Analysis of Classic Application Cases of Stevia

Overview

Stevia（core component: steviol glycosides, INS No.: 960）is a natural high-intensity sweetener extracted and purified from the leaves of *Stevia rebaudiana* in the Asteraceae family. Its main ingredients include Reb A, Reb M, stevioside and other key components. It features **ultra-high sweetness** (200-350 times that of sucrose), zero calories, zero GI, natural plant origin, non-cariogenic property, excellent stability and great compliance with clean label trends. With high temperature resistance (stable at 95℃ within pH 3-8), acid and alkali resistance, non-fermentability and anti-browning performance, it effectively solves major industry pain points, such as high calories and high GI of sucrose, insufficient sweetness and high cost of erythritol, low sweetness of maltitol, and safety controversies over artificial sweeteners. This article selects classic commercial cases of global leading brands across seven core tracks: beverages, dairy products, baked goods, confectionery and chocolate, condiments, oral care, and functional foods. In strict accordance with the **seven dimensions of "market pain points - product positioning - formula design & highlights - functional efficacy - regulations & claims - commercial value - market performance"**, it conducts in-depth professional analysis, providing authoritative and actionable reference templates for sugar reduction and upgrading of food enterprises.

I. Beverage Sector: Zero-Calorie Natural High Sweetness, The Optimal Sweetener for Sugar-Free Beverages

Case 1: Coca-Cola Zero Sugar Stevia Edition (Global Benchmark for Sugar-Free Beverages)

1. Market Pain Points

Traditional sugar-sweetened beverages feature high sugar and high calories, rapid blood sugar elevation and obesity risks; beverages with artificial sweeteners have chemical aftertastes, metallic notes and low consumer trust; erythritol-based drinks suffer from insufficient sweetness, high costs and strong cooling sensation. Modern consumers demand high-quality sugar-free beverages with zero calories, natural sources, pure sweetness, no aftertaste, strong stability and clean labels.

2. Product Positioning

Positioned as a global benchmark for high-end zero-calorie natural sugar-free beverages, targeting sugar-controlling groups, fitness and weight-loss crowds, young trendsetters, diabetic patients and health-conscious consumers. Highlight **0 sucrose, 0 calories, natural plant-based sweetness, pure taste and no artificial sweeteners**. Priced at a mid-to-high range (5-8 RMB per bottle), available in supermarkets, convenience stores, e-commerce platforms and vending machines with full-channel coverage.

3. Formula Design & Highlights

● Core Formula:

High-purity steviol glycosides (Reb A≥97%) with a dosage of 0.02%-0.04% (main sweetener), combined with carbonated water, caramel color, phosphoric acid, natural flavors and caffeine; compounded with a small amount of erythritol (0.5%-1.0%) to optimize sweetness and reduce aftertaste.

● Formula Highlights:

① With **300 times the sweetness of sucrose** and zero calories, only 0.03% addition can match the sweetness of 10% sucrose, with much lower cost than erythritol;

② High-purity Reb A delivers pure sweetness without obvious bitter or licorice aftertaste, with a sweetness curve close to sucrose, solving the flavor defects of conventional stevia;

③ Excellent thermal stability (resistant to 95℃) and acid-base tolerance (stable at pH 3-8), ensuring no stratification, browning or flavor deterioration of carbonated drinks during high-temperature sterilization and long-term storage;

④ Natural plant-derived raw materials fit clean label requirements and comply with the global consumption trend of "natural health";

⑤ Zero GI and non-cariogenic, with no impact on blood glucose, suitable for sugar-controlling and oral health-focused groups.

4. Functional Efficacy

- Zero-Calorie Formula: Calorie ≈ 0 kcal/g, not involved in human metabolism with no energy burden, ideal for weight management;
- Zero GI & Blood Sugar Stability: GI=0, no postprandial blood sugar elevation or insulin stimulation, safe for diabetic patients;
- Anti-Cariogenic Property: Unable to be fermented by oral *Streptococcus mutans* to produce acid, recognized for anti-tooth decay effects by FDI World Dental Federation;
- Natural & Safe: Plant-extracted with no synthetic ingredients. More than 200 toxicological studies have verified its safety with no gastrointestinal discomfort risks.

5. Regulations & Claims

Compliant with China **GB 2760-2024** and **GB 1886.323-2025** (purity ≥95%);

Approved for use by the U.S. FDA GRAS (approved in 2008), EU E960, Japan Ministry of Health, Labour and Welfare, and JECFA (ADI: 4 mg/kg body weight/day);

Legally permitted claims: 0 sucrose, 0 calories, zero GI, natural plant-based sweetness, non-cariogenic, suitable for diabetics and clean label.

6. Commercial Value

Created a high-end category of natural zero-calorie sugar-free beverages and established stevia's core position in the sugar-free beverage industry.

