



The UK Guide to Environmental Monitoring and Instrumentation

CONTAINS NO
CHLOROFLUOR
CARBON
PROPELLANT
ALLEGED TO
DAMAGE THE
OZONE LAYER

The UK Guide to Environmental Monitoring and Instrumentation

Part of the Environmental Monitoring,
Instrumentation and Analysis sub-sector.

This brochure has been produced by Gambica and the Source Testing Association and UK Trade & Investment's Environmental Industries Sector Unit (EISU).

Whilst every care has been taken in the production of this guide, EISU, Gambica and the Source Testing Association cannot be held responsible for any errors or omissions; nor does inclusion of any company in this guide constitute any form of approval or endorsement. The information on specific companies has been provided by the companies themselves and therefore the views and judgments expressed in this publication do not necessarily reflect those of EISU, Gambica and the Source Testing Association.

Front and back cover photographs supplied by Tim Collins

UK TRADE & INVESTMENT'S ENVIRONMENTAL INDUSTRIES SECTOR UNIT (EISU)

UK Trade & Investment's Environmental Industries Sector Unit (EISU) has the responsibility for promoting and developing the UK environmental industry overseas. It emerged from the former Joint Environmental Markets Unit (JEMU), a joint venture between the Departments of Environment, Food and Rural Affairs (Defra) and Trade and Industry (DTI), at the end of March 2004.

EISU's prime objective is to increase the UK's share of the global market for Environmental Goods and Services (EGS) through support of the sector. This is achieved through a range of activities that promote the UK environmental sector. Through such support, EISU aims to enhance the international competitiveness of UK industry.

EISU also has responsibility for the management of the Technology Partnership Initiative (TPI). TPI is the Government's response to calls from the developing nations for better access to information on environmental technologies from the industrialised world. It provides information on UK environmental solutions to businesses in rapidly industrialising and developing countries.

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Further information about EISU and TPI can be found at www.eisu.org.uk/tpi

UK TRADE & INVESTMENT

UK Trade & Investment is the government organisation that supports companies in the UK doing business internationally and overseas enterprises seeking to set up or expand in the UK. It brings together the work of the Foreign and Commonwealth Office (FCO) and the Department of Trade and Industry (DTI).

With commercial teams based in offices around the world, and a network of specialists throughout the UK, we are uniquely positioned to help your business across national boundaries.

For further information please visit www.uktradeinvest.gov.uk

THE SOURCE TESTING ASSOCIATION



The Source Testing Association (STA) was established in 1995 and has a corporate membership of approximately 200 companies including process operators, regulators, equipment suppliers and test laboratories.

The STA is committed to the advancement of the science and practice of emission monitoring and to develop and maintain a high quality of service to customers.

Its aims and objectives are to:

- (i) contribute to the development of industry standards, codes, safety procedures and operating principles;
- (ii) encourage the personal and professional development of practising source testers and students;
- (iii) maintain a body of current sampling knowledge;
- (iv) assist in maintenance of a high level of ethical conduct;
- (v) seek co-operative endeavours with other professional organisations, institutions and regulatory bodies, nationally and internationally, that are engaged in source emissions testing.

The Associations headquarters are based in Hitchin, Hertfordshire where they have meeting rooms, library and administration offices.

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DEFRA

The core purpose of the UK Department of Environment, Food and Rural Affairs (Defra) is to improve the current and future quality-of-life.

For the first time one department has brought together the interests of farmers and the countryside; the environment and the rural economy; the food we eat, the air we breathe and the water we drink. This is achieved by integrating environmental, social and economic objectives – putting sustainable development into practice every day, and by championing sustainable development as the way forward for Government.

Defra's aim is to protect and improve the environment, and to integrate the environment with other policies across Government and in international fora. Effective protection of the environment requires activity on many different wide-ranging fronts – for example, from acting to limit global environmental threats (such as global warming) to safeguarding individuals from the effects of poor air quality or toxic chemicals.

Example:

For example, in Defra the importance of monitoring and instrumentation for industrial pollution control has two aspects. On the regulatory side, the Environment Agency and local authority regulators need accurate evidence that emission limit values are being met. Guidance that is issued to them or by them aims to ensure that fit-for-purpose equipment is installed and (crucially) maintained for this purpose. But industry should itself take up the challenge of minimising its environmental footprint, and of developing ways of achieving sustainable consumption and production. Measurement of these impacts is an essential part of Defra's remit.

UK expertise:

The UK has a world-class lead in the field of environmental consultancy, greenhouse gas abatement markets and environmental and emissions monitoring equipment. This is because the UK is an early adopter and enforcer of legislation and so moves faster up the learning curve than its international competitors. The UK also adopts a pragmatic approach to product certification schemes, which produces user confidence and does not hinder innovation. The UK also has a good track record in producing Guidance notes on interpretation of and how to implement legislation, which other countries adopt for their own uses.

The UK is a world leader in developing innovative, market friendly and effective approaches to achieving environmental improvements. The UK has successfully involved the private sector in the water, waste management, land remediation, energy and renewables markets in order to achieve our environmental goals.

THE ENVIRONMENT AGENCY'S MCERTS SCHEME



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Setting the Standards

MCERTS is the Environment Agency's Monitoring Certification Scheme for instruments and monitoring and analytical services. The scheme provides industry with a framework for choosing monitoring systems and services for regulatory monitoring that meet our performance specifications.

MCERTS covers:

- continuous emissions monitoring systems (CEMs) and portable stack-monitoring equipment
- continuous ambient air-quality monitoring systems (CAMs)
- automatic isokinetic sampling systems for particulates, dioxins etc
- manual stack emission monitoring
- sampling equipment and water monitoring instruments, including portable equipment
- inspection of operators' effluent flow arrangements
- chemical testing of soil
- direct toxicity assessment (DTA).

We plan to extend MCERTS to software validation over the next few months.

MCERTS consists of three main components:

- the MCERTS performance standards
- product, personnel and site certification schemes operated by Sira Environmental Ltd
- accreditation of laboratories by the United Kingdom Accreditation Service (UKAS).

Further information about the schemes can be found at the Environment Agency's web site at www.mcerts.net



GAMBICA is the UK Association for Instrumentation, Control, Automation and Laboratory Technology.

The Association's primary objective is to further the successful development of the industry and to promote the competitiveness and profitability of member companies.

The scope of the Association covers five principal sectors within the industry:

- industrial automation
- process measurement & control
- environmental analysis and monitoring equipment
- laboratory technology
- test and measurement equipment

Within these sectors the Association works in many areas to ensure that members are informed on issues that will affect their businesses and that the industry is able to influence market growth and development.

Some of the Association activities:

- Members play a key role in the preparation of UK, EU and International standards.
- EU issues (Directives & regulations) are addressed through the Association's membership of ORGALIME, the European federation of major trade associations, and by working with various UK government departments.
- GAMBICA helps members' development of international business, with help from UKTI, through trade shows, trade missions, market research, trade guides etc
- The Association also produces market data, forecasts and trends, both for the UK and international markets

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This guide aims to provide an overview of UK capabilities in the environmental monitoring and instrumentation sector. It focuses on the companies active in this market – including manufacturers and exporters. It identifies the technologies, standards and services they provide. The 60 companies range from large, multidisciplinary and long-established businesses to small specialist companies.

Each company has its own brief profile detailing its background in the sector, areas of expertise, and contact details with web address. Where a company has more than one office, the head office details are given, or the relevant regional office. Case studies are also included to illustrate some of the technologies being provided by the UK companies. Each company is also listed with a key denoting its capabilities, as follows:



Also, for ease of reference, the capabilities, expertise and industry experience of each company have been summarised in two matrices – a Capabilities Index (pages 14-27) and an Industries Served Index (pages 28-35)

CAPABILITIES SERVED INDEX

This index gives a comprehensive list of monitoring, instrumentation and standards directly provided by each company.

INDUSTRIES SERVED INDEX

This index includes an extensive list of main industry categories served by the companies. It was felt that such a comprehensive list would be useful because many of the processes, materials and wastes associated with the individual industries are unique, so it would allow companies or site owners looking for specific expertise to know that they will be able to contact a company with appropriate capabilities.

For further information on companies in the UK Environmental Monitoring and Instrumentation industry, please contact either GAMBICA or The Source Test Association.

DISCLAIMER

While all efforts have been made to achieve accuracy in the compilation of this guide, the EISU/UK Trade & Investment, GAMBICA and STA can give no assurance that the information supplied in this document is accurate or complete for your purposes, and no legal responsibility is accepted for any errors, omissions or misleading statements in the information.

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Soil

Laboratory	A1 ENVIROSCIENCES	ADAM EQUIPMENT	BIOCHROM	CARBOLITE	CECIL INSTRUMENTS LTD	CYBERSENSE	ELEMENTAL MICROANALYSIS	HIDDEN ANALYTICAL
Sample preparation equipment		•				•		
Microbiological testing equipment						•		
Metals (not by ASS/ICP)					•	•		
Dioxins	•				•	•		
PCBs	•				•	•		
PAHs	•				•	•		
Total Nitrogen	•				•	•	•	
Total Carbon	•					•	•	
Turbidity	•		•			•		
Other Inorganics, e.g. Chlorine	•				•	•		
BOD	•					•		
COD	•				•	•		
TOC	•					•		
NH ³ /Nitrates	•				•	•		
Conductivity Meters &/or Cells	•		•			•		
pH Meters and electrodes	•		•			•		
Ion Selective electrodes	•					•		
Colourimeters	•		•			•		
Spectrophotometers			•		•	•		
Mass Spectrometers						•		•
HPLC	•				•	•		
Ion Chromatographs					•	•		
Gas Chromotographs						•		
AAS/ICP	•					•		
Other				•		•		
Portable								
Microbiological						•		
Metals (not by AAS/ICP)						•		
Metals by XRF						•		
Dioxins						•		
PCBs						•		
PAHs						•		
Total Nitrogen								

