

## Give me the Basics

Two carbohydrates that are common are starch and glucose. We recognized starch because we may cook with starch often, and glucose is recognized because it is the sugar our body uses to produce energy. If we had the ability to see the molecules of both starch and glucose, we would actually see that these two sugars are very different from each other.

Starch is a polysaccharide, and "poly" means many. Starch is carbohydrate coming directly from nature, so it is complex, packed with many connected compound chains, and these connected compound chains can be long. These long chains don't offer much in taste, the compounds are not small enough to bring much sweet flavor to taste buds, and on their texture is heavy enough that a negative connotation for badly cooked foods can be used when called "starchy". But the long chains can flow loosely when heated, and firm up when cooled, allowing starch to be a good kitchen tool for thickening soups and gravies.

Glucose is on the other end of the spectrum, being called a monosaccharide, where "mono" means one. Glucose is a sugar in its smallest single compound form, which is why the body converts our calories into glucose, so that it can then use the energy we have consumed. When we eat simple sugars, they dissolve easier on our tongues, and we immediately taste sweetness.



## I Am Here For The Maltodextrin

Many of the carbohydrates that we use in formulations actually fall somewhere in between a starch and a glucose. The complexity of a starch is not ideal for all food applications, but the simplicity of a glucose is not ideal for all food applications either. Instead, a formulator will use carbohydrates that fall in a spectrum between starch and glucose, and this is where maltodextrin can be identified. Dextrose is the same as glucose. Therefore, if you see dextrose used in a formula, you know that this is a powdered form of glucose. Some starch can be simplified, or broken down into smaller compound chains, by either using enzymes, or mixing it with an acidic solution. As a certain amount of starch is converted into glucose, the measurement of converted starch is recorded as the Dextrose Equivalent (DE). Starch that has been converted to glucose at levels between 3DE and 20DE are called Maltodextrin.

However, not all starches need to be converted to the same DE levels as maltodextrin. The carbohydrates with DE levels higher than 20DE, but below 100DE are commonly referred to as glucose syrup or solids.



## You Are What You Eat

For years, corn was the most used ingredient to source starch, corn syrup solids, maltodextrin, and dextrose. However, as the push for Non GMO ingredients became recognized as more important to consumers, cassava plants grew as a popular source for carbohydrates, and tapioca based ingredients became a more readily available ingredient.

TFS makes efforts to use tapioca as the source for functional carbohydrate ingredients instead of corn when possible. However, given that corn-based ingredients are been used for a significant period of time, and unless otherwise noted, there may be corn based carbohydrates used in some form along the supply chain of a seasonings ingredients.



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## Maltodextrin Everywhere

Carbohydrates like maltodextrin are used in seasonings for a number of different reasons. Sometimes spices and flavors are too strong and concentrated for the application, so the maltodextrin helps to reduce the flavor concentration to a more appropriate level, as well as reduce the price impact a seasoning may have on a finished good. Sometimes a seasoning may have high sugar levels which will burn or brown when going through processing, and ingredients like maltodextrin help reduce the likelihood that the seasoning will burn. Some ingredients are naturally hygroscopic (easily absorb water), and adding maltodextrin helps increase the shelf life. But one of the most important uses is when an ingredient is not naturally dry.



## Can't Do Without

Many tasty ingredients are inherently liquids. This includes ingredients like vinegars, flavors, pepper sauces, fats/ oils, and many others. In order to use these ingredients in a seasoning, they need to be dried into solids. Sometimes that liquid ingredient can be mixed into other dry ingredients such as salt or maltodextrin, but this is only an option when the ingredient is fat based and kept at low levels. Other ingredients are water based, or function best at high levels, and the ingredient would require a drying process before using it within a seasoning. This is accomplished most efficiently by increasing the level of solids in the ingredient (with additional maltodextrin or glucose solids), so that the ingredient has enough solid material that it can be turned into solids after a drying process. Ingredient processors commonly use maltodextrin, for this purpose, and many commonly used dry ingredients are only available in a dry form due to this process.



## Do I have to?

Many consumers find ingredients like maltodextrin to be concerning. Whether they represent food as a lab experiment, invoke big Pharma, or remind the consumer that this food item was processed, TFS receives a lot of requests to find ways to avoid labeling ingredients like maltodextrin. If that is a concern, please make sure that your TFS representative is aware as your seasoning is being developed. They can review the various options available, as well as advise which ingredients require maltodextrin as a processing aid.

We also receive requests about labeling requirements for maltodextrin. Do I have to label this? TFS has a pre-determined labeling policy based on our interpretation of the FDA's CFR (Code of Federal Regulations). Within the CFR, certain food labeling exemptions are allowed depending on the purpose, significance, and nutritional impact of a food substance. However, TFS is developing a seasoning and not a finished food product, so labeling can vary, and what may be important to process a seasoning our ingredient may not be important to process a finished good. We recommend that companies develop their own labeling policy based on their own interpretation.



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