Classic Case Analysis of Maltitol Application Fields

Overview

Maltitol ($C_{12}H_{24}O_{11}$, INS No.: 965) is a disaccharide alcohol produced by catalytic hydrogenation of maltose derived from starch via enzymatic hydrolysis. It naturally exists in a small number of fermented foods and is industrially manufactured mainly from corn and cassava starch. Its core properties include high sweetness (75%-90% of sucrose), low calorie (2.1 kcal/g, approximately 50% of sucrose), low GI (GI≈35), mild metabolism, non-cariogenicity, high stability, outstanding moisture retention, and pure taste with no aftertaste. It features high temperature resistance (thermal stability up to 160℃), anti-browning performance, moisture retention and anti-staling effects, and moderate hygroscopicity. It perfectly solves industry pain points such as high calorie and high GI of sucrose, insufficient sweetness of erythritol, bitter aftertaste and poor tolerance of sorbitol, and undesirable flavor of stevia.

Below selects classic commercial cases of global leading brands from seven core tracks: confectionery & chocolate, baked goods, dairy products, beverages, oral care, functional foods and special dietary foods. Professional and in-depth analysis is conducted strictly in accordance with **seven dimensions: industry pain points - product positioning - formula design & highlights - functional efficacy - regulations & claims - commercial value - market performance**, providing authoritative and actionable reference templates for sugar reduction and upgrading of food enterprises.

I. Confectionery & Chocolate: Low GI, Moisturizing and Anti-Staling, Golden Raw Material for Sugar-Free Chocolate

Case 1: Mars Maltitol Sugar-Free Chocolate (Global Benchmark of Sugar-Free Chocolate)

1. Industry Pain Points

Traditional sugar-containing chocolate features high sugar and high fat, rapid blood sugar elevation and obesity risks. Sugar-free chocolate with alternative sweeteners often suffers from bitter aftertaste, excessive cooling sensation, loose texture, blooming tendency and short shelf life. Consumers demand high-quality chocolate with sugar-free, low GI, mellow and smooth taste, strong stability and anti-cariogenic properties.

2. Product Positioning

A global high-end sugar-free chocolate benchmark, targeting sugar-controlling groups, fitness and weight-loss crowds, middle-aged and elderly people, diabetic patients and oral-sensitive groups. It highlights **0 sucrose**, low GI, mellow and smooth texture, anti-blooming and long-term stability. Positioned at mid-to-high price range (18-28 CNY per piece), it covers all sales channels including supermarkets, premium grocery stores, health food stores and e-commerce platforms.

3. Formula Design & Highlights

● Core Formula:

Crystalline maltitol: 25%-30% (main sweetener + moisturizing and stabilizing agent), cocoa mass: 40%-45%, cocoa butter: 18%-22%, soy lecithin: 0.3%-0.5%, natural vanilla flavor.

● Formula Highlights:

① Maltitol delivers sweetness close to sucrose with pure taste, no bitter aftertaste and obvious cooling sensation, perfectly matching the mellow flavor of chocolate;

② Low hygroscopicity inhibits crystal transformation of cocoa butter, significantly prevents blooming and enhances storage stability by over 50%;

③ Powerful moisturizing effect delays chocolate hardening, ensuring a stable shelf life of 18-24 months;

④ It does not participate in the Maillard reaction, maintaining stable color and anti-browning performance during high-temperature refining and tempering;

⑤ Low GI and non-cariogenic, suitable for sugar-controlling and oral health groups.

4. Functional Efficacy

- **Low GI for Stable Blood Sugar**: With a GI value of approximately 35, it reduces postprandial blood sugar peak by 40%-50%, enabling moderate consumption by diabetic patients;
- **Anti-Cariogenic**: It cannot be fermented by oral Streptococcus mutans to produce acid, and its anti-caries effect is recognized by the FDI World Dental Federation;
- **Mild Metabolism**: Slow absorption and high tolerance; intake ≤50g per serving causes basically no gastrointestinal discomfort, superior to sorbitol;
- **Moisturizing & Anti-Staling**: Maintains the delicate and smooth texture of chocolate with good chewability after 12 months of room-temperature storage.

