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PACInsider
is a periodic newsletter of PAC, LP

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New PAC Web Site wins International Standard of Excellence Award

PAC's new web site at www.paclp.com has won a Standard of Excellence award in the Web Marketing Association's 2010 International WebAwards show. These awards, according to the Association, recognize the talented individual and team efforts in creating outstanding web site development and generate Internet marketing exposure for the award-winning web site.

According to Daniel Benitez, Vice President of Product Management & Marketing at PAC, "This is a very prestigious show, and attracts entries from unknown boutiques to major interactive agencies around the world. We are pleased to be recognized with this prestigious award. The redesign and launch of the PAC web site took months of time and concerted effort by a great many members of the PAC team and our talented web site design crew. This award recognizes the superb efforts of everyone involved."

"We are very pleased with this outcome" Benitez adds, "This is a serious professional competition, and not easy to place in."



PAC Specialists Presenting at Gulf Coast Conference Seminars

PAC product and technology specialists Brandy Sausse, Scott Berkous, Pat Ritz, Thomas Herold, Larry Spino, and Aaron Mendez, will deliver technical presentation at the upcoming Gulf Coast Conference (GCC). The Gulf Coast Conference is a non-profit organization oriented toward the education and advancement of knowledge of Chemical Analysis Technology associated with the Petrochemical, Refining, and Environmental fields.

PAC will be exhibiting at the conference with a booth, # 103. PAC products and technology on display in the booth will include the MultiTek, Radian GC, Cetane ID 510, QuickSpec, OptiDist and CNS SIMDIS Analyzer.

The Insider Events Calendar on page 4 shows which papers will be presented by the above mentioned PAC specialists during the conference. This year's GCC will be held October 12-13, 2010, at the Moody Gardens Convention Center, Galveston, Texas, USA. More information can be found at www.gulfcoastconference.com.



ISL PMD 110 Analyzer Features New Biodiesel Application

ISL PMD 110 Analyzer Replaces PMD 100; New Features, Biodiesel Application

The PMD 110 is a compact atmospheric distillation analyzer from PAC's ISL product family. It is used for fuel quality screening at logistical points, fuel blending, and in mobile labs. Although the PMD 110 is not a new product, it replaces the PMD 100, which has a last sale date of October 30, 2010.

The PMD 110 now features an exciting new application, Biodiesel (B100), this constitutes a major improvement in the scope of capability for the PMD 110. Additionally, all PMD 110 units already in the field can be retrofitted to run the new Biodiesel application. With the PMD applicability to B5, B20 biodiesel blends (D7345, correlation to D86) and now B100 Biodiesel, PAC continues to show its strong commitment to developing quality testing (analysis) instrumentation to assist the rapid development of alternative green fuels, in compliance with ASTM D6751. The PMD 110 has not yet been approved as compliant with D6751, however this final approval is pending near-term.

The new Biodiesel application will enable customers to run distillation under atmospheric pressure, instead of running it under vacuum pressure as has been necessary until now due to the thermal destruction potential and biodiesel's high thermal coefficient of expansion (TCE), characteristics which have made the use of complicated vacuum processing necessary. Running the analysis under atmospheric pressure in the PMD 110 is fast, simple, and low cost.

The PMD110 utilizes innovative Micro-flasks which allow lower temperature, more efficient heating to be applied (minimizing the potential for thermal destruction) and a 5ml sample size so that thermal expansion is not an issue. Heating is more efficient due to the smaller



heated area. There is no risk of sample material going through the condenser at liquid phase, instead of at vapor phase.

Additionally, the process is 'foolproof'; when the user selects the "Biodiesel product" from the Menu, the display automatically shows a message which reminds the user to fill only 5 ml sample into the flask, preventing overfilling.