LABMEDICS LTD.	LOGITECH	MECMESIN	MTI DIAGNOSTICS	PALINTEST	PEAK SCIENTIFIC INSTRUMENTS	PS ANALYTICAL	REACT SCIENTIFIC	SEAL ANALYTICAL	SENTEK LTD.	SHERWOOD SCIENTIFIC	SIRIUS ANALYTICAL	SYNBIOSIS	THERMO ELECTRON	VSL MICROANALYSIS	WHATMAN INTERNATIONAL LTD.
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Soil (continued)

Portable (continued)							
Total Carbon							
Turbidity			•				
Other Inorganics					•		
TOC							
NH ³ /Nitrates							
Conductivity Meters &/or Cells			•				
pH Meters and electrodes			•				
Ion Selective electrodes					•		
Colourimeters			•		•		
Spectrophotometers					•		
Gas Chromotographs							
Other				•	•		
Standards							
For all Applications				•		•	

LABMEDICS LTD.	LOGITECH	MECMESIN	MTI DIAGNOSTICS	PALINTEST	PEAK SCIENTIFIC INSTRUMENTS	PS ANALYTICAL	REACT SCIENTIFIC	SEAL ANALYTICAL	SENTEK LTD.	SHERWOOD SCIENTIFIC	SIRIUS ANALYTICAL	SYNBIOSIS	THERMO ELECTRON	VSL MICROANALYSIS	WHATMAN INTERNATIONAL LTD.
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Water

Laboratory									
Sample preparation equipment						•		•	
Automated liquid handling									
Microbiological testing equipment					•				
Metals (not by AAS/ICP)	•				•	•			
Dioxins	•				•	•			
PCBs	•				•	•	•		
PAHs	•				•		•		
Total Nitrogen	•	•			•		•		
Total Carbon	•						•		
Turbidity	•	•	•			•	•		•
Other Inorganics eg. Chlorine	•	•			•	•	•		
BOD	•						•		
COD	•				•		•		
TOC	•						•		
NH ³ /Nitrates	•	•			•	•	•		
Conductivity Meters &/or Cells	•	•	•			•	•		
pH Meters and electrodes	•	•	•			•	•		
Ion Selective electrodes	•	•					•		
Colourimeters		•	•				•		
Spectrophotometers			•		•	•	•		
Mass Spectrometers							•		
HPLC					•	•	•		
Ion Chromatographs					•		•		
Gas Chromatographs							•		
AAS/ICP							•		
Other				•			•	•	
Process									
Microbiological						•			
Metals									
Dioxins									
PCBs									
PAHs									
Total Nitrogen		•							
Total Carbon									
Turbidity		•							•
Other Inorganics		•							
BOD									
COD									
TOC									
NH ³ /Nitrates		•							

[illegible]

Water (continued)

[illegible][illegible]

Air

Air	Air Quality Monitoring											
	A1 ENVIROSCIENCES	A1 SAFETECH	ALPHA SENSE	CASELLA	CBISS	CECIL INSTRUMENTS LTD	CODEL INTERNATIONAL	COPLEY SCIENTIFIC LTD.	DATA-LOOP	DYNOPTIC SERVICES LTD.	ENVIRONMENTAL TECHNOLOGY SERVICES PLC.	ENVIRONMENTAL MEASUREMENTS
Gas sampling & conditioning												
Probes		•			•		•				•	
Hether sample transfer lines					•		•				•	
Sample conditioning systems					•							
Wet chemical analysis sampling trains	•											
Optical Analysers												
N.D.I.R.	•		•				•		•		•	
Gas filter correlation I.R							•				•	
Duct insertion I.R.							•					
Cross-duct I.R.							•				•	
Dispersive I.R.	•											
F.T.I.R.	•											
Photoacoustic systems	•											
Duct Insertion UV												
U.V./visible absorption						•						
U.V. fluorescence											•	
Chemiluminescence	•								•		•	
Crossduct U.V./visible											•	
Colorimetry	•					•						
Oxygen												
Zirconia probe									•		•	
Paramagnetic									•			
Electrochemical cells	•	•	•		•				•			
GC/FID/PID												
On-line process GC											•	
Off-line GC												
FID (Flame ionization detectors)					•				•		•	
PID (Photo ionization detectors)	•		•	•	•						•	
Spectrometry												
Mass Spectrometry												
Ion Mobility spectrometer								•				

[illegible]

Air (continued)

	A1 ENVIROSCIENCES	A1 SAFETECH	ALPHASENSE	CASELLA	CBISS	CECIL INSTRUMENTS LTD	CODEL INTERNATIONAL	COPLEY SCIENTIFIC LTD.	DATA-LOOP	DYNOPTIC SERVICES LTD.	ENVIRONMENTAL TECHNOLOGY SERVICES PLC.	ENVIRONMENTAL MEASUREMENTS
Particles												
Sampling trains											•	
Continuous monitors									•	•	•	
Size selective samplers	•							•				
Calibration gases												
General mixtures – e.g. SO ² , NO _x , CO, O ² etc.	•			•								
TOC control gas to BS EN12619	•											
Special mixtures, e.g. HCl, mercury etc.	•			•								
UKAS accreditation				•	•							
Ambient air quality monitoring	•	•		•	•			•	•		•	•
MCERTS-approved equipment supplier	•			•	•						•	
Other												
Data Acquisition												
Measure and control moisture levels in products												
Monitor various weather parameters												

ENVIROSOFT LTD.	ETR UNIDATA	GEOTECHNICAL INSTRUMENTS	HIDEN ANALYTICAL	KANE INTERNATIONAL	KORE TECHNOLOGY LTD.	LAB IMPEX SYSTEMS	LAND INSTRUMENTS INTERNATIONAL	NDC INFRARED	PCME	PROCAL ANALYTICS	PS ANALYTICAL	SERVOMEX	SHAW MOISTURE METERS	SIGNAL GROUP LTD.	SKYE INSTRUMENTS	SYSTECH INSTRUMENTS	WESTECH INSTRUMENTS	WHATMAN INTERNATIONAL LTD.
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								•									•	
															•			

Standards

Standards	A1 ENVIROSCIENCE	ABB	CECIL INSTRUMENTS LTD	CHELSEA TECHNOLOGY GROUP	ELEMENTAL MICROANALYSIS	ENVIRONMENTAL TECHNOLOGY	GRADE PACKAGING	KANE INTERNATIONAL
Water		•		•			•	
Soil/Land					•			
Air				•		•		•
Primary Reference Grade	•							
Secondary Grade					•			
Other Grade	•		•		•		•	

LAND INSTRUMENTS INTERNATIONAL	LGC PROMOCHEM	MECMESIN	MTI DIAGNOSTICS	PALINTEST	PCME	PEAK SCIENTIFIC INSTRUMENTS	SHAW MOISTURE METERS	VSL MICROANALYSIS	WHATMAN INTERNATIONAL LTD.
	•		•	•	•			•	•
•	•		•	•			•	•	•
	•						•		
	•		•				•		
	•	•				•			

Soil											
Government	•			•		•	•			•	
Chemical	•			•		•	•			•	
Petrochemical	•			•		•	•			•	
Printing and laminating	•			•						•	
Electronics	•			•			•			•	
Paints and Coatings	•					•	•			•	
Pharmaceutical	•			•		•	•			•	
Pesticides & Fertilisers	•					•				•	
Paper & pulp	•			•						•	
Cement				•		•	•			•	
Powerplant	•						•			•	
Transportation	•									•	
Mining	•					•				•	
Contaminated Land & Remediation										•	
Landfill										•	
Sewage works & Farms	•			•		•				•	
Municipal inc. waste										•	
Marine						•				•	
Food & Agriculture	•			•		•	•			•	
Factory & other workspace	•			•		•	•			•	
Water											
Government	•			•		•	•			•	•
Water Utilities	•		•			•				•	•
Chemical Inorganic			•	•		•	•			•	
Chemical Organic			•	•		•	•			•	
Pharmaceutical	•		•	•		•	•			•	•
Pesticides & Fertilisers	•					•				•	
Electronics	•			•			•			•	•
Transportation	•									•	
Cement			•	•		•	•			•	
Mining	•		•			•				•	
Food	•		•	•		•				•	•
Paper & pulp	•		•	•						•	

[illegible]

Industries A-K
(continued)

	A1 SAFETECH	A1 ENVIROSCIENCE	ABB	ADAM EQUIPMENT	ALPHASENSE	BIOCHROM	CARBOLITE	CASELLA	CBISS	CECIL INSTRUMENTS LTD	CHELSEA TECHNOLOGY GROUP
Water (continued)											
Power plant		•	•							•	
Petrochem		•	•	•		•	•			•	
Contaminated Land & Remediation										•	
Landfill										•	
Waste water		•	•			•				•	•
Clean water		•	•			•				•	•
Marine						•				•	•
Factory & other workspace		•	•	•		•				•	
Air											
Government	•	•		•	•		•	•	•	•	
Chemical	•	•		•	•		•	•	•	•	
Printing and laminating	•	•		•				•	•	•	
Electronics	•	•		•	•		•	•		•	
Paints and Coatings	•	•						•	•	•	
Pharmaceutical	•	•		•			•	•	•	•	
Paper & pulp	•	•		•	•			•		•	
Cement	•			•			•	•	•	•	
Power plant	•	•					•	•	•	•	
Municipal, inc. waste incineration	•							•	•	•	
Fertilizers	•	•						•		•	
Traffic vehicle	•	•						•	•	•	
Transportation (marine, aerospace etc.)	•	•			•		•	•	•	•	
Food	•	•		•			•	•	•	•	
Remedation	•							•	•	•	
Landfill	•				•			•	•	•	
Mining	•	•			•			•	•	•	
Offices	•	•		•						•	
Dwellings		•								•	
Factory & other workspace	•	•		•	•		•	•	•	•	

