

Glucose syrup

The chef's magic ingredient!



CENTURIES OF GASTRONOMIC TRADITION

A product with a **proud heritage** which plays a significant role in **European gastronomy**, glucose syrup is used in **gourmet foods** by pâtissiers, confectioners and chefs alike. This high-quality, plant-based product has been produced in Europe **for over a century**.

In the EU, with its grain-based agriculture, glucose syrup is derived from wheat and maize; EU starch manufacturers source their products exclusively from **conventional (non-GMO) crops**.

Glucose syrup is a **sugar** made from the **hydrolysis** (breaking down) of **starch**. It is available in **liquid, solid and transparent** form (similar to honey).

It was discovered in the **9th century** in Japan, and originally derived from sweet potatoes; the glucose syrup manufacturing process was developed in the 19th century by the German scientist, Kirchoff.

A number of culinary specialities benefit from the unique qualities of this ingredient.

Bakery products: e.g. pastries, macaroons, cakes etc.

Confectionery products: e.g. sweets, lozenges, nougat etc.

Glucose syrup plays a vital role in these delicacies... A delight to the eyes and taste buds alike.



GLUCOSE SYRUP AND DIET

EFSA (The European Food Safety Authority) recommends that **carbohydrates** should form 45-60% of our overall energy intake, stating that “enjoyed occasionally and in reasonable quantity, sweetened products are compatible with a balanced diet”.

Glucose syrups are part of the **simple carbohydrate family**, with the same calorific value as all other sugars (sucrose or white sugar, lactose, etc.) i.e. **4 kcal/g**. There is no differentiation between simple sugars, regardless of their origin (e.g. beets or grains) when it comes to dietary advice(1,2).

The consumption of sugar in normal quantities does not, in itself, have any influence on the development of type II diabetes (3).

Unlike sucrose, glucose syrups do not contain any fructose. Consequently, they are **not as sweet**. The glucose molecule in glucose syrup is the same as that in sucrose or lactose.

DID YOU KNOW?

Glucose (or dextrose), as used in hospitals, is the body's main source of energy. This is why it is given to certain patients as a source of carbohydrates, in parenteral nutrition for example.

How can you identify glucose syrup in food products?

Added sugars (sugar, glucose syrup etc.) must be indicated and **explicitly named** in the list of product ingredients.

Typical values	per 100g
Energy	1596kJ/382 kcal
Protein	4.7g
Carbohydrates	59.7g
of which sugars	32.2g
Fat	13.8g
of which saturated fats	1.6g
Salt	0.49g

The information under “**Carbohydrates**” indicates the total amount of complex carbohydrates such as starches **and simple** carbohydrates (glucose, sucrose, fructose, lactose etc.).

The information under “**of which sugars**” indicates the total amount of simple sugars, whether **added or naturally occurring**.

(1) WHO, 2015. Sugars intake for adults and children Guideline. (2) EFSA, 2011. European nutritional guidelines (3) Lewis et al., 2013. Comparison of 5% versus 15% sucrose intakes as part of a eucaloric diet in overweight and obese subjects [...] doi: 10.1016:

DID YOU KNOW?

Both maize and wheat-derived glucose syrups are gluten-free. This is confirmed in EU Regulation No.1169/2011. Glucose syrups are therefore suitable for coeliacs.

THE REMARKABLE PROPERTIES OF GLUCOSE SYRUP

During manufacturing various processes are used to break down the starch, to varying degrees, to obtain a **wide range of glucose syrups**, all offering different useful properties. These syrups contain both free glucose (dextrose) and glucose chains of varying lengths.

Above all, they are prized for their **culinary properties**. Depending on their individual characteristics, glucose syrups can provide **texture, volume, taste, glossiness, improved stability** and a **longer shelf-life** for the products to which it is added.

Combined with other sugars, they can provide a range of benefits. For instance, in a cake, glucose syrup can be added for a more luxurious texture, whilst white sugar adds sweetness.

Moreover, glucose syrups **prevent** biscuits from **drying out**, keep cakes **soft**, **prevent sugar from crystallizing** in sweets and jam and **prevent water crystallization** in ice creams.



STABILITY



VOLUME



SMOOTHNESS AND GLOSSINESS



ANTI-CRYSTALLISATION (SUGAR AND WATER)



EXAMPLES

Cakes,
ice creams, etc.

Marshmallows,
ice creams, etc.

Icing, etc.

Jam, ice creams, sorbets,
sugar decorations, etc.

TRANSFORMING STARCH INTO GLUCOSE SYRUP

Starch manufacturers extract starch from cereal via physical processes. Glucose syrup is made by breaking down the starch through hydrolysis which releases some of the glucose units.



1

EU farmers cultivate the crops required to produce starch. Glucose syrup is generally derived from wheat and maize, the cultivation of which represents the work of **40,000 agricultural workers**.



2

Starch milk production. Water is used to separate components of the grain. **For maize**, the grain is soaked in water. **For wheat**, water is added to the flour obtained after milling and sifting. The starch milk is then separated from the other grain components, such as proteins.



3

Glucose syrup production. Starch is broken down, using similar processes to those which occur in the human body when consuming starch-based foods, in a **process known as starch hydrolysis**. It is more or less complete, depending on the type of glucose syrup required.



4

Water evaporation results in a concentrated glucose syrup. It is then packaged and delivered to customers in the catering sector (bakeries, confectioners, etc.).

OVERVIEW

Glucose syrup is a sugar of natural-origin. In the EU it is derived from (non-GMO) **wheat and maize starch**.

The EU has been manufacturing glucose syrup for over a century in long-established starch manufacturing plants, employing over **15,000 workers**. Their raw materials are sourced almost exclusively from **EU crops**.

A speciality culinary ingredient, it has very specific properties which complement the use of white sugar.

Glucose syrup is a **traditional** product, with a long history of use by pâtisiers, confectioners and chefs.

Glucose syrup is a **simple carbohydrate**. Sugars, in common with all foodstuffs, should be consumed in reasonable quantities and as part of a healthy, varied diet, in accordance with the body's physical demands.

