



## Diablo Introduces Two Software Products

A core part of Diablo Analytical's business involves the development of custom software applications for analytical data acquisition and data analysis. Most of our software applications are highly customized for the specific needs of our individual clients. However, we have developed two software programs that have broader applicability and are introducing them as our first software products.



### EZPlot 4.5

EZPlot is a utility that adds multicomponent real-time trend plotting capability to MTI Analytical Instrument's EZChrom 200 data system. A screen capture of EZPlot is shown to the right, and some of its key features are listed below

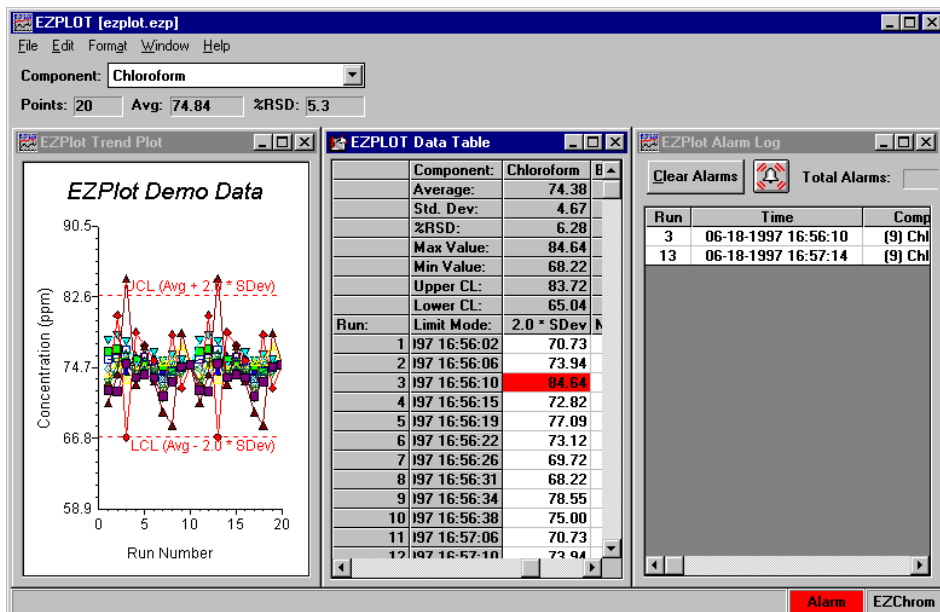
- Real-time trend plotting of concentration data for up to 10 components
- Automatic calculation of component statistics including average, standard deviation, and minimum/maximum values.
- User-selectable control limits that can be linked to a local alarm display.

EZPlot is sold exclusively through MTI Analytical Instruments in Fremont California: (510) 490-0900, Part # KIT-2105.



### SUI for HP ChemStations

The Simplified User Interface™ (SUI) is a software application that provides one-button control of HP ChemStation analyses. See the article on page 3 for more information on the SUI software.



*EZPlot: Real-time Trend Plotting for the MTI Analytical EZChrom 200 Data System*

## GC-AED Training Course Schedule

Diablo Analytical exclusively provides the GC-AED training for Hewlett-Packard in North America. The following dates are currently scheduled for the remainder of 1997 and early 1998:

Date	Location
September 10-12	Houston, TX
December 2-4	Concord, CA
April 28-30, 1998	Wilmington, DE

For more information or to register, call Hewlett Packard at 1-800-227-9770. The course number is H8711A. Diablo also provides custom on-site training for AED customers.

## Diablo Welcomes...

Diablo Analytical is pleased to welcome our newest employee, Joe Mc Guire, Ph.D. Joe comes to us from KVB Analect bringing with him a number of key skills including a knowledge of process infrared spectroscopy, multivariate calibrations and chemometrics, and software development. Joe has experience with a wide variety of analytical techniques and customer applications. He combines his analytical expertise with many years of programming in languages like C/C++, Visual Basic, GRAMS/32, etc. We welcome Joe to Diablo Analytical, Inc.

