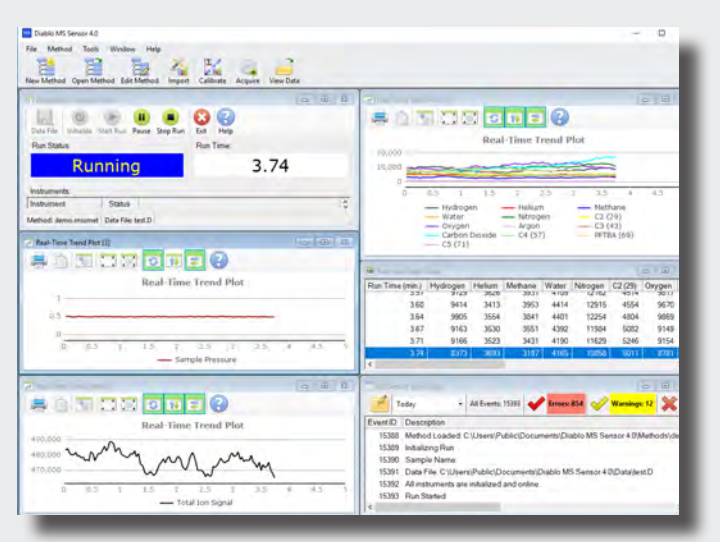
Diablo Analytical, Inc.

A Technology and Development Company

The Diablo Analytical 5000B Real-Time Gas Analyzer

The Real-Time Gas Analyzer (RTGA) provides a real-time chemical measurement tool for continuous process improvements. It is ideal for applications where very fast analysis is required, such as monitoring for transients and continuous reactions. The Diablo RTGA can be used for fuel cell gas analysis, syngas monitoring and many other applications.



MS Sensor 4.0 Process Analysis Software

The MS Sensor software is simple to use and displays the real-time data both in graphical and in tabular formats. Results are saved in CSV format, enabling easy import of the results into popular third-party spreadsheets, statistical analysis, and/or modeling packages for off-line analysis.

- Enables the 5977 MSD to be used for continuous process analysis
- Simplified user interface - greatly simplifies operation of the 5977 MSD
- Integrates signals from the 5977 MSD with sample pressure for real-time pressure compensation
- Results are displayed in real-time engineering trend plots
- The Application Builder software uses the NIST MS library to simplify the creation of optimized methods

Diablo RTGA Performance Benefits

- Fast, real-time response to process changes
- Flexible, rugged, fast responding direct process sampling interface
- Uses a high-performance Agilent Technologies 5977 quadrupole mass spectrometer (5977 MSD)
- Easy conversion of the 5977 MSD to standard GC/MS configuration
- Linear response and stable, reliable quantitative analysis
- Hardware and software enhancements allow for hydrogen detection

Residual Gas Analyzers (RGAs) vs Diablo Real-Time Gas Analyzer (RTGA)

The Diablo 5000B RTGA is based on the high performance Agilent Technologies 5977 bench top mass spectrometer. The scan speed, stability, and sensitivity of this system allows for fast, quantitative analysis beyond the limited trend monitoring typical for lower-cost and lower-performing Resdiual Gas Analyzers (RGAs).

In addition to fast, quantitative analysis for the standard direct sampling applications, the RTGA can easily be converted to a GC/MS system by addition of a gas chromatograph (GC) with a gas-sampling valve to address applications requiring additional chromatographic selectivity; traditional RGAs do not have this capability.

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RTGA Provides Reliable Calibration and Quantitation

One of the important features of the 5000B RTGA is its ability to perform stable and reliable quantitative analysis. From the extremely stable 5977 MSD, to the process sampling interface, and the MS Sensor software, the RTGA has been designed with quantitative analysis in mind.

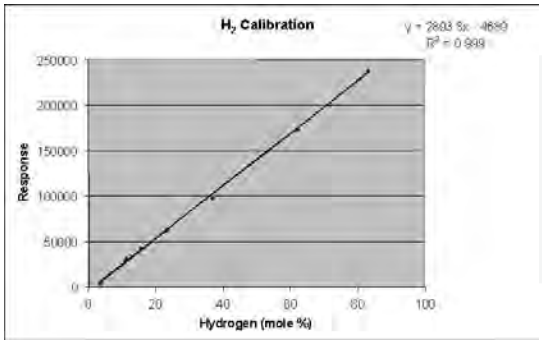
Who Benefits from using the RTGA

- Laboratories monitoring gases
- Engineering development labs (controlled environment)
- Government and industrial R&D labs
- Academic institutions
- Chemical and process control engineers
- Analytical and process development chemists

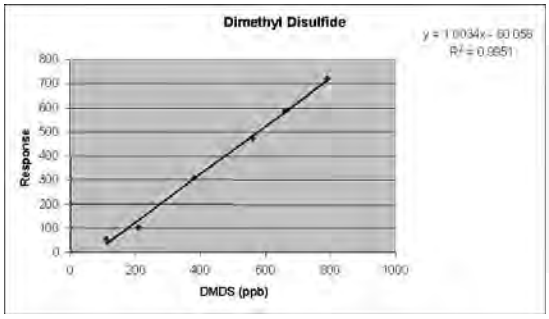
Key Applications

- Process gases
- Catalyst performance and poisoning
- Reactor head space profiling
- Bed breakthrough studies
- Reaction kinetics studies
- Ambient gases (not trace)
- Fuel cell gases
- Syngas process gases (reactor)
- Biomass gases (reactor)
- CO2 sequestering
- Bed capacity and regeneration

Calibration Plots



Hydrogen Plot



DMDS Trace Plot

These calibration plots illustrate the linearity of the RTGA in both trace and high level applications.

Application Flexibility

- Fast, dual-scan methods mix sensitivity with matrix detection or optimized low-mass hydrogen/helium detection with higher masses
- Multiple interface options to address needs for low flow, vacuum, or fast response
- Pressure/drift compensation for long acquisitions

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