

# Gluten Free Flours & Starches



Overview by Chef Alina Eisenhauer

[www.chefalina.com](http://www.chefalina.com)

### Pro Tips

You cannot exchange any non-gluten flour cup-for-cup by measure with wheat-based all-purpose flour and expect great results. Every gluten-free flour has a different weight per cup so the most accurate way to measure dry ingredients in baking (the method used by professional pastry chefs and bakers) is by weight not volume. A digital kitchen scale is a great investment, especially if you plan on doing gluten free baking.

For best results when making baked goods like cakes, cookies, muffins, and pastry with gluten free flour blends add 1/2 tsp. xanthan gum for each 125 -135g of gluten free flour blend you are using.

For Yeast Breads add 3-5% of the total flour weight in psyllium husk to ensure good rise, elasticity and structure.

### GRAIN FREE FLOURS

(Gluten free & Paleo)

Cassava  
Coconut  
Almond  
Chickpea  
Tiger Nut  
Banana /Green Banana

### White Rice Flour

White rice flour has a very neutral flavor that will take on the flavors of whatever you add to it. Rich in carbohydrates and low in fat, it can be used to bake cakes, cookies, dumplings and breads. It lends a delicate sponginess to baked goods. It is generally used as the base for most gluten free flour blends. It does not brown easily and can be a little gritty if not ground fine enough.

Mixed with cornstarch or tapioca starch it makes the best light crispy coating for fish, chicken and other proteins.

1 cup = 160 grams

### Sorghum Flour

Can be subbed 1:1 for wheat flour, but you'll need to add additional binder. Xanthan gum, cornstarch, egg whites, and psyllium husk all work well. You'll need approximately an extra half-teaspoon of binder per cup for cookies and cakes or 1 teaspoon per cup for bread.

Really, it is best combined with other gluten free flours because it is a heavier flour.

1 cup = 136 grams

### Brown Rice Flour

Can generally be substituted for wheat flour at a 1:1 ratio when used as a thickening agent in soups, sauces, or gravies. When baking you may need to make some adjustments, in many cases, you'll need another egg to bind the ingredients or some additional fat like oil or butter. You may also need a few extra tablespoons of liquid to keep the mixture from drying out.

1 cup = 160 grams

### Cassava Flour

Cassava flour is made from the entire cassava root (tapioca flour/starch is the bleached and extracted starch from the root).

In most recipes, you can use a 1:1 ratio for wheat flour. It has a neutral taste and texture, so it works well as a direct substitute or when blended with other gluten free flours. If you use cassava flour as a direct substitute, it is best for recipes that don't need a lot of rise – it won't produce a fluffy outcome like wheat flour unless it is combined with lighter flours or starches.

1 cup = 140 grams

### Buckwheat Flour

Has a rich, earthy flavor that works well in quick breads and yeast bread. It does, however, have a crumbly texture so you might want to combine it with other gluten free flours and/or starches. In addition, adding 5% of the flour weight in psyllium husk works well for yeast breads. Buckwheat flour is rich in fiber and antioxidants as well as iron, magnesium, folate, zinc, and manganese.

1 cup = 120 grams

### Teff Flour

Teff is a heavier flour with a strong multigrain flavor and is best used in combination with other gluten free flours because it can leave your baked goods dry and coarse if used alone. Teff flour comes in several colors – lighter colors have a milder flavor while darker colors have a stronger earthy in taste. High in calcium and Iron.

1 cup = 164 grams

### Millet Flour

Millet Flour has a subtle flavor, lots of vitamins and minerals, and adds a beautiful creamy color to baked goods. Substitute millet flour for an equal amount of unbleached white flour in any baked good (cookies, breads, pancakes, waffles etc...) to add more nutrition and a unique flavor. Some Drs recommend limiting the amount of millet you consume if you have thyroid issues.

1 cup = 120 grams

### Oat Flour

Best for cookies and quick breads because of its ability to hold moisture.

Oat flour works great in combination with other gluten free flours that tend to be lighter and drier like rice flours, and starches. When making yeast bread, you may need extra yeast to make the dough rise. Quick breads/ muffins need about 2 ½ teaspoons of baking powder per cup of oat flour.

**Make your own oat flour:** grind 1 ¼ cups of rolled oats to make 1 cup of oat flour.

1 cup = 120 grams

### Coconut Flour

Rich in dietary fiber and healthy fats while being very low in carbs it is GF and also suitable for the ketogenic diet as well as the paleo diet.

Coconut flour is highly absorbent, substitute between 1/4 and 1/3 cup of coconut flour for every cup of grain-based flour. Additionally, you'll need 2 eggs per 1/4 cup of coconut flour.

1 cup = 128 grams

### Almond Flour

Good for certain baking applications like short doughs/ crusts and french macarons. It can be used as a substitute for breadcrumbs in things like baked chicken tenders.