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# Analytical Application Focus: System Integration with National Instrument's LabView

We recently developed a system to automate the catalyst screening process. This project involved the integration of a variety of valves, mass-flow and temperature controllers in addition to a mass spectrometer. These components used digital and analog inputs and outputs as well as serial communication. All the hardware, software communication and real-time charting had to be controlled and monitored by a computer.

We used LabView from National Instruments as a graphical development environment to speed the integration of hardware, software communication and data acquisition. For this project, LabView was a good choice to develop the system in a timely manner.

The block diagram in Figure 1 shows the mass spectrometer (MS) catalysis gas monitoring system. There are six different input gases, each with its own mass flow controller and shutoff valve. The mass flow is set, checked and read by the computer through a National Instruments I/O board. The shutoff valves are actuated by relay switches. The temperature of the catalysis chamber is monitored and set through a Eurotherm 808-B temperature programmer interfaced to the computer by a RS-232 serial link. Three two-position, heated Valco valves are used in this system. One valve controls an input gas volume that can be pulsed on and off during the temperature program. The other two valves control whether the mass spectrometer is monitoring the input or output gas stream from the catalysis chamber.

The real-time display screen for the catalysis monitoring system is shown in Figure 2. The system is user-programmable as a series of segments that define the experimental conditions during each step. The user can monitor temperature and gas flow rates versus time. The current values for temperature, gas flows, valve positions and current status are available through the real-time display panel. The real-time display can be aborted or held for a

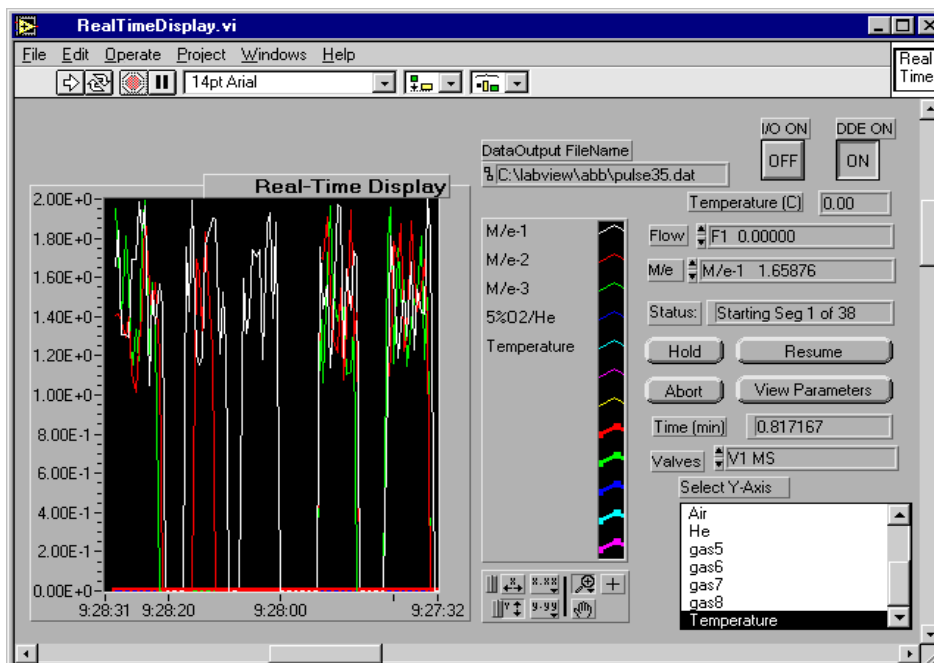


Figure 2: Real-time display screen constructed using national Instrument's LabView

given time interval and manual adjustments can be made to the system. A snapshot of the data can be viewed in a spreadsheet format during data collection. The final results can be imported into a spreadsheet program like Microsoft Excel for further data analysis.

The valve and gas controls, temperature programming and serial communication were straightforward to implement in the LabView environment saving us weeks of programming effort. However, this application also used many of the advanced features of LabView, which can be much more difficult for the novice user to implement.

LabView is especially well suited to applications like this that require analog and digital data acquisition and control. The graphical user interface and data acquisition and control features can be developed rapidly for simple applications. These unique LabView capabilities can significantly reduce development time and project costs.