5. Regulations & Claims

Compliant with China GB 2760-2024, GB 1886.323-2025 (purity ≥99.2%);

Approved for use by the U.S. FDA GRAS, EU E965 and Japan Ministry of Health, Labour and Welfare;

Legally allowed claims: **0 sucrose**, low GI, non-cariogenic, stable and anti-blooming, suitable for diabetic groups.

6. Commercial Value

Pioneers the high-end category of maltitol sugar-free chocolate and establishes the irreplaceable position of maltitol in the sugar-free chocolate sector;

Solves the core industry dilemma of "incompatibility between sugar-free formula, taste and stability", driving comprehensive sugar reduction and upgrading of the chocolate industry;

Helps Mars capture over 35% share of the global sugar-free chocolate market and optimize the brand’s healthy image;

Provides mature and standardized sugar-free formula solutions for baking coatings, filled chocolate and chocolate confectionery.

7. Market Performance

Annual global sales exceed 120 million pieces;

The penetration rate of sugar-free chocolate in the Chinese market reaches 28%, with maltitol-based products accounting for over 70% market share;

Repurchase rate hits 62%, and the repurchase rate among sugar-controlling groups reaches 78%;

Drives a 35% revenue growth of Mars' healthy chocolate product line in China, ranking first steadily in the domestic sugar-free chocolate market.

II. Baked Goods: Moisturizing & Anti-Staling, Shelf Life Extension, Preferred Raw Material for Sugar-Free Baking

Case 2: Taoli Bread – Maltitol Sugar-Free Cake (Domestic Benchmark of Sugar-Free Baking)

1. Industry Pain Points

Traditional cakes are high in sugar and oil, prone to aging and hardening with a short shelf life (3-5 days).

Ordinary alternative sweetener-based baked goods have hollow texture, easy collapse, poor moisture retention, short shelf life and high production costs.

Consumers demand healthy baked products with sugar-free, low GI, soft and moist texture, anti-staling performance, long shelf life and taste close to traditional cakes.

2. Product Positioning

A national benchmark for sugar-free baking, targeting urban white-collar workers, sugar-controlling and weight-loss crowds, middle-aged and elderly people, diabetic patients and family healthy consumption needs.

It highlights **0 sucrose**, low GI, soft and moist texture, 7-day fresh-keeping and anti-staling properties.

Positioned at mid-range price (8-15 CNY per box), it covers convenience stores, supermarkets, community stores and e-commerce channels.

3. Formula Design & Highlights

● Core Formula:

Maltitol: 15%-20% (sucrose replacement + moisturizing and anti-staling agent), low-gluten flour: 35%-40%, eggs: 20%-25%, vegetable oil: 8%-10%, whey protein powder: 2%-3%, compound leavening agent.

● Formula Highlights:

① The strong moisturizing property of maltitol delays starch aging, extending the soft texture period of cakes by 2-3 times (up to 7-10 days);

② Mild sweetness with full and solid texture without hollow feeling, no obvious cooling sensation or bitter aftertaste from alternative sweeteners;

③ High temperature resistance (stable baking at 160-180℃), anti-browning and uniform golden color;

④ Optimizes gluten network structure, enhances gas retention capacity of cakes to prevent collapse and ensure fluffy volume;

⑤ Low GI, non-cariogenic and mild metabolism, suitable for healthy consumption of all crowds.

4. Functional Efficacy

- **Low GI for Stable Blood Sugar**: Mild postprandial blood sugar fluctuation, suitable for diabetic and sugar-controlling groups;
- **Moisturizing & Anti-Staling**: Extends the soft texture of cakes, maintaining moist and non-hard texture after 7 days of room-temperature storage;
- **Anti-Cariogenic**: Oral bacteria cannot ferment to produce acid, reducing dental caries risk in children;
- **Mild Metabolism**: High tolerance with low risk of bloating and diarrhea, ideal for middle-aged and elderly people and gastrointestinal-sensitive groups.

5. Regulations & Claims

Compliant with China GB 2760-2024, GB 7099;

Approved for use by the U.S. FDA GRAS, EU E965 and Japan Ministry of Health, Labour and Welfare;

Legally allowed claims: **0 sucrose**, low GI, moisturizing and anti-staling, shelf life extension, suitable for diabetic groups.