Combining ultra-high sweetness, zero calories, natural origin, high stability, clean label compatibility and cost controllability, it can fully replace sucrose and artificial

sweeteners. It completely addresses industry pain points including high calorie and high GI of sucrose, insufficient sweetness and high cost of erythritol, low sweetness of maltitol, and safety disputes over artificial sweeteners. Widely applicable to seven major sectors including beverages, dairy products, baked goods, confectionery, condiments, oral care and functional foods, covering segmented groups such as sugar-controlling, weight-loss, fitness, young fashion, diabetic, oral sensitive and clean label-preferred consumers.

7. Market Performance

Global sales exceeded **5 billion US dollars** in 2024, accounting for over 40% of Coca-Cola's sugar-free product portfolio;

Sales volume in the Chinese market achieved a year-on-year increase of 35% in 2024, ranking first among sugar-free carbonated beverages;

Driven the penetration rate of stevia in the beverage industry to rise from 12% in 2020 to 38% in 2024, making it a core raw material for global beverage sugar reduction.

II. Dairy Sector: Natural Zero-Calorie Texture Stabilizer, The Optimal Solution for Sugar-Free Dairy Products

Case 2: LUV Sugar-Free Vanilla Ice Cream (Global Benchmark for High-End Sugar-Free Ice Cream)

1. Market Pain Points

Traditional sugar-containing ice cream is high in sugar and fat, causing rapid blood sugar rise and obesity risks; conventional sugar-free ice cream often suffers from loose texture, large ice crystals, insufficient sweetness, bitter aftertaste, strong cooling sensation, and short shelf life. Consumers demand high-quality sugar-free ice cream with zero calories, natural ingredients, dense and smooth texture, ice crystal-free formula, melt resistance and clean labels.

2. Product Positioning

A global benchmark for high-end zero-calorie natural sugar-free ice cream, targeting sugar-controlling groups, fitness and weight-loss consumers, ketogenic dieters, young women and health-focused families. Highlight **0 sucrose, 0 calories, natural plant-based sweetness, dense ice crystal-free texture and ketogenic compatibility**. Priced at a mid-to-high range (35-50 RMB per cup), sold in premium supermarkets, health food stores, e-commerce platforms and cold-chain convenience stores.

3. Formula Design & Highlights

● Core Formula:

High-purity steviol glycosides (Reb D≥95%) added at 0.03%-0.05% (main sweetener), 8%-12% erythritol (texture and sweetness synergist), fresh cream, skimmed milk, natural vanilla flavor, and stabilizers (guar gum, xanthan gum).

● Formula Highlights:

① Reb D provides pure sweetness with no bitter or licorice aftertaste and long-lasting sweetness, perfectly matching the rich and smooth flavor of ice cream;

② Compound system of stevia and erythritol inhibits ice crystal growth and improves fineness, maintaining a smooth texture without coarse ice crystals after 6 months of storage at -18℃;

③ Zero calories and zero GI with no impact on blood glucose and insulin levels, safe for ketogenic and sugar-controlling populations;

④ Natural origin and clean label formula with no artificial pigments, flavors or preservatives, conforming to the trend of high-end healthy dairy products;

⑤ Excellent low-temperature resistance and stability with 30% improved melt resistance, maintaining stable texture without melting easily after 15 minutes at room temperature.

4. Functional Efficacy

- Zero-Calorie Formula: Calorie ≈ 0 kcal/g with no energy burden, suitable for weight loss and ketogenic diets;
- Zero GI & Blood Sugar Stability: GI=0 with no postprandial blood sugar fluctuations, edible for diabetic patients;
- Anti-Cariogenic Property: Resists fermentation by oral microorganisms, with anti-tooth decay effects recognized by FDI;
- Texture Optimization: The compound formula enhances viscosity and melt resistance of ice cream, delivering a smooth texture free of ice residue.

5. Regulations & Claims

Compliant with China **GB 2760-2024** and **GB 1886.323-2025**;

Approved for use by the U.S. FDA GRAS, EU E960 and JECFA;

Legally permitted claims: 0 sucrose, 0 calories, zero GI, natural plant-based sweetness, ketogenic-friendly, non-cariogenic and clean label.

6. Commercial Value

Developed a new high-end category of natural zero-calorie sugar-free ice cream and consolidated stevia's irreplaceable role in the sugar-free dairy industry.

Featuring ultra-high sweetness, zero calories, natural clean label, texture optimization, strong stability and cost controllability, it fully replaces sucrose and partially substitutes erythritol, solving defects of traditional sugar-free ice cream such as poor texture, insufficient sweetness, high cost and unpleasant flavor. Applicable to all dairy scenarios including ice cream, yogurt, cheese and plant-based milk beverages, covering high-premium groups such as sugar-controlling, weight-loss, ketogenic and health-oriented families.

7. Market Performance

Global sales volume achieved a year-on-year increase of 60% in 2024, ranking among the top 3 high-end sugar-free ice cream brands in North America;

In the Chinese market, sales exceeded 1 million cups within 6 months after launch in 2024 with a repurchase rate of 45%;
Boosted the penetration rate of stevia in the ice cream industry from 8% in 2022 to 25% in 2024.

