

Chamtor

Applications of Chamtor products

Sugar Confectionery

Hard boiled candies

Hard boiled candies are solutions of sugar which are congealed by a very high viscosity, in a glass structure. **GLUCOR** brand glucose syrups with a low DE make it possible to obtain and maintain this structure by increasing the viscosity and preventing the crystallization of sucrose. They also increase the shelf life of products by limiting moisture absorption thanks to a low hygroscopicity.

We also recommend products from the GLUCOR series. Rich in maltose, they make it possible to obtain higher incorporation rates.

Jellied confectioneries

Jellied products are principally composed of sweeteners, water and gelling agents that could be gelatin, pectin, and/or modified starches for softer gums, and gum arabic for harder gums. **GLUCOR** glucose syrups or **FRUCTOR** glucose-fructose syrups with high or medium DE improve the formation and the stability of the structure, and increase the shelf life of products by limiting the drying process. Products with a high DE improve the jelling process by reducing the viscosity of the mixture.

Chewy candies, aerated confectioneries and toffees

These products are characterized by the presence of fats that give them a soft and flexible texture. Chewy candies, marshmallows, etc. also contain incorporated air and usually, the sugar is partially crystallized in order to obtain a short texture. Glucose syrups contribute to the texture of these products by improving the formation of the jelly network and helping in the expansion process. We recommend **GLUCOR** glucose syrups with a low DE. For products which are highly expanded (aerated), very good results can be obtained by using **GLUCOR** glucose syrups and **FRUCTOR** glucose-fructose syrups with a higher DE.

Toffees contain fats and proteins (dairy) which, when associated with the reducing sugars of glucose syrups, allow specific flavors to be created by the Maillard reaction during the cooking process.

Glucose syrups therefore contribute to the creation of flavors and textures of caramels. Our **GLUCOR** glucose syrups with a low or medium DE are perfectly suitable to these products because they provide an adequate amount of reducing sugars, while stabilizing the product.

Fondants

Fondants are characterized by the presence of a crystalline phase dispersed into the sugar solution, and their texture depends on the equilibrium between these two phases. The choice of glucose syrups that influence the crystallization and the viscosity of the liquid phase therefore determine the qualities of the fondant. The glucose syrups used are the **GLUCOR** glucose syrups with a low DE, with a limited incorporation rate to enable a sufficient crystallization of sucrose.

Drinks

Non-alcoholic drinks

In the making of non-carbonated fruit drinks, nectars, and sodas, the use of glucose syrups with a high DE and a relatively high level of fructose (9 to 42%) makes it possible to substitute a large percentage of sucrose or even to replace the sucrose entirely. The advantages of using **FRUCTOR** products are that they have a high sweetening capacity and they help bring out the fruit flavors thanks to the fructose.

When used in fruit syrups, they not only help sweeten products but can also add a certain viscosity to syrups, giving them an ideal consistency. Thanks to the synergy of dextrose and sucrose, an average fructose content (9 to 28%) gives the product a sweetening capacity that is well adapted to this type of product.

Beers

According to the type of beer you want to obtain, it is possible to use a glucose syrup with a high DE, rich in dextrose and very quickly fermentable, or a syrup with a high level of maltose which has a carbohydrate composition that is very close to wort. **GLUCOR** glucose syrups have the advantage of being an excellent source of fermentable sugars which can be used directly in brew kettles or before racking. They are therefore an easy and quick way to increase the brewing capacity.

During brewing, **wheat starch** can be added directly to the mash tub in order to enrich the wort by up to 30 % of the malt weight. It therefore generates a better output. The starch contains a low amount of proteins and fats which make it possible to obtain paler and more stable beers.

Wines

Oenological studies have recently pointed out the technological advantages of using hydrolyzed **GBS-P51** wheat gluten during the clarification of wines. Used as a fining product during this important step in the wine-making process, the first tests have shown how efficient these vegetable proteins are, and the pending developments should confirm the fact that they constitute a promising alternative to animal derived gelatins.

Fruit based products

Jams and other preparations with a fruit or vegetable base

In marmalades and jams and in fruit products used to make ice creams and dairy products, **FRUCTOR** glucose-fructose syrups increase the shelf life of products, make it possible to adjust the texture and consistency of products, and prevent the crystallization of sucrose. Their liquid form also preserves the pieces of fruit from erosion by sugar crystals. A high level of solids is necessary in order to limit the amount of water evaporated and to therefore preserve the flavor of fruits. A fructose content of 9 to 19% gives these products a sensation of sweetness that is perfectly adapted to these types of products.

In sauces like ketchup, **FRUCTOR** glucose-fructose syrups which are rich enough in fructose (28 to 42%) make it possible to substitute up to all of the sugar, and give the product the desired texture and consistency.

Fruit jellies

Following the example of jellied confectioneries, fruit jellies are composed of fruit pulp, sweeteners and a gelling agent, pectin, for instance. Moreover, fruit jellies are enrobed in granulated sugar in order to prevent stickiness and drying from occurring. Glucose syrup is therefore used to limit the migration of water and the solubilization of the granulated sugar. It also helps improve the gelling capacity of the pectin (by a moderate quantity of polysaccharides) and prolongs the stable consistency of the product. A glucose syrup rich in maltose from the **GLUCOR** series meets these expectations perfectly.