	CODEL INTERNATIONAL	COPLEY SCIENTIFIC LTD.	CYBERSENSE	DATA-LOOP	DYNOPTIC SERVICES LTD.	ELEMENTAL MICROANALYSIS	ELSTER METERING LTD	ENDECOTTS	ENVIRONMENTAL TECHNOLOGY SERVICES PLC.	ENVIRONMENTAL MEASUREMENTS	ENVIROSOFT LTD.	ETR UNIDATA	FLOWENTIX	GEOTECHNICAL INSTRUMENTS	GRADE PACKAGING	HIDDEN ANALYTICAL	KANE INTERNATIONAL	KORE TECHNOLOGY LTD.	KROHNE LTD.
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Soil												
Government			•		•	•		•	•			•
Chemical			•		•	•			•			•
Petrochemical			•		•	•						•
Printing and laminating					•							
Electronics						•			•			
Paints & Coatings					•	•						
Pharmaceutical			•		•	•		•				
Pesticides & Fertilisers			•		•							
Paper & pulp								•				
Cement					•	•		•				
Powerplant			•			•						
Transportation						•						
Mining					•	•		•	•			
Contaminated Land & Remediation			•		•	•			•			
Landfill			•		•							
Sewage works & Farms			•		•							
Municipal, inc. waste			•		•							
Marine			•		•							
Food & Agriculture			•		•						•	•
Factory & other workspace					•	•						
Water												
Government			•		•		•	•	•		•	•
Water Utilities			•		•		•		•		•	•
Chemical Inorganic			•		•				•		•	
Chemical Organic					•						•	
Pharmaceutical			•		•		•	•		•	•	
Pesticides & Fertilisers			•		•						•	
Electronics					•	•	•	•	•			•
Transportation												
Cement					•	•	•	•		•		•
Mining					•		•	•	•	•		
Food			•		•		•	•		•	•	
Paper & pulp					•		•	•		•	•	

PEAK SCIENTIFIC INSTRUMENTS									
PROCAL ANALYTICS									
PULSAR PROCESS MEASUREMENT									
REACT SCIENTIFIC									
SEAL ANALYTICAL									
SENTEK LIMITED									
SERVOMEX									
SHAW MOISTURE METERS									
SHERWOOD SCIENTIFIC									
SIGNAL GROUP LTD.									
SIRIUS ANALYTICAL									
SKYE INSTRUMENTS									
SYNBIOSIS									
SYSTECH INSTRUMENTS									
THERMO ELECTRON									
VSL MICROANALYSIS									
WAGTECH									
WESTECH INSTRUMENTS									
WHATMAN INTERNATIONAL LTD.									

COMPANY PROFILES

A1 SAFETECH



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Provider of environmental and specialist low-level gas analysers.

Simple-to-use gas detection kits for general safety and environmental monitors, plus specialist low-level analysers for toxic gases including isocyanates, hydranzines, ozone, formaldehyde, vikane and velcroin.

A1-ENVIROSCIENCES



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As leading suppliers to the European scientific community, the A1-Envirosciences group provide a unique range of first-class Environmental Monitoring Instrumentation to the Pharmaceutical, Environmental, Petrochemical, Chemical and Electricity industries. The portfolio comprises both off-the-shelf and customised analytical solutions for chemical analysis, gas detection equipment for the measurement of hazardous gases, and laboratory containment enclosures for powder handling applications.

The high-precision instrumentation for chemical analysis offers efficient, reliable analysis for specialised applications including Karl Fischer, Elemental Analysis, TOC Analysis, Automation and Titration and Sample Preparation for the measurement of specific elements in liquids, solids and gases.

The portable and bench mounted containment systems include weighing enclosures for sensitive analytical balances, automation equipment enclosures, titration and pipetting enclosures and biological safety cabinets.

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ADAM EQUIPMENT
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Adam Equipment has more than thirty years' experience in the production and sale of electronic weighing equipment. The balances and scales are manufactured, supplied and serviced from locations in the UK, USA, South Africa and Australia, and distributed through worldwide distributor network. Adam Equipment and their distributors offer a full range of technical services such as on site and workshop repair, preventive maintenance and calibration facilities.

The products are predominantly designed for the laboratory, industrial, educational, medical and retail markets. A wide range of products are offered to enable the user to select the most suitable balance in terms of specifications and price. The company operates an approved quality management system and is certified to ISO 9001:2000.

ALPHASENSE LIMITED



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Alphasense is an independent Sensor Manufacturing and Technology Company, founded in response to an overwhelming demand from gas detection OEMs for better quality gas sensors, a higher level of support and a viable alternative to existing suppliers.

We manufacture a range of Electrochemical Oxygen and Toxic Gas Sensors to our own unique design and plug-in replacements for other brands. Our sensors carry a no-leak guarantee, along with computerised bar-code tracking. Further product releases, some utilising alternative technologies, are under development.

Alphasense has invested heavily in state-of-the-art automation and process equipment to ensure that sensors are produced and validated in volume to tight specifications. We use Kanban and Cellular Manufacturing Techniques to ensure we deliver the right quality of product, when you want it. Our manufacturing and design operations comply with ISO 9001:2000.

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Biochrom Ltd is a UK manufacturer of spectrophotometers and other scientific instruments. For 40 years, the company has been at the cutting edge of developments in spectrophotometry. Today's brands include the Libra range of visible and UV/visible spectrophotometers for industrial and environmental laboratories, the WPA range of colorimeters and spectrophotometers for education and the life sciences, and the Ultrospec and GeneQuant products sold under the GE Healthcare (Amersham) name. Other product lines include the famous Bio30 amino acid analyser. Today, Biochrom Ltd is at the heart of the Biochrom Group, which includes companies such as Scie-Plas, Asys Hitech, Anthos and Hoefer, offering a wide range of electrophoresis and microplate handling products.

Biochrom sells all its products worldwide, through a growing network of committed distributors.

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Carbolite is a world-leading manufacturer and supplier of laboratory and industrial chamber and tube furnaces, ovens and incubators.

The extensive portfolio offered by Carbolite includes both laboratory chamber furnaces and tube furnaces to 1800°C. Tube furnaces are available as single or multi-zone, horizontal/vertical, split and rotating models. A wide variety of tube diameters and heated lengths is available. Chamber furnaces are available in many sizes and models including high temperature furnaces, ashing/calcining furnaces, microwave-assisted furnaces, furnaces for the analysis of coal & coke and precious metals evaluation furnaces.

In addition to the range of electric laboratory furnaces and ovens, Carbolite also offers an extensive range of pilot plant and industrial furnaces and industrial ovens for various heat treatment applications. Product ranges include: mesh belt furnaces, roller hearth furnaces, rotary hearth furnaces, top-loading furnaces, top hat furnaces, blade strip hardening furnaces and elevator hearth furnaces.

CASELLA
MEASUREMENTS



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UK-based Casella CEL is a renowned leader in the development, manufacture and supply of industrial hygiene, occupational health and environmental monitoring instrumentation to governments, commerce and industry worldwide. The UK company draws on 200 years of experience and is committed to an extensive programme of ongoing development to meet clients' needs.

Casella CEL boasts an extensive range of environmental monitoring instrumentation, which is manufactured at the head office in Bedford, UK. The range includes real-time dust and noise monitors, indoor air quality monitors, meteorological equipment and environmental enclosures for PM10 and PM2.5 monitoring.

CASE STUDY

EVERYBODY AT THE
EDEN PROJECT BENEFITS
FROM CEL TECHNOLOGY



Visitors to the £100million Eden project in Cornwall, the staff who work there and the people living nearby are all benefiting from state of the art noise measurement technology from Casella CEL.

The project's Technical Services Team has taken delivery of a CEL-490 sound monitor - and trained its Environmental Monitoring Technician Steve Nicholls in its use - to undertake monitoring in a variety of locations where excessive noise has been, or could be, a problem.

The equipment has been successfully used in the ticketing hall where the noise created by the sheer volume of visitors, together with sounds from various exhibits within the acoustically-poor building, have been identified, resulting in the effective positioning of acoustic screens.

As the Project has progressed from its horticultural and botanical beginnings to a greatly enhanced facility catering for widely differing events, the CEL 490 has demonstrated its versatility. It has recently confirmed that noise levels produced by pop and rock concerts held in the "Pit" open air arena are not intrusive to residents living less than 500 metres away, while in the coming months the instrument will be used to ensure that sculpting

CASE STUDY

CASELLA MEASUREMENTS

work on a 100-ton piece of Cornish granite that is to form the centrepiece on a new educational resource centre will remain within acceptable acoustic levels.

Steve Nicholls comments: "Having carried out a cost benefit analysis that concluded that the purchase of the equipment and the subsequent training would be financially more prudent than ongoing employment of acoustics consultants, we have been making more and more use of the CEL490."

With its emphasis on environmental monitoring, the CEL 490 real time frequency analyser has a single measurement range of 140Db, effectively removing the most common cause of measurement errors, range adjustments.

A simple point and shoot operation measures all necessary statistical parameters, even in frequency modes, produces a time history of the noise levels at a selectable time interval down to 10millisecond if required, so reducing analysis time.

CONTINUOUS HYDROGEN FLUORIDE MONITORING IN THE BRICK MANUFACTURING INDUSTRY.

Background

The Problem

For compliance with EC and UK legislation all manufacturers of heavy clay goods in the UK must ensure that the emissions to atmosphere of fluorides to the kiln firing process are below 10 mgm-3.

The ceramics industry has developed several strategies to reduce the levels of fluorides emitted to atmosphere, including the adjustment of burner setting ratios and kiln air re-circulation.

Despite these procedures it is not always possible for some plants to ensure that their fluoride levels will be below the required limit.

In this situation an abatement plant, is the only solution.

Casella ETi has been able to help the brickbusiness to reduce the abatement plant running costs and ensure that the fluoride levels stay below the required limit value.

The Solution

Under Guidance Note PG 3/2 95 (The manufacture of heavy clay goods) it is stated: where an arrestment plant is installed, instrumentation should be fitted which demonstrates the plant is fulfilling its operating requirements on a continuous basis. To meet this requirement the brickbusiness installed the laser based Norsk Electro Optic cross duct HF analyser following Casella ETi recommendations.

The NEO lasergas enabled the company to demonstrate to the

local authority that the hydrogen fluoride could be continuously maintained at a level that was below the total fluoride limit.

The ultra fast 2 second response time of the NEO instrument enabled the brickbusiness to deploy a dynamic forward feed control system which maximises the life of the dry scrubbing medium used. This control system ensures that only the correct proportion of the gas passes through the scrubber to prevent a breach from occurring.

The NEO laser based analyser is the most sensitive on the market.

