

Case Study

Legacy Bakery Brand Takes the Leap to Consumer-Friendly Mold Control with Multifaceted Support from Corbion

The Company

A major commercial bakery producing a popular mainstream brand of retail breads and buns sold throughout North America.

The Problem

Recognizing the importance of addressing consumer demand for more natural ingredients, the customer made the decision to reformulate its flagship sandwich bread product, replacing calcium propionate with a more label-friendly solution.

Unfortunately, results in product development have been unsuccessful, in terms of both the number of days to mold and concerns about negative sensory impacts due to the ingredient's smell and taste. In an effort to address the failure to achieve the required 20 days of shelf life, the supplier recommended a higher dose of the ingredient; while that response did help in terms of mold inhibition, it compounded flavor issues dramatically. Frustrated by these disappointing outcomes, the customer resolved to look for an ingredient supplier with stronger, more extensive microbiological knowledge in addition to expertise in baking.

The Story

The bakery approached Corbion based on its reputation and experience in microbiology, preservation, fermentation and service to the baking industry. Having lost time in unsuccessful development efforts, the customer asked Corbion to accelerate the reformulation process as much as possible.

The Corbion team began the process with a walk-through and close examination of the customer's processing environment and equipment, making recommendations for

worker training and hygienic improvements designed to minimize microbial challenges.

Next, the Corbion Natural Mold Inhibition Model (the industry's first predictive modeling tool for mold inhibition solutions) was used to quickly compare the effectiveness of different ingredient solutions based on the customer's requirements. Within hours, a formulation incorporating Corbion's Verdad® MP100, a vinegar and natural flavor combination, was decided on, including adjustments made in



the amount of yeast, water and mixing time to achieve optimal dough rheology. Then implementation and testing were scheduled.

In addition, the customer was concerned about ensuring that any solution used did not contain chemically synthesized components. Corbion was able to provide the results of authenticity testing by an unbiased third party.

The Hurdles

Initial results of sensory testing on the new formulation were positive; the customer was satisfied that any visual or organoleptic differences between the reformulated product and its popular, more traditional version were minimal and unlikely to be detected by loyal purchasers of the product.

The customer's shelf life requirement of at least 20 days to mold, however, was not met; testing showed mold outgrowth in many of the loaves tested at only 15 days. Corbion's Technical Service team had recommended adjustments to the fumaric acid used in the formulation in order to control the product's pH. The customer resisted increasing the acidifier dosage out of concerns that product flavor would be negatively affected.

For more information, please contact:

foodus@corbion.com

Corbion partners with the world's food manufacturers to put truly sustainable food solutions to work. Our state-of-the-art ingredient solutions redefine preservation, inspiring and enabling forward-thinking companies to create and prolong all the hallmarks of freshness and safety — like texture, taste and antimicrobial control — that shape delightful eating experiences, all while protecting the planet future generations will inherit. We deliver both tangible and intangible value, helping our customers craft delicious, nourishing foods consumers can trust. At Corbion, our priorities as consumers shape the products we help make possible — products that allow our families, our friends, and our customers to thrive.

The Resolution

In light of the shelf life testing results, and to further improve labeling, the customer agreed to replace fumaric acid with PuraQ® Ferment S300, a natural flavoring produced via fermentation, to modulate pH without compromising product flavor. The addition of this ingredient lowered the pH from 5.35 to 5.25, which allowed the product to achieve a shelf life of 20 days. The customer also preferred the sensory attributes of this formulation to the previous version.

Although the customer's shelf life requirement had been satisfied, the Corbion team knew their solution was capable of more. After determining that not all recommended hygienic practices had been implemented, Corbion reemphasized the importance of these measures; once these changes were made, the customer achieved 25 days of shelf life without any further formulation adjustments. Those additional days provided the customer with added insurance in the event of unexpected, real-world delays.

See how you can leverage Corbion and our suite of customized solutions – part of our **360° by Corbion** offering for commercial bakeries.

Connect with one of our technical experts today.