Supply

• Strong Capital Strength of Leading Enterprises:

Listed companies such as Sanyuan Biology, Baolingbao and Jinhe Industry feature sufficient capital and low asset-liability ratios. In 2025, leading enterprises invested over 1 billion RMB in capacity expansion, technological R&D and green upgrading to continuously strengthen production capacity advantages.

• Accelerated Overseas Capacity Layout:

Sanyuan Biology has built a 50,000-ton erythritol production base in Cambodia to avoid tariff barriers in Europe and the United States and get close to the Southeast Asian market. Baolingbao and Dongxiao Biology have planned overseas capacity projects to build a dual supply system of "domestic + overseas bases" and improve the response speed of the global supply chain.

• Precise Matching of Production Capacity and Demand:

The rapid release of domestic production capacity forms a virtuous cycle with the steady growth of global demand (CAGR of approximately 12%-15% from 2025 to 2030), supporting China’s long-term core position in the global supply chain.

7. International Layout Advantages: Leading Global Channels and Brand Influence

• In-Depth Development of Global Channels:

Leading enterprises have established more than 20 overseas offices and subsidiaries in North America, Europe, Asia-Pacific, the Middle East, Latin America and other regions, with localized sales and technical service teams to provide full-process services covering raw material supply, application support, compliance consultation and logistics distribution.

• Deepened International Cooperation:

Strategic partnerships have been established with global food giants such as Cargill, ADM and Tate & Lyle as well as regional distributors to quickly access mainstream global supply chains. Technical cooperation with DuPont, DSM and other enterprises in strain research and application technology has enhanced global technological collaboration.

• Prominent International Brand Influence:

Through global industry exhibitions including FIC, IFT, HiFi and Anuga, Chinese erythritol technologies and products are fully displayed, shaping an international brand image of **"Intelligent Manufacturing in China, Cost-Effectiveness, Compliance & Reliability, Green and Low-Carbon"** with continuously improved global recognition.

III. Global Supply Chain Value: Core Contributions of China

1. Supply Stabilizer

With over 70% of global production capacity, China meets **more than 60%** of global erythritol demand, ensures the stability of the global sugar reduction industrial supply chain, and avoids global market shortages and sharp price fluctuations.

2. Price Stabilizer

Driven by technological cost reduction, scale effect and full-industry chain advantages, China promotes the rational regression of global erythritol prices, accelerates the popularization of "healthy sugar substitutes" worldwide, reduces production costs of downstream enterprises and benefits global consumers.

3. Technology Enabler

China independently exports self-developed strains, continuous fermentation technology, green purification technology, compliance systems and application solutions to the world, driving technological upgrading of the global erythritol industry and improving the overall efficiency and green manufacturing level of the global sector.

4. Market Pioneer

Through export business and overseas capacity layout, China deeply explores emerging markets in Southeast Asia, the Middle East and Latin America, expands global application scenarios of erythritol, promotes the sustained growth of the global sugar reduction industry, and boosts the development of global health undertakings.

IV. Summary and Outlook

Relying on seven core advantages including technology, cost, industrial chain, compliance, application, production capacity and internationalization, Chinese erythritol has become the absolute core supplier, technology leader and rule participant in the global supply chain. In the future, with the further release of domestic production capacity, the implementation of overseas capacity layout, continuous upgrading of green and low-carbon technologies and gradual improvement of the global compliance system, China will further consolidate its global leading position. It will promote erythritol to become a mainstream healthy global sugar substitute, provide **"Chinese Solutions"** and contribute **"Chinese Strength"** to the development of the global sugar reduction cause and health industry.