Questron's Quest

INNOVATIVE SOLUTIONS FOR ANALYTICAL LABORATORIES

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Leading through productivity – QBlock Digestion System

An ideal solution from Questron for high throughput sample preparation needs

Questron Technologies Corp., Canada

Analytical labs around the world have always been searching for simple and speedy ways to digest their samples for trace metal analysis. Over the years, and with various degrees of success, new techniques have been developed and adopted to speed up the sample preparation process.

Using a hotplate is one of the earlier solutions to this quest. Samples and reagents are heated on a hotplate and maximum reaction temperature is the boiling point of acid mixture at ambient pressure.

Especially in the environmental analysis sector, there are standardized procedures (such as USEPA 3030, 3050, DIN38414 S7 and others) for conventional hotplate digestion. The hotplate is preferred for high sample weight and thus ideal for inhomogeneous solutions. Hotplate however can not handle multiple samples and is not suitable for high throughput.

Hot block digestion is a multi-sample version of hotplate digestion. It allows for multiple samples to be prepared simultaneously. Precise temperature control permits the conditions for the digestion to be optimized, thus providing reproducible results.

Hot block technique has been approved by authorities such as USEPA as suitable means of performing EPA methods such as 200.2, 200.7, 3005, 3010, 3050 A and 3050B, as well as mercury determination methodologies.

The first generation or traditional hot blocks use aluminum or graphite block and incorporate electrical coils for heating it. The temperature controller and display is mounted on to the lower half of the hot block enclosure. The location of the temperature controller makes it very inconvenient and difficult for the lab technicians to access controller buttons. This inherent limitation is due to the fact that temperature controller has to be mounted as far away from the heated surface as possible. As it is mounted on the body of the hot block, temperature controller is always exposed to harsh chemicals during use. This results in frequent breakdowns and costly repairs or even unit replacement.

There has always been a need for a hot block digestion system where temperature controller is totally isolated from the actual hot block. At the same time, the system should provide contamination-free digestion and address the regulatory issues of documentation, and tracking and traceability of results. It should also be able to handle multiple samples to improve productivity.

Robotics and automation are available in the area of sample preparation which can address these pressing issues. But for labs with small to moderate sample volume, automation is not the viable solution. Questron has recognized these limitations early on and has developed QBlock Digestion System – a next generation block digestion system which is expandable and overcomes the limitations of traditional hot blocks.

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Season's Greetings

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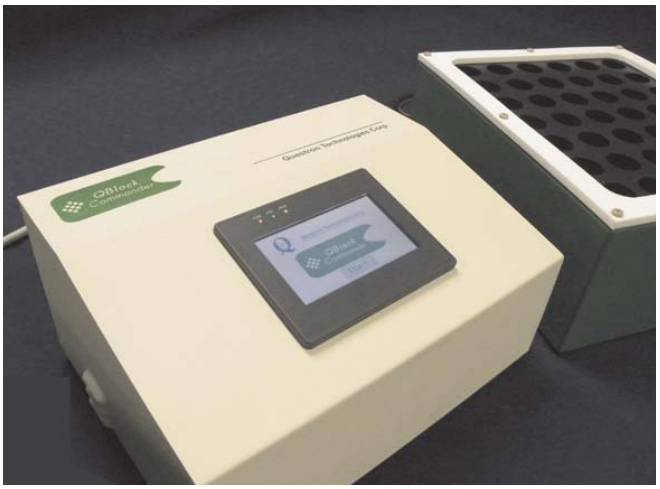
Best Wishes for the New Year

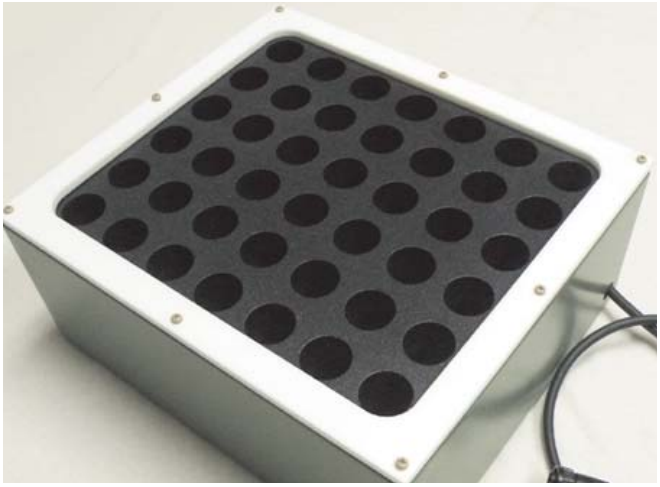
from all of us at Questron



Our QBlock Digestion System consists of QBlock Commander and QBlock Digester. QBlock Commander is a temperature controller with an intuitive user-friendly colour touch-screen display. Lab technicians find it very convenient and easy to use as it is the only temperature controller in the market to which up to 4 hot blocks can be hooked simultaneously and controlled individually. This improves productivity as adequate sample handling capacity allows individual control over diverse group of samples in multiple hot blocks.

QBlock Commander offers the flexibility to the operator to program up to 10 multistep digestion methods, each with diverse parameters, resulting in smaller learning curve and reduced operator errors. Another unique feature is its ability to display temperature profile and digestion recipe parameters in real-time colour graphics. It can even be hooked to a computer via USB enabling the operator to store or back-up digestion programs and actual digestion data.

QBlock Commander can be placed outside the fumehood; away from the hot blocks and corrosive environment. This prevents costly damages to the electronic components and enhances the overall working life of the system.



The QBlock Digester has 42 positions for 50ml vials. The graphite block is encapsulated in high efficiency insulation and enclosed in Teflon® coated exterior box which gives contamination free and repeatable digestions. It is engineered to be thermally secured from five sides allowing minimum heat dissipation. It is the only hot block in the market which reaches adequate temperature for tri-acid digestion.

Many unique features and benefits offered by QBlock Digestion System make it an ideal choice even for small and medium sized laboratories.

Features	Benefits
Four controllers in one	Space saving, expandable for future needs, economical
Controller can be kept outside the fumehood	Long life, convenient, safe operation
Can be hooked to a computer	Storage and backup of digestion programs, documentation of data
Hot blocks thermally secured from five sides	Efficient heating, operator safety

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

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

Open House at Questron

Questron follows the philosophy of strong communication with our customers via our regular newsletters, website, seminars and workshops. These media serve as tools for distributing information about product advancements and give us opportunities to share the concerns regarding quality of result outcome in our customers' labs.

In line with the above philosophy, Questron recently held an open house workshop for customers looking to improve their productivity in sample preparation. This workshop was held at our corporate head office in Mississauga from November 2 to November 13, 2009. The aim of the open house was to create awareness about how Vulcan 84 can reduce the sample preparation cost, improve productivity and save the time of technicians.

Lab managers from across various labs in Ontario witnessed Vulcan 84 in action. Each lab has its unique challenges and pressing issues especially in the present economic environment. Careful analyses of how these factors affect each lab were performed and individual cost recovery studies were conducted considering specific lab conditions.

These open house sessions covered live demos, hands-on and practical operation of the system and customizing the software to specific lab requirements. Samples were run to collect data for accuracy, precision and repeatability and conformance to the stated Vulcan 84 specifications was established.

Judging from the response received, most of the labs found Vulcan 84 to be a practical solution to their sample preparation needs. Overwhelming and positive responses from the participants indicate that labs are gearing up their resources to acquire this technology.

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