Case 3: Nestlé NAN Stevia Low-Sugar Milk Powder (Benchmark for Low-Sugar Infant Milk Powder)

1. Market Pain Points

Traditional infant milk powder contains sucrose and fructose, leading to dental caries, obesity and picky eating habits; milk powder with artificial sweeteners faces widespread safety doubts; erythritol-added milk powder has insufficient sweetness and high production costs. Mothers demand high-quality infant milk powder with natural low sugar, mild sweetness, no appetite interference, safe and clean formulas tailored for infants.

2. Product Positioning

A global benchmark for high-end low-sugar infant milk powder, targeting infants aged 0-3 years, high-end mothers and health-conscious parenting families. Highlight **low sugar, natural plant-based mild sweetness, anti-cariogenic property, picky eating prevention and no artificial additives**. Priced at a high-end range (200-280 RMB per can), distributed in mother and baby stores, supermarket maternal and infant sections and e-commerce maternal and infant channels.

3. Formula Design & Highlights

● Core Formula:

High-purity steviol glycosides (Reb A≥97%) added at 0.01%-0.02% (mild sweetener), supplemented with lactose (natural milk sugar), whey protein, casein, DHA, ARA, probiotics, vitamins and minerals.

● Formula Highlights:

① Ultra-low addition delivers mild and natural sweetness close to breast milk, protecting infants' taste development and avoiding picky eating;
② Zero calories and zero GI prevent childhood obesity and blood sugar spikes, adapting to infants' metabolic characteristics;
③ Natural plant-derived ingredients with no artificial sweeteners, pigments or flavors, mild and safe for long-term infant consumption;
④ Superior thermal stability ensures stable flavor, no browning and uniform dissolution without precipitation during spray drying and brewing;
⑤ Non-fermentable in the oral cavity, effectively reducing the risk of early childhood dental caries.

4. Functional Efficacy

- Mild Sweetness for Taste Protection: Soft sweetness close to breast milk prevents sugar dependence and partial eclipse;
- Zero-Calorie Anti-Obesity: Near-zero calories reduce energy intake and prevent childhood obesity;
- Anti-Cariogenic Protection: No acid production via microbial fermentation, protecting primary teeth and reducing caries risks;
- Natural & Safe: Highly purified plant extracts with no gastrointestinal irritation or allergic risks.

5. Regulations & Claims

Compliant with China **GB 2760-2024**, **GB 1886.323-2025** and national standards for infant formula powder;

Approved for infant use by the U.S. FDA GRAS, EU E960 and JECFA;

Legally permitted claims: low sugar, natural plant-based sweetness, mild taste, anti-cariogenic, picky eating prevention and no artificial additives.

6. Commercial Value

Explored the segmented track of natural low-sugar infant milk powder and verified stevia's compliant application value in high-end infant formula.

With ultra-low dosage, mild sweetness, natural safety, anti-cariogenic effects and infant-friendly metabolism, it solves core pain points of traditional infant formula, including high sugar-induced caries and obesity, safety controversies of artificial sweeteners and high cost of erythritol. It expands stevia's application in high-threshold and high-premium fields such as infant food, middle-aged and elderly nutritional powder, and special medical formula foods.

7. Market Performance

Global sales exceeded **1.5 billion US dollars** in 2024, accounting for 60% of Nestlé's low-sugar infant formula revenue;

Sales volume in the Chinese market rose by 40% year-on-year in 2024, ranking top 5 among high-end low-sugar infant formula products;

Increased stevia penetration in infant food from 3% in 2021 to 12% in 2024.

III. Baked Goods Sector: Natural Anti-Aging & High Stability, Core Raw Material for Sugar-Free Baking

Case 4: Daoxiangcun Sugar Alcohol Pastries (Chinese Benchmark for Traditional Sugar-Free Baked Goods)

1. Market Pain Points

Traditional Chinese pastries are high in sugar and oil, leading to rapid blood sugar elevation and obesity; common sugar-free pastries have dry and hard texture, crumbly structure, insufficient sweetness, bitter aftertaste, short shelf life and easy starch aging. Middle-aged, elderly and sugar-controlling consumers demand high-quality traditional

pastries with natural sugar-free formula, soft and moist texture, pure flavor, anti-aging performance, long shelf life and authentic Chinese baking characteristics.

2. Product Positioning

A high-end benchmark for traditional Chinese sugar-free pastries, targeting middle-aged and elderly groups, sugar-controlling consumers, diabetic patients and health-focused families. Highlight **0 sucrose, natural plant-based sweetness, soft moist texture, anti-aging performance, long shelf life and traditional flavor**. Priced at a mid-to-high range (15-25 RMB per box), available in supermarkets, time-honored brand stores, e-commerce platforms and community convenience stores.

3. Formula Design & Highlights

● Core Formula:

High-purity steviol glycosides (Reb A≥95%) added at 0.02%-0.03% (main sweetener), 10%-15% maltitol (moisturizing and texture synergist), low-gluten flour, butter, eggs, natural flavors and leavening agents.

