

NOT ALL FIBERS ARE CREATED EQUAL
Learn how structure and fermentation speed shape gut tolerance.

FORMULATING FOR DIGESTIVE COMFORT

Digestive wellness is no longer a niche trend. It's a core expectation for today's better-for-you foods and beverages. In Formulating for Digestive Comfort, Icon Foods explores how smart fiber choices can help brands deliver the benefits of fiber while supporting gut comfort, especially for consumers sensitive to FODMAPs.

Not all fibers behave the same way in the digestive system. Some ferment slowly and gently, while others can create gas and discomfort. This white paper explains those differences in simple terms and shows how fiber structure, dose, and fermentation speed directly impact tolerance and consumer experience.

Icon Foods highlights a range of fiber solutions designed to meet different formulation goals. Soluble tapioca resistant dextrins deliver clean taste, clarity, and high digestive tolerance. Partially hydrolyzed guar gum (PHGG) offers clinically supported gut comfort with excellent solubility. Blended systems and classic prebiotics like inulin and FOS are also explored, with clear guidance on when they add value and when they may challenge sensitive consumers.

The result is a practical roadmap for creating beverages, bars, and functional foods that support digestive wellness without sacrificing texture, taste, or clean-label appeal. For brands looking to stand out in a gut-savvy marketplace, this paper shows how engineering tolerance, not just adding fiber, can become a powerful product differentiator.

Taste the Icon Difference!

Comparative Overview

Fiber Line	Base Substrate	FODMAP Rating	Tolerated Dose	Key Advantage
FibRefine™ P90 / L90 / 4.0	Soluble Tapioca Fiber	Low	≤ 10 g	Clean taste, high tolerance
FibRefine™ HG	PHGG	Low	≤ 5 g	Monash certified; supports GI regularity
FibRefine™ 3.0 / 3.5	Tapioca + Inulin/FOS	Moderate	≤ 2 g Inulin	Balanced prebiotic effect
PreBiotica™ Inulin/FOS	Chicory / Agave	High	≤ 1 g	High prebiotic potency, poor tolerance

FAST FACTS

- Not all fibers are gut-friendly. Fermentation speed and molecular structure determine whether fiber supports comfort or causes bloating.

- Soluble tapioca-resistant dextrins can deliver up to 10 g of fiber per serving while remaining low-FODMAP and well-tolerated.

- Partially hydrolyzed guar gum (PHGG) is one of the few fibers clinically recognized by Monash University as low-FODMAP at functional doses.

- Classic prebiotics like inulin and FOS offer strong gut benefits but can trigger discomfort at higher levels in FODMAP-sensitive consumers.

- Blending slow-fermenting fibers helps formulators balance digestive comfort, texture, and clean-label appeal within a single system.



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FAQ

1. What molecular characteristics make a fiber Low-FODMAP compliant?

Answer: Low-FODMAP fibers are characterized by higher degrees of polymerization (DP), typically greater than 10, which limits rapid osmotic activity in the small intestine and slows microbial fermentation in the colon. Fibers such as resistant dextrins and PHGG consist primarily of long-chain glucose or galactomannan polymers that resist enzymatic digestion and are fermented gradually. This reduces acute gas production and luminal distension, key drivers of IBS symptoms. In contrast, short-chain oligosaccharides such as fructans and FOS (DP < 10) are rapidly fermented and exert higher osmotic pressure, increasing the likelihood of bloating and discomfort.

2. Why does fermentation kinetics matter more than total fiber dose for tolerance?

Answer: Tolerance is governed less by absolute fiber intake and more by the rate and location of fermentation. Rapid proximal colonic fermentation leads to abrupt gas release and visceral hypersensitivity, whereas slow distal fermentation promotes steady short-chain fatty acid (SCFA) production and improved tolerance. Fibers like PHGG and tapioca resistant dextrins exhibit delayed, distributed fermentation profiles, allowing higher functional doses without triggering symptoms. In contrast, rapidly fermentable fructans can provoke discomfort at much lower inclusion levels.

3. How can formulators balance prebiotic efficacy with digestive comfort?

Answer: The optimal strategy is controlled synbiotic design: combining a low-FODMAP, slow-fermenting fiber backbone with limited amounts of high-potency prebiotics such as inulin or FOS. Keeping fructan inclusion below

~1.5–2 g per serving preserves bifidogenic stimulation while mitigating rapid gas production. This approach broadens microbial diversity, sustains SCFA output, and maintains sensory performance without overwhelming FODMAP-sensitive consumers.

4. What distinguishes PHGG from native guar gum in gut tolerance and functionality?

Answer: Enzymatic depolymerization of guar galactomannan reduces viscosity while preserving molecular weight sufficient for gradual fermentation. PHGG maintains solubility, clarity, and neutral flavor while avoiding the gel-forming behavior and rapid gas production associated with native guar gum. Clinically, PHGG has demonstrated improvements in stool regularity and reductions in bloating in IBS populations, supporting its Monash low-FODMAP certification and making it uniquely suited for beverages and low-sugar systems.

5. How should “FODMAP-friendly” claims be substantiated in product development?

Answer: Formulators should quantify total fermentable carbohydrate load per serving, with particular focus on fructans, lactose, excess fructose, and polyols. While Monash certification provides gold-standard validation, products can support FODMAP-friendly positioning through compositional analysis, dose control, and documented alignment with Monash thresholds. Combining slow-fermenting fibers, validating inclusion levels analytically, and avoiding unlicensed logo use ensures regulatory defensibility while delivering real consumer benefit.

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