



# Spring 2009 Microfocus



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## Dilumat S

The latest addition to our range of gravimetric diluters is the Dilumat<sup>®</sup> S. A central structure houses the tubing for dispensing and a mechanical dispensing arm rotates automatically to the stomacher bag or vessel when the machine is ready to dispense. The arm then rotates away from the sample preparation area to provide more room to work and facilitate the addition of sample. The Dilumat S features an improved pump which is more reliable, easier to clean, and makes loading the tubing a much simpler operation.

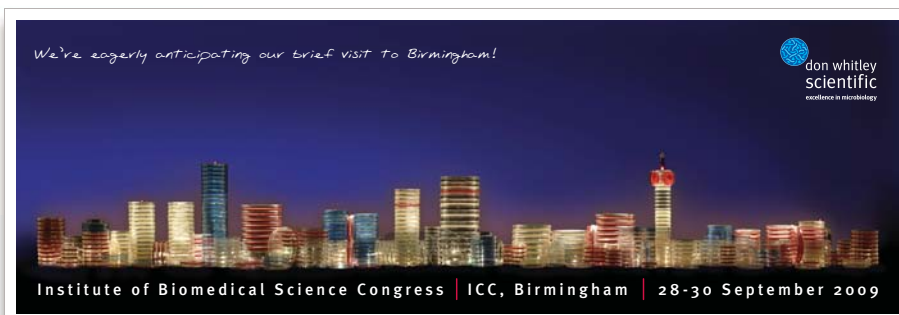


With a capacity of 2.5kg (sample + diluent) the sturdy design allows the equipment to be used for a larger sample volume. The tubing on this model has a larger bore to accommodate a greater amount of diluent in a shorter time, speeding up the whole process whilst retaining a high degree of accuracy. Easy to keep clean and with an icon-driven display to simplify operation, the Dilumat S will quickly become a valuable part of your sample preparation process. It can be connected directly to your LIMS system or used as a stand-alone unit.

## Attending IBMS 2009

The bi-annual IBMS Congress will be held on 28-30 September 2009 at the International Convention Centre, Birmingham. We have booked a substantial exhibition space to launch an exciting new product for the modern microbiology laboratory.

We have a supply of tickets to allow you to pre-register for the event so if you would like to receive one, please email us on [sales@dwscientific.co.uk](mailto:sales@dwscientific.co.uk) with your mailing address. We hope that you will find time to visit our stand **No 419** - and can promise a very exciting new product.



*Some of you may remember this interesting panorama of Birmingham from the 2007 event*

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# People News

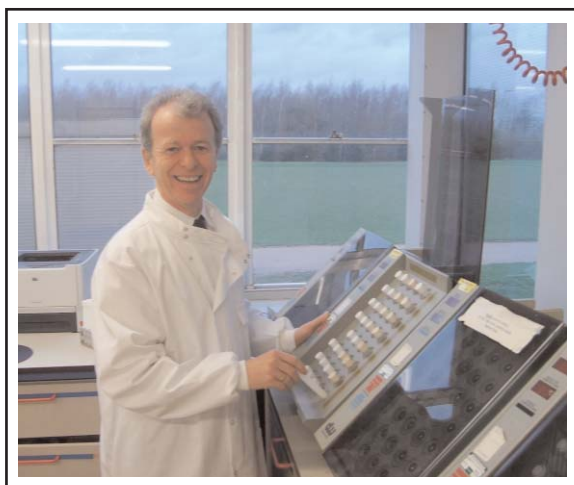
## Samantha Hinchcliffe

Samantha Hinchcliffe, Product Specialist for DWS, is now the proud mother of a little girl, Eve. Stuart Moore was previously our Laboratory Manager and has been looking after Sam's area whilst she is on maternity leave. If your postcode begins with any of the following letters: M, SK, S, DE, NG, WS, B, CV and OX, then contact Stuart.



## Jacqui Key

Jacqui has been promoted to Biomedical Scientist. Jacqui, who works in the laboratory at DWS, has accepted a new role that will involve her in assisting the research and development team creating new, innovative equipment for microbiology and tissue culture applications, with particular emphasis on the Hypoxystation products.



Professor Forsythe

## Steve Forsythe

Nottingham Trent University has appointed Stephen Forsythe as Professor of the School of Science and Technology. Professor Forsythe is a user of the DWS Rapid Automated Bacterial Impedance Technique (RABIT) and is awaiting approval of his report on bacterial preparation of powdered infant formula.

# British Geological Survey uses Whitley VA500 for subsurface transport experiments

We know that Whitley Workstations are used in some very interesting applications, but none quite as unique as the work being conducted at the British Geological Survey (BGS) in Keyworth, Nottingham. Here Patricia Coombs, Laboratory Manager, gives an overview of the research they are conducting and an explanation as to why they are using the Whitley VA.