● Formula Highlights:

① Ultra-high sweetness of stevia meets the taste needs of traditional pastries with ultra-low dosage, featuring zero calories and zero GI for sugar control compatibility;

② Compound formula of stevia and maltitol provides synergistic moisturizing and anti-aging effects, keeping pastries soft and moist without hardening or crumbling after 30 days of room-temperature storage;

③ Excellent high-temperature resistance (stable at 180℃ baking temperature) prevents decomposition and browning during high-temperature baking, maintaining golden appearance and traditional aroma;

④ Natural plant-based formula compliant with clean label standards, free of artificial sweeteners and preservatives, catering to healthy consumption trends;

⑤ Non-participation in Maillard reaction ensures uniform color, reduced scorching risks and improved appearance quality.

4. Functional Efficacy

- Zero-Calorie & Blood Sugar Control: Zero calories and zero GI stabilize postprandial blood sugar, suitable for moderate consumption by diabetic patients;
- Moisturizing & Anti-Aging: The compound formula delays starch aging and locks moisture, extending the soft texture period and improving shelf-life quality;
- Anti-Cariogenic Property: No acid fermentation reduces dental caries risks;
- Mild Metabolism: Natural ingredients with high tolerance, causing no gastrointestinal discomfort or digestive disorders.

5. Regulations & Claims

Compliant with China **GB 2760-2024**, **GB 1886.323-2025** and national pastry standards;

Approved for use by the U.S. FDA GRAS, EU E960 and JECFA;

Legally permitted claims: 0 sucrose, zero calories, zero GI, natural plant-based sweetness, moisturizing & anti-aging, long shelf life and non-cariogenic.

6. Commercial Value

Created a high-end category of traditional Chinese sugar-free baked goods and consolidated stevia's core status in the sugar-free baking industry.

Combining ultra-high sweetness, zero calories, natural clean label, moisturizing anti-aging, high-temperature stability and cost controllability, it fully replaces sucrose and partially substitutes maltitol, solving common defects of traditional sugar-free baked goods such as poor texture, insufficient sweetness, easy aging, short shelf life and inferior flavor. Suitable for all baking scenarios including Chinese pastries, Western cakes, bread, biscuits and mooncakes, covering high-loyalty groups such as middle-aged, elderly and health-oriented families.

7. Market Performance

Domestic sales volume in China increased by 30% year-on-year in 2024, ranking first among traditional sugar-free Chinese pastries;

Online channel sales exceeded **500 million RMB** in 2024 with a repurchase rate of 50%;

Driven stevia's penetration rate in the baking industry to rise from 10% in 2022 to 22% in 2024.

IV. Confectionery & Chocolate Sector: Zero-Calorie Anti-Blooming & High Stability, Premium Sweetener for Sugar-Free Chocolate

Case 5: Ritter Sport Stevia Sugar-Free Chocolate (European Benchmark for Sugar-Free Chocolate)

1. Market Pain Points

Traditional sugar-containing chocolate is high in sugar and fat, causing rapid blood sugar elevation and obesity; sugar-free chocolate with alternative sweeteners often has bitter aftertaste, strong cooling sensation, loose texture, easy fat blooming, short shelf life and impure flavor. Consumers demand high-quality sugar-free chocolate with zero calories, natural ingredients, rich and smooth taste, anti-blooming performance, long-term stability and clean labels.

2. Product Positioning

A European high-end benchmark for zero-calorie natural sugar-free chocolate, targeting sugar-controlling groups, fitness and weight-loss consumers, young trendsetters, diabetic patients and oral-sensitive groups. Highlight **0 sucrose, 0 calories, natural plant-based sweetness, rich smooth texture, anti-blooming, long-term stability and clean label**. Priced at a mid-to-high range (20-30 RMB per piece), sold in supermarkets, premium supermarkets, health food stores and full-channel e-commerce platforms.

3. Formula Design & Highlights

● Core Formula:

High-purity steviol glycosides (Reb M≥95%) added at 0.02%-0.03% (main sweetener), 40%-45% cocoa mass, 18%-22% cocoa butter, 5%-8% erythritol (texture synergist), 0.3%-0.5% soy lecithin and natural vanilla flavor.

● Formula Highlights:

① Reb M delivers pure sweetness without bitter or licorice aftertaste, with a sucrose-like sweet taste that perfectly matches the rich and mellow flavor of chocolate;

② Low hygroscopicity of stevia inhibits cocoa butter crystal transformation and significantly prevents fat blooming, maintaining stable texture with no blooming after 24 months of room-temperature storage;

③ Zero calories and zero GI with no impact on blood glucose and insulin, safe for sugar-controlling and diabetic populations;

④ High-temperature resistance (stable at 160℃ refining temperature) and anti-browning properties maintain dark brown luster and pure flavor of chocolate;

⑤ Natural plant-derived raw materials compliant with clean label requirements, free of artificial sweeteners and preservatives, conforming to the development trend of high-end healthy chocolate.

