Corn Syrup & High-Fructose Corn Syrup Cheat Sheet

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Introduction

Corn Syrup and High-Fructose Corn Syrup Are Not Synonymous

Corn syrup is made by enzymatically treating corn starch to convert much of its starch into sugars. High-fructose corn syrup is made by treating corn syrup with another enzyme to increase its fructose content. Corn syrup is a clear, viscous liquid that you can buy in the baking aisle in grocery stores, while high-fructose corn syrup is something only food manufacturers can get their hands on. In other words, corn syrup and high-fructose corn syrup are not the same thing.

Facts

Fact one: The two simplest and most common sugars (in nature and in the foods we eat) are glucose and fructose.

Glucose—also known as dextrose—is the source of energy for all living cells. Plants make glucose during photosynthesis and convert it to any number of more complex carbohydrate-based molecules: other types of sugars, starches, cellulose, and many more. When we consume starches and sugars, they get broken down by enzymes back into glucose so that our cells can use it (or store it for later use).

Fructose has a chemical structure very close to that of glucose but with a slightly different arrangement of atoms.

(Table, or granulated, sugar is sucrose. Sucrose is a molecule made from one unit of glucose linked to one unit of fructose.)

Fact two

Sugars vary widely in their perceived sweetness level. Since table sugar is the most well-known sugar, the sweetness levels of other sugars are typically ranked in comparison with it. Glucose is 30 percent less sweet than table sugar, and fructose is 20 percent sweeter than table sugar. Corn syrup is mainly glucose, along with water and other longer-chain sugars; it is about 50 percent as sweet as table sugar. As its name suggests, much of the sugar in high-fructose corn syrup is fructose; its sweetness level is on par with table sugar..

Why Frutose is Widely Used

The reason so many processed foods and soft drinks now contain high-fructose corn syrup is that it is—thanks to government subsidies to the U.S. corn industry—much cheaper than table sugar.

High-fructose corn syrup has stirred up controversy over whether it is worse for our health than other sweeteners. But if you are going to cook with sugar at all, there is no reason to avoid plain old non-high-fructose corn syrup as one of your options. And corn syrup has a number of unique properties that sometimes make it the best choice of sweeteners.

The secret behind corn syrup's utility has to do with those longer-chain sugars it contains. These flexible, intermediate-length carbohydrates—halfway between a starch and a sugar—tangle up with one another, lending it that exceptionally viscous, molasses-like consistency. They also do interesting things when you mix corn syrup with other ingredients.

For one, they prevent crystallization of sugars. These special carbohydrates impede the movement of sugar molecules in the mixture, so they cannot link up and crystallize. That's why corn syrup is the perfect sweetener for the fillings in Pecan Pie, Sticky Buns, and Caramel Sauce. Corn syrup is also a secret weapon when making ganache. It helps the chocolate to remain smooth, glossy, and pliable in Boston Crème Pie, Chocolate Frosting, and Chocolate Truffles. Corn syrup also minimizes the crystallization of water in frozen desserts to keep them smooth and creamy (for the same reason: The water molecules can't find each other easily, so the ice crystals that form remain small). That's why you should use corn syrup in our in Vanilla Ice Cream, Frozen Yogurt, and Raspberry Sorbet recipes (among many others).

And corn syrup's usefulness extends beyond sweet applications. It's a great substitute for sugar in savory dishes when you want a viscous consistency without cloying sweetness. That's why we use it in the glazes for Orange-Honey Glazed chicken Thighs and Grilled Glazed chicken Breasts.