Environmental NEWS

Spring 2012

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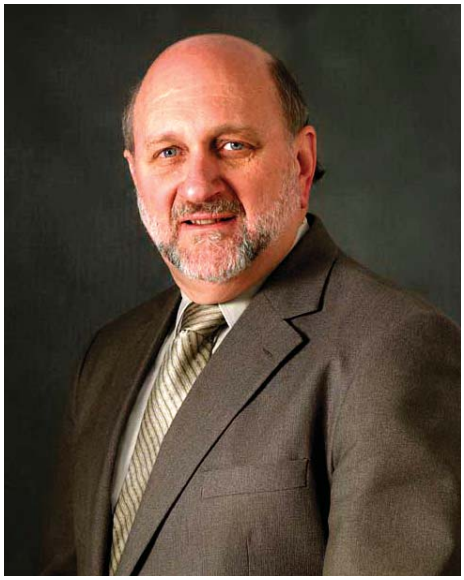

by J. Wilson Hershey, Ph.D., Lancaster Laboratories chairman of the board

With more than 160 laboratories across 32 countries, a portfolio of over 100,000 analytical methods and over 10,000 staff, Eurofins Scientific epitomizes strategic growth. Since its founding in 1987, Eurofins has enjoyed record growth, a trait we've also taken pride in during our 51-year history at Lancaster Labs. As the old adage goes: great minds think alike. And as part of the Eurofins organization, Eurofins Lancaster Laboratories continues to grow.

Eurofins is very interested in growing our Lab organically with plans for a major building expansion slated for 2012 as well as purchasing premium laboratories as evidenced by the acquisition of California-based Air Toxics earlier this year. (See article on next page.) This affiliation of Eurofins' Lancaster Laboratories and Air Toxics strengthens the organization's growing presence in the US.

With an enhanced West Coast presence, clients will have greater geographic access to the most comprehensive scope of soil, water, biota, hazardous waste as well as air testing capabilities with unmatched regulatory compliance, capacity and technical experience.

In addition to industry-leading air testing expertise, Eurofins Air Toxics maintains one of the largest canister inventories of any laboratory in the world. With regulatory action levels being driven lower and lower, the importance of cleaning and certifying media to those levels is paramount to compliance. The company's continuous investment in new canisters and flow controllers is indicative of its commitment to maximum compliance and forward-thinking growth.

Quite similar to Eurofins Air Toxics, our Lab is passionate about forging partnerships with clients and delivering an outstanding service experience.

Looking ahead, there are other testing firms under acquisition consideration this year. Building upon our strength in the marketplace and partnering with labs like Eurofins Air Toxics' expertise and solid industry reputation represents significant value for our clients through an expanded testing portfolio, scientific and regulatory expertise and geographic presence, thereby delivering better client service. As we grow, our goal is to ensure you continue to receive all of the quality service offerings you are accustomed to as well as capitalize on new opportunities to meet your ever-changing complex needs.

We remain dedicated to helping you serve the health and environmental needs of society through science and technology and in turn making the world a better place. For us, that's a strategy worth growing.

For more information about our parent company, Eurofins Scientific, visit www.LancasterLabsEnv.com, About Us, About Eurofins. Or visit Eurofins' website at www.eurofins.com.

What's in a name?

As we forge our relationship with Eurofins Scientific, there continues to be an appreciation of the value in both the Lancaster Laboratories and Eurofins names and the global harmonized services this union affords.

To that, at the beginning of this year, we shared with clients that our logo would incorporate the Eurofins name. Since our goal is to create a seamless service experience for clients, we therefore recognize the benefits of incorporating the Eurofins name into our legal name as well.

Effective June 1, 2012, for contracts and written agreements, our legal name will be Eurofins Lancaster Laboratories, Inc. There will be no changes to current regulatory licenses, approvals, registrations, accreditations or FEIN number.

We hope this will create consistency for you when referencing and working with our company. We thank you for your business and look forward to serving you better each day.

Contact us
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Looking for a better solution to the helium shortage?

In the laboratory, helium is primarily used as a GC carrier gas. To address the recent shortage of helium supplies, Eurofins Lancaster Laboratories is doing two things to help clients overcome the potential loss of time and money.

