Fructooligosaccharides

We offer **fructooligosaccharides (FOS)** in two versatile formats:

- **FOS Powder** – free-flowing, low-moisture solid
- **FOS Syrup** – clear, viscous liquid

Both are produced via enzymatic transfructosylation of **sucrose** derived from **sugar cane** or hydrolysis of **chicory root inulin**, using food-grade enzymes—free from chemical synthesis, sulfites, or synthetic additives. With a mild sweetness (~30–50% of sucrose) and high solubility, FOS serves as a **functional prebiotic fiber** and **clean-label sweetener enhancer**.

Clinically shown to stimulate *Bifidobacterium* and *Lactobacillus* growth within days, FOS is one of the most researched prebiotics globally.

What Is FOS?

Fructooligosaccharides are short-chain fructose polymers (typically DP2–DP8) with a terminal glucose unit. Our **FOS** contains primarily **1-kestose (GF_2), nystose (GF_3), and fructofuranosylnystose (GF_4)**—the most bioactive fractions for gut health.

The **powder form** is created by spray-drying the syrup under low-temperature conditions to preserve oligomer integrity, while the **syrup** retains natural humectant properties ideal for moist formulations.

> **Source Transparency**: We offer both **chicory-derived** (high-purity, neutral taste) and **sugar cane-derived** (sweeter profile, sustainable origin) options—clearly labeled per batch.

Key Functional Differences: Powder vs. Syrup

Property	FOS Powder	FOS Syrup
Physical Form	White to off-white free-flowing powder	Clear to pale yellow viscous liquid
Total FOS Content	≥95% (dry basis)	≥95% (dry solids basis)
Solids (Dry Matter)	≥98%	75–77%
Moisture Content	≤2%	23–25%
Sweetness (vs. Sucrose)	~30–40%	~40–50% (slightly sweeter due to residual sugars)
Bulk Density	0.60 – 0.75 g/mL	N/A

Property	FOS Powder	FOS Syrup
Viscosity (25°C)	N/A	1,500–3,000 cP (adjustable)
Best For	Tablets, dry mixes, baking, protein bars	Beverages, gummies, sauces, dairy alternatives

Technical Specifications

Parameter	FOS Powder	FOS Syrup
Botanical Source	Chicory root or sugar cane	Same
Appearance	Fine white powder	Clear, low-color syrup
Odor & Taste	Odorless; mildly sweet, no aftertaste	Mildly sweet, clean
Total Dietary Fiber (AOAC 2001.03)	≥90%	≥70% (as-is basis)
pH (10% solution)	5.0 – 7.0	5.0 – 7.0
Residual Sugars (Glucose + Sucrose)	≤3.0%	≤3.0%
Ash Content	≤0.2%	≤0.2%
Heavy Metals	Pb ≤0.1 mg/kg; As ≤0.1 mg/kg; Cd ≤0.05 mg/kg; Hg ≤0.01 mg/kg	Same

Parameter	FOS Powder	FOS Syrup
Microbiological Criteria	TPC ≤1,000 CFU/g; Yeast/Mold ≤100 CFU/g; *E. coli*, *Salmonella*, *Listeria*: Absent	Same
Allergen Status	Gluten-Free (<5 ppm), Soy-Free, Dairy-Free, Nut-Free	Same
Certifications	Non-GMO Project Verified, Kosher, Halal (available), Vegan Certified	Non-GMO Project Verified, Kosher, Halal (available), Vegan Certified

Analytical methods: HPLC with RI detection per ISO 11298; AOAC 2001.03 for total dietary fiber. Complies with FDA GRAS (GRN No. 77), EU Novel Food regulations (for chicory FOS), and Codex Stan 290.

Functional & Health Benefits

- **Clinically Proven Prebiotic**: Increases bifidobacteria within 7–14 days at 2–8 g/day
- **Low Caloric Value**: ~1–2 kcal/g (partially fermented in colon)
- **Low Glycemic Impact (GI ≈ 1–2)**: Safe for diabetics
- **Calcium & Magnesium Absorption**: Enhances mineral bioavailability
- **Mild Sweetness**: Masks bitterness in plant-based proteins and vitamins
- **High Solubility**: Fully soluble in cold water (>70%)

⚠ **Digestive Tolerance**: Typical tolerance up to 20–30 g/day. Start with 5 g/day to assess individual sensitivity.

Applications by Format

FOS Powder

- **Dietary Supplements**: Capsules, tablets, sachets
- **Meal Replacement Powders**: Adds fiber without grittiness
- **Baking**: Replaces part of sugar, improves browning
- **Infant Formula & Toddler Snacks**: Supports developing microbiome

FOS Syrup

- **Functional Beverages**: Smoothies, juices, kombucha
- **Gummies & Soft Chews**: Natural binder and sweetener
- **Yogurt & Plant-Based Dairy**: Prebiotic boost without texture change
- **Pet Treats**: Palatable prebiotic for dogs and cats

Why Choose Our FOS?

We control the entire supply chain—from certified farms to GMP-compliant processing—to ensure purity, traceability, and consistent DP profile. Our enzymatic process avoids acid hydrolysis, preserving the bioactive short-chain FOS fractions that drive efficacy.

Every batch includes full documentation: Certificate of Analysis (CoA), Dietary Fiber Report, Allergen Statement, and Safety Data Sheet (SDS).

Available packaging:

- **Powder**: 10 kg or 25 kg multi-wall paper bags with PE liner
- **Syrup**: 25 kg HDPE pails, 200 kg drums, or 1,000 kg IBC totes
- Custom packaging and private labeling available

FAQs

Q: Is FOS safe for children?

A: Yes! FOS is GRAS-approved and gentle for infants and toddlers.

Q: Can FOS replace sugar in beverages?

A: Yes—syrup provides 30-50% sweetness of sugar while adding prebiotic fiber.

Q: Does FOS cause bloating?

A: Start with small doses (≤5g/day) to allow gut adaptation.

Q: Is the syrup suitable for vegan products?

A: Absolutely! Both formats are plant-based and vegan-friendly.

Q: Do you offer private labeling?

A: Yes! Custom branding available for powder and syrup.

Packing

For more information, please visit our website:

https://www.bio-starch.com/products/fructooligosaccharide/