



Ultra Trace

CETAC Corners the Oil Market with the ASXPRESS PLUS

CETAC has a complete sample introduction solutions geared for the oil analysis industry. With the ASXPRESS PLUS Rapid Sample Introduction System interfaced to the ASX-1400 stirring autosampler, the highest throughput labs across the world have enjoyed rapid, reliable results from well mixed samples and accelerated analysis times.

It is common for the ASXPRESS PLUS system to double the throughput of the ICP to which it is coupled, and even greater time savings have been observed. This added production capacity equates to the throughput capacity of an additional ICP, a very costly alternative.

Wear metal analysis of used oil has been employed to monitor and protect the condition of capital equipment since the 1960's. Since then the industry has experienced continuous growth and today an estimated 100 million samples are tested each year. *(Continued on next page.)*

Collaboration Strengthens Laser Ablation Product Line



Partners in advancing laser ablation technology.

In June, CETAC and Photon Machines entered into a strategic partnership to offer an expanded line of laser ablation products to the scientific community. The companies will co-brand the CETAC 266 and 213 nm platforms along with the Photon Machines 193 nm excimer system.

Says Mary Beisheim, Executive Vice President, "We're excited about this partnership and the introduction of the Analyte G2. The Analyte 193 was the best selling excimer laser ablation system in North America, and with the introduction of the Analyte G2 we are able to offer a technically superior instrument with the backing of a world-wide support channel. Working together, the two companies will be able to leverage their strengths to bring an unparalleled combination of technical expertise, distribution coverage, and customer service and support."

The first Analyte G2 Excimer Laser Ablation System in Europe was recently sold to the University of Oviedo, Spain. The instrument will be demonstrated at the upcoming Spanish Laser Ablation Workshop taking place in November.



ASXPRESS PLUS Rapid Sample Introduction System

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New Software Released for Laser Ablation Systems



ASX-1400 Stirring Autosampler



APS-1650 Automated Prep Station

Introducing an improved Z-drive for ASX-500 Platform

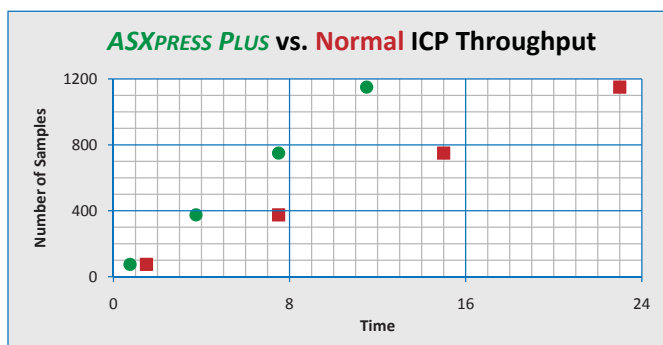
The ASX-500 family of autosamplers receives a new, ultra durable Z-drive cable constructed of Nylon 101 which replaces the current PEEK cable. This material is virtually uninkable and prevents damage to the drive cable due to collisions or obstructions.

This enhancement helps increase laboratory productivity and efficiency by eliminating downtime and cost associated with kinking of Z-drive cable. Upgrade your existing ASX-130, ASX-260, ASX-520/HS, or EXR-8/HS autosampler today! Contact CETAC Technologies at www.cetac.com, or call 1-800-369-2822.

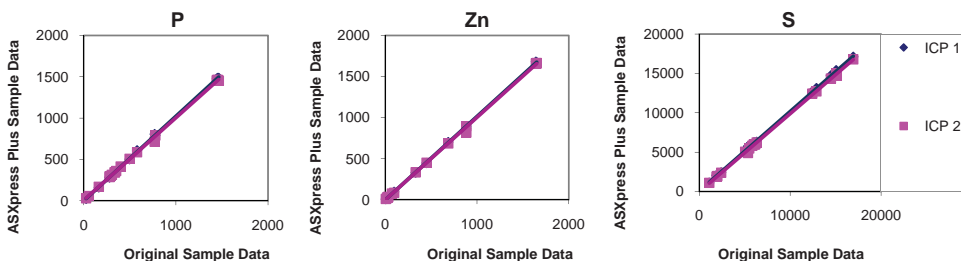
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(Continued) Whether this testing is done internally or with the use of a contract lab, nearly every sample is tested using inductively coupled atomic emission spectroscopy (ICP). With such steady growth, labs are always looking for a way to increase throughput and capacity without large capital expenditures.

