

# Backtechnik europe

2007

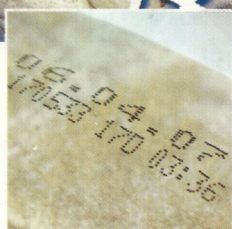
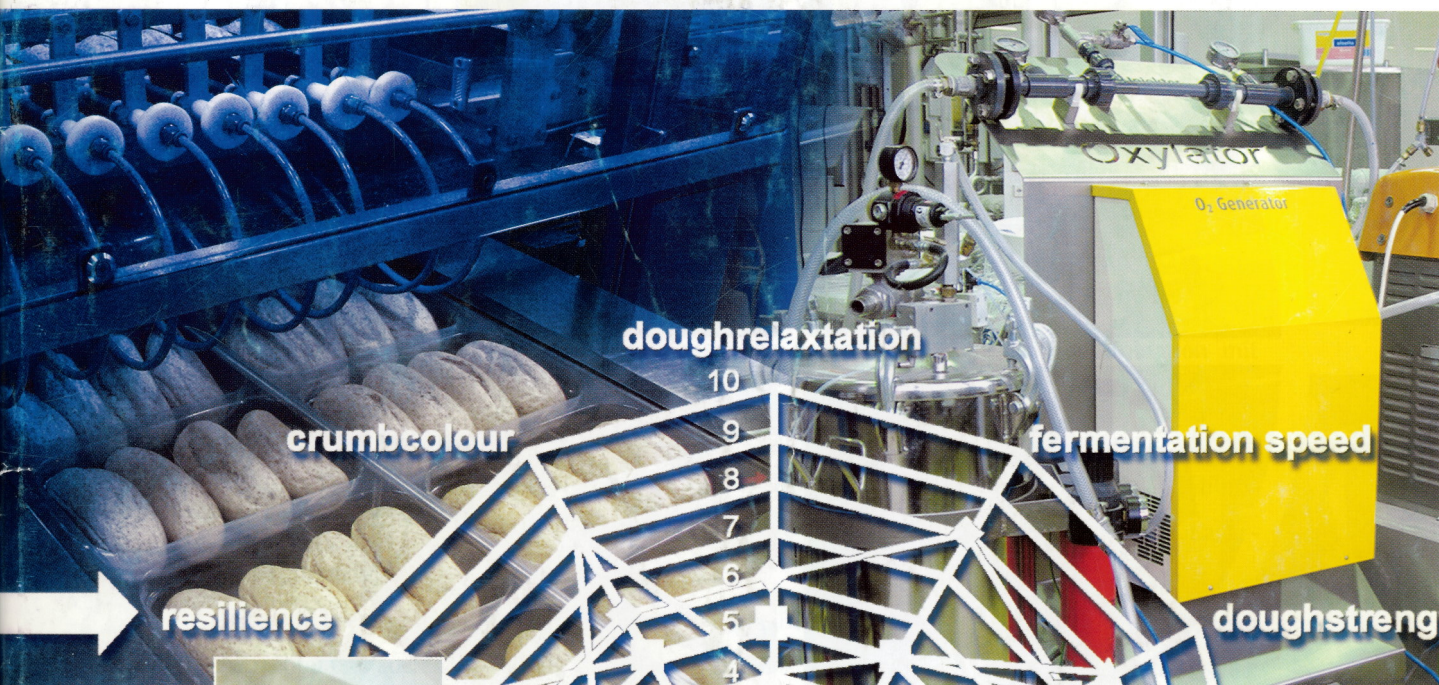
Ausgabe 1