When substituting almond flour for regular flour, use a 2:1 ratio. Almond flour can be tricky when it comes to direct substitutions, so it is best to find a recipe that is already formulated for almond flour or use a small amount in combination with other flours.

Can yield a wet, heavy product if used alone in some recipes.

1 cup = 112 grams

### Quinoa Flour

Quinoa (pronounced keen-wa) is the most nutritious grain available. It is also one of the oldest cultivated grains in the world. Quinoa is high in protein, calcium and iron. Use this delicate flour when baking things that require a soft crumb like cakes. You can substitute this flour for 1/2 of the all-purpose flour in many recipes or completely replace wheat flour in cakes and cookie recipes. For best (most delicious) results lightly toast your quinoa flour before using it in recipes.

1 cup = 112 grams

### Chickpea Flour

Made from raw ground chickpeas and is extremely rich in protein, fiber, and essential nutrients. It is naturally dense and highly absorbent which makes it great for adding structure and moisture to recipes. Chickpea flour has a mild nutty flavor. It can be used in many recipes but works best in pasta, tortillas, crepes, brownies and crackers. It is my favorite flour for making pasta mixed with with any 1:1 GF flour blend

1 cup = 120 grams

### Amaranth Flour

Has a nutty, earthy flavor on its own and tends to absorb the flavors of other ingredients. Rich in fiber and protein, Amaranth flour provides almost twice as much calcium as milk per serving.

Best combined with other gluten free flours, especially for recipes like bread, pie crust, and tortillas. When baking with this flour, it's best to stick to a ratio of one part amaranth flour to three parts other gluten free flours. Amaranth browns quicker than other flours so it is best combined with flours and starches that don't brown well such as white rice flour.

1 cup = 120 grams

### Tigernut Flour

Tigernut is not a nut, it is a small root vegetable that grows in Northern Africa and the Mediterranean. Tigernuts have a high level of resistant starch, which promotes prebiotic growth and supports a healthy immune system and digestive track. Tigernut flour is light and has a slightly sweet, nutty flavor which allows you to cut back on added sugar if desired. It works well in combination with other flours and starches such as coconut flour, almond flour, gluten-free oats and arrowroot or potato starch. It adds a sweet crunchy texture to baked goods such as biscotti, cookies and pie crusts.

1 cup = 120 grams

### Green Banana Flour

Made from milled green bananas. Banana flour has been around for centuries in many parts of the world, such as South America, Africa, India and other parts of Southeast Asia. It contains resistant starch, a starch that the human stomach cannot easily digest, and is more slowly processed, which is good for blood sugar control. Resistant starches are also a fuel that feeds healthy gut bacteria, which is important for digestion.

Banana flour can be used any time you would use whole wheat flour – baked goods, thickening soups, etc. It is usually a 1:1 replacer for whole-wheat or white whole-wheat but some recipes may require a little less banana flour. I like it for quick breads. On its own it can be moist and a little dense but it's great as part of a blend.

1 cup = 152 grams

### Tips for Starches

In gluten-free baking, starches bind together and are used to add moisture and texture to baked goods. Too much starch can cause baked goods to be gummy so it is important to find the right balance and the right mix of starches.

Baked goods with high starch content are best eaten the day of baking. If consuming days after baking, warming them slightly will soften the starches and your bread, rolls muffins etc..will be soft and tender again just like the day they were baked. For this reason, I always frost things like cinnamon rolls individually before eating.

### Corn Starch

Corn starch builds structure by helping to bind ingredients together which results in a light and chewy texture.

Can withstand low to moderate heat but breaks down and loses its ability to bind in long cooking times or freezing. Works well with the dairy does not work well with acidic ingredients. Cornstarch also does not freeze as well and can yield a spongy texture once thawed.

1 cup = 128 grams

### Tapioca Starch

Tapioca starch/ flour provides chew elasticity and structure. It also helps develop a golden brown crust but be careful because it can cause baked goods to be tough / overly chewy and dry so you need to make sure you have enough liquid to balance it out.

Not quite as light as cornstarch but lighter than potato starch.

1 cup = 120 grams

### Potato Starch

Potato starch is stable at higher temperatures it also results in chewy texture. Potato starch works better in recipes that are higher in sugar and acid however cornstarch works better in recipes that need to be cooked for a prolonged period of time.

1 cup = 192 grams

### Arrowroot Starch

Arrowroot can withstand low to moderate heat but tends to break down and lose its binding ability if baked for a long time and high temperatures. Arrowroot works well with acidic ingredients but not with dairy. Does not create the same chew as tapioca.

1 cup = 144 grams

### Glutinous Rice Flour

Although not technically a pure starch sweet rice flour reacts in a similar manner in and cooking it is made from glutinous rice although it does not contain gluten. Sweet (glutinous) rice flour is much starchier than regular white rice flour and it works as a binder similar to other starches and holds up well to high heat.

1 cup = 204 grams