

WineScan™ SO₂



WineScan™ SO₂ ensures full control of the entire winemaking process from grape harvesting to bottling. Ready-to-use calibrations allow for the simultaneous analysis of major wine quality parameters including SO₂. The vibration and dust-proof WineScan is designed to handle the extreme conditions at the weighbridge.

Sample	Parameters
Grapes, must, fermented must and finished wine	Over 30 critical quality control parameters incl. SO ₂

Routine analysis and winemaking

– a powerful partnership

Winemakers have been making quality wines for centuries based on experience, sensory perception and instinct. WineScan™ SO₂ adds an extra dimension in the form of a wealth of objective analysis information available just when you need it.

Routine measurement of all the main quality parameters of must and wine in one integrated analysis unit is now a reality. WineScan™ SO₂ analyses main product components such as Ethanol, pH, sugars, organic acids and Free and Total Sulphur Dioxide.

Delivering over 30 critical quality control parameters within a minute in one sample, the WineScan helps you to make those key on-the-spot decisions for improved quality and long-term results.

SO₂ completes the picture

The option to measure sulphur dioxide with the WineScan is a new major breakthrough in wine analysis. Routine testing of SO₂ in parallel with other parameters gives you complete control of the winemaking process and a more rational use of SO₂ in line with legal and consumer demands.

The new WineScan SO₂ gives results for free and total sulphur dioxide within a much shorter time than existing methods for rapid SO₂ testing. The system is also considerably more convenient, reducing manual work and associated risks of operator error. It all adds up to better control over sulphur dioxide to the delight of the winery and benefit of consumers.

Protect your investment

WineScan™ SO₂ gives you more time to focus on your most important job – making quality wine and enables you to protect your investment by tracking production more closely.

- Analyse quality of grapes - pay the right price
- Save time on manual laboratory testing
- Low cost per sample - no need for expensive reagents
- Increase predictability and consistency of raw materials
- Prevent spoiling of finished product -keep track of key parameters such as SO₂

"We save considerable time and gain better control over the maturity of our grapes."

Alexandre Lebosse,
Chateau Pichon
Longueville,
Bordeaux, France



Parameters

Must		Must under fermentation	Finished wine	
Free SO ₂	Alpha amino nitrogen	CO ₂	Free SO ₂	Glucose+Fructose
Total SO ₂	Ammonia	Density	Total SO ₂	Glycerol
Brix	Anthocyanins	Ethanol	A420***	Lactic acid
Density	Citric acid	Glucose+Fructose	A520***	Malic acid
Malic acid	Colour intensity	Malic acid	A620***	pH
pH	Extract	pH	Citric acid	Reducing sugar
Tartaric acid	Folin C (Total polyphenol)	Reducing sugar	CO ₂	Sorbic acid
Total acidity	Fructose	Total acidity	Density	Tartaric acid
Acid rot	Glucose	Volatile acidity	Ethanol	Total acidity
Ethanol	Lactic acid		Fructose	Folin C (Total polyphenol)
Fermentative activity	Potassium		Gluconic acid	Volatile acidity
Gluconic acid	Reducing sugar		Glucose	
Glycerol	Succinic acid			
Grey rot	OD280			
Lactic rot	OD520			
Volatile acidity				



Versatile to suit your business

WineScan™ SO₂ is a highly reliable and easy-to-use instrument ideal for accurate and efficient analysis, day-in and day-out, in a busy environment. A vibration proof design allows WineScan to be used at the weighbridge or in the laboratory.

With WineScan you can test a variety of sample types including must, must under fermentation, and finished wine with little or no sample preparation. Analysis results are available just when you need them and automatic recording of measurement activity provides lists of results for improved quality assurance routines and traceability. An intuitive operator interface is designed for routine operation, for instance, it is easy to switch from must to wine measurement.

Different models of instrument suit your applications, including auto sampling functions for the busy wine laboratory and options to configure your WineScan with testing of colour and sulphur dioxide in parallel with other key parameters. You also have the choice of a range of ready-made calibrations and the WinISI software package is the ideal tool for development of your own calibrations.

The Total Solution from FOSS

Investing in a WineScan is the start of a relationship between you and FOSS where our primary interest is to support your business. FOSS dedicated analytical solutions include everything you need to get on with your business including:

- ☑ Ready-to-use applications
- ☑ User-friendly interfaces
- ☑ Installation
- ☑ User training
- ☑ Application support
- ☑ Technical service
- ☑ Spare parts, reagents and disposables



Technology

Control measurements for improved wine quality

WineScan™ SO₂ has a FTIR (Fourier Transform Infrared Spectroscopy) interferometer that scans the full infrared spectrum. The SO₂ analysis is featured by SO₂ gas releasing from the wine sample and subsequent FTIR scanning of the gas phase created. Collection of data from the entire spectrum allows you to analyse many parameters in a short period of time. Analysing new parameters is only a matter of calibration development.

The WineScan gives you the knowledge you need to confirm your decisions and get your winemaking process off to a good start.