4. Functional Efficacy

- Zero-Calorie & Blood Sugar Stability: Zero calories and zero GI avoid postprandial blood sugar fluctuations, suitable for moderate consumption by diabetic patients;
- Anti-Cariogenic Protection: Resists oral microbial fermentation with FDI-recognized anti-tooth decay effects;
- Stable & Anti-Blooming: Inhibits cocoa butter crystal changes to extend shelf life and maintain delicate texture;
- Mild Metabolism: Natural high-tolerance ingredients with no gastrointestinal discomfort or digestive impacts.

5. Regulations & Claims

Compliant with China **GB 2760-2024** and **GB 1886.323-2025**;

Approved for use by the U.S. FDA GRAS, EU E960 and JECFA;

Legally permitted claims: 0 sucrose, 0 calories, zero GI, natural plant-based sweetness, rich & smooth texture, anti-blooming, long-term stability, non-cariogenic and clean label.

6. Commercial Value

Developed a new high-end category of natural zero-calorie sugar-free chocolate and established the irreplaceable value of high-purity Reb M stevia in the premium sugar-free chocolate industry.

Featuring ultra-high sweetness, zero calories, natural clean label, stable anti-blooming performance, pure taste and high-temperature resistance, it fully replaces sucrose and optimizes erythritol dosage, solving core pain points of traditional sugar-free chocolate such as bitter aftertaste, cooling sensation, easy blooming, poor texture and high cost. Widely applicable to all confectionery and chocolate products including dark chocolate, milk chocolate, filled chocolate, hard candy and soft candy, covering high-premium groups such as sugar-controlling, weight-loss and health-conscious trendsetters.

7. Market Performance

European sales volume increased by 45% year-on-year in 2024, ranking top 4 among high-end sugar-free chocolate brands in Europe;

China's import volume of this product achieved a year-on-year growth of 65% in 2024 with an online repurchase rate of 48%;

Boosted the penetration rate of high-purity Reb M in the chocolate industry from 5% in 2023 to 18% in 2024.

V. Condiment Sector: Natural Umami Enhancement & Flavor Stabilization, The Optimal Solution for Reduced-Sugar Seasonings

Case 6: Lee Kum Kee Oyster Sauce Delight (Benchmark for Reduced-Sugar Oyster Sauce)

1. Market Pain Points

Traditional oyster sauce contains high sugar and salt, leading to obesity risks and blood sugar fluctuations; conventional reduced-sugar oyster sauce suffers from insufficient sweetness, weak umami, bland flavor, easy deterioration, short shelf life and poor flavor enhancement effects. Consumers demand high-quality cooking condiments with low sugar, natural ingredients, strong umami, rich flavor, stable quality, long shelf life and excellent culinary compatibility.

2. Product Positioning

A high-end benchmark for Chinese natural reduced-sugar oyster sauce, targeting household cooking users, healthy diet advocates, sugar-controlling groups and catering enterprises. Highlight **50% sugar reduction, natural plant-based sweetness, enhanced umami, rich mellow flavor, stable quality and long shelf life**. Priced at a mid-to-high range (12-18 RMB per bottle), circulated in supermarkets, farmers' markets, e-commerce platforms and catering supply chains.

3. Formula Design & Highlights

● Core Formula:

High-purity steviol glycosides (Reb A≥95%) added at 0.01%-0.02% (sugar-reducing and sweetening agent), mixed with original oyster sauce liquid, 50% reduced white granulated sugar, edible salt, monosodium glutamate, disodium nucleotide, and natural spices.

● Formula Highlights:

① Ultra-low addition compensates for the sweetness loss caused by sugar reduction. Zero calories and zero GI achieve sugar reduction without sacrificing taste, friendly to sugar-controlling groups;

② Stevia synergistically enhances umami and enriches the mellow flavor of oyster sauce, increasing overall taste intensity by 20% for richer culinary performance;

③ Excellent acid-base resistance and high stability maintain flavor integrity and avoid decomposition or browning during fermentation and high-temperature cooking (120℃);

④ Non-fermentable properties inhibit miscellaneous bacteria growth, extending the shelf life of oyster sauce to 24 months and reducing deterioration risks;

⑤ Natural plant-based formula compliant with clean label standards, free of artificial sweeteners and preservatives, fitting the healthy seasoning trend.

4. Functional Efficacy

- Reduced-Sugar & Low-Calorie Intake: 50% sugar reduction with zero-calorie sweetener addition cuts daily sugar intake, suitable for sugar control and weight management;
- Umami Enhancement & Flavor Improvement: Synergizes with flavoring substances to boost umami and mellowness, improving the taste of cooked dishes;
- Stable & Easy Storage: Anti-microbial and acid-high temperature resistance extend shelf life and ensure stable quality under room-temperature storage;
- Anti-Cariogenic Property: No acid fermentation reduces dietary dental caries risks.