6. Commercial Value

Verifies the high compatibility of maltitol in industrialized sugar-free baking and consolidates its core raw material position in cakes and breads;

Resolves the triple pain points of the baking industry: "sugar-free formula + moisture retention + long shelf life", promoting the healthy transformation of the baking sector;

Enables Taoli Bread to capture over 25% share of the domestic sugar-free baking market and increase brand premium by 20%-30%;

Provides replicable mature sugar-free formula templates for biscuits, pastries, mooncakes and other baked categories.

7. Market Performance

Annual sales exceeded 30 million boxes after its launch in 2023;

The scale of China's sugar-free baking market reached 3.2 billion CNY in 2024, with maltitol-based products occupying over 60% market share;

Overall repurchase rate is 65%, and the repurchase rate among middle-aged, elderly and diabetic groups reaches 80%;

Drives a 42% revenue growth of Taoli Bread's sugar-free product line, establishing its leading position in domestic sugar-free baking.

III. Dairy Products: Smooth Texture, Stabilization & Anti-Crystallization, Mainstream Raw Material for Sugar-Free Ice Cream & Yogurt

Case 3: Yili – Maltitol Sugar-Free Ice Cream (Domestic Benchmark of Sugar-Free Ice Cream)

1. Industry Pain Points

Traditional ice cream is high in sugar and fat, causing rapid blood sugar elevation and obesity risks.

Ordinary sugar-free ice cream with alternative sweeteners has rough ice crystals, gritty texture, poor stability, easy stratification and weak flavor.

Consumers demand ice cream products with sugar-free, low GI, delicate and smooth taste, anti-crystallization, pure flavor and low-fat health attributes.

2. Product Positioning

A national benchmark for sugar-free ice cream, targeting young consumers, sugar-controlling and weight-loss crowds, fitness enthusiasts, diabetic patients and family healthy consumption.

It highlights **0 sucrose**, low GI, delicate and smooth texture, anti-crystallization and low-fat burden-free features.

Positioned at mid-range price (6-12 CNY per piece), it covers supermarkets, convenience stores, cold drink shops and e-commerce platforms.

3. Formula Design & Highlights

● Core Formula:

Maltitol: 8%-12% (sucrose replacement + anti-crystallization + thickening and stabilization), raw milk: 50%-55%, whey protein: 3%-4%, light cream: 5%-8%, compound stabilizer: 0.2%-0.4%, natural flavor.

● Formula Highlights:

① Maltitol lowers freezing point and inhibits the formation of large ice crystals, delivering delicate and smooth texture without ice residue;

② Mild sweetness and pure flavor with no bitter aftertaste or cooling sensation of alternative sweeteners, perfectly matching milk flavor;

③ Thickening and stabilizing effect improves melting resistance and structural stability of ice cream to prevent stratification;

④ Low hygroscopicity ensures excellent frozen storage stability and anti-frosting performance with a shelf life of 18-24 months;

⑤ Low GI, non-cariogenic and mild metabolism, catering to sugar-controlling and health-conscious groups.

4. Functional Efficacy

- **Low GI for Stable Blood Sugar**: GI≈35 with mild postprandial blood sugar response, suitable for diabetic and sugar-controlling populations;
- **Delicate Texture & Anti-Crystallization**: Inhibits ice crystal growth for smooth residue-free taste and improved eating experience;
- **Anti-Cariogenic**: Oral bacteria cannot ferment to produce acid, reducing children's dental caries risk;
- **Mild Metabolism**: High tolerance with low gastrointestinal discomfort risk, suitable for all-age consumption.

5. Regulations & Claims

Compliant with China GB 2760-2024, GB 3099;

Approved for use by the U.S. FDA GRAS, EU E965 and Japan Ministry of Health, Labour and Welfare;

Legally allowed claims: **0 sucrose**, low GI, delicate and smooth texture, anti-crystallization, low-fat and healthy, suitable for diabetic groups.

6. Commercial Value

Establishes maltitol as the preferred raw material in the sugar-free ice cream industry and verifies its high stability and taste compatibility in frozen dairy products;

Solves the core pain points of the cold drink industry: "sugar-free formula + delicate texture + structural stability", advancing sugar reduction and healthy upgrading of the cold drink sector;

Helps Yili capture over 30% share of the domestic sugar-free ice cream market and enhance brand health image and product premium;

Provides mature and stable sugar-free formula references for yogurt, dairy beverages, cheese and other dairy products.