First, Eurofins Lancaster Laboratories is conserving the helium that is being used in its environmental and bio/pharmaceutical laboratories at all of its locations. To do that, its labs are setting up instruments using a very low flow when they are not in use instead of just letting them run at an analytical flow all of the time.

Second, Lancaster Labs is switching its carrier gas from helium to hydrogen. This has been successfully accomplished for most of the GC methods such as chlorinated pesticides by 8081, PCBs by 8082 and TPH by 8015. These methods use electron capture or flame ionization detectors so the conversion is fairly straightforward.

Using hydrogen as a carrier gas for GC/MS, though, is proving to be a little more of a challenge. Eurofins Lancaster Laboratories is actively working with manufacturers to overcome this as the positive long-term potential for hydrogen use is very sound.

In further support of hydrogen usage, Eurofins Lancaster Laboratories is utilizing hydrogen generators for their cost-effective, safe and green benefits. The generators also eliminate the need for high pressure cylinders which can create their own set of safety concerns. Generating hydrogen is also probably the most cost-effective way to generate carrier gas, especially since the cost of helium is so high right now.

To find out how Lancaster Labs can solve your helium shortage analytical challenges, contact Environmental Business Development at 717-656-2300.

Eurofins Lancaster Laboratories expands geographic footprint with Air Toxics acquisition

As the leading provider of air testing services in the US as well as among numerous countries abroad, Eurofins Air Toxics enhances Lancaster Laboratories' West Coast presence, positioning the organization to better serve clients multi-site needs. Offering more comprehensive services to clients from both the east and west coasts, clients benefit through greater access to scientific and regulatory expertise and expanded capabilities, thereby enhancing their service experience.

Founded in 1989, California-based Eurofins Air Toxics provides comprehensive analytical solutions for Vapor Intrusion assessments, using a wide range of EPA, CARB, ASTM and NIOSH methods. The first air laboratory to acquire NELAP certification, Eurofins Air Toxics works with a wide variety of clients in both the government and private sectors, including US EPA, Department of Defense, Army Corps of Engineers, Air Force Center for Environmental Excellence, U.S. Navy, Department of Energy, as well as state and local agencies.

Eurofins Air Toxics' capabilities range from parts per trillion volume (pptv) analysis of ambient air to identifying organics in high level sources, and from routine analysis to sophisticated special technical services. A continuing commitment to data integrity, investment in advanced instrumentation and technologies and dedicated client service have forged Eurofins Air Toxics' stellar industry reputation.

This will provide clients with the most complete portfolio of environmental testing services being demanded in today's marketplace. "The air testing market that we serve has evolved rapidly over the last 20 years," says Robert Mitzel, vice president, Business Development at Eurofins Air Toxics. "Our customers are now seeking solutions on global level. Eurofins global environmental footprint will help Air Toxics to better fill that need. With Eurofins comprehensive network of 160 laboratories, there is ample support to meet and surpass our clients expectations. Moreover, we are also excited to form a partnership with Lancaster Laboratories." Behind these expanded services will be a high level of IT systems, enabling clients to have 24/7 access to their online data via LLabWeb.com.

Committed to providing the best laboratory services and client support, Eurofins Lancaster Laboratories is dedicated to consistently providing the highest quality of analytical testing technology available in the industry. "We are very pleased to have Air Toxics join our team, especially given their great reputation for customer service and technical expertise," says Wilson Hershey, chairman of Eurofins Lancaster Laboratories. "This acquisition will provide continued momentum in our goal to not only expand our footprint in the US but also to provide the absolute best service to our customers."

PCB Congener testing options provide greater concentration detail in various sample matrices

Polychlorinated biphenyl (PCB) analysis has been a mainstay in Eurofins Lancaster Laboratories' testing repertoire for decades due to the chemical's persistent nature and ability to bioaccumulate in tissue. Although there are 209 specific PCB compounds or congeners, most of the early regulatory criteria and test methods quantify the PCBs as Aroclors, a trade name for mixtures of the congeners. Concerns about the varying toxicity of the individual congeners has led to the need for test methods that provide more detail on the concentration of each congener, which are named using numbers from 1-209. The Specialty Services Group has built on their knowledge of dioxin/furan testing to offer several methods for the determination of the individual PCB congeners in various sample matrices.