This project involves landfill and radioactive waste disposal risk assessments with a focus on contaminant transport and is principally concerned with understanding the movement of gas, water and solutes through engineered barriers and natural groundwater systems. However, microbiological activity can impact on transport processes, changing the chemical and physical characteristics of the subsurface environment. Such effects are generally caused by biofilms attached to rock surfaces. This experiment was designed to look at how biofilms, generated by bacteria isolated from a deep geological environment, can influence the flow of groundwater through crushed rock.

BGS set up an experiment using glass columns packed with crushed rock through which is pumped synthetic groundwater that has been inoculated with a population of bacteria known for their biofilm forming properties. The experiment has been running for several months over which time the fluid chemistry and bacterial populations have been monitored. At the end of the experiment the rock material will be extracted and examined for any mineralogical and petrographical observations.

## The VA is Ideal

Previous experiments were carried out in aerobic conditions but the team were interested to see what effect anaerobic conditions might have on the processes previously observed. The Whitley VA Workstation proved ideal for this work as not only does it have the option to vary the gas mix within the chamber but enabled 'free hands' working. Ms Coombs' staff found this feature particularly useful when dealing with very small parts, fittings, etc. Also, easy access into the chamber made sample collecting quick and easy to perform. Ms Coombs added:

"We had a DWS Mark III station from 1989 and upgraded to the VA in 2006. The facility to vary the atmospheric conditions was important for our experimental work as well as a more ergonomic design for improved hands-on working within the chamber."

Prior to using the VA experiments were not able to be as sophisticated as the current experiments. Ms Coombs has used anaerobic gas jars in the past but found that these did not allow the facility of a flow through system.

When asked if using the VA had enabled Ms Coombs to change her working procedures in any way, she explained:

"Yes, it has helped us to develop more complex experiments and provided useful data. We already have more experiments planned using the chamber in the forthcoming months."

The results of this research will hopefully be published later this year.

[www.dwscientific.co.uk](http://www.dwscientific.co.uk)



BGS soil samples inside a Whitley VA500 Workstation.

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# Making Norway's Most Dangerous Sausages!

At Nofima Mat, one of Norway's top food safety research groups, scientists are deliberately making cured sausage with enough bacteria to kill thousands of people. They enjoy the blessing of the entire Norwegian meat industry and are using a DWS WASP spiral plater to aid their work.

This research project is funded by a combination of public money and industry sources to determine how to produce safer cured sausages. About 50 cured sausages containing dangerous *E. coli* bacteria, specifically enterohemorrhagic *E. coli* (EHEC) are produced in each batch.

## How does *E. coli* survive?

The FermSafe research project has been going on since the winter of 2007. "During the first phase there was a lot to get into place. When we were building up the lab, we had to obtain the equipment and test it out, as well as finding suitable methods. It probably took more time than we thought it would, but it was very important," explains researcher Even Heir.

The process of making cured sausage is complicated and many factors affect quality and safety. "For this reason we have tried to take a broad approach to finding out what could give us safer cured sausages. We made many trials in order to investigate the factors that affect the ability of dangerous *E. coli* to survive, both during the process and in the sausages themselves after they have been made," explains Heir.

## High pressure may provide the answer

The researchers investigated which factors had the greatest significance. The effects of different quantities of salt, nitrite and sugar and of different fermentation temperatures were all tested.

"The method was important because our capacity for making *E. coli* sausages is limited. We have just finished a batch, part of which will be sent to Spain for high pressure treatment. It will be exciting to see whether this technique will be as effective in killing *E. coli* as we hope. We have also carried out initial trials using heat treatment and storage, to see how *E. coli* survives in the sausages," explains the researcher.

Adapted from an article written by Marit Haugdahl and published on the Nofima website: [www.nofima.no/mat](http://www.nofima.no/mat)



Annette Wold Åsli proudly displays the Whitley Automatic Spiral Plater.



## VERY DANGEROUS SAUSAGES!

"What conclusions can you draw so far?"

"Both process and ingredient parameters affect how safe the sausages are. Sausages with a high level of nitrite, salt and sugar develop less *E. coli*. How sausages are stored after manufacture has an effect. We must also test how the combination of the different parameters can be optimised," says Even Heir.

"What has the biggest challenge been?"

"There have been many of them! Nobody has ever made sausages as dangerous as these before - at least not in Norway. That sets especially strict requirements for good routines and planning all activities," says Heir. Very many factors affect how safe the sausages are.

"The biggest challenge of all is to combine these in the right way," says the researcher.

# The Heart of Production at ALcontrol Laboratories

ALcontrol Laboratories are in the business of food and environmental contract microbiology. With over 2000 trained staff, they operate in 10 European countries and are expanding to take their services into new markets.

