

## DIFFERENT TYPE OF FLOUR AND THEIR USE

From bread to biscuits, cookies to cakes, baking is the art of turning flour into (delicious) food. Flour — finely milled wheat or other grains — lends structure to baked goods, but different baked goods demand different structural supports. Choose the right flour for the right task and you're a long way toward baking success. Choose the wrong flour and you're courting trouble.

Protein content is the primary differentiator in flours. High-protein wheat varieties (10 to 14 percent protein) are classed as "hard wheat." Low-protein wheat (5 to 10 percent) is known as "soft wheat." Simply put: More protein equals more gluten equals more strength. And more strength translates into more volume and a chewier texture. Doughs made from high-protein flours are both more elastic (stretch further) and more extensible (hold their shape better) — desirable qualities in bread and many other yeasted products where a firm structure is paramount, but undesirable in pastries and cakes, where the goal is flakiness or tenderness.

Unless labelled "whole-wheat," all flour is white flour: that is, milled from the starchy, innermost part of the wheat kernel, known as the endosperm.

Bleached vs. unbleached: White flour is sometimes treated by bleaching, either with chlorine or benzoyl peroxide. Bleaching flour damages its starch and protein content, and speeds up the "curing" process, which would occur naturally over the course of a couple of weeks. Cured flour is easier to work, making doughs less gummy and more malleable. Bleached white flour also absorbs more liquids and rises better.



**All-Purpose Flour:** If a recipe calls simply for "flour," it's calling for all-purpose flour. Milled from a mixture of soft and hard wheat, with a moderate protein content in the 10 to 12 percent range, all-purpose flour is a staple among staples. While not necessarily good for all purposes, it is the most versatile of flours, capable of producing flaky pie crusts, fluffy biscuits and chewy breads. A-P flour is sold bleached or unbleached; the two are largely interchangeable, but it's always best to match your flour to your recipe.  
Best for: cookies, bread and baked goods.

**Cake Flour:** The flour with the lowest protein content (5 to 8 percent). The relative lack of gluten-forming proteins makes cake flour ideal for tender baked goods, such as cakes (of course), but also biscuits, muffins and scones. Cake flour is generally chlorinated, a bleaching process that further weakens the gluten proteins and, just as important, alters the flour's starch to increase its capacity to absorb more liquid and sugar, and thus ensure a moist cake.  
Best for: tender cakes like sponges.

**Pastry Flour:** An unbleached flour made from soft wheat, with protein levels somewhere between cake flour and all-purpose flour (8 to 9 percent). Pastry flour strikes the ideal balance between flakiness and tenderness, making it perfect for pies, tarts and many cookies. To make your own pastry flour, mix together 1 1/3 cups A-P flour and 2/3 cup cake flour.  
Best for: pie crust, bread sticks, pound cakes, and muffins.

**Bread Flour:** With a protein content of 12 to 14 percent, bread flour is the strongest of all flours, providing the most structural support. This is especially important in yeasted breads, where a strong gluten network is required to contain the CO2 gases produced during fermentation. The extra protein doesn't just make for better volume and a chewier crumb; it also results in more browning in the crust. Bread flour can be found in white or whole wheat, bleached or unbleached. Unbleached all-purpose flour can generally be substituted for bread flour with good results. Best for: bread, pretzels, anything chewy and requiring plenty of structure.

**Self-Rising Flour:** Flour to which baking powder and salt have been added during milling. Long a Southern staple, self-rising flour is generally made from the low-protein wheat traditionally grown in the South. It's best for tender biscuits, muffins, pancakes and some cakes. Self-rising flour is best stored tightly wrapped in its original box and used within six months of purchase — longer than that and the baking powder in it begins to lose its oomph. To make your own self-rising flour, combine 1 cup pastry flour with 1 1/2 teaspoons baking powder and 1/4 teaspoon salt. Best use: cakes and muffins.

