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Better baking thanks to ultrasound

Together with ttz Bremerhaven, European bakeries and equipment manufacturers are developing and distributing an energy-efficient and cost-effective technology for refrigeration and proofing. At the heart of the development is a water aerosol produced by means of ultrasound, which additionally leads to far better product quality, as a new film demonstrates.

Bremerhaven, July 2015. Baking is energy-intensive. This not only has a negative impact on the environment but also on the baker's wallet. That is why the NanoBAK2 research project worked on the further development of a climatic chamber which reduces the energy demand required for the proofing, refrigeration and humidification of baked goods. In addition, product quality is greatly improved through the new process.

"By using the NanoBAK2 technology, energy demand for the entire proofing process can be reduced by 30 percent compared to conventional technologies. In this way, baking time can be shortened or the amount of heat energy introduced can be reduced. The result is both an economic as well as an ecological advantage for the baker", says Markus von Bargen, Technical Director of the Bremerhaven Institute of Food Technology and Bioprocess Engineering at ttz Bremerhaven.

The underlying technology is based on ultrasound: Water is made to oscillate, forming the tiniest droplets which are fed into the proofing or refrigeration chamber and evenly distributed. This moisture distribution in the chamber makes it possible to manufacture baked goods with a consistent product quality. The innovative process keeps goods fresher for longer and, in addition, enhances their gloss, volume, windowing, crispness and crustiness.
A new film demonstrates the advantages: http://nanobak2.eu/news-events/news/94-latest-news-3.html

The technology has been used successfully in practice since 2011 by Bäckerei Sikken in Emden, one of the project partners. If requested by the client, the technology can also be retrofitted simply and cheaply in existing equipment in the bakery.

The overall duration of the NanoBAK2 project is 24 months; total funding amounts to about € 1.5 million and stems from the 7th Framework Programme for Research and Technological Development of the European Commission (Grant Agreement No.: 613622). It evolved out of the NanoBAK project (TREN/FP7EN/218992) coordinated by ttz Bremerhaven.

ttz Bremerhaven is an independent research institute and performs application-related research and development. Under the umbrella of ttz Bremerhaven, an international team of experts is working in the fields of food, environment and health. ttz has assisted enterprises of all sizes for over 25 years in the planning and implementation of innovation projects and the corresponding acquisition of funding at national and European level. www.ttz-bremerhaven.de

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ttz Bremerhaven has enhanced a technology which reduces the energy demand required for proofing, refrigeration and humidification of baked goods. Also, product quality is considerably improved.
Photo: www.dirk-eisermann.de.

Impressions from the shooting for the NanoBAK2-movie.
Photo: ttz Bremerhaven / Christian Colmer.