Analysis of key parameters for maturity and grape soundness for segregation and payment purposes are based on objective criteria. With the knowledge that WineScan provides, you can segregate according to reliable analysis and decide on optimal vinification procedures – allowing you to maximize the value of your grapes towards a consistently higher quality.

Follow development from the start of the veraison period to harvest:

- Determine sugar levels for deciding when to pick for an effective harvest
- Achieve the right balance between sugars and acids
- Measure yeast assimilable nitrogen for avoiding stuck fermentation
- Measure volatile acidity for deciding when to bottle for optimal quality
- Obtain a full picture with powerful combinations of parameters available simultaneously, for example pH and free and total sulphur dioxide
- Ready-to-use strong calibrations for wine, must under fer-

mentation and must, covering most quality parameters of all major types of wine

- The optional WinISI™ software package facilitates development of customised calibrations or new parameters
- Possibility of A420, A520 and A620 colour analysis by visual spectroscopy
- A flexible solution with a variety of optional modules and applications to match your analysis needs, incl. autosampler

New light on traditional methods

Introduced to the wine industry in 1999, the WineScan created a revolution in rapid routine wine analysis and over the years, the WineScan has proven its value to wineries and analytical laboratories.

The secret within the WineScan is an innovative use of Fourier Transform Infrared – an analytical technology that is ideal for rapid multi-parameter analysis of liquid samples.

Today, winemakers around the world use WineScans to protect and enhance the quality of their products, and the developments continue with new parameters such as free and total sulphur dioxide.

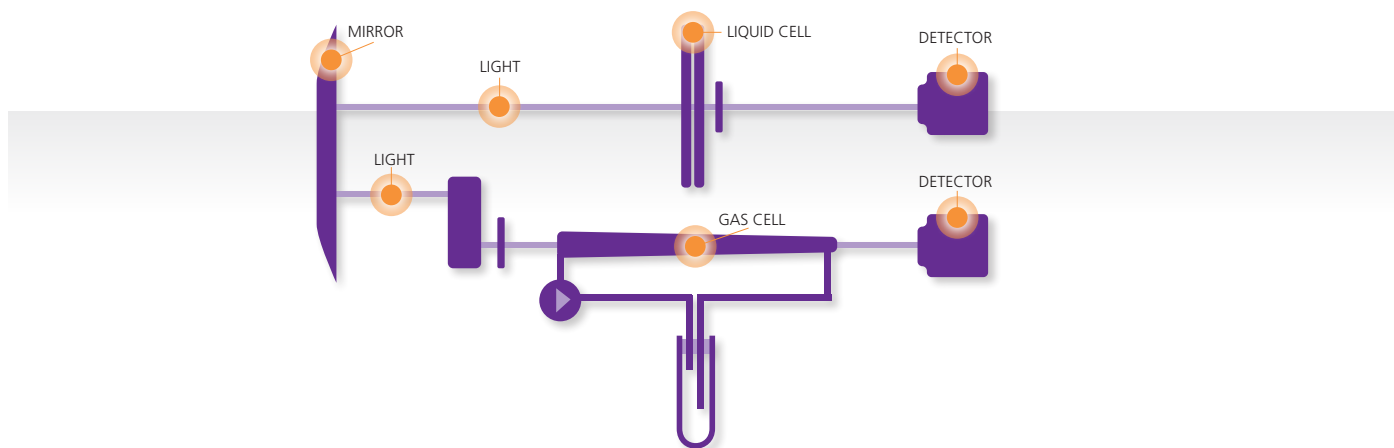


Information gained from liquid and gas

The WineScan measures multiple parameters of wine and must using Fourier Transform Infrared (FTIR) technology to scan a liquid sample. This same FTIR technique is used to measure sulphur dioxide levels by simultaneously scanning both the liquid wine sample and SO₂ in the gas evaporated from it. The new unique gas detection technology provides both free and total SO₂ results in just over one minute (Patent pending). The information gained from both liquid and gas provides

the basis for an accurate measurement. During times when you only need the traditional liquid parameter results you can switch off the SO₂ measurement and get your results in only 30 seconds as normal.

The instrument software makes it easy to look into different aspects of data for instance with all sorts of user definable views for example, showing all parameters or just Free SO₂.



Integrated with other routine analysis operations

Results for free and total sulphur dioxide content are delivered to a computer screen alongside the many other quality parameters provided by the WineScan analyser. This provides a convenient on-screen comparison against other parameters such as pH and ethanol of potential interest in combination with sulphur dioxide.

With the new option to configure WineScan with sulphur dioxide measurement, WineScan is considered as a complete wine analysis solution providing rapid routine analysis of all main wine measurement parameters in one box.

Wide variety of applications

Ready-made calibrations allow for the simultaneous analysis of all major parameters. With unprecedented instrument stability, calibrations are transferable from one instrument to another and powerful calibration development software enables rapid calibration development for new applications.

Traceable results

Facilities in the user software platform allow you to improve control through traceable measurements and answer growing demands for documentation of results. Or just look back over the years and track what happened in relation to test results helping you to define your strategy for the next vintage.