Recently, Diablo applied and was accepted into the National Instruments Alliance Partner program.

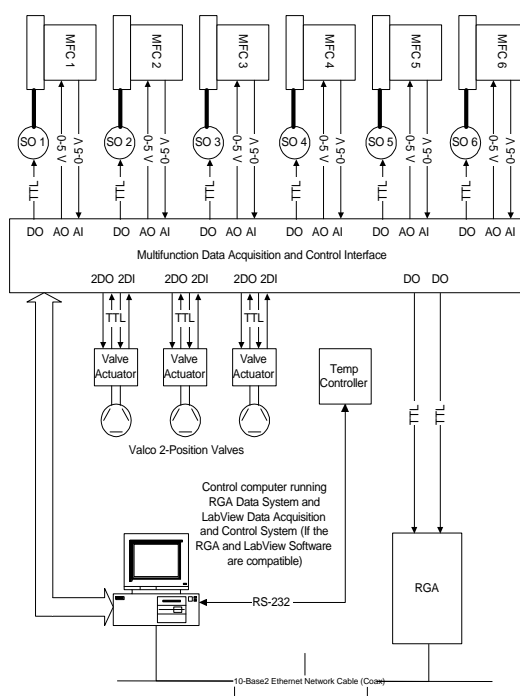


Figure 1 Diagram of the catalyst screening system

# The Simplified User Interface™ for HP ChemStations

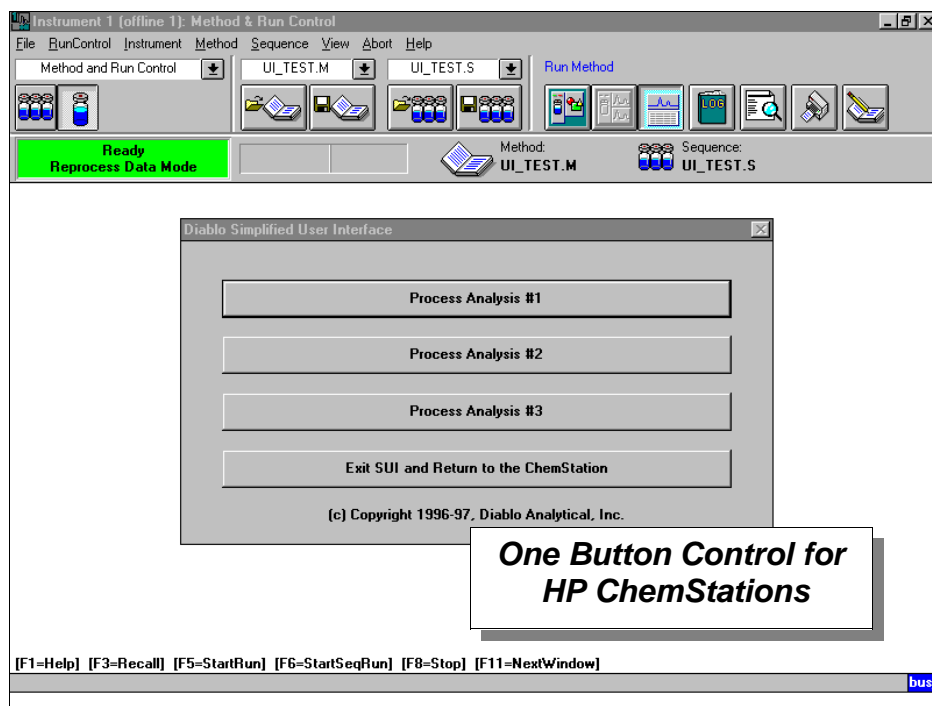
## Overview

To the experienced user the Hewlett-Packard ChemStation provides a powerful chromatographic data acquisition and data processing environment. However, occasional users or busy operators may find the ChemStation to be complex and have difficulty remembering the proper steps to perform for each analysis that they must run. This can result in wasted time and potentially lead to operator error. Diablo Analytical developed the Simplified User Interface™ (SUI) to address this problem; the software acts as a shell that hides the complexity of the ChemStation from those users who simply need to run samples.

