

Leader in flour applications.

Alphamalt Fresh

Mc Mühlenchemie
Understanding Flour

Optimize the profitability and shelf-life of your products!

The role of enzymes

Mühlenchemie is one of the pioneers in the worldwide development of customized enzymes for flour and bread. Over the past 20 years, enzyme research has given rise to numerous innovative compositions and specialities that have truly revolutionized milling and baking.

Not only do tailor-made enzymes prolong the shelf-life of the products; they also improve the volume, texture, colour, and even the processing characteristics of the doughs. Enzymes guarantee consistently high quality of the baked goods. The worldwide demand for such enzymes is estimated at 300 million USD and is increasing rapidly.

The shelf-life is decisive

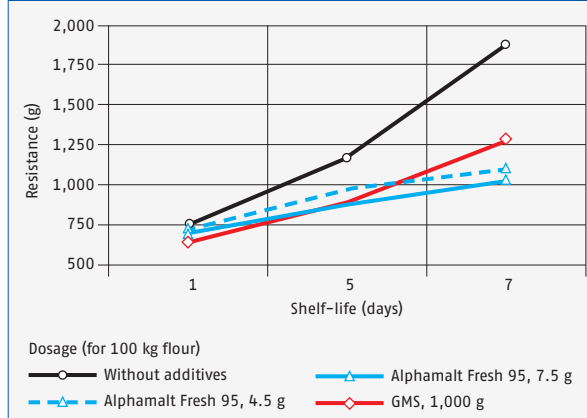
The shelf-life of bread plays an extremely important role in industrial baking. Supermarkets demand good quality bread which will keep longer and still be attractive and fresh after a fortnight or even three weeks. Loss of crumb freshness greatly impairs the profitability of an industrial bakery.

At our trial bakery we test the shelf-life of products sensorily and by means of an instrument – the texture analyzer.

Functional properties of Alphamalt Fresh

- Delays staling
- Prolongs the shelf-life up to 15 days
- Achieves better quality, with a soft, elastic crumb
- High dosage tolerance
- Can be combined with all other enzyme preparations without the risk of enzymatic over-treatment

Reduction of bread staling (prolongation of crumb softness) with Alphamalt Fresh 95 and monoglycerides (GMS)



We rate the texture of the bread and the softness, elasticity and resilience of the crumb. Consumers judge texture by practical means – by feeling and pressing.

When the products are tasted, the decisive quality attributes are mouth feel and bite.

How Alphamalt Fresh works

The freshness of packed and stored bakery products is judged by their appearance, their taste and smell, the crispness of the crust, and above all the softness of the crumb. Structural changes during storage result in increasing hardness of the crumb.

The main reason for this is re-crystallization of the starch previously gelatinized during baking, in particular its amylopectin content. Whereas the smaller amylose molecules migrate out of the starch grain into its surroundings and re-crystallize soon after baking, the larger amylopectin molecules initially remain in their non-crystalline form. As storage continues, and especially at low temperatures, the amylopectin crystallizes; above all, the coiled parts of the molecule "tighten up" again. The subsequent hardening of the

crumb can be traced back to the firm binding of water by the crystallized amylopectin.

This is where **Alphamalt Fresh** comes in. It breaks down the parts of the amylopectin that can crystallize. Moreover, the resulting short-chain dextrans are able to interact with the remaining coiled structures of the starch and thus inhibit its crystallization.

All in all, **Alphamalt Fresh** prolongs the shelf-life of the crumb by up to two weeks.

An even longer shelf-life can be achieved by combining **Alphamalt Fresh** with enzymes that optimize the volume of the bread and the bread structure as it appears immediately after baking, and with emulsifiers.

Economic aspects of Alphamalt Fresh

- Reduces the return of products that have gone stale
- Ensures streamlined production without fluctuations
- Higher profits through reduced unit costs
- Greater efficiency of the process
- Quality attribute to boost your brand

Composition

- Enzymes
- Thermally treated wheat flour

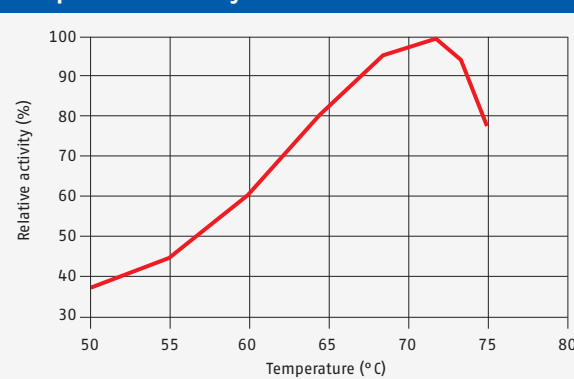
Usage level

Alphamalt Fresh 15	40–70 g to 100 kg flour.
Alphamalt Fresh 15 Organic	50–100 g to 100 kg flour.
Alphamalt Fresh 23	20–50 g to 100 kg flour.
Alphamalt Fresh 95	4–12 g to 100 kg flour.
Alphamalt Fresh 110	2–8 g to 100 kg flour.

Processing

Alphamalt Fresh does not require changes to the baking process.

Temperature-activity curve



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