



Top-quality dairy products

Arla Foods a.m.b.a. is a global dairy group and cooperative of dairy farmers from seven European countries. The group is the fifth largest dairy company in the world in terms of the volume of milk it processes, not to mention the world's biggest supplier of organic dairy products.

Dairy products under control

To assure the high quality of the products, the various dairy products undergo extensive quality testing procedures in the company's own food sensor technology department. "Reproducibility, reliability, and repeatability are all key considerations when it comes to applying and performing

our methods. With this in mind, it is also essential to maintain the highest levels of accuracy to ensure processes can be repeated at any time," explains Bettina Krämer, Senior Sensory Specialist at Arla's Consumer Central Europe (CCE) business unit.

Shelf-life test or accelerated aging test

The simulation chambers are used for applications including stability and shelf-life tests on fresh milk and dairy products, and accelerated shelf-life tests (ASLT) on long-life products. As part of these testing processes, the laboratory uses both a KB cooling incubator with compressor tech-

Requirements

- ▶ Shelf-life tests on milk and dairy products
- ▶ Studies on product stability and packaging quality
- ▶ Programming options for various cycles
- ▶ Homogeneous temperature conditions across test specimens
- ▶ Rapid temperature changes
- ▶ Simulations of various climate zones using light/humidity

BINDER solution

- ▶ KB cooling incubator with compressor technology for safe, reproducible incubation, even at high ambient temperatures
- ▶ MK 240 dynamic climate chamber for packaging tests under dynamic conditions
- ▶ KBF LQC constant climate chamber with light and humidity for demanding stability testing
- ▶ KBW 720 growth chamber with homogeneous light distribution and constant temperature conditions across test specimens



▲ Testing long-life and fresh milk and dairy products

nology and a KBW growth chamber with light from BINDER. In comparison to a shelf-life test, which simulates real-time storage conditions, an accelerated shelf-life test looks at stability and shelf-life under conditions including increased temperature for a shortened period of time. Packaging tests are also carried out in the simulation chambers in line with consumer behavior and distribution conditions.

Packaging on the test bench

To ensure maximum quality of the packaging materials, comprehensive tests are carried out in MK dynamic climate chambers, which involve rapid changes in temperature and other dynamic conditions. To this end, the laboratory operates according to special standards such as DIN 10955 Sensory analysis – Testing of packaging materials and packages for foodstuffs, or DIN EN 1230 Paper and

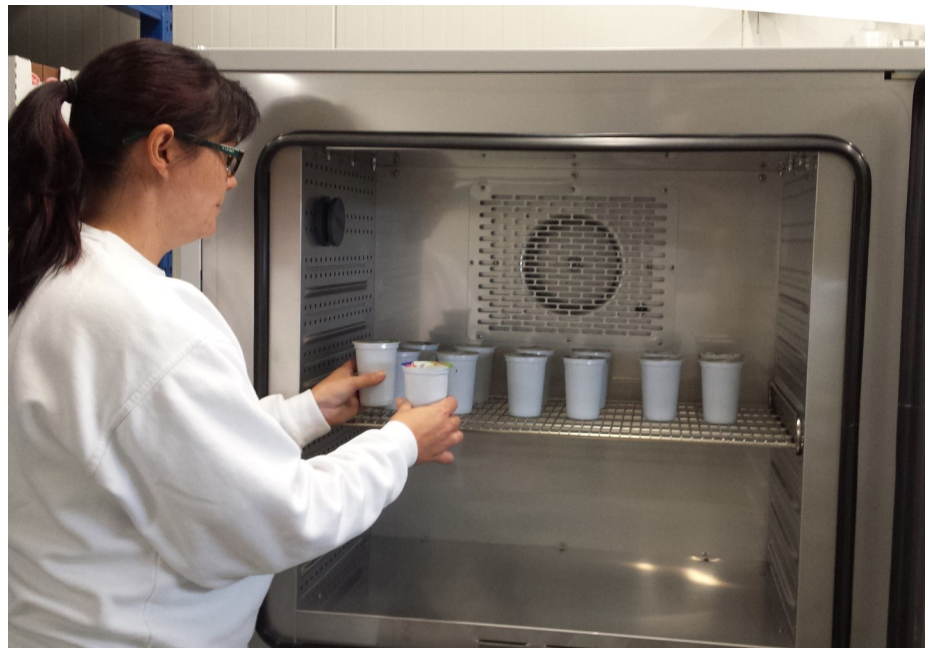
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Bettina Krämer, Senior Sensory Specialist

board intended to come into contact with foodstuffs – Sensory analysis – Part 1: Odour and Part 2: Off flavour (taint).

Shelf-life testing with exposure to light

Even certain areas of the light spectrum can affect product shelf-life. And this is precisely where KBF LQC constant clima-



▲ *Silvia Hager, Sensory Assistant*

te chambers – with their unique lighting concept – come into play. The most important features are high temperature accuracy and homogeneous light distribution across the entire usable space, which is achieved with the patented diffuser in the illumination cassettes. The constant climate chamber with light dose measurement has special, patented, spherical light sensors for real measurements at sample level. The purpose – and advantage – of this application to create standardized, reproducible conditions. “It is so important, not to mention extremely useful, to have the flexibility to program various different cycles – particularly in our line of work,” explains Bettina Krämer. “The range of

temperature levels, humidity control, and automatic illumination shutdown mean the simulation chambers can be used in a wide variety of different applications to meet a whole host of customer requirements. This allows us to analyze the quality and stability of our products at every stage of the value chain,” Bettina Krämer concludes.

Advantages

- ▶ Reproducibility
- ▶ Fast and precise humidification
- ▶ Various programs
- ▶ Homogeneous light distribution
- ▶ Precise climate conditions

Application

- ▶ Pharmaceutical industry
- ▶ Food and beverage
- ▶ Cosmetic industry
- ▶ Basic research



▲ *Constant climate chamber KBF LQC*

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