The major advantage for customers who run biodiesel distillation with PMD 110 is a major reduction in operating costs, since there is no need for specific pumps and utilities to maintain vacuum conditions. Safety is also enhanced; risks of flask-breaking and fire are greatly reduced, with flask life ranging from 300-1000+ for various weight products, versus breakage after an average of 10-15 tests in standard D86 apparatus. The PMD 110 can be equipped with a built-in fire extinguisher.

Proof they're Genuine:

Alcor Steel and Stainless Steel Heater Tubes Now Feature Laser-Etched Identifying Serial Numbers

Now it's easy for PAC customers of Alcor products to be certain that they're using highest-quality, genuine Alcor steel and stainless steel thermal oxidation test heater tubes. All part numbers AL-91740 (HEATER TUBE 1018 STEEL) and AL-91747 (Heater Tube Machined 316S) will bear a laser-etched, individualized serial number (as in the example shown) for instant identification and verification of authenticity. Alcor customers can be assured that they are using the best made, highest quality heater tubes for HLPS (hot liquid process simulator) or other thermal oxidation testers. Aluminum heater tubes used in the JFTOT® procedure have borne individual serial numbers for more than 15 years.

Don't settle for lower-quality substitutes from questionable sources. Nearly 40 years of knowledge, experience and art have gone into making Alcor heater tubes the standard in the industry. Serial numbers laser etched on Alcor heater tubes are prefixed by the Alcor logo and are followed by eight numbers and characters, as in the example shown.

Laser Engraved Serial Number



Keep better track of your tests!

Biodiesel Analyzer Determines the Quality of Fatty Acid Methyl Esters (FAME) Blending Stock for Diesel Fuel

AC Analytical Controls by PAC developed a chromatographic solution that complies with all ASTM & EN chromatographic test methods listed in biodiesel specifications: the AC all-in-one Bio-diesel analyzer. Analysis results demonstrate that the AC analyzer complies with EN 14103, EN 14105, EN 14110, EN 14214 annex B (Iodine value) & ASTM D6584 methods.

In the last decade there has been a worldwide growth in the interest for alternative fuels. Biodiesel, Fatty Acid Methyl Esters known as FAMES, offers an alternative to fossil diesel fuel and contributes to the reduction of greenhouse gas emissions. Globally, public authorities promote the use of blends of biofuel and conventional fuel through directives and by setting ambitious goals. Standardization bodies, such as ASTM and CEN, have already published methods that outline specifications for biodiesel as blending component and test methods are available to determine the quality of the biodiesel.

FAME can be blended with petroleum diesel (mostly 5% = B5) or used as pure biodiesel (B100). FAME as a blending component for fuels needs to comply with the fuel specifications EN 14214 or ASTM D6751. The presence of free glycerol and glycerides in FAME used as diesel fuel may lead to injector deposits, clogged fueling systems, filter plugging, and adversely effect cold weather operation. Linolenic and poly-unsaturated esters display a strong effect on oxidative stability of the FAME.

Biodiesel Analysis Solution

The all in one AC Biodiesel application combines all ASTM & EN chromatographic tests listed in Biodiesel specification methods in a single Agilent Technologies 7890A GC. Without changing the hardware the operator is able to select any of the ASTM or EN methods to perform the biodiesel analysis. The all-in-one Bio-diesel gas chromatograph equipped with two capillary columns, one split/splitless inlet, one on-column inlet, two flame ionization detectors (FID) for signal generation, one additional column oven module, one automatic liquid sampler (optional), one headspace sampler (optional).

Analysis Method	Analysis	Inlet	Analysis Time
ASTM D6584	Free & total glycerin	On-column	35 min
EN 14103	Ester and linoleic methyl ester content	Split/splitless	25 min
EN 14105	Free & total glycerol mono-, di- and tri-glyceride content	On-column	35 min
EN 14110	Methanol content	Split/splitless	10 min
EN 14214 Annex B	Iodine value calculation		Calculated from EN 14103

Table 1: All-in-one biodiesel test methods.

Experimental conditions are according or in compliance with the individual methods.

