



## Bob's Red Mill Starch Compendium

### About Starches

Starches are incredibly versatile ingredients to have on hand and are particularly useful both as thickeners and in gluten free baking. When starches are added to liquids, they absorb water and as they're heated, the tiny granules swell and then burst, emptying more starch molecules into the liquid causing it to thicken. To thicken liquids with starches, you will first need to make a slurry which is similar to a roux, but is added at the end of the cooking process rather than the beginning. Adding raw starch directly to liquids will cause the starch to form clumps which will not disperse. To make a slurry, combine your starch with an equal amount of cool or tepid water and stir to dissolve into a pour-able liquid. Slowly pour the slurry into the main liquid to be thickened (this liquid should be warm to start) and stir or whisk constantly over even heat until the liquid has thickened. Some starches cannot tolerate boiling or cooking for long periods of time, or may not work with acidic ingredients, so be aware of the properties of the starch that you are working with.

In gluten free baking, starches help to bind ingredients together, and add moisture and texture to your gluten free baked goods. Starches and starchy flours are usually used in smaller amounts than heavier flours in gluten free flour blends, as adding too much can cause your baked goods to be gummy. They may frequently be used in combinations with other starches to create a desired texture. Starches can also be used as a coating for frying as an alternative to wheat flour.

Below are some common starches and recommendations for using them in your cooking and baking.

### Arrowroot Starch

Arrowroot Starch, also called Arrowroot Flour, is derived from the rhizomes of an herbaceous perennial found in tropical climates. The starch is extracted from the rhizomes that are washed, pulped, pressed and dried, then ground into a fine, white, powdery starch. It can be used as the starch component in gluten free flour blends, and works very well as a thickener. It has a neutral flavor and can replace cornstarch one for one to thicken sauces, stews, and soups. It should be mixed with cool liquid to create a slurry before adding to hot liquids then whisked in to prevent clumping. It does not turn sauces cloudy like wheat flour or cornstarch, and it works at temperatures below a simmer; it must be cooked over low heat as it does not endure long, high temperature cooking. Sauces made with this starch may not reheat well

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and may separate. Arrowroot starch tolerates acidic ingredients such as citrus (like lemon curd). Arrowroot does not do well in milk-based cream sauces (it may cause curdling), but it does work well in baked goods made with milk. Arrowroot Starch provides tenderness to baked goods but does not provide the lightness of Potato Starch or the crispness and browning of Tapioca Flour, so consider combining it with another starch to add these properties. This starch stands out in baking when used for fillings (pie, vegan custards, lemon curd) and is also a good alternative for those who cannot tolerate corn or potato starches. Arrowroot Starch adds a shiny gloss to sauces which may or may not be attractive to the dish (may look great in a lemon curd but not look appetizing for a meat sauce or gravy for example). It is a popular starch used in Paleo diet recipes.

## Cornstarch

Cornstarch is made from the starchy endosperm of corn, and has long been used as a thickener for sauces, custards, and gravies. Bob's Red Mill Cornstarch is made from Non-GMO corn. Like other starch thickeners, Cornstarch should be mixed into a slurry with an equal amount of cold water before it's added to the hot liquid you're wanting to thicken. The liquid should then be simmered, whisking or stirring constantly, for a minute or so until it thickens. If the liquid is not cooked long enough after the starch is added, it may leave a chalky, starchy flavor. Liquids thickened with Cornstarch tend to be opaque. Cornstarch does not stand up to freezing or prolonged cooking/boiling, and it doesn't thicken as well when mixed with acidic liquids. If your recipe calls for wheat flour as a thickener, you can use half the amount of corn starch as a substitution. In gluten free baking, Cornstarch can be used to add softness to gluten free baked goods like pancakes and muffins, but adding too much can result in a chalky aftertaste. Cornstarch is great when combined with Tapioca Starch as Tapioca Starch can make baked goods too tough if used alone as the only starch component.

## Potato Starch

Potato Starch is made from a variety of potato that has a very high starch content. After grinding the potatoes and separating the water from the potato pulp, the starch is extracted out of the potato pulp with tap water. It is then dried to a powder. It is naturally white in color. Potato Starch is not the same as Potato **Flour** which is made from dried and ground Russet Potatoes and has a very strong potato flavor. Potato Starch and Potato Flour are **not** interchangeable. Potato Starch has a very neutral flavor, and provides structure along with tenderness in gluten free baked goods. It is a very good addition to baked goods like muffins, pancakes, biscuits, and rolls as it creates a light and somewhat fluffy texture, but does

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not brown as well as Tapioca Flour (these two starches are often used together for this reason). Potato Starch tolerates higher temperatures than cornstarch and can be used in the same amount to thicken liquids. To use as a thickener, make a slurry with cold water before adding to the gravy, sauce, soup, or stew to be thickened and add at the end of the cooking process. Stir to prevent lumps and remove from heat when thick. Do not boil for prolonged periods of time as the starch will break down and lose its ability to thicken.

## Sweet White Rice Flour

Though not a pure starch, Sweet White Rice Flour can be used in a similar manner in baking and cooking. It is made from a very starchy white rice also called “glutinous” rice although it does not contain gluten. Sweet White Rice Flour isn’t actually sweet, but it is much starchier than White Rice Flour. Because of its starchiness, this flour acts as an effective binder, so it is often included in gluten free flour blends (gluten acts as a binder in wheat flour recipes, so removing gluten can make gluten free baked goods crumbly). It also helps to keep gluten free baked goods moist so it is a very common ingredient in gluten free flour blends, and in recipes where a moist texture is needed like cakes, cupcakes, and muffins. While they may be used in the same recipe, White Rice Flour and Sweet White Rice Flour cannot necessarily be used interchangeably. Since Sweet Rice Flour is starchier, it will absorb liquid at a different rate than White Rice Flour which may affect the consistency or texture of your baked goods. Sweet White Rice Flour can also be used to thicken stews, soups, and sauces. Use the same amount to thicken liquids as you would of wheat flour.

## Tapioca Starch

Tapioca Starch, also called Tapioca Flour, is made from the starchy tuberous root of the cassava plant. It is not the same as Cassava Flour which is ground from the whole cassava root that has been peeled, dried, and ground. To make Tapioca Starch/ Flour, cassava root is peeled, washed and chopped. Then it is rasped (finely shredded) and the resulting pulp is washed, spun, and washed again until the mixture is primarily starch and water. The starch is then dried. Raw cassava root contains naturally occurring and toxic cyanide components, so it must be processed to make it edible. We recognize the hazards of under-processed cassava root and our product has been processed in an appropriate manner to make the product harmless. In gluten free baking, Tapioca Starch/ Flour provides chew, elasticity, and structure to baked goods and creates a crisp crust in gluten free baked goods like cookies and pie crust. It is particularly good to use when you want a nice brown crust, as in gluten free bread baking. It can cause baked goods to be a bit tough and dry, so you may need to use this flour when your recipe has enough liquid (eggs, milk, etc.) to offer some balance, or consider combining it with another starch like Potato Starch to add

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softness. Tapioca Starch/Flour can be used as a thickener but you will need to use more than you would of wheat flour or cornstarch. Similar to Arrowroot Starch, Tapioca Starch/Flour adds a shiny gloss to sauces which may or may not be attractive to the dish (may look great in a lemon curd but not look appetizing for a meat sauce or gravy for example). It is also a popular starch used in Paleo diet recipes.

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