Principal chemist Nelson Risser changes ion volume to maintain optimal HRGC/HRMS instrument performance for PCB Congener testing.

Of particular concern for their toxicity are 12 congeners with coplanar geometry similar to dioxins and furans. Also referred to as dioxin-like PCBs or dl-PCBs, these 12 coplanar compounds have Toxicity Equivalency Factors (TEF) assigned by the World Health Organization (WHO) that can be used to assess the risks associated with their presence in samples. Because many clients have samples requiring both dl-PCB congener and dioxin/furan analyses, Eurofins Lancaster Laboratories developed a test method capable of determining both types of compounds using a single sample preparation. The contaminants are extracted out of the sample using a method that is based on a combination of EPA methods 1613 and 1668a. Controls to prevent sample contamination during the extraction process are critical, and Eurofins Lancaster Laboratories chemists employed their years of extraction experience when engineering this part of the analytical process. Analysis of the sample extract is accomplished using a dual column, HRGC/HRMS instrument. The extract is injected into both of the HRGC columns, providing the ability to quantify both classes of compounds, and the instrument uses magnetic sector detection, which improves the specificity of the determination. Individual concentration values are reported for 17 toxic dioxin and furan compounds, along with the 12 dl-PCBs. The reporting format can be customized to include the use of the TEFs, and a Toxicity Equivalent Concentration (TEQ) can be calculated from the sum of those results. Clients with food, feed and tissue samples are most interested in this presentation of data because the European Union has established regulatory limits for the amounts of dioxin, furan and dl-PCBs for products sold in EU member countries. Eurofins Lancaster Laboratories has generated method validation data to show the capability of this analysis and is seeking A2LA accreditation for it.

Clients with environmental samples, including water, soil and sediment samples may require more information about the types of contaminants present at a site. To meet this need, Lancaster Laboratories can perform EPA method 1668a for the complete list of 209 congeners. The additional compounds can provide clues as to the source and extent of contamination. Because Aroclor manufacturing ceased in the 1970s many samples contain weathered PCBs, making peak pattern recognition used in earlier methods more difficult. Since congener concentrations are determined using individual chromatographic peaks, results are more directly comparable between samples. To improve analysis efficiency, the group has three HRGC/HRMS instruments available for use. According to Chuck Neslund, manager of the Specialty Services Group, "The addition of these new specialized tests just expands our ability to meet all of a client's diverse testing needs at a single location. In addition to more routine types of testing, we can accept samples associated with large scale projects that require methods few other labs can perform."

Reduced volume DRO method offers benefits to clients and the environment

Principal chemist Bob Brown qualifies new instrumentation for the new reduced-volume DRO water method.

Chemists at Eurofins Lancaster Laboratories continuously seek to improve their analytical processes with the goal of providing the best quality and value to clients. That philosophy, along with a commitment to being good stewards of the environment, has led to innovative procedures in many areas of the company. A new method being developed for determining diesel range organic compounds (DRO) in aqueous samples provides a successful example of process improvements with benefits for both clients and the environment.

DRO analysis typically requires a one liter sample size to provide measurement of hydrocarbons in the C10 through C28 range. Analysts in Eurofins Lancaster Laboratories' Extraction Group are working on the method validation of a new technique employing a micro-extraction that uses significantly less sample, while still achieving comparable detection limits. The new procedure is based on EPA method 3511 and uses a micro scale approach that requires only a 40-ml sample size, greatly reducing the amount of time spent collecting samples in fields and reducing shipping costs as well. The method is greener in a number of ways, too. Once the sample is received at the laboratory, it is micro-extracted in the collection container using a small amount of solvent. This reduces the amount of glassware and cleaning chemicals used since the existing method used separatory funnels to perform the large volume extractions. Solvent usage is also cut significantly, as is the need to concentrate the extract, reducing health and safety issues and waste generated.

