

Questron's Quest

INNOVATIVE SOLUTIONS FOR ANALYTICAL LABORATORIES

Volume 1: Issue 1

Fall 2009

Questron Tackles Productivity Woes in Analytical Labs

Introducing Vulcan 84 Lab Automation for Sample Preparation & Digestion

Questron Technologies Corp., Canada

Analytical chemists spend a considerable amount of time on sample digestion and preparation for sample analysis. This is a major bottleneck in the overall results-delivery process for the labs where high throughput is involved.

Microwave digestion systems have been in use in analytical labs for the last 20 years, but they come with their own limitations. The time and effort required in preparing the digestion vessels, placing them in the oven and subsequently removing the digested samples for analysis are some of the limitations faced by the user. The number of samples that can be prepared at one time is also an issue faced by labs looking for higher throughput solutions.

Block digestion is another technique that is used in analytical labs for sample preparation. It can be viewed as a multi-sample version of the traditional hotplate. Modern block digesters are electrically heated and they incorporate efficient design, using high quality insulation that maintains desired temperatures. Hot blocks also come with their limitations like uneven heating of samples, involvement of manual labour and exposure to unhealthy environment. They are also prone to quantitative errors in dispensing of reagents and in achieving consistent results.

Many laboratories across the world are facing these limitations. These labs are looking for a true walk-away automated system which can handle multiple samples without contamination, improve productivity and provide freedom to the analysts from manual handling of acids. Labs are looking for a system that addresses tracking and traceability of results and regulatory issues of documentation.



Apart from productivity issues, lab managers have also recognized the need for automation in sample preparation that can save millions of dollars in potential exposure to legal liabilities. Factors such as new environmental regulations and safety of analysts at work have compelled lab managers to look for automated systems, especially where manual handling of acids is involved.

The research and development team at Questron has recognized these issues early on. We have conducted research over several years, soliciting feedback from our customers, business partners, and analytical laboratories across the globe and have developed **Vulcan 84 Automated Digestion and Work-Up Station**.

The R&D team faced several challenges in developing a reliable automated system that could retrofit existing methods and methodologies. The major challenge was precise delivery and handling of acids and reagents that could result in contamination-free digestion. This was overcome by using all plastic material for construction of the system. A built-in fumehood, and Teflon® material on all acid paths took care of this challenge. We also incorporated volumetric syringes for precise reagent delivery.

Vulcan 84 has taken the block digester to the next level by combining the advantages of block digestion and automation capabilities of a computerized workstation.

ABOUT QUESTRON

Questron Technologies Corp. is a Canadian manufacturer of sample preparation equipment for analytical laboratories

Our product line includes:

Microwave Digestion Systems

- > **QLAB 8000**
Computer controlled
- > **QWAVE 4000**
Temperature and pressure control
- > **QWAVE 1000**
Power-based sample digestion

Microwave Ashing System

- > **QAsh 1800**
Computer controlled

Hot Block Digestion

- > **QBlock Digestion System**
with QBlock Commander Quad-Channel Heating Controller

Automated Hot Block Digestion

- > **Vulcan 84**
Automated Digestion and Work-up Station
Computer controlled

The Vulcan 84 software is extremely user friendly. The analyst simply creates a *Recipe* file which contains all information about heating profile of the run as well as reagents and quantities to be delivered. The samples are loaded in the hot blocks as per the *Batch* file, the analyst clicks *Process Batch* and walks away.

Unattended operation, no separate fumehood, contamination-free digestion, error-free reagent addition and sample work-up, freedom from manual handling of acids, and uncompromising safety features make Vulcan 84 an ideal candidate for laboratories processing moderate to large number of samples. Considering the advantages offered by Vulcan 84, it makes sense to many lab managers across the world to have this system in their labs.

The R&D team at Questron works in tune with our philosophy that focuses on building industry-leading automation in sample preparation. Our disciplined approach to product development is always geared towards delivery of reliable solutions. Our vision to create operational efficiency across laboratories compels us to come up with new and innovative automation solutions in line with your expectations.

CALENDAR OF EVENTS

In January 2010, we will be exhibiting at the following conference:

**2010 Winter Conference on
Plasma Spectroscopy
January 04 – 09, 2010**

Booth # 04
Sanibel Harbour Resort & Spa
17260 Harbour Pointe Drive
Fort Myers, FL 33908, USA

Sample Preparation, Treatment and Automation



Questron Technologies Corp.

6725 Millcreek Drive, Unit 7, Mississauga, Ontario L5N 5V3, Canada
Tel: 905-363-1223 Fax: 905-363-1227 E-Mail: info@qtechcorp.com Website: www.qtechcorp.com