

The Agilent 5000A Real-Time Gas Analyzer.



Continuous chemical analysis measurement for continuous improvement.

The ability to collect high-quality data continuously at your research, pilot plant, or production site offers numerous advantages. When conducting analysis in real time, you are alerted immediately to process problems or anomalies, or continuously assured that you are on the right path to achieving success.

New technologies such as fuel cell development have accelerated the need for real-time analysis. Today, extensive R&D efforts are aimed at producing fuel cells that maximize efficiency and minimize cost. These sophisticated systems raise the bar for the analysis of gas streams to new levels of speed, reliability and sensitivity. Because understanding the composition of gas stream transients and intermediates at various points in the fuel cell system is critical to efficient operations, real-time gas monitoring is ideal for this application.

Real-time monitoring can also expedite the determination of volatile solvent residues in pharmaceuticals and can more efficiently monitor off-gas-stream components from reaction processes, even complex ones such as fermentation. This is also true for petrochemical streams where a change in chemical composition can have a major impact on yield and final product quality.



Agilent Technologies

Agilent pulls out all the stops.

Agilent Technologies, the provider of the broadest selection of gas chromatography and gas/mass spectrometry systems and solutions, responds to these new technical challenges by introducing the Agilent 5000A Real-Time Gas Analyzer (RTGA). This Real-Time Gas Analyzer provides sophisticated and precise continuous monitoring of a wide range of components in your gas streams – all in a rugged, transportable and easily operated package.

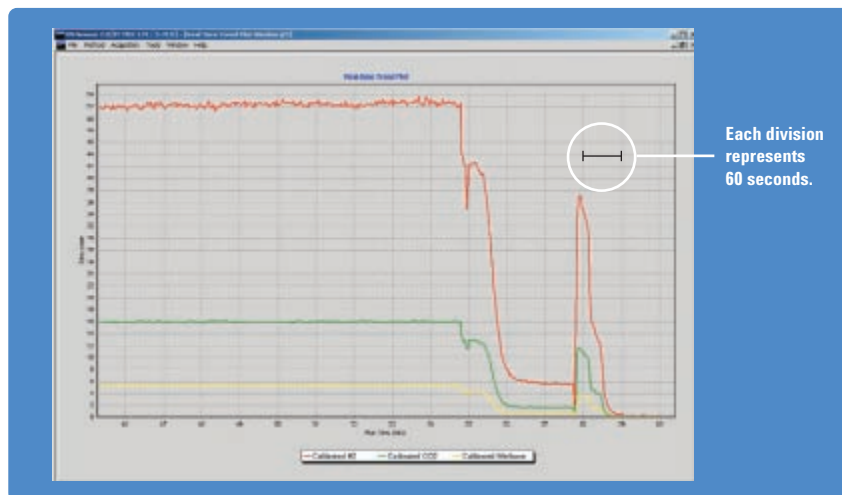
The experts at Agilent Technologies have made on-site, real-time, quality mass spectral data acquisition easy to implement and easy to manage – here's how.

Exceptional design equals exceptional performance.

The heart of the Agilent 5000A Real-Time Gas Analyzer system is the quadrupole mass selective detector. This high-quality Agilent MSD detection system, operated in the EI-mode, has a well-deserved reputation for accuracy and reliability. Now, advances in engineering have allowed the adaptation of this system to real-time gas analysis while introducing modifications to provide outstanding linear quantification of low molecular weight gases, such as hydrogen.

The result is a powerful and compact gas analyzer, providing outstanding performance in sensitivity, speed, and selectivity, optimized for the real-time monitoring of gases in the range of 1.6 to 800 amu. (*Parts per billion analysis of sulfur compounds is also possible.*)

The system is fast, accurate and precise. A real-time response of every 2-5 seconds for multiple components with sensitivity in the lower parts per billion range, and a typical dynamic range covering four to five orders of magnitude makes the Agilent 5000A a truly flexible, high-powered real-time instrument. The selectivity of this mass spectrometer – capable of



The Agilent MS Software captures process perturbations in real-time allowing you to respond quickly and effectively. Fuel cell gases monitored: hydrogen (red), carbon dioxide (green) and methane (yellow).

discriminating less than 1 amu – provides confidence in each reported value and largely overcomes the compound/matrix interferences often observed with other less selective detection systems. Plus, exceptional mass axis stability translates into less drift and unmatched precision.

The Agilent MSD is also conveniently transportable, easily adapting to on-site testing.

An intuitive system that's easy to operate.

The new MS Sensor software* makes operation simple, presenting data in continuously displayed tabular and/or graphical formats. The system is intuitive and flexible, providing:

- automatic MSD tuning
- simple, variable data output (% , ppm,....)
- fast, easy calibration
- automatic calculation of quantitative results
- intuitive user interface with familiar Windows™ pull-down menus

Up to six trend windows can be used to monitor your process in real time – which can be customized by applying user-defined formulas to real-time instrument signals. An event log captures events and errors and alerts you to problems with color-coded warnings.

In addition to providing continuous data displays, Agilent makes it easy to import process results into third party spreadsheets, statistical analysis and/or modeling packages for off-line analysis. And, if needed, the MS Sensor software

architecture allows for monitoring data from multiple instruments, providing drivers to continuously monitor your gas stream pressure. Drivers for other instruments can also be developed and incorporated into the MS Sensor software.

A partner in your success.

At Agilent, we're constantly looking for ways to optimize your lab's performance. It's a strategic approach led by 35 years of chemical analysis and applications expertise. Along with unrivaled technical support, we'll continue to offer a comprehensive array of instruments, supplies and services, each rigorously designed, tested and manufactured to the industry's highest standards.

To learn more about all Agilent can do to help you in assessing your real-time gas analysis needs, call us at 800-227-9770 or visit our web site at www.agilent.com/chem.

* Software requires at a minimum 450 MHz Pentium computer with at least 128 MB of system memory and a Windows 2000 operating system with Service Pack 2 applied.

© Agilent Technologies, Inc. 2002
Printed in USA April 8, 2002
5988-5957EN



As the race to develop fuel cell technology accelerates, the ability to conduct experiments in real time is a major advantage.



Agilent Technologies