The Technology

The NEO lasergas analyser is a non-extractive instrument that uses the ability of a laser to selectively measure hydrogen fluoride without any interference from any other gases. Of equal importance is the fact that the measurement is taken in-situ. As HF is such a reactive gas, any in-situ measurement is probably more representative of the correct concentration of HF in the flue or duct. This is especially important when measuring very low concentration of the gas.

The cross duct NEO HF monitor is non-extractive and has no moving parts, it will operate reliably between annual service. This keeps the operational cost of the instrument to a minimum and maximises the online time to close to 100%



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CBISS are an ISO 9001 accredited engineering company with over 15 years' experience in the design, manufacture and integration of gas monitoring and analyser sampling systems. Our design, manufacturing, software and service specialists are on hand to provide tailored solutions for a wide range of applications.

In addition to being the leading supplier of CEMS systems within the UK market and a key player within the UK air quality monitoring and gas detection markets, CBISS specialise in the design of low cost, sequential gas sampling and CEM systems and this remains a major part of the company's activities.

These systems provide monitoring solutions to a broad range of applications including confined spaces, tunnels, breweries and landfill sites, and are designed and built for analyser companies and end users worldwide.

To complement the CBISS range, our software specialists have developed the CDAS Software Suite to provide data collection and visualisation functionality.

CASE STUDY

COMMITMENT TO SOLUTION DEVELOPMENT: THE CBISS COMPACT CEM



Background

As a company, CBISS prides itself on its track record for developing innovative, well-designed gas monitoring solutions. This approach has been paramount since the company's inception in 1989 when the CBISS Mark 1 Gas Sampling Systems were launched. Subsequent years have seen substantial investment in the development of these systems, culminating in the development of the CBISS Mark 3 Intelligent rack – and wall-mounted Sampler and wall-mounted Sniffer systems.

This commitment to product development and tailoring solutions to customer requirements has enabled CBISS to develop its latest gas monitoring innovation – the CBISS Compact CEM.

The Scenario

In 2005 CBISS were approached by a prospective customer looking for a system that would monitor levels of O₂ and CO in their process. They had searched the market for a continuous emission monitoring (CEM) system and discovered that the available systems offered specifications far higher than their operation required. Alongside this issue, the majority of systems on the market were, and continue to be, tailored to the highly regulated end of the CEMS market where

MCERTS certification is mandatory as a part of regulatory requirements. This in turn meant that the systems in question were very expensive.

The Solution

Our customer required a CEM system that would provide them with a low cost alternative to the systems that they had researched and provide a reliable yet simple solution. Given this scenario, it became clear that there was a relatively untapped area of the market that CBISS could exploit and our in-house design, software and engineering teams set about providing a solution, initially to our customer, but with a clear view to developing a new CBISS product.

Following a period of extensive research and development, design reviews and testing, the first CBISS Compact CEM was completed and supplied to our customer. The CBISS system features unique auto-flush, auto-zero and auto-check functions which allow electrochemical or infrared gas sensors to be used even in very harsh applications. Due to the potential high temperatures associated with the process/stack of some applications, the Compact CEM system features cooling coils attached to the sample probe. Also, to avoid problems with moisture and particulate, the Compact CEM features two-stage sample conditioning to remove these prior to the sample reaching the gas sensors.

Following the successful launch of the Compact CEM, CBISS are confident that the system is able to provide a cost-effective CEM alternative for those applications where emissions monitoring is required but MCERTS certification is not. In line with the CBISS philosophy, the Compact CEM can be tailored to suit individual customer requirements and provide gas monitoring solutions for a variety of applications including paint shops, asphalt plants and boiler stacks.

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Cecil Instruments are leading designers and manufacturers of UV/visible spectrophotometers, HPLC and ion chromatography systems.

Cecil Instruments' Adept range of modular HPLC and IonQuest ion chromatography systems, can be configured to suit individual laboratory requirements in isocratic, binary or ternary gradient modes.

A wide range of detectors, including the revolutionary, ultra-fast scanning UV/Visible WaveQuest, UV/visible, conductivity, refractive index, electrochemical, and fluorescence, can be incorporated into systems, so that environmental testing can be performed.

Spectrophotometers are available for a wide range of industry-specific applications, for example, water analysis, food and beverage toxin analysis and other environmental analyses.

CHELSEA TECHNOLOGY GROUP



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Chelsea Technologies Group's oceanographic division specialises in underwater technologies ranging from acoustics and sonar products through to comprehensive environmental monitoring systems. Satisfying the needs of both the civil, military and homeland defence markets, Chelsea provides towed oceanographic vehicles, multi-parameter oceanographic sensors, acoustic sources and telemetry systems, echo repeaters and piezocomposite transducers. Chelsea's Life Sciences division has over 35 years' experience in the design, development and manufacture of medical diagnostic and scientific instrumentation, from high volume Point-of-Care readers to fully automated analytical systems. By blending innovative design concepts with the practical requirements for performance and manufacturability, Chelsea's scientists and engineers help clients find the right balance between performance and cost, while also meeting the operational requirements of the end user. Chelsea has expertise in science, technology, electronics, optics, mechanical design, industrial design and software development.

CASE STUDY

CHELSEA TECHNOLOGIES GROUP – NOVEL SYSTEMS FOR HOMELAND SECURITY

Chelsea Technologies Group (CTG) is working with the UK and US government agencies and departments on developing novel sensor systems for environmental monitoring and protection. The systems are specifically designed to measure a wide range of physical, chemical, biological and optical properties. These enable the natural biological and physical background levels in rivers, reservoirs and abstraction points to be characterized.

Recent terrorist attacks have led to an increased emphasis on homeland security and the protection of key infrastructure. Unintentional pollution events have already resulted in increased monitoring and the establishment of many of the measures necessary to safeguard our water supply. An early-warning monitoring network can help to ensure abstraction points and water storage protection.

CTG is conducting a development programme to assess the suitability of the Fast Repetition Rate Fluorescence (FASTtracka II) technology for detecting the effects of hostile contaminants. It is a prime candidate for the real-time monitoring of potable water reservoirs. Studies have shown that the ability of water-borne algae to photosynthesize, and hence fluorescence, is significantly affected by toxic chemicals. Initial chemicals investigated include methylparathion (an insecticide that is structurally and functionally similar to the nerve gas sarin),



potassium cyanide (which can result in nervous system and respiratory failure), diuron and paraquat.

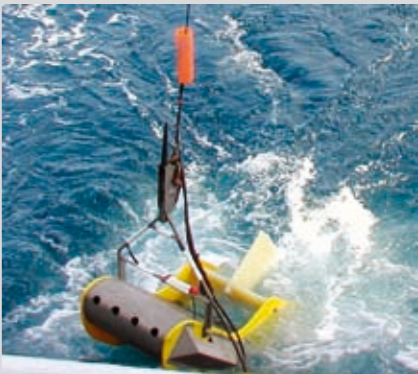
The fluorescence signal from algae in chemically polluted water is impaired compared to signals from algae in clean water. The FASTtracka II measures a time-dependent fluorescence signal that arises solely from chlorophyll that is active in photosynthesis – a parameter that can be related directly to the physiology of the algae. The FASTtracka II is therefore capable of discriminating between chlorophyll that is free in the water column, present in dead algae and present in physiologically active organisms.

The response time for FASTtracka II to detect a deliberate contamination event is a matter of seconds. When combined with historic time series, and other water quality parameters the likelihood of a false alarm is minimised and a threat can be promptly reported and assessed. This makes FASTtracka II ideally suited for deployments at critical points in water distribution systems to detect contamination of water pre- and post-treatment.

THE CHELSEA MARINER SHUTTLE FOR LARGE MARINE ECOSYSTEM MONITORING

The new Chelsea Mariner Nu-Shuttle is based on the successful Nu-Shuttle towed oceanographic vehicle. It is a generic, robust monitoring system designed for regular monitoring of large marine ecosystems. Undulating behind a research vessel or ship of opportunity, it enables a wide range of oceanographic measurements to be made underway from the surface to depths in excess of 150 metres. Temperature, salinity, chlorophyll, dissolved oxygen, plankton photosynthesis, plankton sampling, optical plankton counting and nutrients are all measured in real time, with the data displayed on board the ship.

Large marine ecosystems (LMEs) are regions of ocean space encompassing coastal areas from river basins and estuaries to the seaward boundaries of continental shelves and the outer margins of the major current systems. They are relatively large regions of 200,000 km² or greater, characterized by distinct bathymetry, hydrography, productivity and trophically dependent populations. On a global scale, 64 LMEs produce 95% of the world's annual marine fishery biomass yields. Within their waters, most of the global ocean pollution, over exploitation and coastal habitat alteration occur. Routine measurements are required to characterize and understand the sustainability of these fragile ecosystems.



The Mariner Shuttle provides an efficient data collection system that enables large ecosystems to be routinely surveyed and characterized. The design and sensor suite results from several years of testing and extensive sea trials with leading oceanographic laboratories and fisheries organizations. Chelsea Shuttle systems have been supplied for ecosystem monitoring in the Benguela Current, the Baltic Sea and are soon to be delivered to Yellow Sea ecosystems. Chelsea Technologies Group can supply complete towed vehicle systems throughout the world, including bespoke sensors.

Above right: The Chelsea NuShuttle system provides information for the assessment of large marine ecosystems.

Above left: The response time for FASTtracka II to detect a deliberate contamination event is a matter of seconds.

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Codel International is a UK company based in Derbyshire specialising in the design, manufacture, service and commissioning of high technology instrumentation for monitoring combustion processes and atmospheric pollution emissions. The company philosophy is to design well-engineered, rugged and reliable equipment capable of continuous operation over long periods with minimal maintenance. SmartCEM, part of Codel's product portfolio, is the ultimate solution for continuous monitoring of flue gas emissions. It is a fully integrated monitoring concept covering all aspects, the basic analysers and their calibration verification packages through to digital communications, data logging and automatic reporting.

