2.5: Flour Terms and Treatments

In addition to types of flour, you may come across various other terms when purchasing flour. These include some terms that refer to the processing and treatment of the flour, and others outlining some of the additives that may be added during the milling and refining process.

Bleached

Bleaching and maturing agents are added to whiten and improve the baking quality quickly, making it possible to market the freshest flour. Even fine wheat flours vary in colour from yellow to cream when freshly milled. At this stage, the flour produces doughs that are usually sticky and do not handle well. Flour improves with age under proper storage conditions up to one year, both in color and quality.

Because storing flour is expensive, toward the close of the 19th century, millers began to treat freshly milled flour with oxidizing agents to bleach it and give it the handling characteristics of naturally aged flour. Under the category of maturing agents are included materials such as chlorine dioxide, chlorine gas plus a small amount of nitrosyl chloride, ammonium persulfate, and ascorbic acid. No change occurs in the nutritional value of the flour when these agents are present.

There are two classes of material used to bleach flour. A common one, an organic peroxide, reacts with the yellow pigment only, and has no effect on gluten quality. Chlorine dioxide, the most widely used agent in North America, neutralizes the yellow pigment and improves the gluten quality. It does, however, destroy the tocopherols (vitamin E complex).

Enriched

Iron and three of the most necessary B vitamins (thiamin, riboflavin, and niacin), which are partially removed during milling, are returned to white flour by a process known as enrichment. No change occurs in taste, colour, texture, baking quality, or caloric value of the flour.

Pre-sifted

During the milling process, flour is sifted many times through micro-fine silk. This procedure is known as pre-sifting. The mesh size used for sifting varies from flour to flour. There are more holes per square inch for cake flour than, for example, bread flour, so that a cup of cake flour has significantly more minute particles than does a cup of bread flour, is liable to be denser, and weigh slightly more. Sifted flour yields more volume in baked bread than does unsifted flour, simply because of the increased volume of air.