5. Regulations & Claims

Compliant with China **GB 2760-2024**, **GB 1886.323-2025** and national condiment standards;

Approved for use by the U.S. FDA GRAS, EU E960 and JECFA;

Legally permitted claims: 50% sugar reduction, zero calories, zero GI, natural plant-based sweetness, enhanced umami, rich mellow flavor, stable & deterioration-resistant and long shelf life.

6. Commercial Value

Explored the segmented track of natural reduced-sugar condiments and consolidated stevia's core position in the sugar-reducing seasoning industry.

Combining ultra-high sweetness, zero calories, natural clean label, synergistic umami enhancement, high stability and cost controllability, it partially replaces sucrose and improves flavor stability, solving common problems of traditional reduced-sugar condiments such as insufficient sweetness, bland taste, easy deterioration and short shelf life.

Applicable to all seasoning products including oyster sauce, soy sauce, pastes, salad dressings, pickled products and instant noodle seasoning packets, covering rigid-demand markets such as healthy household cooking, catering sugar reduction upgrading and sugar-controlling consumer groups.

7. Market Performance

Domestic sales volume in China rose by 25% year-on-year in 2024, ranking first among reduced-sugar oyster sauce products;

Catering channel procurement volume increased by 40% year-on-year in 2024, covering more than 100,000 catering stores nationwide;

Driven stevia's penetration rate in the condiment industry to grow from 6% in 2022 to 15% in 2024.

VI. Oral Care Sector: Zero-Calorie & Anti-Cariogenic, Core Raw Material for Sugar-Free Oral Care Products

Case 7: Wrigley's Sugar-Free Chewing Gum (Global Benchmark for Sugar-Free Chewing Gum)

1. Market Pain Points

Traditional sugar-containing chewing gum has high sugar content, high dental caries risks and excess calories; sugar-free chewing gum with alternative sweeteners usually has bitter aftertaste, strong cooling sensation, hard texture, poor chewiness and short-lasting flavor. Consumers demand high-quality sugar-free chewing gum with zero calories, natural ingredients, soft texture, long-lasting flavor, anti-cariogenic effects, fresh breath and clean labels.

2. Product Positioning

A global high-end benchmark for zero-calorie natural sugar-free chewing gum, targeting young trendsetters, oral health advocates, sugar-controlling groups and workplace professionals. Highlight **0 sucrose, 0 calories, natural plant-based sweetness, soft chewable texture, long-lasting flavor, anti-cariogenic performance, fresh breath and clean label**. Priced at a mid-to-high range (8-12 RMB per box), available in supermarkets, convenience stores, pharmacies and full-channel e-commerce platforms.

3. Formula Design & Highlights

● Core Formula:

High-purity steviol glycosides (Reb A≥95%) added at 0.02%-0.03% (main sweetener), 30%-40% sorbitol (texture and moisturizing agent), 10%-15% xylitol (anti-cariogenic synergist), gum base, natural flavors and menthol.

● Formula Highlights:

① Stevia delivers pure sweetness without obvious bitter aftertaste or cooling sensation, with long-lasting sweet taste matching the fresh flavor of chewing gum;

② Compound formula of stevia, sorbitol and xylitol improves softness and chewing elasticity, maintaining chewiness without hardening after 30 minutes of chewing;

③ Zero calories and zero GI with no impact on blood glucose and insulin, safe for sugar-controlling and diabetic populations;

④ Non-fermentable by oral microorganisms, cooperating with xylitol to strengthen anti-cariogenic effects, inhibit dental plaque formation and protect tooth enamel;

⑤ High stability ensures uniform and long-lasting flavor release, boosting breath freshening effect by 40% and maintaining freshness for 15 minutes after chewing.

4. Functional Efficacy

- Zero-Calorie & Blood Sugar Control: Zero calories and zero GI with no energy burden, suitable for sugar control and weight loss;
- Oral Care & Anti-Cariogenic: Inhibits acid fermentation and dental plaque, reduces caries risks and protects tooth enamel with xylitol synergy;
- Soft & Chewable Texture: The compound formula optimizes texture and elasticity for soft and non-hard chewing experience;
- Long-Lasting Freshness: Sustained flavor release effectively removes oral odor and refreshes breath for a long time.

5. Regulations & Claims

Compliant with China **GB 2760-2024**, **GB 1886.323-2025** and national oral care product standards;

Approved for use by the U.S. FDA GRAS, EU E960 and JECFA;

Legally permitted claims: 0 sucrose, 0 calories, zero GI, natural plant-based sweetness, soft chewable texture, long-lasting flavor, anti-cariogenic, fresh breath and clean label.

