

Organic Isomaltulose



What is Organic Isomaltulose?

Organic Isomaltulose — also commercially known as Palatinose — is a naturally occurring disaccharide composed of glucose and fructose linked by an alpha-1,6-glycosidic bond (instead of the alpha-1,2 bond found in sucrose). This structural difference is the key to its functional properties: the alpha-1,6 linkage is hydrolyzed more slowly by human digestive enzymes, resulting in a gradual, sustained release of glucose into the bloodstream rather than the rapid spike associated with conventional sucrose or maltodextrin. With a glycemic index (GI) of 32 — compared to sucrose's GI of 65 and maltodextrin's GI exceeding 80 — isomaltulose provides what is commonly described as "sustained energy," making it a preferred carbohydrate source in sports nutrition, diabetic-friendly formulations, and functional foods targeting metabolic health.

Organic Isomaltulose Powder — Crystalline Format:

Produced from certified organic sugar beet through enzymatic isomerization and spray-drying, the powder delivers $\geq 99\%$ isomaltulose purity (HPLC-validated), $\geq 98\%$ solubility in cold water at 20°C , and a neutral, mildly sweet flavor with no aftertaste. The crystalline structure offers excellent flowability and compression properties — suitable for direct compression tablet formulations, protein bar binding, and powdered supplement sachets. Customizable particle size (80–200 Mesh) allows optimization for specific processing requirements. Moisture content is controlled at $\leq 0.5\%$, ensuring excellent shelf stability at 36 months.

Organic Isomaltulose Syrup — Liquid Format:

Supplied at 75% solid content, the syrup format enables direct incorporation into beverage, confectionery, and syrup formulations without the need for dissolution. It delivers the same functional isomaltulose profile — GI 32, prebiotic activity, and non-cariogenic properties — in a liquid-ready format ideal for RTD beverages, functional waters, sports drinks, and liquid supplement applications.

Prebiotic Fiber Support:

Beyond its glycemic profile, isomaltulose functions as a prebiotic fiber. The alpha-1,6 linkage resists full digestion in the upper GI tract, allowing it to reach the colon where *Bifidobacterium* and other beneficial bacteria ferment it preferentially. This fermentation produces short-chain fatty acids (SCFAs) including butyrate — supporting colonic health, barrier integrity, and systemic metabolic benefits. This dual functionality (sustained energy + prebiotic support) differentiates isomaltulose from both rapid-release maltodextrin and inert sugars.

Regulatory and Formulation Credentials:

Certified compliant with FDA GRAS, EU Novel Food (EC 258/97), and Chinese NHFPC standards — enabling global market access. ISO 26642:2010 certification validates minimal blood glucose response. Heat stability up to 160°C makes it suitable for baking, confectionery, and thermal processing. Prebiotic activity validated at ≥3g/day servings. Non-cariogenic (tooth-safe) — does not promote dental caries, confirmed by independent studies.

Custom blending available: isomaltulose can be pre-mixed with stevia, erythritol, monk fruit, dietary fiber (such as organic inulin), or MCT powder for targeted functional formulations. Private label packaging available at 500 kg MOQ; R&D trial at 25 kg.

Certified USDA/EU Organic, Non-GMO Project Verified, Vegan, Gluten-Free, Kosher, and Halal. Sample (1 kg) to bulk (25 kg+) available. Lead time: 10–20 days.

Physical & Chemical Specifications

Product Specifications Comparison

Parameter	Isomaltulose Powder	Isomaltulose Syrup
Common Name	Organic Isomaltulose / Palatinose	Organic Isomaltulose / Palatinose
Source	Certified organic sugar beet	Certified organic sugar beet
Processing	Enzymatic isomerization → Spray-drying	Enzymatic isomerization → Concentration
Purity (Isomaltulose)	≥99% (HPLC)	≥99% (of solids, HPLC)
Solid Content	—	75%
Appearance	White crystalline powder	Clear to light amber syrup
Sweetness	50% of sucrose	50% of sucrose

Parameter	Isomaltulose Powder	Isomaltulose Syrup
Glycemic Index (GI)	32 (ISO 26642:2010 certified)	32
Calories	4 kcal/g (same as sucrose)	4 kcal/g (same as sucrose)
Solubility	≥98% in water at 20°C	Fully miscible in water
Particle Size	80-120 Mesh (customizable to 200 Mesh)	N/A
Moisture	≤0.5%	~25% (balance water)
pH Stability	Neutral (6-8)	Neutral (6-8)
Heat Stability	Up to 160°C (caramelization point)	Moderate heat tolerance
Flowability	Excellent (crystalline)	N/A
Compression Suitability	Excellent (direct compression tablets)	Not suitable
Shelf Life	36 months	24 months
Recommended Storage	Cool, dry, sealed	Sealed, below 25°C