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Copley Scientific is a global, applied aerosol/particle technology company providing advanced products and services in the world of aerosol science. Applications include aerosol characterization and research, military and civil defence, industrial health and safety. Air sampling and particle analysis play a key role in aerosol research. In the aerosol sampling field, the Copley range of cascade impactors are world renowned. With a range of 10 nanometres to 18 microns, the new Wide-Range series of Cascade Impactors continues that tradition in providing a new generation of instrumentation for the sampling and sizing of coarse, fine and ultrafine particles in a single instrument. Similarly, in the field of aerosol sizing and counting, Copley has in the Wide-Range Particle Spectrometer (WPS) made available an instrument capable of automatically counting and sizing particles between 10 nanometres and 10 microns in a single, compact and user-friendly unit.



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Cybersense is a technology-based company which specialises in the development and integration of field analytics for more cost-effective contaminated land management. When used in concert with fixed lab testing, integrating field analytical techniques into projects produces a streamlined analytical approach. More timely, defensible datasets can enable project costs to be reduced by 20-50% whilst at the same time dramatically improving decision confidence. Cybersense supplies, supports and assists in the implementation of analytical solutions for contaminated land. Cybersense provides both on-site and in-house training programmes in the use and application of specific field tools. Cybersense also acts as a specialist analytical partner. Project planning is crucial to focusing analytics on decision-making. We have developed an innovative evaluation methodology (CyPlans™) which allows us to technically and economically assess the value of applying field analytics to specific situations.

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Since 1966 Data-Loop has been an export distributor to Central and Eastern Europe of environmental, industrial and laboratory equipment for measuring and analysis of noise, vibration, dust, air quality, emissions, temperature, humidity, wind speed and direction, rainfall, water leakage, flow, density, thickness, hardness, and controlled laboratory weighing scales, balances and temperature baths, heaters, chillers and circulators. Our network of local agents provides sales and service support in-country.

DYNOPTIC SYSTEMS LTD



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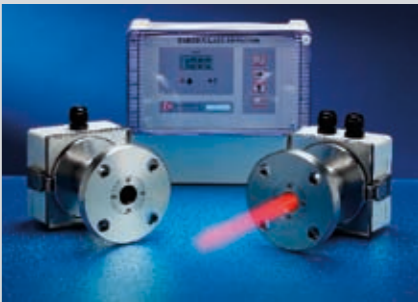
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Dynoptic Systems Ltd has been a prominent manufacturer of particulate and smoke density monitors for many years. It produces advanced particulate monitors designed to meet the twin concerns of process operators: maintenance and accuracy. The Dynoptic range of particulate monitors uses the Dynamic Detection Principle (DDP) technology, to overcome the key problem of dust accumulating on lenses. The DSL 2000 particulate monitor is used in large processes such as power generation, cement manufacture and waste incinerators. The DSL 2000 has on-line zero and span checking systems, as well DPP for dealing with build-ups on the optical system. The DSL 5000 is a 19" rack version of the DSL 2000. We also market the SM 200 opacity monitor that is widely used in small processes and dust collectors. The Dynoptic range provides the cost-effective solution to emissions monitoring requirements placed upon operators in an increasingly regulated environment.

CASE STUDY



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We are a leading UK-based, independent manufacturer of consumables, supplies and other products and services to users of elemental analysers, both organic (CHN, CHN/O/S, CHN, N, NC, NCS, N/protein and CS) and inorganic (C/S, N/O, H and N/O/H) worldwide.

Our range of consumable products covers everything you need for the day-to-day operation of your analysis instrumentation including tin and silver capsules, combustion tubes and other quartz and glassware, combustion reagents, catalysts and standards, o-rings and seals, ceramic and graphite crucibles and boats and much, much more. We aim to support every elemental analyser currently in use.

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Elster Metering Limited is a world leader in providing innovative water metering solutions. It manufactures water meters for utility, commercial and domestic use at its factory in Luton and offers a complete water metering portfolio, including solutions for revenue metering, cost allocation, network monitoring, distribution and industrial applications.



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Endecotts, established for nearly seventy years, are world renowned for their range of quality laboratory test sieves, sieve shakers and related analysis equipment used by all major industries.

Endecotts' products are distributed throughout the world via an international network of distributors.

Endecotts supply wet washing sieves for the monitoring of materials found in rivers and streams etc. For example, the Environment Agency based in Waterlooville purchase a range of Endecotts sieves for conducting sieving trials on marine and fresh water sediment.

A 'custom' service for the manufacture of woven-wire filters and screens is also available.

Endecotts operate a fully documented Quality Assurance System in accordance with ISO 9000, are registered by the British Standards Institute and are the only company to hold the British Standard Kitemark BS410 for test sieves.

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Enviro Technology Services PLC designs, builds, installs and supports instrumentation and equipment for the measurement of air pollution from urban and industrial sources. The company has particular expertise in the field of air quality monitoring and has supplied many national and international clients with air quality monitoring stations measuring NO_x, SO₂/CO/O₃/BTX/VOCs particulates and many other compounds.

The company is ISO 9001 quality assured and all products are internationally approved (MCERTS, TUV, US-EPA etc).

A range of products and systems are also available for continuous emissions monitoring (CEM) for industrial processes such as power plant, waste incineration, oil and gas production and mineral/metal production.

Service and support is available world wide from a team of 15 experienced and qualified service engineers dedicated to providing the highest levels of customer support.

CASE STUDY

COST EFFECTIVE OIL
AND GAS FIELD STATION
MONITORING SYSTEM
PROVIDES PEACE OF
MIND IN KAZAKHSTAN

Background
A large government-run consortium is currently investing in Kazakhstan by building and maintaining the infrastructure of large oil and gas fields there. The operation involves a number of Western companies, who are employing a large workforce to oversee the extraction of the oil and gas.

However, this development has implications for hundreds of local residents, who are scattered around the site in a number of remote settlements.

The Problem
The risks associated with heavy industries include the possibility of potentially dangerous gas leaks. As a result, the control of health and safety is one of the most important aspects of the work.

The contractor running the venture needed an effective air quality monitoring system that would instantly tell their central control station when and where the levels of certain gases in the air exceeded the stated limits. However, this would require a specially designed system capable of operating 24/7, 365 days a year. Only by continuously monitoring the air quality, could the safety of the workforce and the local population be guaranteed.

The Solution
The whole system was custom-made by Enviro Technology. It was then tested thoroughly in a number

of harsh environments, before the main contractor overseeing the operations in Kazakhstan selected it for the job.

Enviro Technology then installed five monitoring stations around the gas and oil fields. Each one is situated three feet above ground level to ensure the accuracy of the readings taken. One of the stations is also mobile, so it can be moved around the field to monitor a particular area more closely if required.

Each station contains four analysers that continuously monitor the levels of sulphur dioxide, carbon monoxide, hydrogen sulphide and oxides of nitrogen. A data logging system records all the data and collects it in a local computer, which is backed up regularly.

Each station also records other information, such as power failures, or if the door of the station was opened. This ensures a full and up-to-date log is kept at all times. The stations send and receive data at regular intervals by remote radio messages, using a standard modem connection.

Technical Specifications
The remote stations transmit all their records back to the central control system. The central computer is made up of three computers, which each have a bespoke software system designed by Enviro Technology installed.

One computer collects all the information from the five remote stations and collates all the data in real time. Another receives and keeps a record of any alarms of harsh environments, before the main contractor overseeing the operations in Kazakhstan selected it for the job.

CASE STUDY

▶ ENVIRO TECHNOLOGY SERVICES PLC

Enviro Technology then installed five monitoring stations around the gas and oil fields. Each one is situated three feet above ground level to ensure the accuracy of the readings taken. One of the stations is also mobile, so it can be moved around the field to monitor a particular area more closely if required.

Each station contains four analysers that continuously monitor the levels of sulphur dioxide, carbon monoxide, hydrogen sulphide and oxides of nitrogen. A data logging system records all the data and collects it in a local computer, which is backed up regularly.

Each station also records other information, such as power failures, or if the door of the station was opened. This ensures a full and up-to-date log is kept at all times. The stations send and receive data at regular intervals by remote radio messages, using a standard modem connection.

Technical Specifications

The remote stations transmit all their records back to the central control system. The central computer is made up of three computers, which each have a bespoke software system designed by Enviro Technology installed.

One computer collects all the information from the five remote stations and collates all the data in real time. Another receives and keeps a record of any alarms received from the five monitoring stations, and the third controls all the warning and evacuating sirens at the 11 stations situated at various locations among the farming communities in the area.

Another advantage of the system is that the low maintenance requirements of central computer network reduces the need for additional manpower to oversee the whole air quality monitoring system.

Practical Applications

The main advantage of using the system is that it can give early warning of gas level rises. For example, if a remote monitoring station picked up that the level of carbon monoxide in the air suddenly exceeded the programmed limit, then it would automatically send a signal back to the central computer, along with data on the current weather conditions.

The central computer could then plot the concentration of the gases, along with the wind speed and direction. If the manager at the central control station considers any of the villages to be in danger, they can tell the system to trigger the evacuation sirens in the appropriate villages. People can then be evacuated before the gases reach their villages. The warning alarms can also be triggered directly by the villagers, giving them a degree of control.

Enviro Technology ran extensive training courses in each village to ensure that the villages were comfortable with using the system.

Summary

There have been a number of occasions where the panic buttons at the villages have been pushed for minor incidents, proving that the monitoring system does work effectively. Now that the system has a proven track record, Enviro

Technology is in the process of providing another four monitoring stations.

This cost-effective air quality measuring system has proven its worth by providing peace of mind for everyone living and working on the Kazakhstan oil and gas fields.

ENVIRONMENTAL MEASUREMENTS LTD



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Environmental Measurements manufactures a range of weather monitoring instrumentations including wind speed and direction sensors, aerodynamic rain gauges, temperature humidity probes, barometric pressure sensors, data loggers and complete automatic weather stations. Typical users include weather centres, universities, agricultural and horticultural organisations, water companies, hydrologists, landfill sites and municipal environmental health departments.

Environmental Measurements' flagship product is the ARG100 rain gauge which typically captures a minimum of 5% more rainfall than traditionally-shaped cylindrical gauges because of its unique aerodynamic shape and low evaporation-loss qualities. In tests carried out recently by the UK Environment Agency, the ARG100 captured between 5% and 17% more rainfall than the seven other rain gauges also tested – *Science Report W6-048/SR refers.*

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Envirosoft is a specialist software provider, supplying PC-based data logging packages for emissions monitoring systems. We also integrate data acquisition hardware to capture data from a number of analogue or digital sources.