**Whole-Wheat Flour:** During milling, the wheat kernel is separated into its three components: the endosperm, the germ (the embryo) and the bran (the outer coating). In whole-wheat flours, varying amounts of the germ and bran are added back into the flour. Whole-wheat flour tends to be high in protein, but its gluten-forming ability is compromised by the bran and germ — just one of the reasons whole-wheat flour tends to produce heavier, denser baked goods. In most recipes, whole-wheat flour can be substituted for up to half of the all-purpose flour. Because wheat germ is high in oils prone to rancidity, whole-wheat flour is far more perishable than white. Store it for up to three months at cool room temperature, and then transfer it to the freezer.

**Durum Wheat Flour:** Durum is the hardest of all wheat and has a higher protein and gluten content than other types of wheat. When durum wheat is milled, its endosperm is ground up into a product called semolina, which is then mixed with water into a thick dough that is forced through holes of different shapes to make different types of pasta. The naturally rich yellow color of the durum endosperm gives pasta its golden color. Best for: home made pasta.

**Difference between Durum Wheat and Whole Wheat:** Durum is a variety of wheat that has a higher protein and gluten content than other kinds of wheat and that is most often found in pasta. Whole wheat of any variety is wheat that contains all three parts of the wheat grain -- germ, bran and endosperm. Whole wheat, whether durum or another variety, is more nutritious than its refined counterparts, because it contains the nutrient-rich germ and bran that are otherwise stripped away during the refining process.

**00 Flour:** Ground to extreme fines, this flour is made from soft wheat varieties, and is frequently used in Italian pastas. The fineness of the grind make "00" dough easy to roll to extreme thinness (necessary for pasta). Best for: Pasta, very thin crust

**Gluten-Free Flours:** There is a wide variety of gluten-free flours available today, made from all sorts of grains, nuts and starches. Some of the most widely available are based on rice flour blended with tapioca and potato starch. A small proportion of xanthan gum is sometimes added to help simulate the chewiness normally associated with gluten. Consult the specific recipe or packaging for information on how to substitute gluten-free flour for wheat flour in your favourite baking recipes. Although there are dozens of alternative flours available, we'll focus here on the most common. When experimenting with new or unfamiliar flours, use tested recipes for the best result.

## Alternative flours

**Spelt:** Although spelt is technically a form of wheat, it is often considered in the "alternative" flour guide. It's an ancient grain, and many with sensitivity to conventional wheat products find they're able to easier digest spelt. It has a mild nuttiness, natural sweetness, and is relatively easy to work with.

Best for: bread, pizza crust and cookies

**Rye:** Rye is a grain, although not a subset of wheat. It has a tangy flavour and natural gumminess when processed.

Best for: bread

**Buckwheat:** Naturally gluten-free, buckwheat flour is blue in hue and has a very nutty flavour. It absorbs lots of moisture, so adjust accordingly when baking—the batter may require extra liquid.

Best for: pancakes, noodles and dense cake.

**Barley:** Barley flour has a natural maltiness in flavour, and is low in gluten. Speck recommends letting doughs and batters made with barley flour (and, actually, all whole grain flours) sit overnight. The rest period will soften the bran, make the product easier to work with, and round out the flavours.

Best for: sweet baked goods and cookies.

**Rice:** Rice flour has a granular, coarse texture and is gluten-free. Combine it with softer, finer oat flour for a more malleable dough.

Best for: sponge cakes, noodles, fritters and tempura batters.

**Oat:** Made from ground oat, this flour has a superfine and fluffy texture. It's sweet in taste with whole grain flavour.

Best for: bread and biscuits.

**Amaranth:** It's a very dense flour, difficult to work and has a complex flavour.

Best for: bread, cookies, and brownies.

**Nuts flour:** Made from pulverized nuts, these are easy to DIY with food processor. They are very powdery and are gluten-free. The most common is almond flour.

Best for: Cookies and tarts.

Italian Flours are graded by a Italian law passed in 1967 (law 4.7. 1967. n. 580.) It is based on measuring the ash content of the flour (just as for French and German Flours.)

