

2.6: Flour Additives

A number of additives may be found in commercial flours, from agents used as dough conditioners, to others that aid in the fermentation process. Why use so many additives? Many of these products are complementary – that is, they work more effectively together and the end product is as close to “ideal” as possible. Nevertheless, in some countries the number of additives allowed in flour are limited. For instance, in Germany, ascorbic acid remains the only permitted additive. Some of the additives that are commonly added to flour include those described below.

Bromate

Until the early 1990s, bromate was added to flour because it greatly sped up the oxidation or aging of flour. Millers in Canada stopped using it after health concerns raised by the U.S. Food and Drug Administration (FDA). In the United States, bromate is allowed in some states but banned in others (e.g., California).

Azodicarbonamide (ADA)

Approved in the United States since 1962, but banned in Europe, ADA falls under the food additives permitted in Canada. ADA is a fast-acting flour treatment resulting in a cohesive, dry dough that tolerates high water absorption. It is not a bleach, but because it helps produce bread with a finer texture it gives an apparently whiter crumb. It does not destroy any vitamins in the dough. Bakers who want to know if their flours contain ADA or other chemical additives can request the information from their flour suppliers.

L-Cysteine

An amino acid, L-cysteine speeds up reactions within the dough, thus reducing or almost eliminating bulk fermentation time. In effect, it gives the baker a “no-time” dough. It improves dough elasticity and gas retention.

Ascorbic Acid

Ascorbic acid was first used as a bread improver in 1932, after it was noticed that old lemon juice added to dough gave better results because it improved gas retention and loaf volume. Essentially vitamin C (ascorbic acid) has the advantage of being safe even if too much is added to the dough, as the heat of baking destroys the vitamin component. The addition of ascorbic acid consistent with artisan bread requirements is now routine for certain flours milled in North America.

Calcium Peroxide

Calcium peroxide (not to be confused with the peroxide used for bleaching flour) is another dough-maturing agent.

Glycerides

Glycerides are multi-purpose additives used in both cake mixes and yeast doughs. They are also known as surfactants, which is a contraction for “surface-acting agents.” In bread doughs, the main function of glycerides is as a crumb-softening agent, thus retarding bread staling. Glycerides also have some dough strengthening properties.

Sodium Stearoyl Lactylate

Approved for use in the United States since 1961, this additive improves gas retention, shortens proofing time, increases loaf volume, and works as an anti-staling agent.

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