OFFIZIELLES ORGAN DER AIB



K 58225

Jahrgang 6



6

Fachthema –  
Frischhalter und ihre Wirkung



20

Prozesstechnik –  
Sauerstoffknetung



26

Reportage –  
Verpackungsmaschine



30

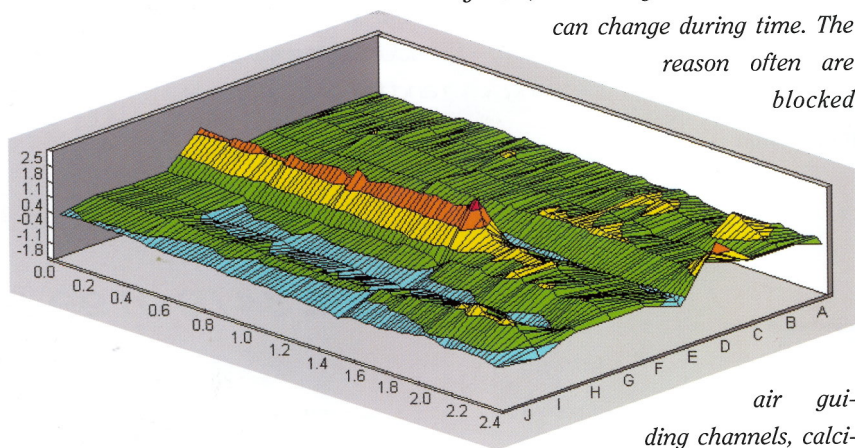
Fachthema –  
Schutzatmosphäre

DEUTSCH

Turn over for the english translation!

# Baking Climate Analysis

*BASIS FOR OPTIMAL BAKING* results are regularly baking ovens. It is true that today's ovens are built, installed and put into operation on a very high quality level, the baking result nevertheless can change during time. The reason often are blocked



Data loggers facilitate a more detailed analysis of the climate in tunnel ovens. The evaluation of temperature course, humidity, air flow etc. is an effective instrument for quality assurance.

air guiding channels, calcified steam dampers or water pipes. Already in the last number of *Backtechnik europe* we treated this topic in detail and additionally presented aspects for the optimisation of the baking climate.

For the control of the baking capacity we mentioned two systems: Sensors being installed at fix measuring points for the time of examination or for permanent supervision thus observing the baking oven climate as well as mobile data loggers accompanying on the belt and collecting all data during the baking process that afterwards are analysed and show a climate reproduction of the baking process having taken place. The feedback of our readers showed among others an interest in mobile data loggers that we therefore want to present more in detail.

## Spot Check

Whereas fix sensors deliver continuously data of their measuring point, the data logger runs through the baking process in the tunnel oven together with the product. One example for a data logger system is the *Scorpion* multi-channel data memory system that has been developed by Reading USA. The unit analyses process conditions in the interior of industrial baking ovens. The parameters measured with the *Scorpion* include the temperature of the air, the conveyor belts and the product, the air flow conditions, the heat flow presented in radiation, convec-

tion and contact heat. The latest measuring sensor moreover finds out the relative and the absolute air humidity in the interior of the baking oven. By means of a battery-operated data collecting unit built very flat with the corresponding put-on measuring sensor for the individual parameters these measuring values are taken and stored twice per second during the common passage with the product. As soon as the data memory is put onto the conveyor belt, one turn of the switch is sufficient to start the collection of the data. When the data collecting unit located in a 5 cm high insulated housing leaves the tunnel, the recording is stopped with the same switch. All data having been collected in the tunnel afterwards are automatically transferred onto a PC.

## Analysis

As soon as the data have been correctly collected and linked, the corresponding software evaluates the *Scorpion* data quickly within seconds and presents them in a form easy to understand and corresponding to the demands. Several windows with coloured graphs and different indication formats in every window can be opened at the same time. Even diagrams of several different data files can be looked at parallel on the screen. The software contains drafts for the following charts and graphs: Data table with numeric values, 2D line graphs with dual Y-axis, 2D outline graphs as well as 3D net graphs. If the cursor is moved over a table or a graph, the user can read the actual data values in every position.

Interesting zones moreover can be made bigger and 3D net graphs can be looked at from every angle or every outline. The possibilities to make from the data informative coloured graphs are accordingly manifold. The applications for a system like the *Scorpion* are for example the quality assurance, the checking of the set values, the reduction of scrap (the system controlling the climate a few minutes before the dough enters the baking oven) or the data comparison between several lines respectively baking ovens. Furthermore a data logger can be used during running in as well as after a maintenance.

AR / [ranft@backmedia.info](mailto:ranft@backmedia.info)