Key Functional Properties

Property	Value	Significance
Glycemic Index	32	Sustained glucose release vs rapid spike
Sweetness	50% sucrose	Moderate; often combined with high-intensity sweeteners
Prebiotic Activity	Yes	Supports <i>Bifidobacterium</i> growth; SCFA/butyrate production
Non-Cariogenic	Confirmed	Tooth-safe; no dental caries promotion
Digestion Rate	Slow	Alpha-1,6 linkage; slower enzymatic hydrolysis vs sucrose
Solubility	≥98%	Excellent for beverage and powder applications
Heat Stability	Up to 160°C	Suitable for baking and confectionery
ISO 26642:2010	Certified	Validated minimal blood glucose response

Dosage Reference

Application	Typical Use Level
Sports nutrition (energy gels, bars)	15-30 g per serving
Diabetic-friendly formulations	10-30 g per serving (per label claim)
Functional beverages	5-15 g per serving
Prebiotic supplement	≥3 g/day for prebiotic effect
Tablet / capsule excipient	Per formulation (flow agent / binder)
Confectionery / baking	Up to 50% weight replacement for sucrose

Microbiological & Contaminant Standards

Test	Standard	Method
Total Plate Count (TPC)	<1,000 CFU/g	ISO 4833
Yeast & Mold	<100 CFU/g	ISO 21527
Salmonella	Not detected / 25g	ISO 6579
E. coli	Not detected / 25g	ISO 16649
Lead (Pb)	<0.1 ppm	ICP-MS
Arsenic (As)	<0.05 ppm	ICP-MS
Cadmium (Cd)	<0.05 ppm	ICP-MS
Mercury (Hg)	<0.1 ppm	ICP-MS
Pesticide Residues	Not detected (organic compliance)	GC-MS / LC-MS
Solvent Residues	Compliant with organic processing standards	GC headspace

All batches tested at accredited third-party laboratories. Certificate of Analysis (COA) available upon request.

Certifications

Certification	Powder	Syrup
USDA Organic	Certified	Certified
EU Organic (EC 834/2007)	Certified	Certified
COR (Canada Organic)	Certified	Certified
Non-GMO Project Verified	Verified	Verified
Vegan	Certified	Certified
Gluten-Free	Certified	Certified
Allergen-Free	14 EU major allergens absent	14 EU major allergens absent
Kosher	Certified	Certified
Halal	Certified	Certified
FDA GRAS	Confirmed	Confirmed
EU Novel Food (EC 258/97)	Compliant	Compliant
China NHFPC	Compliant	Compliant
ISO 26642:2010 (GI)	Certified	Certified

Rainforest Alliance certified organic cane farms. ISO 22000 / HACCP compliant manufacturing.

Applications

Application Matrix

Application	Powder	Syrup	Usage Level
Sports nutrition (energy gels, bars, drinks)	Primary	Primary	15-30 g/serving
Diabetic-friendly / low-GI foods	Primary	Primary	10-30 g/serving
Functional beverages / RTD	Secondary	Primary	5-15 g/serving
Confectionery / chocolate	Primary	Secondary	Up to 50% sucrose replacement
Baking (cookies, cereals)	Primary	Secondary	Up to 50% replacement
Tablet / capsule excipient	Primary	Not suitable	Per formulation
Prebiotic fiber supplements	Primary	Secondary	≥3 g/day
Oral rehydration salts (ORS)	Primary	Secondary	Per pharmaceutical standard
Infant / baby nutrition formulas	Secondary	Secondary	Per EFSA/FDA guidelines
Chewable supplement tablets	Primary	Not suitable	Per formulation

Key Health Benefits

Benefit	Mechanism	Evidence
Low Glycemic / Sustained Energy	Alpha-1,6 linkage slows enzymatic hydrolysis; gradual glucose release	GI 32 certified (ISO 26642:2010)
Prebiotic Fiber Activity	Fermented by <i>Bifidobacterium</i> ; produces SCFAs including butyrate	Human gut microbiota studies
Non-Cariogenic (Tooth-Safe)	Not metabolized by oral bacteria; no acid production on teeth	Independent cariogenicity studies
Blood Glucose Management	Minimal postprandial glucose excursion; reduced insulin demand	Clinical intervention studies
Sports Performance	Sustained glucose supply vs rapid spike; supports endurance	Sports nutrition research
Gut Microbiome Support	Selective <i>Bifidobacterium</i> proliferation; butyrate for colon health	In vivo and human studies

Formulation Tips

Scenario	Recommendation
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Combining with high-intensity sweeteners	Pair with organic stevia, erythritol, or monk fruit at ratio to match sucrose sweetness
Sports gel formulation	Use powder; combine with electrolytes and flavor system; hydrate well
Beverage clarity	Use syrup for clear RTD; powder dissolves cleanly for cloudy or opaque formats
Direct compression tablets	Excellent flowability; use 80–120 Mesh for standard tablets; 200 Mesh for fine tablets
Ketogenic formulations	Not suitable alone (4 kcal/g); combine with allulose or erythritol for keto-labeled products
vs. Maltodextrin	GI 32 vs maltodextrin's GI >80; sustained vs rapid energy release
Heat processing	Stable up to 160°C; suitable for baking, extrusion, and confectionery thermal processes

FAQ

Q: How does isomaltulose differ from regular table sugar (sucrose)?