When validating the new method, analysts also discovered a fortuitous side benefit of the new method: decreased sample contamination. Analysis of volatile compounds is always prone to laboratory contamination and requires special sample handling to prevent false positives. Blanks analyzed with the samples during validation are actually cleaner because the old method concentrated artifacts from the glassware along with the DRO compounds of interest. As part of the method validation process, the proposed sample containers were also tested to ensure that no contamination was introduced by their use.

Eliminating the sample concentration step yields multiple benefits, but it can also result in a method that does not provide detection limits adequate to meet regulatory expectations. To solve this problem Bob Brown and Chuck Neslund, two of Eurofins Lancaster Laboratories' chromatographic experts, made adjustments to the analytical parameters on existing GC/FID instruments to improve the overall sensitivity of the analysis. Method validation trials performed with the optimized chromatography showed that the extraction efficiencies, detection limits and quality control sample results were equivalent to the old method. Because there are fewer steps in the analysis, the new method is also more reproducible.

Duane Luckenbill, director of Environmental Sciences, credits Brown, Neslund and the Extraction Team for effectively innovating the method improvements. "We're an environmental laboratory, so naturally we want to do what's right for the environment. That's why we think implementing greener methods is important."

Eurofins Lancaster Laboratories is certified to perform the micro extraction for DRO analysis by environmental protection agencies in various states, including Pennsylvania, Oregon and Washington. Clients requesting sampling containers for DRO testing will soon be receiving 40 ml vials instead of liter bottles. For more information about DRO analysis, contact Environmental Business Development at 717-656-2300.

Automation boosts capacity for water quality tests

Driven by the need for timely, accurate data to support the booming shale gas industry, demand for water quality testing is increasing. To meet this need, Eurofins Lancaster Laboratories has acquired instrumentation to automate and streamline their ability to determine a variety of water quality parameters.

Two multi-parameter autotitrators are being used to improve throughput for a number of analyses, such as pH, alkalinity, conductivity, turbidity, hardness and ammonia. The units are equipped with 197-position autosamplers and can analyze multiple parameters from a single sample. The automated methods are based on the same EPA method references currently in use at Lancaster Laboratories, so no changes will be observed on the analytical reports that clients receive. “The autotitrator can run around the clock, so we can increase our throughput and shorten turnaround time for these tests,” said Erik Frederiksen, manager of the Water Quality Group. He added that automation will eliminate the human factor in the titrations, which can be somewhat technique dependent.

Extraction of water samples to be analyzed for Hexane Extractable Material (HEM) by EPA method 1664A is also being automated with the use of solid phase extraction (SPE) systems to replace the manual separatory funnel extraction. The SPE method uses less solvent, making it a greener testing choice. And it greatly decreases the amount of time needed to complete the extraction, increasing capacity and reducing turnaround time. The units are self contained, so analyst exposure to solvents is minimized, meaning the SPE method is also safer for the analysts performing the tests.

Programming and method development work is also being completed on a third technology aimed at expanding capacity. The discrete analyzer is an automated robotic system that performs colorimetric tests, including nitrite, nitrate and cyanide. Frederiksen anticipates that the discrete analyzer will be ready for routine use soon, adding yet another instrument to expand capacity in the Water Quality Laboratory.

For more information about Water Quality Testing, contact Environmental Business Development at 717-656-2300.

Water quality chemist Yolander Bunch utilizes a new autotitrator.

New glycol method offers lower detection levels

When a regulatory agency recently required a client to demonstrate that glycols were not being introduced into the environment through their hydraulic fracturing process, the client faced an analytical challenge because the concentrations of concern were lower than the detection limits of current methods. They brought this challenge to the chemists at Eurofins Lancaster Laboratories, who used their experience with LC/MS/MS to develop a test that could meet agency requirements.

The previously existing test method for glycols involves using a direct aqueous injection onto a gas chromatograph with an FID detector. The method is straight forward, but the lack of any sample preparation and the non-specific detector result in detection levels that were higher than those required for this project. A typical reporting limit for the GC method is in the range of 10 mg/l for diethylene glycol. Because glycols are highly soluble in water, extraction of these analytes from the samples is extremely difficult, so the chemists began to look at other analytical options.