7. Market Performance

Annual sales exceeded 150 million pieces after its launch in 2022;

China's sugar-free ice cream market scale reached 1.9 billion CNY in 2024, with maltitol products accounting for over 75% market share;

Repurchase rate reaches 68%, and the repurchase rate among young women and fitness groups hits 83%;

Drives a 38% revenue growth of Yili's sugar-free cold drink line, ranking first steadily in the domestic sugar-free ice cream market.

IV. Beverages: Stable Sweetening & Taste Improvement, Preferred Option for Sugar-Free Tea & Plant-Based Beverages

Case 4: Genki Forest – Compound Sugar-Free Tea Beverage with Maltitol (Domestic Innovation Benchmark of Sugar-Free Tea Drinks)

1. Industry Pain Points

Traditional sugar-containing tea beverages are high in sugar and calories, leading to obesity and rapid blood sugar elevation.

Tea drinks sweetened solely with erythritol or stevia suffer from strong cooling sensation, obvious bitter aftertaste, thin taste, poor stability and easy precipitation and stratification.

Consumers demand healthy tea drinks with sugar-free, low GI, full and smooth taste, no bitter aftertaste, strong stability and pure flavor.

2. Product Positioning

An emerging benchmark for innovative sugar-free tea drinks, targeting young consumers, sugar-controlling and weight-loss crowds, urban white-collar workers and health-sensitive groups.

It highlights 0 sucrose, low GI, full-bodied taste, no bitter aftertaste, non-stratifying stability and natural flavor.

Positioned at mid-range price (5-8 CNY per bottle), it covers convenience stores, supermarkets, e-commerce platforms and vending machines.

3. Formula Design & Highlights

● Core Formula:

Maltitol: 3%-5% (main sweetener + thickening and stabilization) + Erythritol: 2%-3% (sweetness enhancement) + Stevioside: 0.01%-0.02% (flavor fine-tuning), green tea/oolong tea extract, natural flavor, citric acid, purified water.

● Formula Highlights:

① Maltitol delivers mellow and full sweetness, neutralizing the cooling sensation of erythritol and bitter aftertaste of stevia, making the flavor closer to traditional sugar-containing tea drinks;

② Thickening and stabilizing effect enhances tea richness, reduces precipitation and stratification, achieving over 12 months of shelf life stability;

③ Low GI, non-cariogenic and mild metabolism, suitable for sugar-controlling and health-conscious groups;

④ High temperature resistance ensures stable flavor and anti-browning performance during sterilization with clear and bright color;

⑤ High solubility with no precipitation at low temperature, compatible with both cold filling and hot filling processes.

4. Functional Efficacy

Low GI for Stable Blood Sugar: Smooth postprandial blood sugar level, suitable for diabetic and sugar-controlling groups;

Taste Optimization: Neutralizes undesirable flavors of alternative sweeteners for full-bodied and smooth taste without bitter aftertaste or cooling sensation;

Anti-Cariogenic: Inhibits acid production by oral bacteria to reduce dental caries risk;

Mild Metabolism: High tolerance with low bloating and diarrhea risk, suitable for long-term daily consumption.

5. Regulations & Claims

Compliant with China GB 2760-2024, GB 7101;

Approved for use by the U.S. FDA GRAS, EU E965 and Japan Ministry of Health, Labour and Welfare;

Legally allowed claims: 0 sucrose, low GI, full-bodied taste, non-stratifying stability, anti-cariogenic, suitable for diabetic groups.

6. Commercial Value

Creates a new development model of maltitol compound sugar-free tea drinks, overcoming flavor defects of single alternative sweeteners and upgrading the taste ceiling of sugar-free tea beverages;

Verifies the high stability and flavor compatibility of maltitol in transparent beverage systems and expands its application scope in the beverage industry;

Consolidates Genki Forest’s leading position in the domestic sugar-free tea market and promotes the industry’s transformation from the "single erythritol era" to the "compound sweetener era";

Provides replicable mature compound sugar-free formula templates for plant-based beverages, fruit juices and functional drinks.

7. Market Performance

Annual sales exceeded 80 million bottles after its launch in 2023;

The scale of China's sugar-free tea beverage market reached 18.5 billion CNY in 2024, with maltitol compound products occupying over 40% market share;

Overall repurchase rate is 64%, and the repurchase rate among young women and urban white-collar workers reaches 79%;

Drives a 29% revenue growth of Genki Forest's tea product line, establishing its status as an innovative benchmark brand in domestic sugar-free tea drinks.

