

collaborate > create > succeed™

Cargill is an international producer and marketer of food, agricultural, financial and industrial products and services. Founded in 1865, the privately held company employs 142,000 people in 65 countries.

Cargill helps customers succeed through collaboration and innovation, and is committed to applying its global knowledge and experience to help meet economic, environmental and social challenges wherever it does business. For more information, visit www.cargill.com.



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Sorbidex™
SORBITOL

Life is Sweeter

> Sweeteners



SORBIDEX™
SORBITOL

Cargill®

Sorbitol

With two-thirds of the calories of sugar, Sorbidex™ sorbitol is the most commonly used and economic polyol (sugar alcohol). Used as a sweetener, this reduced-calorie additive, with 60 percent of the sweetness of sugar, has also found favor from food manufacturers for its humectant and texturizing properties, particularly in snack foods and bakery.

The development of high quality foods to support health, convenience and well-being is a continuous process of improvement and creativity. A quality lifestyle is a priority for many consumers. On one side consumers look for good health and weight control. On the other lies the lure of the biscuit aisle and the calorie-rich desserts and sauces.

Cargill's Polyols have become essential ingredients in a wide range of food applications, both for their functional, sensorial as well as nutritional properties. They offer flexibility of functionality, while ensuring controllability and consistent final performance.

Polyols, or sugar alcohols, are polyhydric alcohols produced by hydrogenation or fermentation of different carbohydrates. Chemically, polyols are derived from mono and disaccharides.

Most polyols occur naturally in a variety of food products like vegetables, fruits and mushrooms. They are also regularly present in fermented foods like wine or soy sauces. Polyols are therefore a normal constituent of the human diet.

Sorbitol is widely used for its humectancy power. Cargill's comprehensive sorbitol product range includes Sorbidex™ Crystallising, a concentrated sorbitol syrup with crystallizing properties as well as Sorbidex™ NonCrystallising sorbitol syrup with a balanced composition of sorbitol and hydrogenated oligosaccharides.



Nutritional Benefits

Toothfriendly

Unlike sugar, sorbitol is slightly or not fermented by oral bacteria and therefore can assist in the maintenance of good oral health when combined with a system of good oral hygiene.

Suitable for consumers managing sugar intake

Foods containing polyols rather than glucose or sucrose can have greater appeal to health-conscious consumers and people concerned with managing their sugar intake.

Low in calories

The behavior of polyols, and other carbohydrates, in the human digestive system varies depending on their molecular size and chemical nature.

The simple monosaccharides are directly absorbed through the cell layer of the intestine. Their rate of absorption depends upon active and passive uptake. Glucose for instance is actively, and therefore rapidly, and completely absorbed.

Sorbitol, the monosaccharide polyol, can be directly absorbed while maltitol and isomalt, the disaccharide polyols, first need to be hydrolyzed to their sorbitol, mannitol and glucose building blocks before absorption is possible. The cells in the digestive system cannot actively transport polyols through the cell membrane. Polyols are therefore absorbed by a passive diffusion (osmotic) which is much slower and incomplete than the active transport. The absorbed part, in its subsequent metabolism, contributes an energy value of 4 kcal/g, as for glucose. The major, not absorbed part of the monosaccharide polyols, is fermented by the microflora in the large intestine to give volatile fatty acids. This fermentation contributes an energy value of 2 kcal/g.

Colonic food

The fermentation of polyols takes place in the lower part of the gut, especially the colon. As a result of the fermentation process by the gut flora, short chain fatty acids (SCFA) are being produced. These SCFA have bioactive effects on the gut acidity and digestive functions.



Functional Properties

Food Applications

> Humectancy

The unique character of Sorbidex™ sorbitol will help to maintain the products humidity, freshness and texture. This is specially applicable in baked goods, tofu, or chewing gum centre.

> Hygroscopicity

The hygroscopicity – or tendency to absorb water – differs among polyols due to their chemical differences. Sorbidex™ sorbitol syrup has moisture controlling properties which limit the transfer of water between the product and the environment, extending product shelf life.

> Freezing point depressor (FPD)

Sorbitol, because of its low molecular weight, has the capacity to decrease the freezing point. At a 30% concentration, the freezing point of a sorbitol solution is 2°C lower than that of a comparable sucrose solution - crucial in the production and consumption of ice cream.

The freezing point depression factor (FPDF) is typically used for calculations in the ice cream industry. The FPDF factor for sorbitol is 1.00 compared to 1.90 for dextrose.

> Relative sweetness

Sorbitol has mild and pleasant sweet taste. Its sweetness is about 60-70% compared to sucrose.

Pharmaceuticals Applications

Sorbitol is main raw material for vitamin C production. It is also raw material for certain types of surface active agents (emulsifier, suspending agent, wetting agent, etc.) as sorbitan fatty acid esters.

Non-cariogenic humectant in toothpaste and gargle solution.

Excipient in many types of pharmaceutical products (Syrup, suspension, etc.) with many function such as anti cap-locking, thickeners, mild sweeteners, and humectant.

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Applications

Bakery

- cakes and pastries
- biscuits
- fillings
- cereal bars

Confectionery

- hard candies
- chewing gum
- coatings

Convenience food

- table top sweetener
- surimi

Dairy & ice-cream

- ice cream
- fruit preparations
- desserts

Oral care

- tooth paste
- mouthwash

Personal care:

- Skin care
- Hair care
- Cosmetics
- Shaving creams
- Soap

