

Beverly – quality tested by SABMiller

Comparison of Beverly with a competitor's product at the SABMiller research brewery.

Industry: Beer

Application: portable DO measurement at different process steps

Hamilton products: Beverly

Producing good beer with a consistently high quality is a goal of every brewery. In order to achieve this some parameters have to be monitored. One of the most important controls in the production of beer is the oxygen content. Only at the wort aeration high dissolved oxygen (DO) content is welcome. During the fermentation the DO content drops to ppb levels and is intended to be kept as low as possible during the following steps. High oxygen contents can have an adverse effect on the quality of the beer and its flavor stability. The measurement of the oxygen content at different process steps can be done by different means. Today, the optical fluorescence quenching of a dye principle is state of the art. Usually in-line and at-line measurements can be found in many breweries.

In order to ensure highest quality, SABMiller is always looking and testing new equipment, sensors and devices at their research brewery. As an alternative solution to the current meter Beverly was introduced and extensively tested. The oxygen levels in parts per billion were tested at a fermentation vessel, a filter line and a bright beer tank. Beer, de-aerated water and gas were measured. Every time a reading with the Beverly was taken, a simultaneous reading with the current oxygen meter was taken, too and the results compared over a time period. Additionally the oxygenation of wort was also measured and the results were compared to the inline sensor and the current portable meter.

As an example of the performance of Beverly the underestimated process step of purging a tank with CO₂ prior to filling



Benefits of Beverly

- ▶ Faster than current meter at SABMiller
- ▶ Works just as well with gas and liquid
- ▶ Large screen easy to see, can be seen from all angles
- ▶ Easy to navigate the display and change the scale
- ▶ Robust and works fine when exposed to liquid
- ▶ Light and easy to move, can be placed anywhere



Picture 1: courtesy of SABMiller

with beer is shown in figure 1. The graph shows the decline of the oxygen content in the tank measured with the current meter and Beverly. The faster response time of Beverly enables SABMiller shutting off the CO₂ earlier and leading to savings in

time and money without compromising the quality of the beer. This application demonstrates that Beverly can be used in air as well as in liquids and makes Beverly to a universal work-horse not only for big but also for small and midsize breweries.

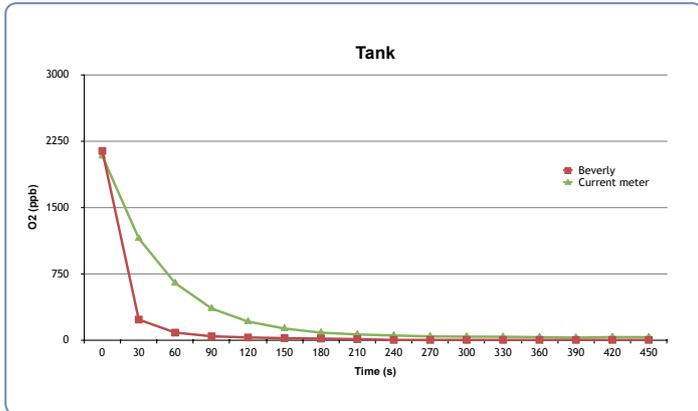


Figure 1: Decline of the oxygen content in a tank prior to filling with beer



Picture 2: Beverly at the SABMiller research brewery in Nottingham (UK)

Technical Specifications

Operating Temperature Range	0 – 80 °C (media), 0 – 40 °C (environment)
Operating Pressure Range	0 – 10 bar
Dimensions (B x W x H)	222 x 142 x 322 mm
Ø O.D. Barbed Hose Fittings	8 mm
Weight	4.7 kg
Protection Rate	IP67
Battery	50 h (continuous operation)
Measuring range	4 ppb – 25 ppm (DO)
Accuracy at 25°C (test gas 40 ppb)	40 ± 7 ppb
Measurement Principle	Oxygen dependent luminescence quenching
Response time t _{98%}	< 30 s at 25 °C, from air to nitrogen
Voltage input	24 VDC  0.4 A
Suitable height above sea level	2000 m
Overvoltage category	II
Pollution class	2
Storage and transport temperature	-20 to +50°C
Relative humidity during storage	30 to 85% (no condensation, highest relative humidity 80% for temperatures up to 31°C, linear degression to 50% relative humidity at 40°C)

Dr. Trevor Cowley
 SABMiller Research Brewery
 Bioenergy and Brewing Science Building
 University of Nottingham
 College Road
 Sutton Bonington
 LE12 5RD
 United Kingdom



© 2014 Hamilton Bonaduz AG. All rights reserved.

[REF] 695171/00 – 11/2014

HAMILTON®

Web: www.hamiltoncompany.com

USA: 800-648-5950

Europe: +41-58-610-10-10

Hamilton Americas & Pacific Rim

4970 Energy Way
 Reno, Nevada 89502 USA
 Tel: +1-775-858-3000
 Fax: +1-775-856-7259
sales@hamiltoncompany.com

Hamilton Europe, Asia, & Africa

Via Crusch 8
 CH-7402 Bonaduz, Switzerland
 Tel: +41-58-610-10-10
 Fax: +41-58-610-00-10
contact@hamilton.ch

To find a representative in your area, please visit hamiltoncompany.com/contacts.