

NANOBAK2: ULTRASONIC HUMIDIFICATION FOR HIGH-QUALITY BAKERY PRODUCTS

The project's aim is to test and disseminate the technical feasibility and economic viability of UltraBAK technology, an efficient **ultrasonic humidification system** for **bakery cooling and fermentation processes**.

The concept is based on the successful outcomes of the NanoBAK research project, which developed a **climate controlled chamber** equipped with a **modern ultrasonic humidification system**. It was demonstrated that this system's **energy consumption** was considerably lower than that of conventional electric humidifiers.

UltraBAK is an **ultrasonic humidification system** which generates tiny water droplets in the form of mist. The evaporation of said droplets cools down the chamber with a consequent **rise in its relative humidity**. This system is equipped with temperature and humidity sensors which continuously transmit data on the chamber's conditions to a control unit.



ULTRABAK TECHNOLOGY CONSUMES UP TO 30% LESS ENERGY THAN CONVENTIONAL HUMIDIFIERS

An effort is being made during the project to **optimise the technology according to the European bakery industry's specific requirements**. In order to do so, testing under real conditions in industrial, semi-industrial and craft bakeries is being conducted.



OBJECTIVES

- Provide an **innovative, safe and energy efficient solution** for the bread making process to bakery SMEs.
- Increase the **quality** of bakery products, especially to prevent dehydration and pitting of the crust through stable humidity.
- Assess the **technology's ecological and economic efficiency** as well as its overall performance to boost the competitiveness of bakery SMEs.
- Reduce the **demand for energy** in current fermentation and cooling processes by 60%.
- Strengthen the **bakery industry** and its social structure (halt the downward trend in the number of bakery SMEs in Europe).
- Apply the **Environmental Technologies Action Plan's (ETAP) (EC2004)** aims by helping to decouple industrial development from possible environmental impacts.
- Support **energy suppliers of efficient cooling systems** and foster the development of more advanced energy efficient equipment.

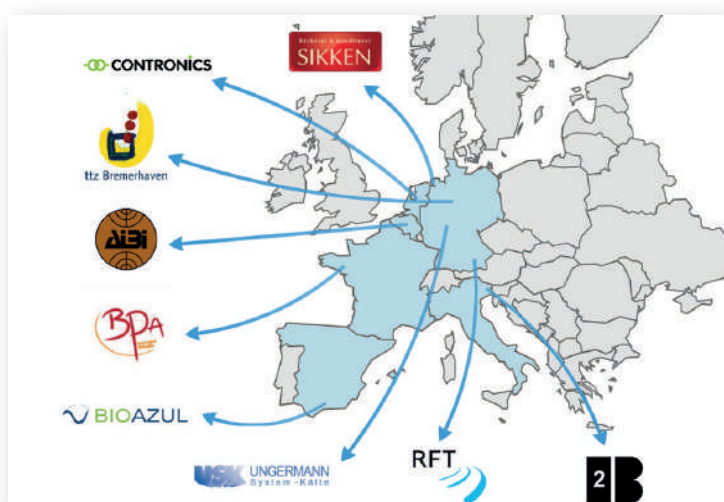
RESULTS OBTAINED

- **Optimising, demonstrating and quantifying** the benefits of the NanoBAK energy efficient climate controlled chamber and its ultrasonic humidifier.
- **Verifying long-term performance and feasibility** in terms of the UltraBAK system's manoeuvrability, operation and maintenance in real case studies from an integrated standpoint, taking into consideration economic, operational, environmental, social and health-related aspects.
- **Disseminating the project's results** to the widest possible audience.
- **Driving forward the development stage** to reach the last stage before starting up production and marketing through both testing and results validation, as well as by demonstrations and research activities.
- **Completing technology transfer and training** to the target SMEs.
- **Meeting present and future regulatory requirements and market challenges** concerning energy prices, environmental protection and CO2 emissions.

PROJECT DATA

Web: <http://nanobak2.eu>
 Funding Programme: 7th Framework Programme
 Contract n°: 613622
 More info: CORDIS-NANOBAK2

Duration: 1 November 2013 – 31 October 2015 (24 months)
 Budget: €2,297,140.20 (EC funding: €1,745,196.00)



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