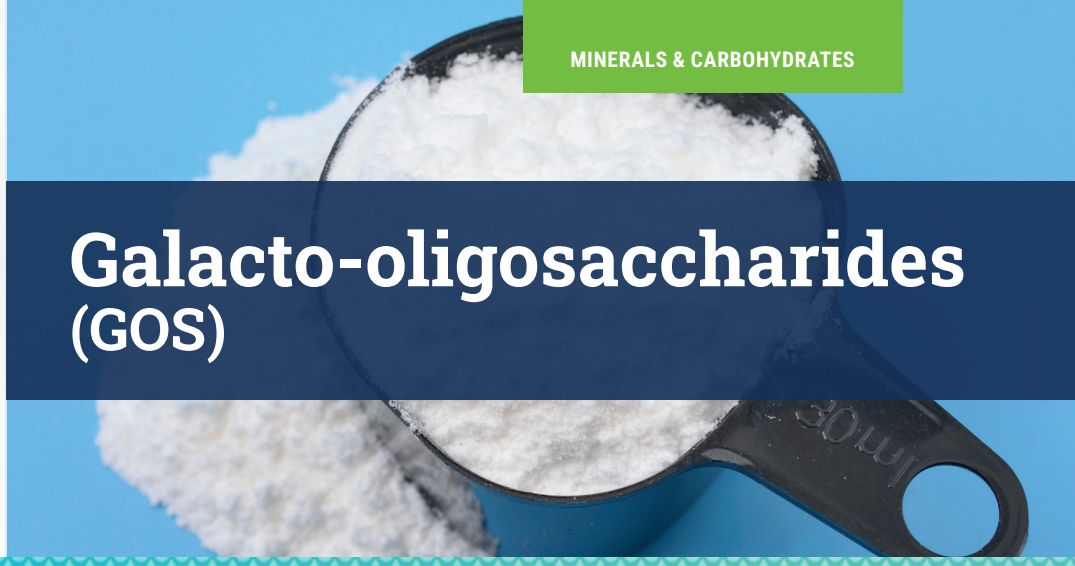
AMERICAN Dairy Products INSTITUTE®

Galacto-oligosaccharides (GOS)



Product Definition

Galacto-oligosaccharides (GOS) are non-digestible oligosaccharides consisting of 1 to 9 galactose units linked via glycosidic bonds to either terminal glucose or galactose. They are obtained by subjecting a concentrated lactose solution to the action of a β-galactosidase enzyme to produce galacto-oligosaccharides and then further terminating the reaction. The galacto-oligosaccharides may be purified by ultrafiltration, chromatography, ion exchange, electrodialysis, activated carbon filtration or any other safe and suitable process in which all or part of the galacto-oligosaccharides, minerals, other sugars are concentrated into a viscous syrup or a powder.

GOS for human consumption complies with all provisions of the U.S. Federal Food, Drug, and Cosmetic Act.

Composition

PARAMETER	UNITS OF MEASURE	GOS SYRUP[1]	GOS POWDER
		LIMITS	
GOS COMPOSITION	%, solids basis	50 minimum	28.5 minimum
PROTEIN	%	0.7 maximum[2]	0.7 maximum
LACTOSE	%	24 maximum[2]	30 maximum
ASH	%	0.5 maximum[2]	0.5 maximum
TOTAL MOISTURE	%, as-is basis	28 maximum	4.5 maximum

1 - Includes Organic GOS Syrup

2 - On a dry basis

Other Characteristics

PHYSICO-CHEMICAL PROPERTIES			
PARAMETER	UNITS OF MEASURE	GOS SYRUP	GOS POWDER
		LIMITS	
pH[3]	-	2.8 - 3.8	2.8 - 3.5
VISCOSITY	cP @25°C	1,000 - 5,000	n/a
COLOR	visual	colorless to light tan/ yellow	white
FLAVOR	sensory	slightly sweet	

3 - Measured as-is for GOS Syrup; on a 10% solution for GOS Powder

Product Labeling

Recommended identifications: Galacto-oligosaccharides
May be further clarified to describe its physical form (syrup or powder)

© ADPI 2026

Galacto-oligosaccharides

Permissable Additives

Galacto-oligosaccharides (GOS) may be pH adjusted with appropriate mineral or organic acid or base. Any pH adjustment agent used for this purpose shall be food grade and shall be used in accordance with U.S. current Good Manufacturing Practices and in accordance with its GRAS status, where applicable.

Nutritional Attributes

Galacto-oligosaccharides (GOS) provide a prebiotic fiber source that is beneficial to gut bacteria, especially *Bifidobacteria*. GOS is known for improving digestive health, supporting immune function, and contributing to overall microbiome balance. Fermentation of GOS in the colon produces short chain fatty acids which increases acidity and improves mineral solubility, allowing better absorption of calcium.

Functionality and Applications

HIGH PERFORMANCE:

Solubility
Heat Stability

Galacto-oligosaccharides are typically used in infant formulas; in conventional foods like soups, bakery products, cereals, jellies, jams, fruit and vegetable juices; in nutritional and dietary supplements; medical and specialized nutrition; and pharmaceutical applications.

An untapped potential for GOS use is in ready-to-drink (RTD) and ready-to-mix (RTM) beverages. Especially when combined with dairy proteins, it provides important nutrients for weight loss with a high protein/high fiber profile, while helping to support a healthy gut.

Product Examples

(launched in the last 2 years) *Credit: Innova Market Insights*

Baluoshi Prebiotic Grapefruit Fiber Fruit Drink: GOS provides prebiotic fiber in this grapefruit drink to help support existing beneficial gut bacteria as well as the probiotics provided in this drink. Good solubility characteristics in high acid beverages make GOS a good choice for this application.

Danone Bio Fermented Milk Product With Blueberry Mix: Adding GOS to yogurt is a natural fit that adds prebiotic fiber to a product that is already nutrient dense and beneficial for health.

Kendakids By Kendamil Complete Nutrition Shake: Growing children can benefit from GOS in this nutrition shake because of its support of beneficial bacteria in the gut and improved calcium absorption. It also contributes to their daily requirement of fiber.

Cheerston Octonauts Strawberry Flavored Cheese Bars: Adding GOS to this cheese snack provides the benefits of prebiotic fiber to an already nutritionally dense snack for kids. It will also help improve calcium absorption important for bone growth.

Nu Yogurt Tea With Berry Crush Flavorr: GOS provides important prebiotic fiber with good solubility for this yogurt tea.

Visit us at adpi.org

AMERICAN Dairy Products INSTITUTE®

© ADPI 2026