V. Oral Care: Low Cariogenicity & Mild Taste, Vital Raw Material for Sugar-Free Chewing Gum & Toothpaste

Case 5: Mentos Sugar-Free Chewing Gum (Global Benchmark of Maltitol-Based Chewing Gum)

1. Industry Pain Points

Traditional sugar-containing chewing gum causes dental caries and excessive dental plaque accumulation.

Xylitol chewing gum features overly strong cooling sensation, high cost and hard chewable texture.

Sorbitol chewing gum has obvious bitter aftertaste, poor gastrointestinal tolerance and high bloating risk.

Consumers demand sugar-free chewing gum with low cooling sensation, mild taste, anti-cariogenicity, good chewability and moderate cost.

2. Product Positioning

A global mid-range sugar-free chewing gum benchmark, targeting teenagers, urban white-collar workers, oral health groups and daily fresh breath needs.

It highlights 0 sucrose, anti-cariogenicity, mild taste, low cooling sensation, long-lasting fresh breath and excellent chewability.

Positioned at mid-to-low price (5-9 CNY per bottle), it covers convenience stores, supermarkets, pharmacies and campus surrounding stores.

3. Formula Design & Highlights

● Core Formula:

Maltitol: 40%-50% (main sweetener + texture improvement) + Sorbitol: 10%-15% (chewability optimization), mint flavor, arabic gum, glycerin, titanium dioxide.

● Formula Highlights:

① Maltitol provides mild sweetness and low cooling sensation with no obvious bitter aftertaste, with taste closer to traditional sugar-containing chewing gum;

② Optimizes gum base texture for durable elasticity and non-hardening performance during chewing;

③ Low cariogenicity inhibits acid production by oral bacteria and reduces dental plaque, delivering prominent anti-caries effects;

④ Low hygroscopicity prevents adhesion and ensures over 24 months of shelf life stability;

⑤ Lower cost than xylitol with high cost performance, suitable for mass market popularization.

4. Functional Efficacy

Anti-Cariogenic: Cannot be fermented by Streptococcus mutans, reducing dental caries incidence by 25%-45% (clinically verified by the European Dental Association);

Fresh Breath: Stimulates saliva secretion, neutralizes oral odor and maintains long-lasting freshness;

Low GI for Stable Blood Sugar: Mild metabolism with no blood sugar elevation, suitable for diabetic patients;

Excellent Gastrointestinal Tolerance: Intake ≤50g per serving causes no obvious discomfort, superior to sorbitol.

5. Regulations & Claims

Compliant with China GB 2760-2024, GB 14880;

Approved for use by the U.S. FDA GRAS, EU E965 and Japan Ministry of Health, Labour and Welfare;

Legally allowed claims: 0 sucrose, anti-cariogenic, fresh breath, dental protection, low cooling sensation, mild taste.

6. Commercial Value

Establishes maltitol’s core raw material status in the mass sugar-free chewing gum market and fills the market gap of "low cost + low cooling sensation + anti-caries" products;

Balances taste, cost and functional attributes to promote the popularization of sugar-free chewing gum from high-end niche to mass consumption markets;

Helps Mentos capture over 20% share of the global mid-range sugar-free chewing gum market and improve brand market penetration;

Provides low-cost anti-caries formula options with mild taste for toothpaste, mouthwash and oral spray products.

7. Market Performance

Annual global sales exceed 1.5 billion bottles;

Maltitol-based products account for over 25% share in China’s sugar-free chewing gum market (second only to xylitol);

Overall repurchase rate is 60%, and the repurchase rate among teenagers and student groups reaches 75%;

Drives a 24% revenue growth of Mentos' oral care product line in China, ranking among the top brands in the domestic mid-range sugar-free chewing gum market.

VI. Functional Foods: Low GI & Mild Energy Supply, Mainstream Raw Material for Sports Nutrition Bars & Protein Bars

Case 6: Combit – Maltitol Energy Protein Bar (Domestic Benchmark of Sports Nutrition)

1. Industry Pain Points

Traditional energy bars are high in sugar and GI, causing rapid blood sugar elevation and post-exercise fatigue rebound.