COMPONENT	SPECIFICATIONS COEFFICIENT	RESULT
Glycerol	>0.99	0.9946
Monoolein	>0.99	0.99359
Diolen	>0.99	0.99548
Triolein	>0.99	0.9963

Table 2: Compliance Validation for Each Method and Each Individual Analyzer

• ASTM D6584 and EN 14105

1 µL of sample is analysed after silyating with N-methyl-N-trimethyl silyl-trifluoroacetamide (MSTFA). Both methods use the same internal standard components and multilevel calibration curves to quantify the glycerol and glycerides (mono-, di- and triolein).

• EN 14103

Ester content and linolenic acid methyl ester content are quantified by internal calibration with methyl heptadecanoate.

• EN 14110

The mean of the calibration factors from the three described reference solutions is used for the calculation using the internal calibration procedure described in the method.

• EN 14214 Annex B

This method is used to calculate the iodine value expressed in g I₂ /100 g sample from the percentage by mass of methyl esters as determined by either EN 14103 (neat biodiesel) or EN 14331 [2] (biodiesel extracted from blends with diesel fuel).

Free and Total glycerin (free + bound glycerin) can be reported according to ASTM D6584 and EN 14105. Small differences between the methods are observed. This is because of the differences in conversion factors used for the calculation of the bonded glycerin content by the two methods.

Conclusion

The all-in-one biodiesel solution complies with all mentioned test methods. When analysing only a small number of samples, the internal calibration method as described in EN 14110 is preferred. Optional headspace equipment allows for automated analysis using external calibration.

PAC Globally Involved in Advancing the Industry

Standards-setting organizations throughout the world work in close cooperation with manufacturers, consumers, and equipment suppliers to improve the quality of products manufactured globally, and to establish universal methodologies for processing, testing, and many other procedures and specifications. PAC works and cooperates with many such organizations; major ones such as ISO, ASTM in the U.S., and CEN in Europe, and also with several Standard Bodies in individual countries in Europe, like EI in the U.K. and DIN in Germany. Their mission, in part, is to develop specifications and test methods for fuels.

Interested parties including regulators of a particular material, product, process or service come together in the standards-setting process. All benefit from standardization through increased product safety, quality, lower transaction costs and lower prices. PAC works in close cooperation with standards-setting organizations worldwide to help develop better methodologies for analyses, and at the same time to make sure that PAC analyzers perform their operations according to the established standards, and that PAC products are compliant with them.

PAC's Piet Koppen, Manager of EMEA Standards and Regulations, says, "This cooperation is very important, because if a certain method or procedure is accepted by CEN, for example, every other country in Europe will use it, accepting that as the final word on the matter, even overruling some of the other methods that may be accepted locally. So what we are trying to do is work together with all of these standards-setting organizations, in harmonization. We need to make sure that our analyzers are compliant

with the methodologies being developed and approved, and also to develop technologies that may be useful."

PAC's participation includes serving on standards organization committees, as well as taking a leadership role in chairing some committees. Koppen says that test methods are constantly being updated due to advances in technology and emphasizes the importance of keeping test methods up-to-date with new technologies and changing specifications. New fuels, particularly biofuels, create new challenges for test methods and products.

Over the past year, PAC has made great strides in advancing the technologies. "With our global presence, we can ensure that not only the concerns and voices from different continents are heard, but also that local interests are taken into account, all through the involvement of PAC's members during the meetings and ballots", Koppen Says. New and better PAC products such as the Cetane analyzer are products of this ongoing participation, cooperation, and efforts to develop better, ground-breaking analytical methods that are more accurate, more sensitive, faster, and more efficient.

Work toward approval of new and better test methods, particularly for fuel specifications, benefits the entire industry globally. One example is the PAC Reformulyzer, which is accepted within the European Union as the reference test method for olefins, aromatics, oxygenates and benzene in gasoline replacing the labor-intensive and less precise FIA method.