## Summary of Features

- ChemStation analyses are started by pressing a single button. The operator is automatically prompted for any sample information required for the analysis.
- Standard ChemStation sequence and method files are used by the SUI. No modification of existing methodology is required.
- An automatic data file naming feature prevents existing data files from being accidentally overwritten.
- The SUI can be configured quickly and easily using the configuration editor included with the software.
- The SUI can be displayed as a normal dialog box centered over the ChemStation Window as shown above, or as a full-screen dialog box that hides the ChemStation underneath.
- An option allows automatic re-display of the SUI dialog automatically after running the last sample in a sequence.
- The SUI runs under the "Asterix" and "LeoChem" versions of the Hewlett-Packard ChemStation.

## SUI Configuration Editor



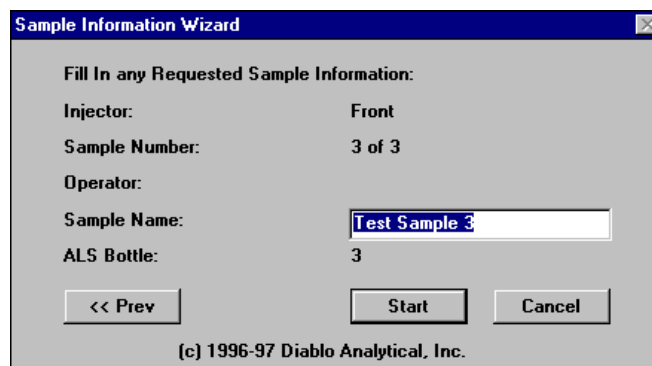
*The Simplified User Interface running on top of the LeoChem ChemStation*

The SUI dialog box that is displayed by the ChemStation is defined using a configuration editor. The configuration editor allows you to specify the caption that will appear in the title bar of the SUI dialog box, as well as the display format of the dialog box. In addition, each button that will appear on the dialog box can be edited, deleted, and moved up or down in position. New buttons can be added at any time. The configuration editor also allows you to define the sample information parameters that the Sample Information Wizard will prompt the operator to enter when the analysis is run.

## Sample Information Wizard

The operator simply presses one of the SUI buttons to start the selected analysis. The Sample Information Wizard then collects all information necessary to run each of the samples. The operator simply fills in any required sample infor-

mation, and then presses the "Next" or "Prev" buttons to go to the next or previous sample. When information has been entered for the last sample to be run, the



*The SUI Sample Information Wizard*

operator simply presses the "Start" button to initiate the actual analysis.





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# New Capabilities at Diablo

## Infrared Data Analysis Capabilities

Diablo Analytical's experience with infrared calibration and data analysis expanded significantly with our recent hiring of Joe Mc Guire. Joe adds expertise with *Pirouette™*, *Unscrambler™*, *Matlab™*, and *Grams-32™ PLS/IQ*. These software tools can be used for infrared data analysis of petroleum products, specialty chemicals and in material quality control applications. Three areas of expertise are:

- Develop Infrared models for calibration and quality control for customers applications
- Help vendors with spectral import and prediction software for these calibration packages
- Develop software for special data pre-treatment or analysis
- Convert Matlab™ or other special data analysis algorithms into Windows executable programs

## Software Development Capabilities

- Diablo Analytical recently became an Alliance Partner with *National Instruments* for the development of data acquisition and data analysis applications using the *LabView* development environment.
- Microsoft recently released new versions of both *Visual Basic (5.0)* and *Visual C/C++ (5.0)*. Diablo is migrating to these tools for the development of 32-bit custom software applications for Windows 95 and Windows NT. We will continue to use older versions of these tools for those clients who still need 16-bit applications for Windows 3.1.

## GC-AED Applications

- Diablo is currently investigating the use of alternate sample introduction methods for GC-AED applications. Both *short-path thermal desorption*, and *headspace* techniques are valuable alternatives to traditional syringe injections. Look for more information in upcoming newsletters, and at the *AED Session at Pittcon 98* in New Orleans.
- Diablo is also investigating different approaches to combined *GC-AED-MS* and ways to simplify and automate *compound-independent calibration* using the GC-AED.