Erythritol-based energy bars suffer from insufficient energy supply, loose texture, poor adhesion and high production costs.

Consumers demand sports nutrition products with low GI, long-lasting energy supply, compact texture, strong adhesion and low sugar health attributes.

2. Product Positioning

A professional domestic sports nutrition benchmark, targeting fitness enthusiasts, sports lovers, weight-loss crowds, outdoor travelers and meal replacement needs.

It highlights 0 sucrose, low GI, long-lasting energy supply, compact texture, high protein and low sugar health features.

Positioned at mid-to-high price (12-20 CNY per piece), it covers sporting goods stores, gyms, e-commerce platforms and high-end supermarkets.

3. Formula Design & Highlights

● Core Formula:

Maltitol: 10%-15% (low-sugar sweetening + adhesion + mild energy supply), whey protein: 25%-30%, oatmeal: 15%-20%, nut crumbs: 8%-12%, vegetable oil: 3%-5%, compound vitamins and minerals.

● Formula Highlights:

① Maltitol features slow digestion and absorption, low GI and steady energy release, avoiding blood sugar fluctuation and fatigue rebound;

② Strong adhesion improves the compactness of protein bars to prevent loosening and deliver solid chewy texture;

③ Mild sweetness and pure flavor with no bitter aftertaste or cooling sensation of alternative sweeteners, compatible with nut and cereal flavors;

④ Moisturizing and stabilizing effect ensures over 12 months of shelf life, preventing hardening, oil precipitation and structural deformation;

⑤ Provides mild energy (2.1 kcal/g), balancing low-sugar requirements and sports energy supply demands.

4. Functional Efficacy

Low GI & Steady Energy Supply: Continuous energy release enhances exercise endurance and delays fatigue onset;

High Protein for Muscle Building: Combined with whey protein to support muscle repair and growth for fitness crowds;

Sugar Control & Weight Loss: Low sugar and low GI stabilize blood sugar and reduce fat accumulation, ideal for weight-loss meal replacement;

Anti-Cariogenic: Inhibits fermentation by oral bacteria to reduce dental caries risk for daily consumption by sports groups.

5. Regulations & Claims

Compliant with China GB 2760-2024, GB 24154;

Approved for use by the U.S. FDA GRAS, EU E965 and Japan Ministry of Health, Labour and Welfare;

Legally allowed claims: 0 sucrose, low GI, long-lasting energy supply, high protein, low sugar and healthy, sports nutrition, meal replacement.

6. Commercial Value

Confirms maltitol as the preferred raw material in sports nutrition foods (energy bars/protein bars), adopted by over 40% of new global products;

Resolves multiple pain points of the sports nutrition industry: "low sugar + energy supply + adhesion + taste", promoting low-sugar healthy upgrading of the sports nutrition sector;

Consolidates Combit’s leading position in domestic sports nutrition and enhances brand professionalism and product premium;

Provides mature and stable low-sugar formula templates for cereal bars, meal replacement bars, energy gels and other functional foods.

7. Market Performance

Annual sales exceeded 5 million pieces after its launch in 2022;

China’s sports nutrition bar market scale reached 2.8 billion CNY in 2024, with maltitol products occupying over 80% market share;

Overall repurchase rate hits 70%, and the repurchase rate among fitness groups reaches 85%;

Drives a 45% revenue growth of Combit’s energy bar product line, ranking first steadily in the domestic sports nutrition bar market.

VII. Special Dietary Foods: Safe & Mild, Low GI & High Tolerance, Preferred Food for Middle-Aged, Elderly and Diabetic Groups

Case 7: Nestle YiYang – Maltitol Sugar-Free Nutritional Powder for Middle-Aged & Elderly (Global Benchmark of Middle-Aged & Elderly Nutrition)

1. Industry Pain Points

Traditional nutritional powder for the elderly is high in sugar and GI, causing blood sugar elevation and unsuitable for diabetic patients.

Some alternative sweetener-based nutritional powder has poor taste, bitter aftertaste, cooling sensation, gastrointestinal discomfort, high cost and low consumer acceptance.

Consumers (middle-aged, elderly people and their children) demand nutritional supplement products with sugar-free, low GI, mild taste, high gastrointestinal tolerance, comprehensive nutrition and suitability for diabetic patients.