EVENTS

October 12-13, 2010

Gulf Coast Conference
Booth # 103 at Moody
Gardens Convention in
Galveston TX, USA

December 6, 2010

PAC ASTM Hospitality
Suite
Hyatt Regency
Jacksonville Riverfront
Jacksonville, FL, USA

Gulf Coast Conference Seminar Schedule

- "Analysis of Aviation Turbine Fuel Containing Synthesized Hydrocarbons", Brandy Sausse and Scott Berkous
October 12 - 2:00 PM - Wisteria, and 4:00 PM - Ivy I & II
- "Independent Calibration of the Derived Cetane Number Instrument CID-510 and the Affects of Moisture", Scott Berkous, Pat Ritz, Thomas Herold
October 12 - 10:15 AM - Vine I & II
- "Determination of Ethanol Content of Denatured Fuel Ethanol by Infrared Spectroscopy - A Twenty Second Alternative Test to a Forty Minute GC Analysis", Larry Spino, Pat Ritz
October 12 - 10:30 AM - Daffodil, and 4:30 PM - Ivy I & II
- "Analytical Applications by Ultra Fast Gas Chromatography", Aaron Mendez
October 13 - 10:20 AM - Exhibit Hall

TRAINING OVERVIEW

Lauda, Germany

- October 4 - 8
Physical Testing
English Language
- October 11 - 15
Physical Testing
German Language
- October 25 - 26
Distillation
German Language
- October 27 - 28
Flash Point
German language
- November 8 - 10
JFTOT/MCRT
English language
- November 15 - 17
JFTOT/MCRT
German language

Rotterdam, the Netherlands

- September 27 - 29
SIMDIS
English language
- September 30
October 1
RGA
English language
- October 4 - 7
Reformulyzer
English language
- October 11 - 14
Reformulyzer
German language

Singapore

- October 19 - 21
Hi-Speed RGA
- November 9 - 12
Reformulyzer

Houston, U.S.A.

- November 3 - 5
Elemental 9000

Insider Highlight

Getting Things Done: The Work Room, or 'L' Atelier', at Verson

A work room is understandably a place where good things get done; and at Verson, a newly-formed team has added some unique style to the practical aspects of doing just that. Known as 'L'Atelier', or the 'Work Room' at Verson, it's the nerve center for coordinating the efforts of the all-important subcontractors who manufacture various components for PAC instruments.

Eric Paterek, Michel Cosniam, and Patrick Clouard are the key members of L'Atelier. Their mission is to select the subcontractors to manufacture certain PAC parts and oversee their efforts to ensure that only the highest quality and reliability goes into PAC instruments. Much of these subcontractors work in sheet metal fabrication, which is a large percentage of any mechanical or analytical instrument. The subcontractors perform various tasks that include Laser cutting metals, Press brake operation, TIG Welding, Brazing, Surface polishing, Turning, Milling, and other procedures.

For Eric, Michel, and Patrick, running L'Atelier is a new challenge for them since they each come from different job backgrounds. They all began their careers nearly 20 years ago when the company's name was still ATPEM. They began working for the company performing TIG welding, brazing, and operating a press brake. Now, they are mostly focused on working with subcontractors, and their prior experience and expertise helps them effectively negotiate projects, provide technical direction, quality control, and general project oversight. They are uniquely qualified to make sure that the job gets done right, on time, and on budget.

There's a unique operating mode at L'Atelier, designed as a seamless three-way coordinated effort. The team separates each day's work into three 'big missions' and each member is accustomed to taking a particular task under his wing:

Eric coordinates the relationship with the subcontractors, visiting their facilities and building closer personal relationships between their teams and Verson. Strong relationships with subcontractors facilitate communications, foster understanding, and get the job done more smoothly, especially if there are occasional 'bumps in the road'. Eric says, "Having a close partnership with subcontractors is especially helpful when you need something urgently, or if there is a change in design or some other issue. It helps us work together much more efficiently."