Flours from hard wheat are termed "semola" or "grano duro." Flours made from soft wheat are labelled "grano tenero" meaning "tender grain." In Italy, as in much of Europe, soft wheat is the norm. Grano duro flours are slightly yellowish and have a more granular texture. They are used for pasta, and in the south of Italy, for some types of bread. They are often also called "semolato di grano duro" or "sfarinato di grano duro."

Grano tenero flours are white, more powdery flour used in bread and in pastries.

You can also buy "farina speciale per pizza, dolci e pasta."

In the flours listed below, "Tipo" means "type." This type classification applies to "grano tenero" flours.

Flour type	Ash content	Extraction Rate	Protein
Type 00	< .5%	50%	7 to 9%
Type 0	.51 to .65%	72%	9 to 10%
Type 1	.66 to .80%	80%	10%
Type 2	.81 to .95%	85%	10%
Integrale	1.4 to 1.6%		10%

## Tipo 00

These Italian Flours are also called "doppio zero", meaning "double zero." They are the softest, finest, Italian flours; they are very finely ground like a fine powder and are very white. They have the most refinement done to them and the least fibre remaining. Every mill in Italy makes several different kinds of Type 00, as flour in this category can be milled from hard wheat (durum wheat) or soft wheat.

The protein will range between 7.4 (for the soft wheat flours, often labelled "grano tenero") and 11 % (for the hard wheat flours, "grano duro"), but generally it is no higher than 9 to 9.5%. Consequently, at bakeries they are often blended with stronger flours for bread making. The "grano tenero" flours in this category are more in the range of "cake flour" in terms of protein content. They will not create much gluten.

If you are using a Tipo 00 flour for pasta, you want to make sure that the one you are using was milled from hard wheat.

## Tipo 0

This category of flours is more in the range of a strong all-purpose or lower protein bread (strong) flour. They are a bit less refined than Type 00, use about 70% of the grain, and are consequently a bit darker.

## Tipo 1

These flours are a bit darker and coarser than Type 0.

## Tipo 2

These flours are a bit darker and coarser than Type 1.

### **Farina Integrale**

This is the darkest and coarsest Italian flour. It uses the whole grain.

### **Farina Manitoba**

This comes as both a 0 and 00 flour. Made from the Manitoba variety of hard wheat, as grown in Canada and the States, it has a high protein content. Essentially a strong, highly-refined white bread flour, it is mostly used as a flour to strengthen other flours, often being mixed in right at the mills. Such strengthened flours are sold as special strength flours -- the flours may be marked as being for "pane, pizza, dolce" (bread, pizza, baked goods.) At other times, the presence of Farina Manitoba may be indicated by a W on the package (the W is a value used on "Chopin Alveograph" graphs in Europe that measure the quality of gluten in a flour.) The name "Manitoba" is applied to it by Italians only. People in the Canadian province of Manitoba would have no idea what they meant -- nor is it made only from wheat grown in Manitoba.

### **SUBSTITUTES IN NORTH AMERICA**

In North America, for Tipo 0 flour for bread or pizza, use all-purpose.

In North America, for flour strengthened with Manitoba flour (when the recipe calls for flour with a W in the name), in the States, use bread-flour if you have it, or all-purpose. In Canada, the all-purpose there is stronger than American all-purpose, so just all-purpose will do. In North America, for soft flour, use regular flour, or cake flour.

For grano duro flour substitutes, try bread flour if making pizza dough, semolina flour if making pasta, durum flour if making noodles.

If you are making bread: in North America, some suggest 3 parts all-purpose flour to 1 part cake flour; in the UK, 3 parts of bread flour to 1 part plain flour. Bread (strong) flour on its own is probably pretty much too strong for almost any Italian recipe. The absolute highest protein content you'd want in a flour for Italian bread would be 12 to 12.5%, tops. (Granted that their top protein rate is 10%, but remember that they tend to add a stronger flour such as Manitoba to beef up the dough