Although glycols are not listed as target analytes in EPA method 8321, some of the analytes included in that method have structural similarities to glycols. In that method, an LC/MS is used to determine the presence and quantities of the compounds, so the chemists took a similar approach as a starting point for the glycol analysis. They were able to optimize the chromatographic conditions on an LC/MS/MS, which provided better sensitivity than the GC/FID. “We were able to improve the detection limits by several orders of magnitude,” says Chuck Neslund, who led the method development effort and serves as manager of the Specialty Services Group. “The LC/MS/MS is more selective and specific, so in addition to better sensitivity, this method reduces the possibility of false positives that are inherent in the FID method,” he adds.

The Specialty Services Group was established to meet non-routine client needs by employing highly experienced chemists with access to the latest innovations in analytical technology. For more information, contact Environmental Business Development at 717-656-2300.

People are the chemistry

At Eurofins Lancaster Laboratories, we believe that our people provide our strength. Their dedication to quality, professional competence and hard work is the key element in the company's success. In this regular feature, we introduce you to some of the people who have helped make Lancaster Laboratories an industry leader.

Eurofins Lancaster Laboratories prides itself on being a great family-friendly place to work, and Dana Kauffman espouses this sentiment. Dana began his career with the Lab in 1994 on third shift in Sample Support at the suggestion of his brother, Dr. Jon Kauffman, who is a director in the company's Biopharmaceutical Services Division. Dedicated, with a strong work ethic, Dana was quickly on the fast track to earn several promotions over the years to his current title, manager of Sample Support and Data Deliverables.

" I really get excited about the process improvement aspect of my work," says Dana. "A key aspect of what I oversee is the thrust to transition to all electronic and go paperless. Not only is this great for the environment, but it's very beneficial to clients. Currently we output approximately 90,000 pages of data per week. And with our clients realizing the electronic deliverable's ease of use, reduced TAT, improved consistencies with templates and formats, the requests for hard copies decline." Yet, it was not all hard work during his tenure at the Lab as he found time to meet his wife, Patty, a specialist in the Electronic Data Deliverables Department.

Dana Kauffman

You've been here for 18 years and seen countless changes. Is there anything that hasn't changed during your tenure?

Quite a bit of the staff is still here, especially the Management Team.

How would you characterize your leadership style?

- Hands on
- Empowering
- Eye towards continuous improvement
- Empathetic

What does your current job entail?

Process improvement for both areas I manage. I'm currently spending most of my time on multiple aspects of a project that will allow us to go paperless within the next year. We also are working to automate a lot of the manual functions that are currently performed to generate a hard copy data package.

What is the scope of your group?

Front-end processes such as sample storage, sample tracking, and sample preparation and back-end processes such as data packages, electronic data deliverables, and hard copy data preparation for archival.

Given all of your responsibilities, how would you describe a typical workday?

Crazy busy! Lots of meetings to review current processes and discuss ways to improve them. Also to identify barriers that could potentially affect our quality or production output.

What is the thrust of your group's work as it relates to clients?

- The interesting part for me is that my groups play such a critical role in client satisfaction. Sample Support needs to complete our tasks ASAP so that we don't delay labs from getting their samples and potentially affecting TAT. Even though we have to get our tasks done quickly we can't afford to make any mistakes in our preparation techniques or else the rest of the sample analysis process is lost.
- In data deliverables we are typically the last set of eyes to see the finished product before being sent to the client.

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Lunch & Learn with Eurofins Lancaster Labs

Eurofins Lancaster Laboratories offers technical seminars on regulatory topics and supporting testing capabilities along with lunch on us. Topics include:

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Low Level Metals Analysis Using ICP/MS Reaction/Collision Cell with HMI to Eliminate Interferences.

Specialty Analyses and Method Development: Explosives, Perchlorate, Hydrazines, Alkyl PAHS.

Laboratory Testing QC/QA: Detailed explanation laboratory QC sample value and data evaluation.

Call Environmental Business Development to schedule a presentation at your site. 717-656-2300.