Each of the ALcontrol food laboratories is self-sufficient in media production allowing them greater flexibility and a greater focus on efficiency and cost control. They find that this allows a relevant and tracked response in terms of required media for their widely fluctuating workloads.

The Rotherham site currently processes around 10,000 samples each week and the media department is a fundamental part of the company's activities. As such, the processes of media production has gradually undergone automation where possible, significantly increasing media production to meet this extensive demand.

## Increased Capacity

Ann Hammer, Sales Support Manager at ALcontrol, comments, "Since the re-location to Aspen Court, Rotherham our media department has over five times the space of 10 years ago when our capacity was around 2,500 samples per week. We have doubled the number of autoclaves, which now run for longer, and have progressed from storage of media in fridges to a large walk-in cold store.

"A major force in the increase in media capacity was the investment made in robust and reliable preparation and pouring equipment from Don Whitley Scientific. Using their media preparators we have increased our production from 100 litres per week to 56 litres per day – an expansion of 180%! The equipment prepares, sterilises and cools in around one hour. Plates are then filled using a pourer stacker taking a further 40 minutes. Without this automation the equivalent process would take around 4 hours."

Not only is the total time taken reduced, a major advantage of the machinery is that technicians are then free to concentrate on other tasks. Weighing out one batch of media powder per 8 litre run (as opposed to each 1 litre bottle as in previous years) greatly improves accuracy and consistency.

## A Growing Demand

ALcontrol's growing demand for large volumes of liquid agar is met with a large volume media preparator and, along with the PM05 dispenser, this makes a significant difference to the department. 18 litres can be produced in around 1 hour and dispensed with ease. The dispenser ensures a consistent and representative volume. Using a dispenser for small volume tubes means that entire racks of tubes used for serial dilutions can be dispensed quickly and accurately; a vast advance on a hand pump!

Jonathan Naylor, Media Analyst, added, "The equipment has afforded us improved efficiency, quality and more streamlined working; and perhaps more importantly, both UKAS and our customers have positively recognised the improvement this has made to the quality of our media."

Masterclave 09



APS320



PM05



For more information on our media preparators (capacities from 9 to 133 litres), pourer stackers, and the PM05 peristaltic pump, please contact your sales representative or call us on 01274 595728.

# Hypoxystation proves its worth

Dr Roger Phillips at Bradford University has been using a Hypoxystation for six months in his work at the Institute of Cancer Therapeutics. When we asked him how the workstation was helping him to conduct his research on proteins and how hypoxia influences gene expression, he had some positive feedback on the Hypoxystation.

Dr Phillips researches tumour hypoxia and the biological and therapeutic aspects associated with it, looking at drugs that are designed to be activated under low oxygen tension. He has been able to conduct research in the past using the Whitley VA500 Workstation but the Hypoxystation can control and regulate the oxygen tension at a defined level.

“Without tightly controlled oxygen tension, experimental design is not as robust as it should be. The Hypoxystation opens up more experiments to us and gives us confidence in the data generated,” commented Dr Phillips.

When asked about the particular features of the Hypoxystation, Dr Phillips was particularly impressed with the touch screen control panel, which makes the workstation very easy to use. He was also pleased with the built in security that allows access to be controlled and the fact that the equipment is well designed and robust.

The Hypoxystation has even enabled Dr Phillips to move into a new field of research, Autophagy (related to hypoxia and cell stress) - a move further into pre-clinical research.



## 2009 EXHIBITION / CONFERENCE DATES

Don Whitley Scientific has already confirmed attendance at the following exhibitions / conferences. If you are visiting any of these events, come to our stand for the latest news on our product range.

Log on to:  
[www.dwscientific.co.uk](http://www.dwscientific.co.uk)  
for continuously updated exhibition information.

- SfAM Spring Meeting, 22 April, Aston University, Birmingham
- BSMT 24th Annual Scientific Meeting, 8 May, Colindale, London
- Rapid and Alternative Microbiology Methods Meeting, 4 June, Chipping Campden
- Pan-Celtic Microbiology Meeting, 5-7 June, Angel Hotel, Cardiff
- Association of Radiation Research Annual Meeting, 22-24 June, Glasgow University
- SfAM Summer Conference, 7 July, Manchester Metropolitan University
- BACR/EACR Symposium, 7-9 July, Churchill College, Cambridge
- Society for General Microbiology Autumn Meeting, 7-10 September, Heriot-Watt University, Edinburgh
- IBMS 2009, 28-30 September, International Convention Centre, Birmingham
- Biotechnica 2009, 7-9 October, Hannover

For more information on any of the products featured in this newsletter, please contact us:

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