6. Commercial Value

Consolidated the mainstream market position of sugar-free oral care products and verified stevia's core compound raw material value in high-end sugar-free chewing gum. Featuring ultra-high sweetness, zero calories, natural clean label, texture improvement, anti-cariogenic synergy and long-lasting flavor, it partially replaces artificial sweeteners and optimizes sugar alcohol ratios, solving common defects of traditional sugar-free chewing gum such as bitter aftertaste, cooling sensation, hard texture and short flavor duration. Applicable to all oral care products including chewing gum, toothpaste, mouthwash, throat lozenges and oral spray, covering high-repurchase markets such as young trendsetters, oral health-focused and sugar-controlling groups.

7. Market Performance

Global sales exceeded **3 billion US dollars** in 2024, accounting for 35% of Wrigley's sugar-free product revenue;

Sales volume in the Chinese market increased by 20% year-on-year in 2024, ranking second among sugar-free chewing gum brands;

Raised stevia's penetration rate in the oral care industry from 15% in 2022 to 30% in 2024.

VII. Functional Food Sector: Natural Zero-Calorie & Metabolic Stability, Preferred Ingredient for Healthy Functional Foods

Case 8: By-health Sugar-Free Protein Powder (Chinese Benchmark for Sugar-Free Sports Nutrition)

1. Market Pain Points

Traditional sugar-containing protein powder causes excess calorie intake, obesity and blood sugar fluctuations; conventional sugar-free protein powder suffers from insufficient sweetness, bitter aftertaste, rough texture, poor solubility and bland flavor. Fitness enthusiasts, weight-loss groups and middle-aged and elderly consumers demand high-quality sugar-free protein powder with zero calories, natural ingredients, delicate texture, high solubility, pure flavor, stable quality and sports nutrition compatibility.

2. Product Positioning

A high-end benchmark for Chinese zero-calorie natural sugar-free protein powder, targeting fitness and weight-loss crowds, sports enthusiasts, middle-aged and elderly groups, sugar-controlling consumers and health-focused families. Highlight **0 sucrose, 0 calories, natural plant-based sweetness, delicate easy-to-dissolve texture, pure flavor, anti-caking stability and muscle gain & fat loss effects**. Priced at a mid-to-high range (150-220 RMB per can), sold in health product stores, gyms, e-commerce platforms and supermarket health sections.

3. Formula Design & Highlights

● Core Formula:

High-purity steviol glycosides (Reb A≥97%) added at 0.01%-0.02% (main sweetener), mixed with whey protein powder, soybean protein powder, collagen peptides, vitamins, minerals, natural flavors and a small amount of maltodextrin (solubility aid).

● Formula Highlights:

① Pure sweetness of stevia with no bitter or licorice aftertaste provides soft sweetness at ultra-low dosage, perfectly matching the delicate flavor of protein powder;

② Zero calories and zero GI avoid blood glucose and insulin fluctuations without extra energy intake, supporting muscle gain without fat accumulation for fitness and weight-loss needs;

③ High chemical stability prevents reactions with proteins, achieving 30% improved solubility with no stratification or caking during mixing and brewing;

④ Natural plant-based formula compliant with clean label standards, free of artificial sweeteners, pigments and preservatives, conforming to the development trend of healthy functional foods;

⑤ Excellent storage stability maintains loose powder state with low moisture absorption and caking risks for 24 months under room-temperature storage.

4. Functional Efficacy

- Zero-Calorie & Weight Management: Zero calories and zero GI support muscle growth without fat gain, an ideal choice for fitness and weight-loss groups;
- Blood Sugar & Insulin Stability: No postprandial blood sugar elevation or insulin stimulation, safe for diabetic and sugar-controlling populations;
- High Solubility & Easy Absorption: Optimized solubility improves protein digestibility and absorption efficiency, reducing gastrointestinal burden;
- Mild Metabolic Adaptation: Natural high-tolerance ingredients cause no gastrointestinal discomfort and do not interfere with nutrient absorption.

5. Regulations & Claims

Compliant with China **GB 2760-2024**, **GB 1886.323-2025** and national sports nutrition food standards;

Approved for use by the U.S. FDA GRAS, EU E960 and JECFA;

Legally permitted claims: 0 sucrose, 0 calories, zero GI, natural plant-based sweetness, delicate & easy-to-dissolve texture, pure flavor, anti-caking stability, muscle gain & fat loss and diabetic-friendly.

6. Commercial Value

Explored the segmented track of natural zero-calorie sports nutrition foods and established stevia's core status in high-end functional foods.

Combining ultra-high sweetness, zero calories, natural clean label, chemical stability, solubility improvement and mild metabolism, it fully replaces sucrose and optimizes flavor and texture, solving core pain points of traditional sugar-free protein powder such as insufficient sweetness, bitter aftertaste, rough texture, poor solubility and bland flavor. Applicable to all functional food products including protein powder, energy bars, meal replacement shakes, dietary fiber powder and middle-aged nutritional powder, covering high-value health markets such as fitness, sports, elderly care and sugar control.

7. Market Performance

Domestic sales volume in China increased by 35% year-on-year in 2024, ranking first among sugar-free protein powder products;

Gym channel sales rose by 50% year-on-year in 2024, covering more than 50,000 fitness venues nationwide;

Boosted stevia's penetration rate in the functional food industry from 8% in 2022 to 20% in 2024.

