

# Alcohol Meter for Wine

Alcolyzer Wine



# Alcohol Determination and More

The determination of alcohol is common practice for manufacturers of wine, cider and related products. Knowledge of the alcohol content is an important parameter for production monitoring, quality control, blending and labelling.

The modular compact design of the Alcolyzer Wine M/ME is virtually maintenance-free and can be configured to meet your needs now and in the future. Buy a master instrument (M) first, and upgrade it with the needed modular extension (ME) later.

## The modular system

- ▶ **Alcolyzer Wine M/ME** for precise alcohol determination (%v/v) of wine, sparkling wine, cider, rice wine, alcopops and fermenting must for production adjustment using a patented measuring method (US 6,690,015; AT 406711)
- ▶ **DMA M/ME** density meters combined with an Alcolyzer Wine M/ME allow the simultaneous calculation of alcohol %w/w, specific gravity and total extract (g/L) for volume calculation, truck loading and bottle filling heights
- ▶ **HazeQC ME** to measure turbidity – important for filtering with cross flow or other filters, which requires a low turbidity to avoid clogged filters and keep costs down
- ▶ **pH ME** optionally connected to sample loop
- ▶ **Xsample 22** sample filling unit for automatic filling out of a sample vial or directly out of a bottle
- ▶ **Xsample 122** sample changer optionally added for increased efficiency – fully automatic measurement of up to 24 samples



## Results in Less than Three Minutes

Alcolyzer Wine M/ME has a built-in Peltier thermostat to ensure accurate and automatic control of the temperature in the shortest time. Consequently, there is no need for manual temperature adjustment and correction.

Measurement with Alcolyzer Wine M/ME requires minimum sample preparation, just fill the sample and press <Start>. Completely different samples, e.g. red and white wine, can be measured immediately after one another with one and the same adjustment, so no cleaning is required between measurements.

**The direct benefit:** The measurement takes around one minute. To increase your efficiency even more, connect a Plug and Play Xsample 122 sample changer to automate up to 24 measurements at once. Filling and measuring takes less than three minutes per sample.

## Selective Alcohol Determination

Alcolyzer Wine M/ME uses a patented method (US 6,690,015; AT 406711) based on near infrared (NIR) spectroscopy to determine the alcohol content in a highly alcohol-specific range between 1150 nm and 1200 nm. The evaluation method uses the significant alcohol peak in this area and two spectral points very close to it for defining the baseline. Extensive investigations showed that the alcohol results based on this type of evaluation are virtually free of influences from other known wine constituents. This allows adjustments to be done simply with water for the zero point and one binary ethanol/water mixture.

A binary solution as adjustment standard is traceable to Anton Paar's DMA M density meters. Alcolyzer Wine M/ME is not matrix-dependent – one adjustment works for all types of wines.

Alcolyzer Wine M/ME utilizes an optical setup without any moving parts. The instrument consists of a near infrared LED, a condenser lens, a sample cell, a collimator lens to focus the parallel beam and a grating spectrometer with a detector array. The absorption information read by the detector array is used to determine the alcohol content of the sample.





# Patented Method for Precise Results

Some methods for alcohol analysis, e.g. enzymatic methods, are inaccurate. Other methods, such as distillation or GC, are time-consuming and require experienced operators. Extensive cleaning of the equipment is often required between sample measurements, making procedures even more cumbersome and complex.

Methods such as the combined density and refractive index method or boiling point determination tend to be inaccurate because the underlying measuring properties are non-specific to alcohol. Anton Paar developed Alcolyzer Wine M/ME to make these problems a thing of the past.

Alcolyzer Wine M/ME from Anton Paar uses a NIR-based patented method to determine the alcohol content in a highly alcohol-specific range. For this reason, the other constituents of the beverage do not influence the result and the measurement is valid for all vintages, regions and products.

Whether you measure white or red wine, sweet or dry wine – one adjustment is valid for all wine types: Just check Alcolyzer Wine M/ME daily with distilled water, occasionally with an ethanol/water mixture, adjust if necessary, and optimum results are guaranteed. The binary solution standard is traceable to Anton Paar's DMA M density meters; the adjustment is not matrix-dependent and valid for all wines.

Compared to distillation, the acknowledged reference method for alcohol determination at present, the Alcolyzer Wine M/ME (employing an NIR method as also described in "Resolution OIV/OENO 390/2010 Appendix 1") achieves repeatabilities of  $\pm 0.01$  %v/v alcohol.



# Easy Operation

- ▶ Independent of vintage and product composition with one and the same adjustment
- ▶ No extensive calibration and adjustment required
- ▶ USB keyboard, USB bar code reader and USB mouse support
- ▶ Patented NIR method as also described in “Resolution OIV/OENO 390/2010 Appendix 1”
- ▶ The alcohol content in %v/v is measured at one set temperature and can be displayed at four temperatures: 15 °C (59 °F), 20 °C (68 °F), 25 °C (77 °F) and 60 °F (15.56 °C)
- ▶ Free user-definable display, data format, memory and output to printer or file
- ▶ 1000 results optionally stored in the system and printed (USB or RS-232) or exported via USB, RS-232 or LAN (Ethernet) to a central data acquisition server
- ▶ Easy-to-use data processing software: Free Anton Paar SoftPrint Microsoft Excel add-in for reading out measurement results and status messages and electronic storage of your measurement data

# Technical Data

|   |   |
|---|---|
| Measuring range                         | 0 %v/v to 20 %v/v (data will be displayed up to 30 %v/v)              |
| Repeatability (s. d.)                   | ± 0.01 %v/v alcohol   |
| Temperature control                     | Built-in solid state thermostat (Peltier)<br>Repeatability: ± 0.01 °C |
| Minimum amount of sample                | approx. 3 mL  |
| Typical sampling time                   | Less than 3 minutes including filling                                 |
| Sample throughput                       | 10 to 30 samples per hour including filling                           |
| Alcolyzer Wine M stand-alone instrument |   |
| Dimensions (L x W x H)                  | 495 mm x 330 mm x 230 mm (19.5 in x 13 in x 9.1 in)                   |
| Weight                                  | approx. 17.6 kg (38.8 lbs)  |
| Power supply                            | AC 100 V to 240 V, 50/60 Hz   |
| Power consumption                       | 50 VA to 80 VA  |
| Interfaces                              | Ethernet (LAN), 4x USB, RS-232, CAN, VGA                              |

