

Figure 2 shows that even a small amount of L-cysteine has a major effect on the rheology of the dough – it significantly decreases the resistance to extension while increasing the extensibility. As the typical cysteine addition (0.5–5 g/100 kg flour) is about 100 times lower than it is for inactivated yeast (100–300 g/100 kg flour), L-cysteine is much more cost-effective. The use of inactivated yeast as a dough improver is based on glutathione, which is prone to the deviations of yeast as a raw material. In addition, other metabolic byproducts of inactivated yeast can influence the texture and flavor of the end product. In comparison, L-cysteine functions in an efficient and reliable way.

Functional Properties

The combination of strength, extensibility and tolerance that dough needs depends mainly on water absorption, flour quality and the mixing conditions. Reducing agents are used with high-strength flour and high-speed processes, in particular, to lower the energy input, reduce mixing times and improve machinability. Especially for the production of toast, buns and baguettes, the application of cysteine can likewise enable control of the oven spring and, thus, increase the volume of the end product. Extensibility and reproducible stretchability are key parameters for tortilla and pizza dough processing,

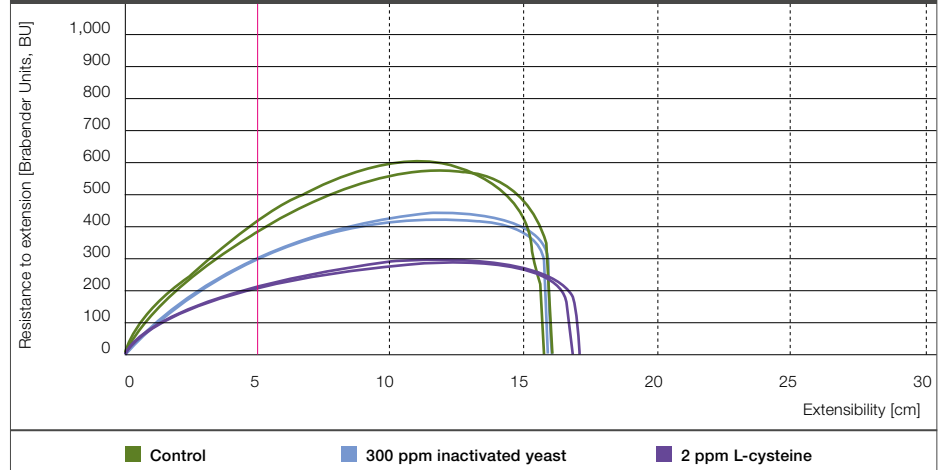
which are getting more and more industrialized. Reducing agents decrease the elasticity that can cause these products to shrink or curl after they are formed. Hereby, L-cysteine as a dough conditioner helps the baking industry to optimize the throughput of the baking lines. Improving dough extensibility with cysteine is also valuable for multiple other yeast and chemically leavened applications, including cookies, saltines and other crackers.

Benefits and Effects of Using FERMOPURE® L-Cysteine

- Vegan product derived from plant materials
- Dough softening
- Improved pumpability of liquid dough
- Eliminates shrinkage and breaking
- Controlled rising and oven spring
- Reduced cracking of biscuits and crackers
- Enables increased loaf volume
- Uniform crumb structure



Figure 2: Extensogram of Wheat Flour Dough Prepared with and without Dough Softeners



Without additives (control), the dough has the highest resistance (curve maximum). FERMOPURE® L-cysteine not only considerably reduces resistance, but also increases extensibility (curve width).

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