Anton Paar

Alcolyzer Wine

Alcohol Meter for Wine

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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 surveillance and quality control.

Some methods for alcohol analysis, e.g. enzymatic methods, are inaccurate. Other methods, such as distillation, are not very popular with customers worldwide as they are time consuming and require a lot of experience. Extensive cleaning of the equipment is often required between sample measurements, making procedures even more cumbersome and complex.

Anton Paar developed the Alcolyzer Wine to make these problems a thing of the past.

Increased efficiency – advanced performance

The Alcolyzer Wine from Anton Paar uses a patented method (US 6,690,015; AT 406711) based on Near Infrared spectroscopy 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. This means, the determination of white or red wine, sweet or dry wine, can all be done with one adjustment!

As the Alcolyzer Wine is product autonomous, it allows you a wide range of applications without the need of labor-intensive calibration and numerous calibration standards. With the Alcolyzer Wine, adjustment is a simple task. Just check the Alcolyzer Wine daily with distilled water, occasionally with an ethanol/water mixture, adjust if necessary, and optimum results are guaranteed. The Alcolyzer Wine is ready for operation after a 10 minute start-up time so you don't waste any valuable measuring time for extended start-up periods.

Elegant.
Relevant.
Significant.

Alcolyzer Wine + SF-1

Alcohol Determination – Effortless and Exact

Simple, fast and accurate determination of the alcohol content of alcoholic beverages is very important for their making, blending, trading and labelling.

Traditional analysis methods such as distillation or GC are time consuming and require experienced operators. Other 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.

The accuracy of the above mentioned methods can be difficult to maintain and repeatability is often at unacceptable levels. Compared to distillation, the acknowledged reference method for alcohol determination at present, the Alcolyzer Wine achieves accuracies of ± 0.1 % v/v alcohol and repeatabilities of ± 0.01 % v/v alcohol.

Selective alcohol determination

A highly alcohol-specific range of the spectrum was identified between 1150 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.

The Alcolyzer Wine utilizes an optical set-up without any moving parts. The instrument consists of a Near Infrared Light Emitting Diode, 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.

A measurement is carried out in less than one minute!

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

slit

sample out

flow through
sample cell

lens

lens

sample in

lens

NIR-LED
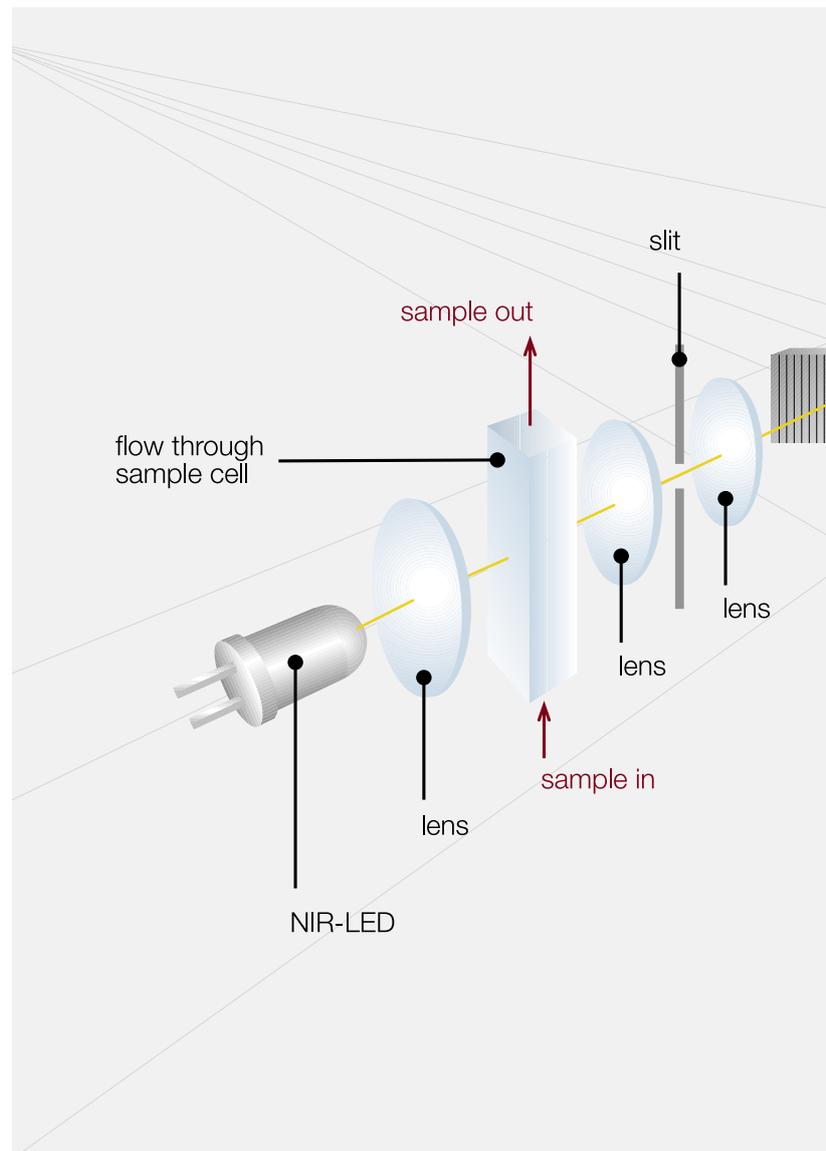
Experts at Work

The Alcolyzer Wine measures the alcohol content of wine, sparkling wine, cider, fermenting must, rice wine and alcopops. It detects the alcohol content reliably and highly accurately, and is independent of vintages, regions and products!

