

FINAL PRODUCT QUALITY CONTROL: ORBISPHERE TOTAL PACKAGE ANALYSER

Andreas Gahr – Biography

Andreas Gahr was trained as a brewer and maltster at the Augustiner Brewery, Munich, Germany. He received a brewmaster degree from the Technical University Munich-Weihenstephan in 1994 and worked for another four years at the university for the Chair of Brewing Technology I.

Since 1998, Andreas is the head of the Research Brewery St. Johann, which belongs to the hop processing company of Hopfenveredlung St. Johann GmbH & Co. KG and deals with all kinds of hop related brewing trials and product development as well as technological and raw material trials for suppliers and the whole brewing industry



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The hop processing company of Hopfenveredlung St. Johann is processing around 25.000 metric tons of hops per year to pellets. At their production site in St. Johann, Hallertau, Germany, they run a state of the art pilot brewery. One of the key functions of the pilot brewery is to run trials on a variety of brewing functions, including raw product (hops and hop-products) and technology (including bottling, brewing and analytical instrumentation), as well as product development. These trials are done for the shareholders Barth Haas Group and HVG and other breweries or suppliers on a contract basis.

Recently, the facility had the opportunity to test a KRONES semi-automatic bottling device. This was done to ensure that the equipment on hand would meet the reproducibility standards set by the pilot brewery. To test the instrument, the brewery set up an Orbisphere 6110 Total Package Analyser. During this test, the facilitator pulled every 15th bottle from the line, resulting in 750 bottles being tested over a period of two days.



Picture 1: Brewhouse of the Research Brewery St. Johann

The bottler was filling standard 0,33 L longneck bottles with lager beer. Every 15th bottle was pulled from the line after it was filled, and was tested for its Total Packaged Oxygen (TPO), its CO₂ content and its filling volume with the 6110. This lab equipment enables an operator to measure the following parameters at once in a short measurement time:

- O₂ in the headspace and in the liquid
- CO₂ in the headspace and in the liquid
- Filling volumes of the bottles/cans tested

The instrument allows beverages to be analysed without removing any product from the container. Further, there is no direct contact between the liquid and the sensing technology, as all the measurements are taken in the gas phase. The equipment was very easy for the individuals running the test over the two days. It only required that the bottle be set in the instrument, and a button pushed.



Picture 2: Orbisphere 6110 Package Analyser

The data that was obtained during the trial was easily put onto a USB stick, and exported to Excel for further analysis. Figure 1 displays the TPO values over time (n=30). The data for the filling volumes can be seen in figure 2. An average filling volume of 329,34 ± 0,46 ml and a Total Packed Oxygen of 34,9 ± 2,8 ppb as well as an average CO₂ content of 4,20 ± 0,07 g/kg prove an excellent reproducibility and show strong performance of the bottling equipment and the measurement technology.

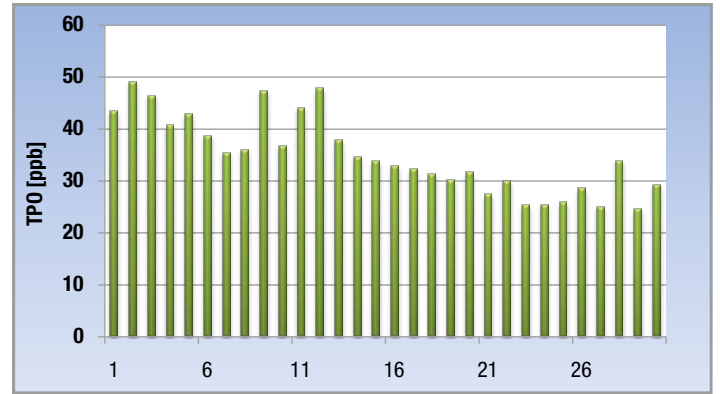


Figure 1: TPO values of the bottling review June 2013

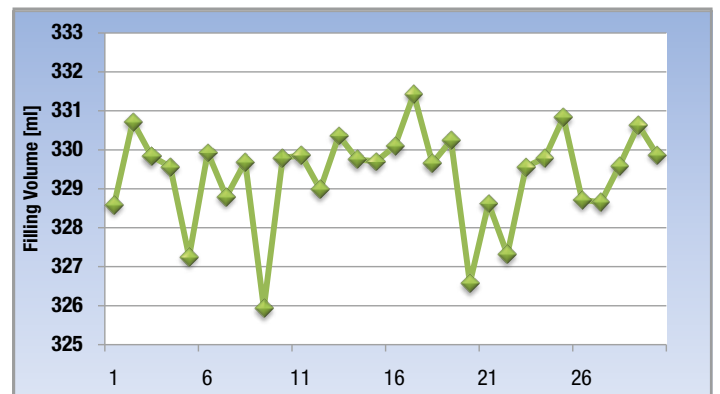


Figure 2: Filling volumes of the bottling review June 2013