2. Product Positioning

A global benchmark for sugar-free nutrition for the middle-aged and elderly, targeting people aged 50+, diabetic patients, frail groups and filial piety consumption demands.

It highlights 0 sucrose, low GI, mild taste, high gastrointestinal tolerance, high calcium & high protein and comprehensive nutrition.

Positioned at mid-to-high price (80-150 CNY per can), it covers supermarkets, pharmacies, e-commerce platforms and maternal and infant stores.

3. Formula Design & Highlights

● Core Formula:

Maltitol: 8%-12% (sucrose replacement + mild sweetening + high tolerance), skimmed milk powder: 40%-45%, whey protein: 10%-15%, calcium carbonate: 2%-3%, compound vitamins and minerals, dietary fiber: 3%-5%.

● Formula Highlights:

① Maltitol delivers mild and mellow sweetness with no obvious bitter aftertaste or cooling sensation, meeting the taste preferences of the middle-aged and elderly;

② High gastrointestinal tolerance reduces bloating and diarrhea risks, suitable for the sensitive gastrointestinal system of elderly groups;

③ Low GI and mild metabolism minimize blood sugar fluctuation, enabling long-term consumption by diabetic patients;

④ High stability maintains stable flavor and anti-browning performance during high-temperature spray drying with uniform milky white color;

⑤ Optimizes solubility for easy brewing without agglomeration and smooth drinking texture.

4. Functional Efficacy

Low GI for Stable Blood Sugar: Smooth postprandial blood sugar level, suitable for type 2 diabetic patients and people with impaired glucose tolerance;

High Tolerance & Gastrointestinal Protection: Mild metabolism reduces gastrointestinal discomfort, adapting to the fragile digestive system of the elderly;

High Calcium & High Protein: Supplements calcium and high-quality protein to strengthen bone health and improve immunity;

Anti-Cariogenic: Inhibits oral bacterial fermentation to reduce dental caries and periodontal disease risks in the middle-aged and elderly.

5. Regulations & Claims

Compliant with China GB 2760-2024, GB 29922, GB 19644;

Approved for use by the U.S. FDA GRAS, EU E965 and Japan Ministry of Health, Labour and Welfare;

Legally allowed claims: 0 sucrose, low GI, mild taste, high gastrointestinal tolerance, high calcium & high protein, suitable for diabetic groups, applicable for middle-aged and elderly people.

6. Commercial Value

Verifies the high safety, high tolerance and taste compatibility of maltitol in special dietary foods (products for the elderly and diabetic patients);

Fills the market gap of sugar-free nutritional products for the elderly and promotes the in-depth healthy and sugar-free transformation of the special dietary industry;

Expands Nestle’s market layout in the elderly health sector and enhances brand professionalism and warm brand image;

Provides safe and mild sugar-free formula references for infant complementary foods, postoperative nutritional supplements and soft elderly foods.

7. Market Performance

Annual sales exceeded 1.8 million cans after its launch in 2023;

China’s sugar-free nutritional powder market for the middle-aged and elderly reached 2.5 billion CNY in 2024, with maltitol products accounting for over 55% market share;

Overall repurchase rate is 72%, and the repurchase rate among elderly diabetic groups reaches 87%;

Drives a 36% revenue growth of Nestle’s elderly nutrition product line, ranking first steadily in the domestic sugar-free nutritional powder market for the elderly.

VIII. Core Summary of Classic Maltitol Applications

1. Core Application Logic

The core competitive advantages of maltitol lie in high sweetness (75%-90% of sucrose) + low calorie (2.1 kcal/g) + low GI (≈35) + pure taste without aftertaste + high stability (high temperature/acid resistance & anti-crystallization) + powerful moisturizing and anti-staling performance + high gastrointestinal tolerance + non-cariogenicity + moderate cost. It can partially or fully replace sucrose, perfectly solving industry pain points including high calorie and high GI of sucrose, insufficient sweetness and strong cooling sensation of erythritol, bitter aftertaste and poor tolerance of sorbitol, and undesirable flavor of stevia. It is fully applicable to seven major tracks: confectionery & chocolate, baked goods, dairy products, beverages, oral care, functional foods and special dietary foods, covering all segmented groups such as sugar-controlling, weight-loss, fitness, middle-aged and elderly, diabetic, oral-sensitive and gastrointestinal-sensitive crowds.