Our main emissions logging software is called CEMSuite. It comprises a number of modules that enable system configuration, data capture, data presentation (real-time and historical) and data export as printed reports or to applications such as Excel.

We have several versions of CEMSuite to meet particular needs; CEMSuite Plus is designed to meet the needs of operators of plant coming under WID, PPC and LCPD, and incorporates all the required EN14181 calculations and control charts.

CEMSuite CEMPact performs advanced data modelling to allow operators to generate models to predict emission plume dispersion using mass emissions, wind speed and direction, stack gas temperature, topography etc to calculate predicted ground level concentrations of pollutants.

CASE STUDY

▶ ENVIROSOFT LTD



ETR UNIDATA



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ETR-Unidata designs, develops, manufactures, supplies and supports a range of high quality environmental monitoring equipment for air pollution monitoring and water monitoring.

With over twenty years accumulated experience in particulate monitoring, ETR-Unidata has supplied continuous emissions monitors (CEMS) to a world-wide customer base ranging from large multi-nationals requiring state-of-the-art environmental or process controls to small privately owned businesses simply needing cost-effective environmental regulatory compliance. The instruments are used for regulatory compliance monitoring, process optimisation, and process control.

Etr-Unidata also distributes a comprehensive range of flowmeters, other sensors, loggers and communications equipment for water monitoring and developing weather records. These are sold through distributors and re-sellers into every continent. They are designed to operate on a low power, "set and forget" basis, and are trouble-free, rugged and dependable.

FLOWNETIX LTD



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Flownetix Limited was formed in 2002 as a spin-off company from the design company Univations Limited with the purpose of specialising in the design and development of low-cost ultrasonic flow meters.

We now offer a range of flow meters suitable for a host of applications from small bore meters used for beverage dispensing to large bore potable water meters used by utilities worldwide.

Utilising Flownetix's unique flowengine™, the meters have no moving parts and the measuring sensors are not in contact with the liquid. This overcomes the problems encountered by traditional mechanical meters as they are unaffected by the presence of air or particulates in the water supply and can cope with aggressive desalinated water, long periods of air-only flow and high or low water pressure flow, without degradation to the performance or life of the meter.

GEOTECHNICAL INSTRUMENTS (UK) LTD



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Geotechnical Instruments was founded in 1976 to design, develop and manufacture instrumentation systems to meet the growing needs of the civil engineering industry. Today the company offers a vast range of field-proven specialist environmental monitoring instrumentation that can accurately measure almost every geotechnical parameter imaginable - supported by a wealth of technical expertise.

We operate a Quality System in line with ISO 9000, ATEX and UL approvals.

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The 'Grade' brand of Laboratory Blender Bags is now in its fifth year. We have however, been manufacturing these specialist bags for over 20 years. We are gratified by the European food laboratory industry response to our products particularly with regard to quality and service.

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Hidden Analytical manufactures quadrupole mass spectrometer systems for vacuum, surface, plasma and gas analysis.

Hidden products for environmental applications include:

- Membrane inlet mass spectrometer systems for the detection of VOCs in soils, sludges, and liquids.
- Capillary inlet real-time mass spectrometers for high sensitivity gas analysis, providing simultaneous multiple species analysis with wide dynamic range from sub ppm to 100%.
- MBMS – molecular beam inlet mass spectrometers for reaction kinetic studies, including flame analysis combustion research analysis and atmospheric plasma analysis.

CASE STUDY

ANALYSIS OF DISSOLVED SPECIES IN SEAWATER BY MIMS (MEMBRANE INLET MASS SPECTROMETERY)

Background

Philippe Tortell is from one of Canada's leading marine oceanography laboratories, the Dept. of Earth and Ocean Sciences and Dept. of Botany at the University of British Columbia. Philippe has dedicated much of his research life to the study of oceanographic trace gases. His latest advance has been the joint development, with Hidden Analytical, of a new, high-sensitivity membrane inlet mass spectrometry system:

"Oceanic processes are critically important in the cycling of 'climatologically active' trace gases that affect global warming."

Additionally, gas measurements reveal a wealth of information about how the oceans function. Marine microorganisms are a major source of DMS (dimethyl sulphide) to the atmosphere, for example.

Gas Measurement in Seawater

Many highly sensitive, accurate, and precise techniques exist for the measurement of gases in seawater, including:

- gas chromatography (N₂, Ar, CH₄, N₂O, DMS etc)
- infrared absorbance (IR) coulometry (CO₂), polarography (O₂)
- isotope ratio mass spectrometry (N², O², Ar, CO₂, N²O etc)

Some of these methods are specific for single gases, while others are costly, laborious, and not well-suited to *in situ* measurements at sea.

CASE STUDY

► HIDEN ANALYTICAL LTD.

Detection of Low Levels of Organic Species in Seawater

In this particular experiment, the sensitivity of a Hiden Quadrupole Mass Spectrometer (QMS) to dimethyl sulphide was measured:

Dimethyl sulphide (DMS)
– chemical formula CH_3SCH_3
– is a naturally produced trace substance, evolved from certain marine micro organisms, such as plankton. Detection of fluctuations in the DMS concentration in seawater therefore gives important information about the abundance of these life forms.

Research carried out by Philippe D. Tortell of the Dept. of Botany at the University of British Columbia, Canada, has shown that very low levels of detection can be achieved using a quadrupole mass spectrometer. To conduct these experiments, a Hiden HPR-40 QMS system was used. The system is specifically designed for the detection of volatile species (such as DMS) dissolved in aqueous sample media. Other analysis application areas include soil analysis, fermentation cultures and water quality monitoring.

The HPR-40 semi-permeable membrane inlet allows dissolved species to be analysed, whilst preventing the bulk liquid to enter the QMS vacuum chamber.



The membrane inlet permeability to volatile organic species, compared to non-volatile inorganic species, enhances the system's detection capability for volatile organic species, including DMS.

In the University of Columbia experiment, successive dilution was used to reduce the concentration of DMS in the sample. The strongest peak at mass 62 amu was used to measure the concentration of DMS.

KANE INTERNATIONAL LIMITED



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Since 1963, Kane International Limited has provided innovative, cost-effective measurement products to domestic and commercial heating contractors and service engineers around the world. Our instruments:

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KORE TECHNOLOGY LTD



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Kore Technology is one of Europe's leading Design-for-Research companies, selling instruments to the worldwide research community. In the environmental field, Kore designs and manufactures portable and laboratory-based time-of-flight mass spectrometers for fast, high sensitivity volatile organic contamination analysis. These mass spectrometers are used by our customers in applications ranging from the measurement of VOCs at remediation sites to atmospheric pollution quantification.

KROHNE LTD



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KROHNE is a worldwide leader in the design, development and manufacture of innovative flow and level instrumentation. It is one of few manufacturers able to offer a comprehensive product range, including:

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In the UK, KROHNE Ltd is based in Wellingborough and this is the group's global centre of excellence for Coriolis Mass flow meter technology, exporting over 90% of its production.

KROHNE Ltd was the first company to design and build a commercially available, single straight tube mass flow meter and in 2005 won the Queen's Award for Enterprise: Innovation, for its OPTIMASS Coriolis mass flow meter.

LABORATORY IMPEX SYSTEMS LTD



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Laboratory Impex Systems (LIS) is a market leader in the development and supply of high sensitivity radiation protection equipment and integrated nucleonic systems. The company has been a supplier to the nuclear industry for over 25 years and has performed extensive work for the defence, medical, life sciences and health physics research communities.

LIS has built a comprehensive list of nucleonic products over the years and has recently introduced the second generation of their versatile range of CMS (continuous monitoring stations).

The CMS range was designed for both networked and stand-alone applications and provides a solution to a variety of monitoring requirements, including:

gamma monitoring, iodine monitoring, alpha/beta particulate in air monitoring, gaseous monitoring (tritium/noble gas etc) and specialist monitoring areas such as stack/duct monitoring.

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A leading, worldwide supplier of fully automated, discrete photometric chemistry analysers for the precise measurement of inorganic compounds. With three models to choose from, the Aquakem range is ideally suited to small, medium or high throughput water and environment laboratories.

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LAND is an international designer and manufacturer of flue gas combustion efficiency and environmental emissions monitoring instrumentation. Their range of both portable and continuous monitors is for use on power stations, incinerators, gas turbines and all other types of combustion process. There are six product groups aimed at improving and optimising efficiency plus the important requirement of measuring the pollutant gas emissions from these combustion processes. Gas monitoring capability includes CO, CO², O², NO, NO², NO^x, SO², H²S and hydrocarbons; dust/particulate emissions; a range of products to detect the onset of fires in coal-fired power plant; and a unique analysis tool for gas turbine blade temperatures. Sales and support are provided directly through offices in the UK, USA, Mexico, Poland, Italy and France. In addition, 40 authorised distributors located in all major industrial countries provide local assistance.

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LGC Promochem offers a wide range of environmental reference standards and matrix materials for organic and inorganic analysis of typical environmental samples. Organic standards include the full range of contaminants as well as isotope-labelled versions of these compounds. We can also supply a variety of inorganic standards for ICP, AA, XRF and ion chromatography techniques. Our matrix materials are representative of the environmental samples analysed by laboratories. The LGC range of products is produced in-house and includes soils, sediments, sewage sludge and water reference materials with values for a variety of analytes. Our combination of expertise in analytical science, experience in distribution and logistics, and portfolio of over 40,000 products offers laboratories throughout Europe and India the ideal solution high-quality reference materials from a single source. In addition we can provide custom solutions, advisory and matching service, expert local customer service and technical support.

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Logitech Ltd, a small Scottish precision materials technology company, has developed a worldwide customer base and is currently expanding both its staff and premises to help meet the growing international demand within the photonics industry for its unique, high quality surface engineering systems. Currently exporting 90% of their production, the company exports to more than 50 different countries.

