

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 130,000 people in 63 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.



Headquarters

PT Sorini Agro Asia Corporindo Tbk, Wisma 46 Kota BNI, 24 Floor, Jl Jend Sudirman Kav1, Jakarta 10220 Indonesia

Tel: +62-21-2924 0100

Fax: +62-21-2924 0127

www.cargill.co.id

www.sorini.co.id

THE INFORMATION CONTAINED HEREIN IS BELIEVED TO BE TRUE AND CORRECT UNDER US LAW. ALL STATEMENTS, RECOMMENDATIONS OR SUGGESTIONS ARE MADE WITHOUT GUARANTEE, EXPRESS OR IMPLIED, AND ARE SUBJECT TO CHANGE WITHOUT NOTICE. WE DISCLAIM ALL WARRANTIES, EXPRESS OR IMPLIED, INCLUDING ANY WARRANTIES OF MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE AND FREEDOM FROM INFRINGEMENT AND DISCLAIM ALL LIABILITY IN CONNECTION WITH THE USE OF THE PRODUCTS OR INFORMATION CONTAINED HEREIN.

© 2013, CARGILL, INCORPORATED. ALL RIGHTS RESERVED.

Glucose Syrup

A Long History
for Today's Products

> Sweeteners



GLUCOSE SYRUP

Glucose Syrup

In the plant world, nature passes its energy to the next generation through starch, giving the next generation a ready source to feed from as it grows.

In the same way, Cargill – and the companies that have become part of Cargill – has been producing glucose syrups across the generation too, providing traditional product derived from nature’s energy store.

The glucose syrups that we make today spring from an industrial heritage that has improved as technology has made possible products that are more finely tailored, purer, to more demanding specifications and supporting a wider area of application – but what we do today shares many of the original principles that made these products a sound basis for the traditional applications that we know and with which we are familiar.

Our glucose syrups play an important role in providing products that bring enjoyment and fun to the lives of many.

Today that heritage is supported by modern processing techniques that allow us to produce a wider and more sophisticated range of profiles and to produce a higher quality of product that through modern supply chain techniques, arrives at our customers in the best condition for use in their process.



Functional Properties

Non-enzymatic browning (Maillard reaction)

The desired browning effect in certain food applications is achieved through a condensation reaction between amino compounds and reducing sugars resulting in the formation of melanoid pigments. With the choice in saccharide pattern, the strength of the Maillard reaction can be controlled.

Fermentability

Fermentability is determined by the availability of fermentable sugars, dextrose being 100 percent fermentable. The applications in which fermentability is used most are in bakery and the beer brewing segments. The advantage of glucose syrups is the possibility of modifying the degree of fermentation and the speed at which the sugars are fermented.

Hygroscopicity and water activity

Hygroscopicity is a measure of moisture absorption ability. Hygroscopicity is important for shelf-life as it influences enzymatic activity, the Maillard reaction, fat oxidation and microbial stability. Hygroscopicity and water activity reflect how an ingredient or application will “deal” with water.

Inhibition of crystallization

All starch hydrolysates exert an influence on the crystallization of sweeteners in solution. Crystal formation is directly related to the saturation points of the various substances in solution. These are largely determined by molecular weight, temperature and the presence of other substances that may lower or raise total solubility and the mobility of molecules of the saccharide e.g. sucrose, in order to form the crystal. The important characteristic of glucose syrup is the ability to inhibit crystallization.

Freezing point depression factor (FPDF)

The effect of freezing point depression is related to the molecular weight and the effect increases toward the monosaccharide dextrose. By selecting the correct type of glucose syrup, glucose-fructose syrup or dextrose it is possible to influence the melting behavior of ice-cream. Also the keeping qualities or the direct consumption out of the freezer can be “designed” by the choice of saccharide composition.

Viscosity

Viscosity is a measure of the internal friction resistance that must be overcome to make a liquid flow. Viscosity, while strongly influenced by dry substance content and temperature, is intrinsically determined by composition. The glucose viscosity is measured in “milli Pascal seconds” (mPa.s) or centipoises (cp), 10.000 mPa.s is considered to be a high viscosity and 180 mPa.s a low viscosity for a glucose-fructose syrup at 40 °C.



Dairy

- Fermented desserts
- Milk drinks
- Ice creams

Fruit

- Dried fruits
- Jams and marmalades

Snacks & Cereals

- Breakfast cereals

Applications

Bakery

- Fermented products
- Biscuits & Wafers
- Cakes
- Icing & Glazes

Beverages

- Soft drinks
- Energy drinks
- Alcoholic beverages (light beers, specialty beers, ciders, wines)

Confectionery

- Toffees, caramels, fudge
- Hard, jellies and chewy candies
- Marshmallows
- Candy filling
- Chewing gum

Convenience Foods

- sauces
- concentrated beverages
- non dairy creamers



SOME CARGILL PRODUCTS ARE ONLY APPROVED FOR USE IN CERTAIN GEOGRAPHIES, END USES, AND/OR AT CERTAIN USAGE LEVELS. IT IS THE CUSTOMER'S RESPONSIBILITY TO DETERMINE, FOR A PARTICULAR GEOGRAPHY, THAT (I) THE CARGILL PRODUCT, ITS USE AND USAGE LEVELS, (II) THE CUSTOMER'S PRODUCT, ITS USE AND USAGE LEVELS, AND (III) ANY CLAIMS MADE ABOUT THE CARGILL PRODUCT AND THE CUSTOMER'S PRODUCT, ALL COMPLY WITH APPLICABLE LAWS AND REGULATIONS.