2. Golden Rules for Formula Compounding

- Confectionery & Chocolate: Maltitol 25%-30% + A small amount of erythritol 5%-8% (sweetness enhancement, cost reduction and anti-blooming)
- Baked Goods (Cakes/Bread): Maltitol 15%-20% (single sucrose replacement, moisturizing & anti-staling, shelf life extension)
- Dairy Products (Ice Cream/Yogurt): Maltitol 8%-12% (single sucrose replacement, delicate texture & anti-crystallization, stability improvement)
- Beverages (Tea Drinks/Plant-Based Drinks): Maltitol 3%-5% + Erythritol 2%-3% + Stevioside 0.01%-0.02% (sweetness balance, cooling sensation & bitter aftertaste neutralization, non-stratifying stability)
- Oral Care (Chewing Gum): Maltitol 40%-50% + Sorbitol 10%-15% (texture optimization, low cooling sensation & anti-caries)
- Functional Foods (Energy Bars): Maltitol 10%-15% (single sucrose replacement, compact adhesion & mild energy supply)
- Special Dietary Foods (Nutritional Powder for the Elderly): Maltitol 8%-12% (single sucrose replacement, mild taste, high tolerance & low GI)

3. Regulations & Market Trends

- Regulations: Approved for use by more than 100 countries worldwide; Compliant with China GB 2760-2024, GB 1886.323-2025 (purity ≥99.2%); Recognized by U.S. FDA GRAS, EU E965 and Japan Ministry of Health, Labour and Welfare; Daily intake ≤50g is safe with no obvious side effects.
- Market Trends: The global maltitol market size reached 564 million USD in 2024 and is projected to reach 867 million USD by 2031, with a CAGR of 6.4%. China's maltitol market scale hit 18.7 billion CNY in 2024 and is expected to reach 25 billion CNY by 2026, with a CAGR of 9.8%. The Asia-Pacific region serves as the core growth

area, and China accounts for over 40% of global production capacity. Core application scenarios include confectionery & chocolate (30%), baked goods (25%), sports nutrition (20%) and dairy products (15%). As a long-term alternative to sucrose and sorbitol, maltitol will become one of the preferred healthy sweeteners in the food industry.

4. Core Commercial Value

As a low-GI alternative sweetener, maltitol acts as a core driver for food enterprises to achieve product upgrading, differentiated competition, healthy market expansion, compliant sugar reduction and balanced taste and cost. It breaks the dual industry dilemmas of "incompatibility between health and taste" and "conflict between low sugar and cost". It covers all consumer groups, increases product premium by 20%-40%, adapts to multiple production processes and ensures long-term shelf life stability. It promotes the in-depth transformation of the food industry towards health, sugar-free formula, functional enhancement and cost rationalization, and possesses irreplaceable brand empowerment value in sectors including baking moisture retention, chocolate stability, sports nutrition adhesion and mild-taste foods for the elderly.

IX. Conclusion

With eight core competitive barriers – high sweetness and low calorie, low GI and stable blood sugar, pure taste without aftertaste, high stability and anti-crystallization, strong moisturizing and anti-staling performance, high gastrointestinal tolerance, non-cariogenicity and moderate cost – maltitol has become one of the optimal alternative sweetener solutions in confectionery & chocolate, baked goods, dairy products, beverages, oral care, functional foods and special dietary foods. It delivers irreplaceable industrialization value in moisturizing and stable sugar-free foods, mass oral care products, sports nutrition and sugar-controlling foods for the elderly.

The above classic cases of global leading brands have fully verified its commercial maturity, market acceptance, technical feasibility, regulatory safety and cost compatibility, providing authoritative, actionable and replicable low-GI sugar-free formula and process solutions for food enterprises.

In the future, with the deepening of the Healthy China 2030 sugar reduction policy, rising consumer health awareness, continuous optimization of production costs and innovation in application technologies (compound sweetener systems, microencapsulation), maltitol will further replace traditional sucrose and inefficient alternative sweeteners. It will evolve into one of the core raw materials for the global food healthy transformation and drive the food industry into a new development stage featuring sugar-free & low GI, natural and pure flavor, moisturizing & stability, all-age safety and controllable cost.