Among many others, Oel Check (Brannenburg, Germany) has had great success with the ASXPRESS PLUS interfaced to an ASX-1400 stirring autosampler and their Perkin Elmer Optima ICPs. Before the introduction of the ASXPRESS PLUS system, it was necessary for them to run samples overnight. Now, it is a rare occurrence for the ICPs to be running after the end of the normal work day. Analysis times have been reduced by half and capacity issues have been resolved while carryover has been eliminated with the use of the ASXpress Plus. No additional washout parameters were necessary through the ICP software and no changes were made to the integration scheme.



Samples which were run on the ASXPRESS PLUS enabled systems correlated beautifully to the original ICP results as seen in the following graphs:



When production capacity increases so dramatically, many labs find themselves in a position where ICP analysis is no longer the time limiting factor. Instead, the time-limiting step commonly becomes sample preparation. It is for this predicament that CETAC developed the APS-1650 Automated Preparation Station which has also been adopted by many of these oil labs.

CETAC is the one-stop-shop for oil analysis needs. We have dominated this industry with innovative products such as the ASXPRESS PLUS and will continue to do so for years to come. The following links lead to Oil Application Notes that outline additional case studies:

www.cetac.com/literature/application_notes.asp

Tracking Mercury Contamination in Northern Italy

The Italian Water Research Institute (Italian acronym: IRSA) of the National Research Council (CNR) was created in 1968 with three main missions: to promote and perform innovative research, to carry out pre-normative research and activities, and to participate in education and training. In the last 10 years, the IRSA branch of Brugherio (MB, Italy) has been particularly active in monitoring Hg contamination in sediments and biota of Lake Maggiore, a major subalpine lake in Northern Italy (area of over 200 km² and a volume of 37 km³) which has been historically polluted by a chlor-alkali industry. More recently, thanks to the efforts of Dr. Davide Vignati (permanent researcher at IRSA since 2008) and his team, Hg monitoring has been extended to other lakes, revealing a creeping Hg contamination in northern Italy. Analysis of total Hg in human hair also showed that the US-EPA criterion of 1 mg/kg was frequently exceeded in samples donated by volunteers living in various zones of Northern Italy.

Despite the urgency of this mounting body of evidence, an in-depth study of Hg cycling in the internal waters of northern Italy has been slowed down by the lack of proper analytical capabilities. This situation is about to change as a new CETAC QuickTrace™ M-8000 atomic fluorescence instrument has been installed at the IRSA laboratories. After completion of the start-up phase, IRSA and other interested parties will finally be able to quantitatively estimate the fluxes of Hg to Lake Maggiore; thus paving the way for similar investigation in the catchment of other lakes. This information will be extremely valuable in refining the current European legislation on Hg which currently establishes an Environmental Quality Standard of 50 ng/L of total Hg in natural waters. The availability of more sensitive instrumentation will assist in deciding whether a more stringent limit can be implemented in the future.

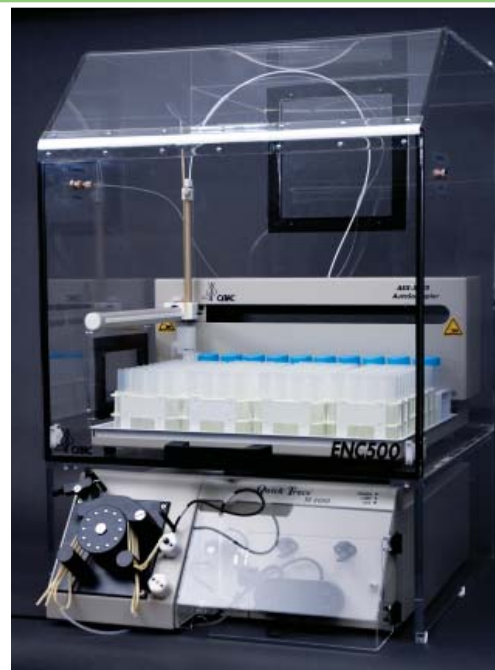
For further information, contact Davide Vignati MSc., PhD, IRSA-CNR, vignati@irsa.cnr.it, www.irsa.cnr.it/ShCard.php?&id=108.