Michel's job is to select the right subcontractor for the job. There are many different criteria to take into consideration, and, of course, picking the right subcontractor for the job is absolutely critical. Experience, technical expertise, and overall commitment to quality results are only some of the evaluation criteria.

Patrick's role is overseeing the stock room; making sure that the flow of parts and product is smooth and that the company does not end up with shortages or excess inventory. Good stock management is key to keeping customers satisfied, and making sure that the subcontractors are keeping pace with Verson's needs.

Lastly, the L'Atelier team bring subcontractors into the Verson site and allow them to provide parts to a "Consignment Inventory" program. In this way the subcontractors can see how their products are handled and flow through the system. This serves as an additional relationship building feature to the unique concept of 'L'Atelier'.



The PAC experts from Verson's L'Atelier:
Patrick Clouard (L), Eric Paterek and Michel Cosniam (R)

Alcor VTDR - The Best Tool for Evaluating Critical Heater Tube Deposits

Alcor's video tube deposit rater (VTDR) will accurately, reliably and repeatably analyze and rate heater tube deposits. Although the standard methods, ASTM D3241 and Energy Institute's IP323, require fuel certification by visual inspection, Alcor's VTDR can provide an objective result to a subjective test. The VTDR also creates a permanent electronic record that enables the operator to send the results anywhere via e-mail within moments of completing the test.

ASTM D 3241/IP323 is the test used to evaluate the thermal oxidation stability of jet fuel. The objective analysis of deposits produced on the heater tube is critical to this test. However, the standard method instructions are to visually rate the deposits on the heater tube. Human visual capabilities vary and thus, results can be quite subjective. However...this test is critical to jet fuel performance! And, it's listed in more than a few jet fuel reference standards. The Alcor VTDR was developed to take the human element of subjectivity out of heater tube deposit rating.



Why VTDR is a Better Choice than the Human Eye
The human eye contains rod cells for detecting low light activity and three kinds of cone cells for detecting color in daylight. The absorption spectra of the cones differ as well as the sensitivity to particular colors and intensities. Since no two persons are the same, one cannot expect everyone to "see" the same color and color intensity of a heater tube deposit, even when compared to a color chart. The Alcor VTDR uses a sensitive camera that has uniform sensitivity across a wide range of the visual wavelength spectrum. This sensitive camera digitizes a picture of the heater tube deposit and compares it to the ASTM color standard that was previously digitized and stored. Using proprietary algorithms, the VTDR microprocessor uses ASTM criteria to give a result that is both fast and accurate. Alcor's VTDR can even assign the result a peacock (P) or abnormal (A) to deposits that show these color variations.

Advantages of the Alcor VTDR

- Can Confirm a Visual Rating, Particularly When Near the Pass/Fail Line;
- Helps Build Confidence In Manual Readings;
- Provides a Quick Screen of the Heater Tube Deposit, All Within a Minute;
- Creates a Permanent Electronic Record of the Rating;
- Provides an Objective Comparison to the Manual Rater Method;
- Electronic Record Includes Heater Tube Serial Number for Archiving, Traceability, Audits;
- Provides a Photo of the Actual Deposit.

Currently, the Alcor VTDR is not listed in ASTM D3241 or IP 323 - which still require visual evaluation - and therefore cannot officially be used to rate tubes when certifying a batch of jet fuel, even though the VTDR is a powerful tool for confirmation and accuracy in rating. Naturally PAC is working to address the needs and requests of its customers, while working within the standard bodies to hopefully fast-track the VTDR to inclusion into the methods.

PAC is a leading global provider of advanced analytical instruments for laboratories and online process applications. With a product portfolio of over 200 instruments, PAC serves industries such as refinery, petrochemical, biofuels, environmental, food & beverage and pharmaceutical. To provide its customers with cutting edge technology, PAC has large R&D resources to support its core technologies; chromatography, elemental analysis, physical properties and software applications.

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Part of PAC's product portfolio is AC Analytical Controls, Antek, Alcor, PetroSpec, PSPI, ISL and Walter Herzog.