



Coloring foods on the test bench Photostability tests to ensure high quality standards

For quality assurance and to safeguard the availability of its products all year round, the GNT Group, the leading international supplier of coloring foods, checks and monitors every link in the value-added chain. The crops GNT uses are grown exclusively in the area around the German/Dutch border. Their cultivation and harvesting is managed by its in-house agricultural engineers. The company provides its customers with comprehensive advice on all aspects of the stability, color, and shelf-life of the products they select. Light can affect product stability. To assure the high quality of the concentrates, the various foodstuffs and beverage applications undergo extensive photostability testing (among other types of test) in the com-

pany's own application centers. These tests verify that the products will retain their properties throughout their useful lives. They also enable the stability of the products to be compared in various end-use applications. Specific in-country climatic conditions are taken into account and, depending on the relevant application, some of the tests are even carried out under controlled moisture conditions.

Constant light and temperature

Constant light and temperature conditions are of utmost importance if stability testing is to be carried out efficiently. It is for this reason that the researchers in charge at GNT selected the constant climate chambers in BINDER's KBP LQC series. The

Requirements

- ▶ Photostability testing with or without humidity on various foodstuffs and beverage applications
- ▶ Homogeneous light distribution to all samples
- ▶ Precision light measurement
- ▶ Constant temperature conditions
- ▶ Reproducible results

BINDER solution

- ▶ Constant climate chambers KBP LQC and KBF LQC INDIVIDUAL
- ▶ Precise climate conditions even under a full load due to innovative preheating technology
- ▶ Homogeneous light distribution over the entire usable space by flexible illumination cassettes
- ▶ Precision light measurement with 3D spherical sensors
- ▶ Additional illumination cassettes and spherical sensors of INDIVIDUAL-solution
- ▶ Humidification with drift-free, capacitive humidity sensor and vapor pressure humidification



▲ Anke Kiesslich, technologist of beverage doing color and shelflife test on beverages

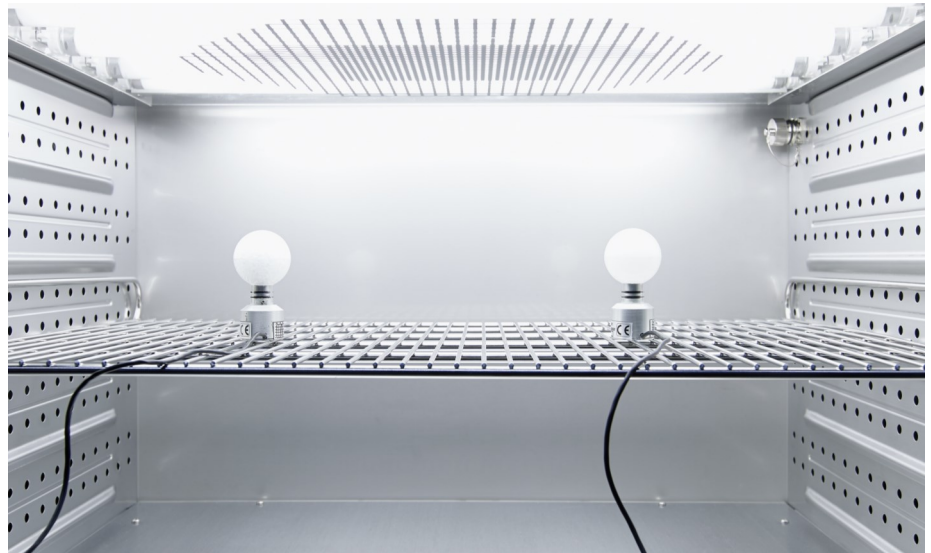
chambers have a unique lighting concept. The most important features are high temperature accuracy and homogeneous light distribution across the entire usable space, which is achieved with illumination cassettes which can be positioned as appropriate for the prevailing conditions. BINDER's patented light quantum control (LQC) supports precision light measurement through independent light-dose control of UV-A and visible light with 3D spherical sensors which can be placed where required. Once the desired light intensity is achieved, the unit switches off automatically.

“Results will only be reproducible if the test conditions for the test object are stable. With BINDER, this is beyond doubt,”

Anke Kiesslich, technologist of beverage at GNT Europa

BINDER INDIVIDUAL

The laboratory decided to use BINDER INDIVIDUAL solutions which were customized to meet its needs in addition to standard units. “Compared to the standard unit, we have integrated additional illumination cassettes and spherical sensors. The individual illumination cassettes can be switched independently of one another, as they are linked to separate sensors. This means that we can run a variety of tests at the same time, we can



▲ 3D spherical sensors provide precision light measurement

switch off illumination cassettes if they are not needed, and the illumination will switch off automatically when the target dose is reached,” explains Anke Kiesslich.

Reflection of illumination cassette

The samples are distributed across the usable space so that reflection from the illumination cassette underneath is also possible. Reflection is a significant factor in overall intensity. “Another advantage of the LQC range is dose accumulation. This enables us to take account of lamp aging in our tests. The unit compensates the effect of the reduction in illumination intensity over time. We are able to use the actual illumination to estimate test duration,” adds the technologist. The constant cli-

mate chambers also feature a high-speed precision illumination system as well as moisture control which can be fine-tuned. The preheating chambers in the units ensure that results are reproducible. “Results will only be reproducible if the test conditions for the test object are stable. With BINDER, this is beyond doubt,” concludes Anke Kiesslich.

Advantages

- ▶ Homogeneous light distribution
- ▶ Precise climate conditions
- ▶ Fast and precise humidification
- ▶ Unique lighting concept

Application

- ▶ Pharmaceutical industry
- ▶ Food and beverage



▲ Constant climate chamber KBF LQC