Central configuration, support and surveillance with Mosaic software

Mosaic™ is a networking solution that remotely manages, configures and calibrates all your analytical instruments. With the WineScan you can just get on with your measurements without having to worry about instrument performance and calibration updates. Taking advantage of FOSS Mosaic internet networking software, your WineScan can now be connected to a central control centre where experts in FTIR analysis can manage updates and calibrations for improved instrument performance. New calibrations can also be uploaded remotely. This means less maintenance for your team and the easiest and most convenient way to get the best from your WineScan all year round.

Not only does this save you time, but it has also been shown to significantly reduce costs. All calibrations can be protected, making it impossible for individual clients to copy valuable calibration models.

The three parts of a Mosaic network are:

1. A server collecting all information for the entire network
2. One or multiple clients communicating with the Mosaic server
3. A network manager using the internet to communicate with all clients via the server

Technical specifications

System Description

WineScan SO₂ consists of the analyser and Foss Integrator software. Options for WineScan SO₂ include the possibility to upgrade with colour (VIS) module and to automatic version with XY Autosampler.

Performance data	
<p>Flex*: Finished Wine: (Ethanol, Glucose/Fructose, Malic Acid, Volatile Acid, Total Acid, pH, Free Sulphur Dioxide, Total Sulphur Dioxide) or Must: (pH, Malic Acid, Tartaric Acid, Total Acid, Brix, Density, Free Sulphur Dioxide, Total Sulphur Dioxide.)</p> <p>Auto*: Finished Wine: (Ethanol, Glucose/Fructose, Malic Acid, Volatile Acid, Total Acid, pH, Free Sulphur Dioxide, Total Sulphur Dioxide.)</p> <p>More calibrations are available. A large number of parameters can be analysed simultaneously, and the number of measure profiles that can be set-up is unlimited.</p>	
Without SO₂ analysis switched on: Analysis time:	30 seconds (excl. SO ₂ , see below)
Carry-over:	< 1%
Sample Temperature:	5 - 35°C
Sample Volume:	Programmable 4 - 25 ml, standard volume is 7 ml for Flex and 8 ml for Auto version.
Optical System:	Hermetically sealed, humidity control.
Cleaning:	Automatic and programmable.
Calibration routines:	Slope & Intercept Adjustment.
Options in WinISI™ SW package:	PLS (Partial Least Squares) and modified PLS calibrations and PCA (Principal Component Analysis). Flexible selection of spectral intervals.
With SO₂ analysis switched on: Analysis time:	150 seconds (options for fast hydro-lysis time of 86 seconds)
Carry-over:	< 2%
Sample Temperature:	5 - 35°C
Sample Volume:	Fixed 4.2 ml to be added (total 8.2 - 29.2 ml)
Hydrolysis agent:	4 ml 25% Phosphoric acid
Optical System:	Independent detector, hermetically sealed, humidity control.
Cleaning:	Automatic and programmable.
Calibration routines:	Slope & Intercept Adjustment.
WinISI™ SW options:	no SO ₂ - 32 liquid parameters available
* WineScan Auto is configured with an autosampler for the busy laboratory, WineScan Flex has manual sample intake.	

Technical Specifications

Installation requirements	
WineScan™	
Power supply:	100 - 240 VAC ±10% – 50 - 60 Hz
Power consumption:	Max. 600 VA during measurement, 200 VA in standby
Ambient temperature:	5 - 35°C
Ambient humidity:	< 80% RH, cyclic up to 80% RH when going from low to high ambient temperature
Weight:	89 kg for WSC Flex; 97,4kg incl. XY Autosampler
Dimensions (H×W×D):	54×88×47.3 cm (excl. PC)
Environment:	For best performance, place the instrument on a stable surface away from excessive and continuous vibration.
Degree of protection:	IP43 (IP43 PC is optional)
Noise Level:	< 70 dB
Fuse:	T 10.0 A
Installation category:	II
Pollution degree:	2
Altitude:	< 2000 m
XY Auto Sampler	
Power supply:	100 - 240 VAC ±10% – 50 - 60 Hz
Weight:	8.4 kg
Dimensions (H×W×D):	61×33×50.8 cm (with sample probe)

Standards and Approvals

- WineScan™ SO₂ is CE labelled and complies with the following directives:
- EMC Directive 89/336/EC and amendments EN 61000-6-3 EN 61000-6-2
- Low voltage directive 73/23/EC and amendments EN/IEC 61010-1 version 2
- Classification, packaging and labelling of dangerous preparations directive 99/45/EC and amendments
- Packaging and packaging waste directive 94/62/EC
- Directive on waste electrical and electronic equipment (WEEE)
- Food and Drug Administration (FDA), Title 21, CFR, chapter J

PC Requirements (Minimum)

- 1 GHz CPU speed (minimum)
- 1 GB RAM (2 GB recommended) (Emulator: 256 MB)
- 4 GB free disk space (Emulator: 2GB)
- NTFS File system
- SVGA at 1024*768, min. 16bit colours
- Windows® XP SP3 or Windows® 7 (32 bit)
- Microsoft® office
- CD/DVD drive
- 2 USB Ports
- 1 Serial port
- Mouse/trackball
- Windows-based printer

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