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LTH Electronics are specialists in analytical measurement and can help, whether you want to control water consumption, monitor water quality or reduce the effect of waste on the environment. LTH offer a range of contacting and electrodeless conductivity, pH, redox, dissolved oxygen, suspended solids, level, flow and pressure instrumentation, and sensors and a range of accessories to suit most process applications. LTH were established in Luton, England, in 1967 and are an ISO 9001:2000 registered company who offer a 3-year warranty on all their instrumentation with a comprehensive and reliable after-sales service including installation, commissioning, training, planned maintenance and calibration to traceable standards. LTH's products are marketed and supported throughout the world via a network of trained distributors.

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Mecmesin is widely regarded as a leader in force and measurement technology for laboratories and the production floor. Mecmesin designs and manufactures a leading range of force gauges, torque gauges, motorised test stands, console-controlled test stands, computer-controlled test stands, closure torque testers and computer-controlled torque stands. These are used in quality control testing to perform tension, compression and torque tests on a wide range of products, components and materials. In the packaging industry, Mecmesin, force testing equipment is often used for top-load crush testing of PET containers. Government regulations often limit the amount of primary source material that can be used in PET containers. Top-load testing of PET containers enables manufacturers to optimise the amount of material used, while at the same time ensuring that their PET containers can withstand the required top-load crushing strength during distribution and storage. This optimises material used and minimises material waste.

MTI
(A LAB 21 COMPANY)



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MTI sells and supports portable, online and laboratory instrumentation and reagents for heavy metal analysis in a variety of sample types. These together provide application-based solutions for environmental testing and process monitoring.

The PDV6000, is a small portable monitor that analyses both water and soil samples for a selection of metals.

The OVA5000 provides online monitoring, with application areas including contaminating metals in potable water treatment, effluent treatment control and monitoring in the metals industry.

The laboratory and sample pre-treatment instruments compliment the range.

Sales are either direct or through a network of accredited distributors.

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Who can help me improve my KPIs? NDC can. We have over thirty years' experience in the paper, converting, food, tobacco, timber, pharmaceutical and chemical industries, with more than 16,000 sensors installed around the world measuring moisture amongst other constituents. In many processes, optimizing moisture control allows product drying times to be reduced, hence reducing energy consumption and as a consequence helping to reduce CO² emissions.

NDC Infrared Engineering has two manufacturing facilities; one in Irwindale, California, and the other in Maldon, Essex, UK. Local offices are also located in Guangzhou, China, and Tokyo, Japan, with representation in over 50 countries worldwide.

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Palintest is a world-leading manufacturer of water testing and environmental products for water quality, drinking water, and swimming pool testing.

Palintest leads the way in technology for the domestic, industrial and commercial water and soil management markets as well. We supply a wide range of photometer and comparator instruments, test kits and reagent systems for the detection of many elements.

Whatever your applications, Palintest instruments offer the most reliable methods available in portable meters using the latest technology.

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PCME works with industrial processes worldwide to satisfy requirements to continuously monitor particle emissions. Focused on the innovation, design, development, manufacture and supply of continuous particulate emission monitors, PCME provide the most comprehensive range of technologies and instruments, from filter failure performance monitoring to particulate emission measurement.

Committed to the regulatory process, PCME's accreditation achievements include German Ta-LUFT approvals, BImSchV 17, 13 and 27, and the UK Environment Agency's MCERTS accreditation for Electrodynamic (charge induction), Pro-scatter (light scatter) and Dynamic Opacity (light variation) technologies. On-going programmes of investment certification processes and product development, coupled with ISO 9001 certification, reflects the company's firm commitment to instrument quality, validated performance, reliability and long-term repeatability.

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Peak Scientific Instruments Ltd are a manufacturer of laboratory gas generators including Nitrogen (both Membrane Technology and Carbon Molecular Sieve systems), Hydrogen and Zero Air suitable to operate most laboratory analytical applications such as LC/MS and GC. With varying flow rates, purities and pressures available, we are confident we will offer you the complete solution to your total gas requirements. Our gas generators provide a safe and economical alternative to combustible bottled gas and cylinders. The constant purity offered by our solution to your gas requirements will result in accurate analysis, and the reliability of the gas generators will ensure you can concentrate on more important aspects of your work than your gas supply.

PROCAL ANALYTICS
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Procal Analytics design and manufacture continuous emissions monitors suitable for applications that come under the European Large Combustion Plant and Waste Incineration Directives.

These monitors are also used on US EPA approved sites.

Certified under MCERTS for the measurement of NO, SO², CO, CO², H₂O, and providing information as required for compliance with EN14181, Procal can offer systems that integrate oxygen and dust analysers leading to final results that are corrected for oxygen and on a dry basis.

This *in situ* technology has a sample cell which can be flushed with calibration gas for *in situ* zero and span calibration with certified gases without removal from the process, taking only minutes to complete.

Measurements available from other Procal products include: NH³, Cl², H₂S, ClO², Hg.

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P S Analytical manufactures systems for the ultra-low level determination and speciation of mercury and the hydride-forming elements. Systems based on the Millennium Merlin and Millennium Excalibur instruments provide determination and speciation of mercury, arsenic, selenium and antimony.

The Sir Galahad instrument allows the measurement of mercury in gas streams and forms the cornerstone of on-line analysers to provide measurement data and control for mercury removal systems. With our systems for continuous emissions monitoring (CEM) and on-line and off-line mercury measurement gaining worldwide recognition, particular success has been achieved in the petrochemical, chemical and environmental markets.

Since 2001 on-line natural gas systems have been successfully operating unattended around-the-clock. Similar technology has also been designed for coal fired utilities. We provide complete solutions from sampling through to measurement. Our continuous research and development programme, supported by our team of experts, keeps P S Analytical at the forefront of environmental monitoring.

CASE STUDY

CORROSION EFFECTS OF MERCURY MINIMISED BY INTRODUCTION OF REMOVAL SYSTEM CONTROLLED AND MONITORED BY P S ANALYTICAL (PSA) SIR GALAHAD INSTRUMENTATION

Over the last 20 years there have been several cases of mercury corrosion of natural gas plants which have caused disastrous plant shutdowns. The latest was at the Santos Moomba Plant in Australia in January 2004.

In the late 1990s PSA were asked to carry out some studies in Anschutz at the then Amoco production facility. This plant had to be closed due to corrosion which was suspected as being caused by mercury present in the natural gas feedstock. Working with the plant scientist PSA was able to prove the presence of mercury and the levels of that element present. A removal system was subsequently designed and PSA supplied an online measurement system based on its Sir Galahad technology. This was installed in 1996 using a sampling system developed by the customer. Subsequently the customer had some concerns about the measurements that were being obtained. PSA were able to determine that the sampling unit installed was not fit for purpose and that representative samples were not being provided to the analyser; this was giving the client the wrong information about the product.

Working with the client PSA's scientists, notably Dr Warren Corns, were able to develop a sampling speed loop arrangement and a calibration system that was able to operate reliably and to provide on-line measurements which reliably quantified the mercury levels.

The speed loop sampling device presented a representative sample to the Sir Galahad Atomic Fluorescence Spectrometry System and the Cavkit calibration instrument provides a complete check of the system integrity and check on the instrument calibrations.



Sir Galahad II Instrument

This case study shows the benefit of working with the clients to fully evaluate the requirement for measurement and to understand the complexities involved.

Jeff Staley, for the client, stated:

"I wanted to give you an update on the mercury analysers.

The Painter instrument has been running flawlessly and I am very happy with the way it has been operating.

The Anschutz instrument is still running as strong as the day it was turned on, which it has been a year now.

Putting it all in prospective with the difficulty of testing for mercury in a rich hydrocarbon stream, the idea of having multiple streams, then wanting it to automatically run cycle after cycle and above

all this, be accurate. I was a little apprehensive about how they would operate. I can appreciate the challenges your whole organization had. I want to say, "JOB WELL DONE".

I also want to thank you and your people for the continued support and quick response to any problem or question I have. It definitely makes my job a lot easier.

You can be proud of the product and service you provide."

The Anschutz plant is now operated by Merit Energy and the mercury system operates as reliably as it did on installation.

PULSAR PROCESS MEASUREMENT LTD



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Designers and Manufacturers of level measurement equipment for use in the solids and liquids handling industries. The majority of products are non-contacting continuous ultrasonic level type, for use from 125mm through to 40m depth. A choice of controls are available from 4-20mA output to intelligent controllers. Pump control in wet wells, differential level across screens, volume conversion and linearization in silos or tanks and high accuracy open channel flow, are all typical applications.

Pulsar also manufacture non-invasive switches for level measurement or liquid flow in pipe.

REACT SCIENTIFIC



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React Scientific is a private company established in 1991 in Troon, Ayrshire, specialising in distribution of Laboratory Products and Laboratory Supplies to the Medical and Life Sciences sector in UK and International markets.

Sales skill is supported by application skills from staff with experience in excess of 25 years.

Our customer base includes Universities, Medical Schools, Hospitals and the private sector including Research Institutes, Analytical Laboratories, Biotechnology, Industrial Organisations, Food & Beverage and the Pharmaceutical arena. Our specialist strengths lie in the Research and Life Sciences sector. Stock is held of fast moving products with goods despatched on a 24-hour delivery.

React Scientific are appointed Life Sciences distributors to the following companies:- Nalgene, Nunc, Sartorius Biotechnology, G.E. Osmonics, Adamlab Balances, Prior Microscopes, Fujirebio Diagnostics Inc. Rabies detection.

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Sentek was established in 1991, specifically to manufacture a comprehensive range of electrochemical sensors for both laboratory and industrial applications.

Products include pH, reference electrodes, steam sterilisable, autoclavable pH electrodes, metal electrodes (ORP), conductivity cells, ion selective electrodes, temperature probes and dissolved oxygen.

In 1994 the Company acquired a new factory in Braintree, Essex, with improved manufacturing and administration facilities. Sentek has an active on-site research and development laboratory and can offer advice on many unusual or difficult applications.

Our manufacturing programme is flexible enough for us to supply probes to suit virtually every meter on the market.