Minimum sample preparation, minimum sample volume and minimum measuring time ensure a high throughput of samples per hour. As completely different samples, e.g. red and white wine, can be measured immediately after one another without carry-over effects, no time-consuming cleaning routines between samples are required.
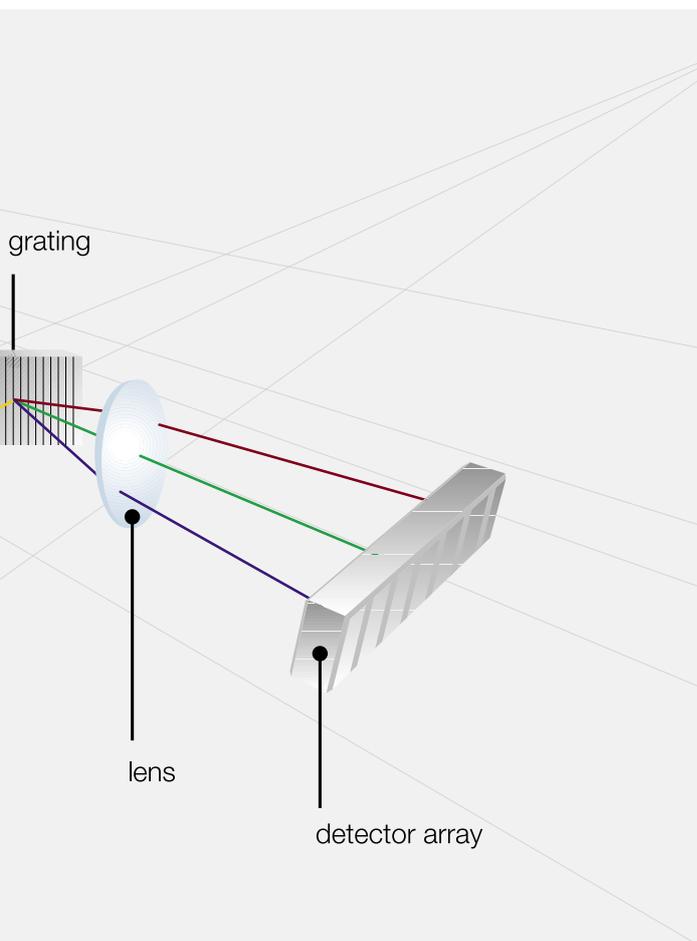
Independent of vintage.
Independent of product composition.
No extensive calibration required.
Always ready for measurements.

Alcolyzer Wine + DMA 4500 + SP-1m

grating

lens

detector array

Comfortable operation

▸ The display is large, bright and easy to read
▸ A keyboard and/or bar code reader can be connected for comfortable sample identification
▸ 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)
▸ You define what is calculated, displayed, stored or printed out
▸ Up to 100 measuring results can be stored in the internal data memory and transferred to a PC or LIMS at any time
▸ Password protection is available
▸ The measuring cell of the Alcolyzer Wine can be filled with samples either by syringe, peristaltic pump or automatic sample changer

Easy to use data processing software free of charge!

AP-SoftPrint is a Microsoft Excel Add-In for reading out measuring results and status messages from your Alcolyzer Wine.

AP-SoftPrint in combination with Microsoft Excel allows electronic storage of your measuring data instead of sending them to a printer. The program is available to users of Anton Paar laboratory meters. It is license-free and free of charge.

Specifications

Measuring range	0 to 20 % v/v (data will be displayed up to 30 % v/v)
Accuracy	± 0.1 % v/v alcohol
Repeatability (1 s. d.)	± 0.01 % v/v alcohol
Temperature control	Built-in solid state thermostat (Peltier) Repeatability: ± 0.01 °C
Minimum amount of sample	approx. 3 mL
Materials in contact with the sample	Stainless steel, PTFE, glass, silicone, Tygon, NBR, PFA
Typical measuring time per sample	Less than 1 minute
Sample throughput	10 to 30/hour
Dimensions (L x W x H)	420 x 280 x 210 mm (16.5 x 11.0 x 8.3 inches)
Weight	approx. 12.4 kg (26 lbs)
Power supply	AC 85 to 264 V; 48 to 62 Hz
Power consumption	50 VA
Interfaces	2 x RS 232 for printer, PC and/or density meter Connector for IBM-compatible keyboard and/or bar code reader

Options that pay off: Combination and automation

Anton Paar density meter

Optionally connecting a density meter allows the simultaneous measurement of alcohol content and density as well as the automatic calculation of alcohol %w/w, specific gravity and total extract (g/L). The DMA 4500 density meter is especially suited for routine work. When even higher accuracy is required, the DMA 5000 is the ideal choice. To minimize bench space, the Alcolyzer Wine is positioned on top of the density meter.

SF-1 Sample filling unit

The SF-1 utilizes an integrated peristaltic pump for filling and replacing samples. The samples can be measured directly out of the bottle.
The SF-1 is especially designed for the stand-alone version. Pre-installation and retrofitting are possible upon request.

SP-1m Sample changer

Delegate the daily routine of the sample filling procedure to an SP-1m sample changer so you can give your attention to other tasks! Connection of the SP-1m sample changer allows automatic filling of up to 24 samples.

Anton Paar

ISO 9001 certified · Anton Paar Graz-Austria · Certificate No. 12 100 2242 TMS · Certified Quality System

Instruments for:

Density and concentration
measurement

Rheometry and viscometry

Sample preparation

Microwave synthesis

Colloid science

Microhardness testing

X-ray structure analysis

CO_2 measurement

High-precision temperature
measurement