A: Both contain the same calories (4 kcal/g), but isomaltulose's alpha-1,6 glycosidic bond (vs sucrose's alpha-1,2 bond) means it is hydrolyzed more slowly by human digestive enzymes. This produces a gradual, sustained glucose release — GI 32 vs sucrose's GI 65 — without the rapid blood sugar spike. Additionally, isomaltulose functions as a prebiotic fiber (supporting *Bifidobacterium* growth), while sucrose does not. For equivalent sweetness, use approximately 2 parts isomaltulose to 1 part sucrose.

Q: Is isomaltulose suitable for a ketogenic diet?

A: No. Isomaltulose provides 4 kcal/g of carbohydrates — the same caloric density as sucrose. It is not compatible with strict ketogenic macros. If you need a low-GI sweetener for keto-formulated products, consider combining isomaltulose with allulose (which is nearly zero calorie) or erythritol (zero glycemic, 70% sweetness) to achieve the desired sweetening profile and label claim.

Q: Can isomaltulose replace maltodextrin in sports nutrition products?

A: Yes — and it is the preferred replacement. Maltodextrin has a GI exceeding 80, causing rapid glucose spikes followed by crashes. ORGANICWAY Organic Isomaltulose at GI 32 delivers sustained, steady glucose release ideal for endurance athletes, reducing the peaks and troughs associated with rapid-carbohydrate products. Use at 15–30 g per serving for sustained energy gels, bars, or recovery beverages.

Q: What makes isomaltulose tooth-safe (non-cariogenic)?

A: The alpha-1,6 linkage structure is not readily metabolized by the oral bacteria that cause dental caries. Unlike sucrose or high-fructose corn syrup — which oral bacteria ferment into enamel-attacking acids — isomaltulose does not produce significant acid on the tooth surface. This has been confirmed by independent cariogenicity studies and supports "tooth-friendly" or non-cariogenic labeling claims in confectionery and oral care applications.

Q: What is the minimum order quantity for custom blending?

A: R&D trials: 25 kg minimum for powder or syrup format. Production-scale custom blending (including pre-mixes with stevia, erythritol, inulin fiber, or MCT powder): 500 kg minimum. Private label packaging: 500 kg MOQ. Standard powder and syrup formats: 25 kg MOQ.

Q: Is organic isomaltulose suitable for infant nutrition?

A: ORGANICWAY Organic Isomaltulose complies with applicable EFSA and FDA infant nutrition guidelines and may be included in infant formula and toddler food formulations where the low-glycemic profile is desired. Confirm final usage levels and claims with your regulatory advisor for specific target markets.

Q: How does the prebiotic activity of isomaltulose compare to inulin?

A: Both are prebiotic fibers, but they differ in mechanism and applications. Isomaltulose's prebiotic effect comes from its slow digestion and colonic fermentation by *Bifidobacterium*, producing SCFAs including butyrate. Inulin (a fructan with beta-2,1 linkages) is a larger polymer with higher viscosity and different fermentation kinetics. Isomaltulose offers the advantage of dual functionality: sustained energy (GI 32) + prebiotic support in a single ingredient. For high-fiber supplements, they can be combined.

Q: What are the MOQ, sample availability, and lead times?

A: Free samples (1 kg) are available via FEDEX, UPS, and EMS. Standard bulk MOQ: 25 kg per order. R&D trial MOQ: 25 kg. Custom blending / private label MOQ: 500 kg. Standard lead time: 10-20 business days from order confirmation. Payment: T/T, L/C, D/P, D/A, MoneyGram, Western Union, credit card. Ports of loading: Qingdao, Tianjin.

Packaging & Storage



Packaging Specifications

Parameter	Powder	Syrup
Standard Unit	25 kg multi-layer kraft paper bags	25 kg drums (or as agreed)
Pallet Configuration	40 bags/pallet	40 drums/pallet
Custom Packaging	Available (private label, 500 kg MOQ)	Available (private label, 500 kg MOQ)
Sample Pack	1 kg (free sample)	1 kg equivalent (free sample)

Storage Conditions

Condition	Requirement
Temperature	Below 25°C, cool and dry
Humidity	Below 50% RH
Container	Sealed original packaging
Powder Moisture	≤0.5% (ensure packaging integrity)
Syrup Freeze Protection	Protect from freezing
Shelf Life (Powder)	36 months from production date
Shelf Life (Syrup)	24 months from production date

For more information, please visit our website:

<https://www.organic-way.com/products/organic-isomaltulose/>