Mercury Analysis of Bottled Water from Around the Globe

According to the International Bottled Water Association, bottled water was the second most popular beverage in the United States in 2008. With the growing number of individuals drinking bottled water it is a concern not only that the water can be a source of mercury contamination but also bottle production or the bottling processes itself.

In order to validate the capabilities of the QuickTrace™ M-8000 Mercury Analyzer, it was put to the test by analyzing commercially-purchased bottled water from around the globe. Sources of bottled water were obtained from 11 countries, fortified, and analyzed using EPA method 1631. Values for total mercury were low ppt to ultra-trace levels and concentration varied slightly among the sources.

The CETAC QuickTrace™ M-8000 CVAFS mercury analyzer proved suitable for ultra-trace analysis when detailed care is taken and stringent clean practices followed for ultra-trace levels of detection.



**QuickTrace™ M-8000
Mercury Analyzer**



View the complete application online:
[www.cetac.com/literature/
application_notes.asp](http://www.cetac.com/literature/application_notes.asp)

Precision Isotope Ratio Measurement with the Aridus II

Multicollector ICP-MS instruments are specialized devices for high-precision isotope ratio measurements. These instruments are often used for geochronology studies, where enhanced isotope sensitivity and reduction of solvent-based interferences (hydrides and oxides) are important for meaningful results.

One example is the U-series dating of cave formations. The Aridus II along with MC-ICP-MS was used to reveal patterns of flowstone growth not visually apparent in the sample and to more accurately date the stalagmite.

The CETAC Aridus II is an inert, low-flow, desolvating nebulizer system that can enhance MC-ICP-MS sensitivity up to tenfold while providing marked reduction of hydride and oxide interferences. The Aridus II may be coupled with a dedicated ASX-112FR autosampler (dual-flowing rinse capability) and the QuickWash fast-washout accessory to reduce memory effects from more concentrated samples. All wetted parts of the Aridus II are composed of fluoropolymers such as PFA for low trace metal blanks and maximum chemical resistance.

Please see www.cetac.com/literature/application_notes.asp to view data describing the U-series dating study of a stalagmite and a flowstone.

Customer Service is the Focus of Global Sales Training

CETAC Technologies is dedicated to providing our customers and the industries we serve with up-to-date, accurate information about our products and technologies. In this spirit, CETAC annually holds a Global Sales Meeting at its Omaha headquarters. Members of our worldwide sales organization come from all corners of the United States as well as Australia, Taiwan, Japan, United Kingdom, Italy, France and Germany.

“This is a great opportunity to get all of our technical sales force together to discuss current products and applications, but also to visit about new frontiers,” said CETAC President Jeff Rosenbohm.

Participants were given hands-on laboratory experience with all of our products on a wide range of ICP-OES and ICP-MS platforms. At the end of



each day, participants were able to share their expertise and give feedback in a round-table discussion.

This approach allowed participants to witness our products in real-life applications settings and gain greater insight into our capabilities.



Aridus II Desolvating Nebulizer System with QuickWash Accessory and ASX-112FR Micro-Autosampler

CETAC Expands Training Lab

The CETAC training and demo facility has some new additions. CETAC recently acquired a new collision-cell based ICP-MS and a new radial-viewing ICP-AES.

The lab now has a complement of two dual-viewing ICP-AES systems and one radial-viewing ICP-AES together with three quadrupole ICP-MS systems, two of which are cell-based.

“The placement of these new systems significantly enhances our capabilities in new product development, customer sample applications and customer training,” remarked David Clarke, CETAC Technical Director. “We are committed to further upgrades and acquisitions of equipment to respond to market needs.”

CETAC 2011 ICP-AES / ICP-MS Continuing Education Series

For 2011 CETAC Technologies will again conduct two ICP-AES / ICP-MS Continuing Education Courses at its worldwide headquarters in Omaha, Nebraska, USA. These popular courses are designed to appeal to personnel with varying backgrounds and may include laboratory managers and technicians. These courses have been held at CETAC since 1993 and feature contemporary ICP-AES and ICP-MS instrumentation. Knowledge and avoidance of just one laboratory error can justify the cost of these courses.

