

Beverly Portable DO Meter Hamilton Series #1

Agenda

- . Gusmer & Hamilton Overview
- . Hamilton Beverly DO Meter
- Sample points
- General Tips
- Calibration
- . Troubleshooting
- Q & A Type questions in the Q/A box





Service with Knowledge ® since 1924

Founded in 1918

Management and Ownership currently in 3rd generation

FERMENTATION & FILTRATION PRODUCTS AND SERVICES for FOOD, BEVERAGE & BIOTECH/PHARMACEUTICAL APPLICATIONS

Manufactured and Resale Products

15 Direct Technical Sales Representatives

4 Product Managers &3 Application Specialists

16 Research & Development Scientists



www.GusmerEnterprises.com



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Brewing Distilling WineMaking Juice Processing

Hamilton Overview

- The Hamilton Company has been manufacturing precision measurement devices for over 60 years
- Partnership between Gusmer and Hamilton was established 2014
- Gusmer is Hamilton's sole
 distributor for the beverage
 industry





Why Measure DO?

Propagation/ Fermentation performance

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- Flavor Stability
- . Shelf Life



Beverly Portable DO Meter

- Measuring Range: 20ppb 25ppm (DO)
- Measurement Principle: Oxygen
 dependent luminescence
 quenching
- Operating Temperature: 0 80 °C
- Pressure Range 0 10 bar
- Dimensions (B x W x H): 222 x 142 x 322 mm



Optical Technology

- Oxygen sensitive luminosphore
 - Excited by blue light and returns red light
 - Red light is absorbed by Oxygen
 - Difference between blue and red light is used to calculated dissolved oxygen
- Improved response and drift over older Polarographic technology



Sample Points

- DAW
- Post fermentation
- Post-filtration/ centrifuge/ transfer
- BBT just prior to packaging
- Packaging lines
- Purging BBT's

- Wort aeration
- Yeast propagation

Low End DO (PPB/ Vol %)

High End DO (PPM)

Typical DO Values

Sample Point	DO Range
DAW	<20ppb
Wort	10-20ppm (style & gravity dependent)
Post-Fermentation	<20ppb
Post-Filtration/Centrifugation/Transfer	<50ppb
BBT	<20ppb
Packaging Line	<20ppb
C02	<0.001%

General Tips

- Zwickle connection recommended
- Temp of unit must be in equilibrium to temp of product to get accurate reading
- Time to take the test & ways to reduce waste
- Rinsing out back flushing if it sits longer than 2 minutes between test
- Hot water flush at the end of the day
- Caustic cleaning medium temp, low concentration (1%), low pressure flush, hot water rinse
- No chlorinated cleaners or sanitizers



Calibration

- 1. Low point with 99.999% N2 (Nor Lab #J1066)
- 2. High point with zero grade calibration air (Nor Lab # J1002)
- Constant flow gas regulator (Nor Lab #NLB-517)
- 4. Both high and low performed consecutively
- 5. Caustic cleaning on the unit followed by a hot water rinse let sit overnight
- 6. Ensure the chamber is completely dry
- 7. Temp of the unit is similar to that of the gas you are using
- 8. Moisture will throw off the calibration
- 9. <u>http://bit.ly/BeverlyDO</u>



Troubleshooting

- "0" reading
- Temp of product vs. temp of unit
- Chamber is plugged or isn't clean
- Calibration is off
- Cap is old



Questions?



www.GusmerBeer.com/hamilton-webinars

- Tuesday, February 23rd, 1pm EST
 Real-time Monitoring DO in Process using Visiferm & Visitrace
- Tuesday, March 9th, 1pm EST
 Using pH and Conductivity to Enhance Brewing Quality
 & Sustainability
- **Tuesday, March 23rd, 1pm EST** The Role of Oxidation-Reduction Potential in the Fermenter

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Thank You!

