Application Notes: Wine Production

Rugged and portable density monitoring for quality wine production

Mobile Density Meter: Advancing Liquid Density Measurement

Industry: Wine

Challenge

Measuring sugar concentration through the wine production process

Solution

Mobile Density Meter (MDM100)

Sugar concentration (Brix) is measured using accurate density and temperature measurements

Quick, accurate, repeatable density measurement; in the cellar or in the lab

Challenge

Sugar – The key to wine production

Density can be used to measure the sugar concentration (Brix) in grape juice or other fruit juice (must) prior to crush and throughout the fermentation process. Traditionally this measurement was made using a glass hydrometer. The large volume of sample required and time to make the measurement means a glass hydrometer is not practical for large winery operations. Before grape or fruit harvest, the accuracy of sugar measurement in the juice is important in determining the timing of the harvest for the highest quality wine. During fermentation of the must, the sugar in the juice is converted into ethanol with carbon dioxide as a waste gas. Monitoring the density of the juice during this step in the process allows for optimal control of this conversion step for highest quality wines. Density (Brix) should be measured at least once per day during fermentation. Monitoring the slope of the Brix conversion slope allows the winemaker to adjust the temperature of the process for optimal wine quality.

Solution

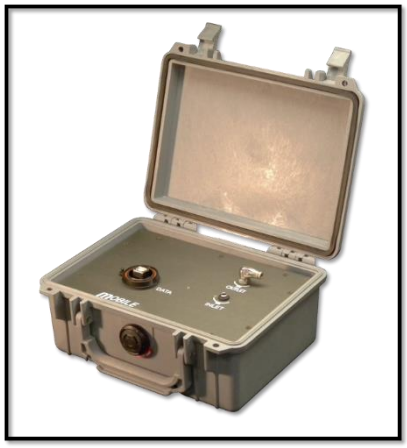
The MDM100, the mobile density meter from Integrated Sensing Systems provides winemakers with the option of performing density measurements in the cellar or in the lab. A few milliliters of sample are required for making the density measurement. There is no need for rinsing the density meter between samples when measuring wine. Yeast and dissolve CO2 in the wine will not affect the measurement. At the heart of the MDM100 is a patented, innovative

Digital display on a Windows device for instant reading and record samples for further analysis.

MEMS vibrating density sensor that is immune to the effect of gas bubbles in the wine. This assures accurate and consistent measurements. Results are available in seconds.

The MDM100 calculates sugar concentration based on measured density and temperature. Results can be displayed in the preferred units such as Specific Gravity or °Brix. Results can be stored in a file format that can be exported into applications such as Excel for further analysis.

MDM100 is a multifunction instrument that,



- measures Brix of fruit must prior to harvest
- determines the alcohol concentration in wine using traditional glass distillation
- determines residual sugar concentration in wine using the residue from traditional glass distillation
- measures finished wine density for accurate weight based bottling
- provides the correct SO2 concentration in wine
- can measure viscosity for additional insight into wine characteristics

Features

- Mobile density measurement in the cellar or lab
- Measures liquid density and temperature to calculate sugar content
- Measures alcohol concentration in distilled spirit production
- Uses gas bubble resistant MEMS vibrating sensor
- Calibration checked using pure water
- Sample injected using inexpensive plastic syringe
- Tough construction can handle rough handling
- Economical for wine producers of all sizes

More Information

To find out more about the MDM100 visit www.metersolution.com/mdm100

To find out more information about the complete product family of Fluidic Products, please visit: www.metersolution.com

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