The series will consist of two 2-day courses that run consecutively from Monday through Thursday of the scheduled week. Course descriptions are below:

**Course 201: Introduction to ICP-AES and Laboratory Session
(May 9-10 / September 19-20)**

This course will explain ICP-AES spectrometry from the physical nature of the source through the various components of the instrumentation. Other topics will include calibration, background correction, interelement effects and sample introduction accessories. The laboratory session will emphasize hardware components and performance parameters.

**Course 301: Introduction to ICP-MS and Laboratory Session
(May 11-12 / September 21-22)**

The components that comprise an ICP-MS instrument will be described with particular detail for those items that are not in common with ICP-AES systems. Topics such as interferences, data acquisition, sample preparation and accessories will be discussed. Laboratory demonstrations will be used to demonstrate various aspects of ICP-MS spectrometry.

Registration:

Space is limited to 10 attendees per course, so please register early. The registration deadline for the May 2011 course is Friday April 15, 2011; the deadline for the September 2011 course is August 26, 2011.

Each course may be attended separately or combined. Course fees are \$900 per person for each 2-day courses. Additional information is available online at www.cetac.com/news_events/icp-training.asp. If you would like to register, or to receive more information, please contact Mr. Todd Maxwell, Continuing Education Administrator, by any of the methods on the registration form below.

LabAutomation

January 29 – February 2
Palm Springs, CA

**European Winter Conference
on Plasma Spectrochemistry**

January 30 – February 4
Zaragoza, Spain

PittCon

March 13–18
Atlanta, GA

**CANAS (Colloquium Analytical
Atomic Spectroscopy)**

March 13–16
Leipzig, Germany

**Nordic Conference on
Plasma Spectrochemistry**

June 6–9
Loen, Norway

How to register:**By phone:**

800-369-2822
or 402-738-5416

By fax:

402-733-5292

By e-mail:

tmaxwell@cetac.com

By mail:

Complete and mail this form to:
CETAC Technologies
Attn: Todd Maxwell
14306 Industrial Rd.
Omaha, NE 68144

Name _____

Title _____

E-mail _____

Please list additional registrations on a separate sheet and attach.

Company _____

Mailing Address _____

City _____ State _____ ZIP _____

Telephone _____

Fax _____

Course Selection

Course 201, May 9-10 Course 201, Sept. 19-20

Course 301, May 11-12 Course 301, Sept. 21-22

Payment Information:

Check enclosed, payable to:
CETAC Technologies
Check # _____ Amount _____

Purchase order attached:

Invoice my company:
Attention: _____

Credit Card: Visa M.C.
 AmEx Discover

Card number _____

Expiration date _____

Signature _____

New Software Released for Laser Ablation Systems

Earlier this year CETAC unveiled the new DigiLaz™ III operating software for the LSX laser ablation platform. This latest DigiLaz software includes all the features of prior versions, but has enhanced functionality and flexibility for performing laser ablation analyses. The software is designed with the modern look and feel of the latest professional productivity suites, allowing improved control and easy access to all method parameters.

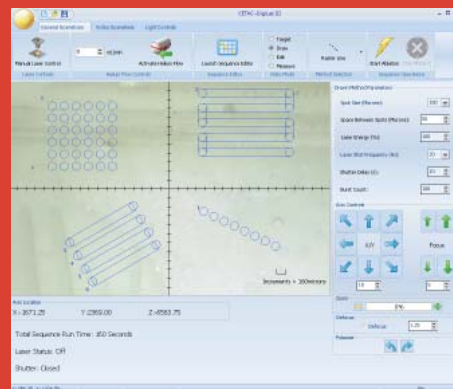
Several new features have been added including:

- Powerful sequence editor for method development with any combination of rasters, lines and points
- New multiple line scan method for profiling entire sample surfaces
- Enhanced, real-time control of energy, Helium flow and Z-focal point
- Flexible triggering options for easy sync and automation with the host detector

Prior LSX systems may be eligible for an upgrade, depending on hardware configuration. Contact your local CETAC representative for further information.



LSX-213 Laser Ablation System and DigiLaz™ III program screenshot



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