SERVOMEX GROUP LTD



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Part of the UK-listed Spectris Group plc, Servomex Group Limited has over 50 years' experience in gas analysis and its products have gained an enviable reputation for reliability in process, safety and environmental applications. The company utilises only non-depleting measurement technologies, such as paramagnetic oxygen and infra-red sensors, coupled with robust instrument design and construction. Exporting over 80% of its turnover, the group has international project expertise, but also a strong network of offices and distributors to provide local support and advice.

Products for environmental monitoring include MCERTS and TÜV approved continuous emissions analysers, portable analysers for combustion optimisation or spot checking and robust 19" rack units field proven in hundreds of mobile source testing vehicles. Gases measured include O², CO, CO², NO^x, SO², NH³ and HCl. Complimenting its analysers Servomex is also able to provide sample conditioning systems, reporting systems and maintenance agreements.

SHAW MOISTURE METERS



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Shaw Moisture Meters design and manufacture a wide range of dewpoint meters and hygrometers for the measurement of trace moisture in gases and compressed air.

SHERWOOD SCIENTIFIC LTD



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The Sherwood product range includes: flame photometers, including the new fully automated four element model 425 Flame Photometer system, now with calcium, the dual channel model 420 and the world standard Model 410 single channel; the world-famous CHROMA colorimeters; M926 Mark 2 chloride analyser for food salt analysis and cystic fibrosis diagnosis; the powerful TORNADO range of laboratory fluid bed dryers with particle classifier and new programmable dryer and now the dynamic moisture analyser enabling full investigation of water activity and drying phenomena. The MAGWAY range of magnetic susceptibility balances is now enhanced with software for process control applications.

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Signal Group is one of the UK's most respected manufacturers of gas analysers, systems, test equipment and accessories for measuring continuous emissions, ambient air quality and gases in a wide variety of specialist applications.

Signal Ambitech specialises in the design and manufacture of high performance systems and software tools to fulfill the prescribed quality objectives of air quality and traffic management teams. Together with the reference method emissions and automotive equipment from the Signal Instruments Division, Signal's advanced systems span a wide range of gas measurement requirements including ambient roadside monitoring, automotive test equipment, mobile emission test laboratories, stand-alone pollution monitors, continuous monitoring equipment, bespoke research equipment- and user-friendly supporting software.

An established leader in gas analysis for over a quarter of a century, Signal technology ensures exceptional data collection and control, with equipment in more than 25 countries across Europe, North America, the Middle East and the Asian-Pacific rim.

SIRIUS ANALYTICAL



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Sirius Analytical manufacture an instrument called GLpH, which brings “good laboratory practice” to pH measurement. Several water companies in the UK use GLpH with a built-in 50-position autosampler for measuring pH of drinking water. Other laboratories use GLpH to measure the pH of soils, where measurement throughputs of up to 300 samples per working day are routinely achieved. GLpH moves the pH electrode, stirrer and temperature probe automatically between buffer solutions, wash solutions and samples. It is self-calibrating, and users never have to touch the probes. Every measurement is made in the same way, eliminating user errors that beset conventional pH measurement. GLpH stores results from measurements and calibrations, available for download at any time to a PC. It also reminds users to undertake routine maintenance, and warns of out-of-spec conditions.

Use Sirius GLpH if you want to measure pH right, keep measuring it right and prove that you’re measuring it right.

SKYE INSTRUMENTS LTD



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Skye Instruments has been designing and manufacturing sensors and systems for microclimate studies and environmental monitoring worldwide since 1983. Our MiniMet Automatic Weather Station is a very popular system for landfill sites, quarries, factory sites etc, as it is a valuable tool in helping to comply with local authority requirements and government legislation for monitoring and storing weather data.

Skye offer a complete package, from advice on which sensors are required and site visits, to installation and an annual service contract. We are a very friendly and approachable company, with an excellent reputation for customer service and for providing systems ‘built for the job’.

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Synbiosis is a world-leading supplier of automatic colony counting and zone measurement systems microbiology and pharmaceutical applications. The hallmark of all Synbiosis systems is that they will improve the efficiency, reliability and productivity of any laboratory through the use of automated techniques. Synbiosis products are used in the pharmaceutical, healthcare and food manufacturing industries, as well as for environmental monitoring.

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SYSTECH INSTRUMENTS LTD



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Systech is a UK manufacturer and global supplier of oxygen and moisture analysis equipment, utilising zirconia, electrochemical, paramagnetic, and Hersch cell technology for oxygen measurement, and phosphorous pentoxide and aluminium oxide technology for moisture measurement. Custom solutions and sampling systems are also available. Oxygen deficiency and on-line measurements are our area of expertise.

THERMO ELECTRON CORPORATION



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Thermo Electron is the leading specialist electrode manufacturer in the UK.

Thermo Electron is ISO 9001:2000 registered.

Thermo Electron offers a comprehensive range of pH electrodes and electrochemical sensors. The full range of products includes meters, electrodes and ancillaries for the measurement of pH, ORP, conductivity, dissolved oxygen and specific ions. Water test strips complement the range of products for the potable water and environmental testing markets. The product range is increased further by the addition of foam detection and control equipment. Thermo Electron is committed to providing the best instrumentation for a wide array of laboratory analyses.

The website has details of all our products. The site also contains application examples for nearly all Thermo Electron electrodes.

Thermo Electron offer an electrochemical design and engineering service. The service can design specific electrodes to individual customer specifications.

VACUUM SYSTEMS LTD – MICROANALYSIS



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VSMicroanalysis specialises in design, supply and installation of X-ray spectrometer and microscope XPS, a scientific type of instrumentation providing quantitative information on chemical species and bonds of a sample’s surface layers. The sample, in solid form, can be re-examined. The method is non-destructive.

It is a fast and precise way of establishing surface chemistry, classifying unknown inclusions and following chemical process *in situ*.

It is an invaluable tool for quality control, R&D into new processes and materials, including nano-objects such as C-tubes and magnetic nano-structures.

The company also offers a confidential problem-oriented in-house laboratory service and consultancy.

VSMicroanalysis also supplies range of standard products, XPS spectrometers and microscopes, X-ray source and power supplies, particle detectors with software energy analysers for industry and academia.

Customers include Oxford University, Leicester University and X-ray Optics USA.

WAGTECH
INTERNATIONAL

CASE STUDY



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Wagtech International are a UK based exporter specialising in the manufacture and supply of scientific and laboratory equipment, with a focus on water quality & environmental testing. Key products include portable field water testing kits for testing if drinking water is safe. Wagtech also manufacture a unique range of low cost Arsenic testing equipment, including the Arsenator, the world's first digital field instrument, accurate down to ppb levels. A major supplier to the UN and development community, Wagtech water testing equipment is in use the world over. Backed up by an extensive network of regional offices and distributors, Wagtech are able to support their products all over the world with installation, commissioning, and training.

The Wagtech product range also covers the following sectors:- General Laboratory, Materials Testing, Seed Testing and Vocational Equipment. In addition the Wagtech Projects Division offers bespoke project services including turnkey management package deals, consultation and training overseas.

WAGTECH DIGITAL
ARSENATOR MAKES
LOW-COST, ACCURATE
FIELD TESTING OF
ARSENIC A REALITY
IN BANGLADESH

Background

Arsenic in drinking water can be a major health concern. It occurs naturally in drinking water in many parts of the world. Drinking water rich in arsenic over a long period leads to arsenic poisoning or arsenicosis. This results in various health effects including cancer and diseases of the blood vessels of the legs and feet, and possibly also diabetes, high blood pressure and reproductive disorders.

The Problem

One of the worst affected countries is Bangladesh. It is estimated that there are upwards of 11 million tube-wells supplying households daily drinking water throughout rural Bangladesh. As many as 25 million people may be affected and the problem is so widespread that many do not have alternative safe water sources. It has been labelled "the worst mass poisoning in history"

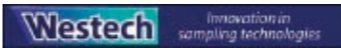
It is clear that testing for arsenic throughout the region is key to identifying where the problem exists and, more importantly, identifying safe sources which are acceptable to those living in arsenic-prone areas. However, with the problem on such a large scale, and traditional low-cost testing methods proving inaccurate and unreliable, it was apparent that a new approach was required.

The Solution

In conjunction with the University of Graz in Austria, Wagtech developed the Digital Arsenator, the world's only digital instrument capable of measuring arsenic in drinking water down to ppb levels in the field. The test is simple and takes less than 20 minutes to carry out. Compared to expensive laboratory-based instruments, which remain fixed in one site, require high levels of training and do not guarantee greater accuracy, it represents a cost-effective solution to the problem of mass field screening.

Wagtech International has been engaged in supplying their unique arsenic testing equipment to the region for the past several years. The Arsenator system is now recognised as the most reliable and accurate option for field-based testing and is in widespread use by organisations such as UNICEF and WHO. Large-scale arsenic testing using Wagtech products is actively helping to identify contaminated sources and prevent the problem growing.

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Westech Instrument Services Limited specialises in the marketing and manufacture of all types of instrumentation for the measurement and collection of particulate and dust. We have an intimate knowledge and understanding of existing devices, technologies and trusted methods, as well as access to many different sampling technologies and equipment manufacturers.

We will find and design solutions to the most demanding sampling tasks, often through the innovative application of known technologies, for all types of aerosol, including ambient, automotive, emission, pharmaceutical and biological.

Westech also provides a comprehensive service and support programme for all particulate monitoring systems in the field, including a maintenance and calibration service for the pharmaceutical industry and a UKAS, compliant traceable calibration service for the environmental monitoring market.

WHATMAN
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Whatman has been a leading supplier of filtration products for environmental monitoring applications for more than 40 years. Products are used for air, water and soil analysis and are specified in EPA and ASTM protocols for environmental monitoring.

Whatman filters are widely used to monitor air and emissions. Applications include air monitoring at nuclear power plants, gas monitoring in public places, aerosol monitoring and particle detection by environmental agencies.

Disposable devices are designed to collect groundwater samples prior to analysis. Glass microfibre products are used for the quantification of suspended solids from water and wastewater. Track-etched membranes are used for the detection of cryptosporidium and giardia in water, and mixed cellulose ester membranes detect coliform and other bacteria in drinking and waste water.

Specialised products are available for measuring hazardous contaminants such as hazardous metals from landfill sites. SPE and solvent extraction devices are also available for extracting organic contaminants.

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