Candied fruits

In the making of candied fruits, the water content in the fruits is replaced by a sugar solution, in order to guarantee the preservation of the product over time. The mixture of sugar and glucose syrup must be rapidly diffused in the fruits, with a high output and without presenting any risk of crystallization. The use of **GLUCOR** glucose syrups or **FRUCTOR** glucose-fructose syrups, with a medium DE and a high percentage of maltose, is ideal and makes it possible to completely substitute the sugar. Moreover, glucose syrups give the candied fruit a lovely, shiny appearance.

Dairy products

Ice creams and sorbets

Ice creams and sorbets are frozen, sweet mousses. The sweeteners in these products not only give them their sweet taste, but also help create the texture of products by modifying the freezing point and influencing the properties of the liquid phase. **FRUCTOR** glucose-fructose syrups with a medium DE (lower molecular weight) make it possible to obtain softer and more scoopable texture, a quality that is sought after today, whereas the **GLUCOR** glucose syrups are more adapted to products which necessitate harder textures, like sorbets, for example.

Dairy desserts

Dairy desserts include a variety of different products in which glucose syrups give a sweet taste and help improve their texture. The choice of glucose syrup depends, therefore, on the characteristics you wish to obtain. But in general, the products with a high DE from the **GLUCOR** and **FRUCTOR** ranges are the ones which provide both a sufficient amount of sweetness and also make it easier to obtain the desired textures which are obtained through the interaction between the dairy ingredients and the texturizing agents.

The technological texturizing properties of **wheat starch** are what make this ingredient one that is particularly sought after. This is notably because of its relatively low viscosity peak and its high temperature of gelatinization which therefore optimizes pasteurization conditions.

Cookies/Biscuits - pastries

Cookies and biscuits

In the cookie and biscuit making industry, glucose syrups make it possible to adjust the sweetness of products. They contribute to the coloration of products during baking, and also contribute to the texture of products by modifying the characteristics of the dough. The first two criteria are more influenced by the reducing sugars and are benefited by glucose syrups with a high DE, whereas the texture of cookies and biscuits is greatly improved by using products which are rich in maltose.

For this type of biscuit or cookie, we recommended **GLUCOR** glucose syrups with a medium DE or **H-MALTOR** glucose syrup which is rich in maltose so that it makes it possible to incorporate the syrup at high levels and still maintain a dough viscosity similar to one obtained with sucrose. On the other hand, for egg-based biscuits (spongefinger cakes, ladyfingers, ...), it is preferable to use **GLUCOR** glucose syrups or **FRUCTOR** glucose-fructose syrups with a medium to high DE, in order to conserve the soft texture of products thanks to the hygroscopicity of the monosaccharides.

Wheat starch reduces the strength of baking flours and improves the texture of the finished product.

Pastries

With madeleines and cakes, glucose syrups model the sweetness and contribute to the color and texture of products. They also help stabilize the product by limiting the water activity, which conserves the soft texture for a longer period of time and reduces the risk of molding.

Our **GLUCOR** glucose syrups and our **FRUCTOR** glucose-fructose syrups with a high or medium DE, sufficiently rich in monosaccharides, meet your expectations perfectly.

Wheat starch is used in pastry as a texturing agent and a support for baking powders. Its properties are particularly appreciated in the making of cakes, muffins, and pancakes.

The incorporation of **GBS-P51** hydrolyzed gluten stimulates the creaming of fats and ensures a better rising of cakes, pound cakes or sponge cakes during the baking process.

Breakfast cereals

Glucose syrups can be either incorporated into the mixture or used in the coating of ready-to-eat cereals. By using glucose syrups with a high quantity of maltose from the **GLUCOR** and **H-MALTOR** ranges, the shelf life and the texture of products can be improved upon; the products are in fact made crunchier.

Moreover, glucose syrups give these products a more attractive color and, when used as coating syrup, give them a lovely shiny appearance.

The incorporation of **VITALOR** vital gluten increases the protein content in order to improve the products nutritional qualities. It also contributes to the fixation of minerals or vitamins on cereals and the tenacity of the finished product. We recommend using **GBS-P51** hydrolyzed gluten if the dough is difficult to work with during the production process.

Bread-making products

Viennese breads and buns

For baked goods – breads and buns, **GLUCOR** glucose syrups or **FRUCTOR** glucose-fructose syrups make it possible to adjust the sweetness of products. They improve the color during baking and influence the final texture of products by modifying the characteristics of the dough. To ensure a good rising of the dough, it is important to choose glucose syrups from the **GLUCOR** or **FRUCTOR** ranges with a high DE which contain few polysaccharides.

Baked goods

Vital wheat gluten has unique visco-elastic properties. Thus, **VITALOR** hydrates the dough and makes it more tolerant, gives it more stability and elasticity. It greatly improves the resistance of kneading flours. Its capacity to retain gas allows you to control volume expansion and improves the texture of products. Its coagulation properties during baking contribute to the rigidity of the structure of the finished product and improve the way the baked goods feel in the mouth.

GBS-P51 hydrolyzed wheat gluten improves the hydration, flexibility and workability of dough, and shortens the rising period. It also facilitates the making of puff pastry and gives the finished product a softer texture.