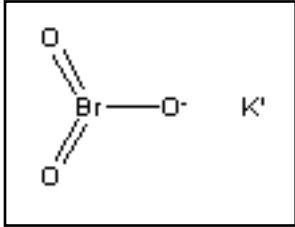


# Potassium Bromate

Potassium bromate ( $KBrO_3$ ), is a flour "improver" that strengthens dough and allows for greater oven spring and higher rising in the oven. Potassium



bromate, commonly referred to as simply "bromate" is a slow-acting oxidizer, contributing its functionality throughout the mixing, fermentation and proofing stages, with important

residual action during the early stages of baking. Azodicar-bonamide (ADA), potassium and calcium iodate, and calcium peroxide are rapid-acting oxidizers, while ascorbic acid (vitamin C) works at intermediate rates, but all release their activity in mixing and proofing

Bromate, when applied within the prescribed limits (15 - 30ppm), is completely used up during the bake leaving no trace in the finished product. However, if too much is used, or the bread is not baked long enough or at a high enough temperature, then a residual amount will remain

The primary concern regarding the use of bromates in baking is its demonstrated link to cancer in laboratory animals. It was first found to induce tumors in rats in 1982. However, since 1991, instead of banning bromate outright the FDA, with somewhat limited success, has merely encouraged bakers to voluntarily stop using it.

Bromates have been banned in numerous countries, including the United Kingdom in 1990 and Canada in 1994. In addition, in 1991, California declared bromate a carcinogen under the state's Proposition 65. As such, baked goods sold in California would have to bear a store level cancer warning if they contained more than a certain level of bromate. As a result, most California bakers have switched to bromate-free processes

The California Office of Environmental Health Assessment's "Intent to List" Statement can be viewed at:

[http://www.oehha.ca.gov/prop65/CRNR\\_notices/ad\\_min\\_listing/intent\\_to\\_list/noilbromate.html](http://www.oehha.ca.gov/prop65/CRNR_notices/ad_min_listing/intent_to_list/noilbromate.html)

This is an interesting document in that it highlights all of the research that led to the listing of potassium bromate on the Prop 65 listing.

Flour sold by the King Arthur Flour company has never contained bromate for all of the reasons listed above. If you are a baker who has never used bromated flour then you have nothing to worry about. If you are a baker currently using bromated flours and would like to switch you will have to make some slight adjustments to your mixing process, but in our view the effort is worth it as you will be able to provide your employees a safer working environment, and your customers with a healthier product.

The only changes that most bakers find they need to make are slightly longer mixing times. Bromate, being an oxidizer, rapidly strengthens the dough in the mixer bowl thus reducing mixing times. Thus, doughs made from unbromated flours will require slightly more mixing to achieve the

same strength. As you do not want to increase the final temperature of your dough through this additional mixing you must lower your initial water temperature. Those changes should be all that is required by you to make the switch.

Some bakers find that they don't have as much fermentation tolerance using unbromated flour. There are two fixes for this. One is to use preferments in your dough.

This increases the acidity of your dough giving it more tolerance for longer proof times and overnight retarding. If this doesn't fit your production requirements then you can consider using ascorbic acid (Vitamin C). Ascorbic acid is a slow acting oxidizer so you won't get much benefit in the mixer but your dough will have more tolerance to overnight retarding.

Given all of the health risks involved with the use of bromates in bread production we have always felt that baking is much better when you use natural ingredients, the most important being an unbromated flour.