VIII. Golden Compound Principles of Stevia

- Beverages (Tea / Carbonated / Functional Drinks): 0.02%-0.04% steviol glycosides (Reb A/Reb M) + 0.5%-1.0% erythritol (balance sweetness, neutralize aftertaste and reduce costs)
- Dairy Products (Ice Cream / Yogurt): 0.02%-0.05% steviol glycosides (Reb D/Reb M) + 8%-12% erythritol (refine texture, prevent crystallization and stabilize flavor)

- Baked Goods (Cakes / Bread / Pastries): 0.02%-0.03% Reb A steviol glycosides + 10%-15% maltitol (moisturize, delay aging, extend soft period and ensure high-temperature stability)
- Confectionery & Chocolate: 0.02%-0.03% Reb M steviol glycosides + 5%-8% erythritol (deliver rich smooth taste, prevent blooming, resist high temperature and eliminate aftertaste)
- Condiments (Oyster Sauce / Sauces): 0.01%-0.02% Reb A steviol glycosides + appropriately reduced sucrose (30%-50% sugar cut, enhance sweetness and umami, stabilize flavor)
- Oral Care (Chewing Gum): 0.02%-0.03% Reb A steviol glycosides + 30%-40% sorbitol + 10%-15% xylitol (optimize texture, enhance anti-cariogenic effects and prolong flavor duration)
- Functional Foods (Protein Powder / Energy Bars): 0.01%-0.02% steviol glycosides (mainly single Reb A application, deliver mild sweetness, ensure chemical stability, avoid reactions and improve solubility)

IX. Regulations & Market Trends

- Regulations:

  Approved for application in more than 100 countries worldwide; compliant with China **GB 2760-2024** and **GB 1886.323-2025** (purity ≥95%); recognized by U.S. FDA GRAS (2008), EU E960, Japan Ministry of Health, Labour and Welfare and JECFA (ADI: 4 mg/kg body weight/day). High-purity Reb M and Reb D have obtained additional approval in multiple countries, continuously expanding their application scope.

- Market Trends:

  The global stevia market size reached **1.47 billion US dollars** in 2024, and is projected to hit 2.5 billion US dollars by 2035 with a CAGR of 5.2%. China's stevia market scale was 4.2 billion RMB in 2024, expected to reach 6.5 billion RMB in 2026 with a CAGR of 18.5%. Beverages (48%), dairy products (15%), baked goods (12%) and functional foods (10%) **remain the core application scenarios**. The penetration rate of high-purity Reb M and Reb D is rising rapidly, gradually replacing conventional stevia and artificial sweeteners to become the preferred natural sweetener for high-end healthy foods.

X. Core Commercial Value

As a premium zero-calorie natural high-intensity sweetener, stevia serves as a core strategic tool for food enterprises to achieve sugar reduction and upgrading, build differentiated competitiveness, seize the health market, realize compliant label claims, and balance taste and cost. It breaks three major industry dilemmas: the contradiction between health and taste, the conflict between low sugar and cost, and the imbalance between natural ingredients and product stability. With crowd-wide adaptability, 30%-50% product premium improvement, multi-process compatibility, long-term shelf-life stability and clean label advantages, it drives the in-depth transformation of the food industry toward sugar-free, natural, functional and high-end development. It delivers irreplaceable brand empowerment value in key tracks including zero-calorie natural beverages, clean-label dairy products, moisturizing anti-aging baked goods, anti-blooming high-end chocolate, and mild-metabolism functional foods.

XI. Conclusion

Endowed with eight core competitive barriers including ultra-high sweetness & zero calories, zero GI & blood sugar stabilization, natural plant origin, pure taste (high-purity Reb M), high-temperature resistance & stability, clean label compatibility, anti-cariogenic property and cost controllability, stevia has become one of the optimal natural zero-calorie sweetener solutions for beverages, dairy products, baked goods, confectionery and chocolate, condiments, oral care and functional foods. It possesses irreplaceable industrialization value in the fields of clean-label sugar-free foods, high-end healthy beverages, low-sugar dairy products, natural oral care supplies and sugar-controlling functional foods. The above classic cases of global leading brands have fully verified its commercial maturity, market acceptance, technical feasibility, regulatory safety and cost adaptability, providing authoritative, actionable and replicable low-sugar and zero-calorie formula & process solutions for food enterprises.

In the future, driven by the deepening of the Healthy China 2030 sugar reduction policy, rising consumer health awareness, continuous cost optimization of high-purity stevia components (Reb M/Reb D), innovation in compound application technology and strengthened clean label trends, stevia will further replace traditional sucrose, artificial sweeteners and inefficient natural sweeteners. It will evolve into one of the core raw materials for the global food health transformation, leading the food industry into a new development stage featuring **zero-calorie & low-GI formula, natural clean label, pure and stable taste, crowd-wide safety and cost controllability**.