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PAC Insider is the periodic newsletter of PAC, LP

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## Improving Profitability and Compliance through State-of-the-Art Density Measurement

PAC recently released the ISL VIDA™ Density Meter, which is a highly automated density measurement instrument that provides precise and accurate results, as well a high level of repeatable and consistent analysis.

VIDA is based on the proven oscillating U-tube method. It provides analysis of crude oil & petroleum products – from the volatile to the highly viscous ones – in compliance with ASTM D4052\*, ASTM D5002, IP 365 (ISO 12185), and DIN 51757.



With its advanced and unique features, the ISL VIDA helps companies produce higher quality products and increase productivity, thus resulting in increasing profitability while also meeting increasingly rigorous industry regulations.



VIDA ensures accurate and reliable density measurement results.

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\*Non-visual bubble detection is currently under review by an ASTM subcommittee

## New Autosampler Provides Essential Capabilities with Overall Economic Benefit

The Model 758 Robotic Liquid Autosampler is now available. It provides all the essential automated sample analysis capabilities while also being more affordable than typical autosamplers. It is ideally suited for labs that need the convenience of an autosampler, but do not run large sample vials. The Model 758 Liquid Autosampler is designed for sampling and preparation of liquid samples for the Antek MultiTek® and 9000 Elemental Analyzers. It is available in 100V, 115V, and 230V configurations.

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**Gulf Coast Conference**  
October 11-12, 2011  
Galveston, TX USA

Check out PAC's presence at the upcoming Gulf Coast Conference, as well as other leading industry conferences.

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## Improving Profitability and Compliance through State-of-the-Art Density Measurement

### High Reliability in Density Measurement:

- Fully Automated Operation at the Push of a Button
- Built-in Automatic Bubble Detection\*
- Unique and Innovative Design with Multiple Configurations
- Compliant with ASTM D4052\*, ASTM D5002, IP365, (ISO12185), and DIN 51757

> Continued from page 1

PAC recently released the ISL VIDA™ Density Meter, which offers unmatched reliability in density measurement through a user-friendly, fully automated, single push operation. VIDA is based on the proven Oscillating U-tube method and integrates innovative features to ensure reliable and accurate analysis of crude oil & petroleum products, including everything from the volatile to the very viscous. With its advanced features, VIDA decreases operator interaction, improves safety in laboratories, produces highly reliable and consistent results, and, ultimately, increases the productivity of lab facilities.

### Decreases Operator Interaction

With the baby boom generation retiring, laboratories are losing some of their most skilled and experienced operators. Due to this, it is extremely desirable for instruments to be highly automated so that it requires little operator knowledge and training to perform the analysis. As mentioned, VIDA is able to operate with the push of a button. Its automatic sample introduction also makes it easy to operate with a push-piston that simulates the manual direct injection, with better repeatability. In addition, VIDA's color touchscreen interface provides the user with an intuitive menu navigation, easy test progress follow-up, and straightforward test configuration.

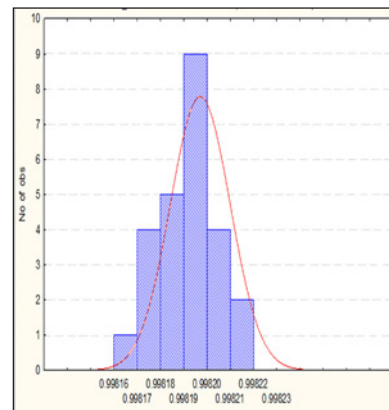
### Improves Safety

Safety is another huge concern for the industrial sector today. With all the chemicals that operators must handle in the lab, it is important that the instruments used to test these chemicals do not exude any harmful vapors. Since VIDA is a self-contained instrument, it keeps the harmful vapors within its unit and does not expose operators to the risks associated with inhaling them.

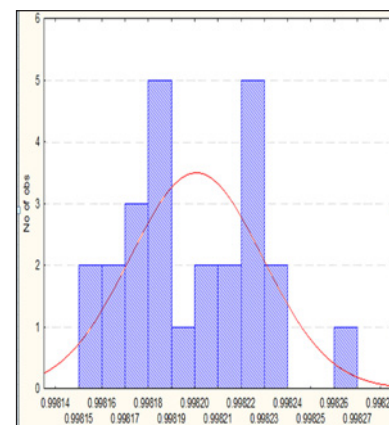
### Produces Highly Reliable and Consistent Results

Producing reliable and consistent results is essential for complying to industrial regulations. VIDA has several unique features within it that increase the reliability and consistency of its analysis:

- Automatic Sample Injection - VIDA provides automatic sample injection, which significantly decreases the variances in results due to multiple operators manually handling the injection of samples. See the graphs below to compare the repeatability of results between automatic and manual injection.



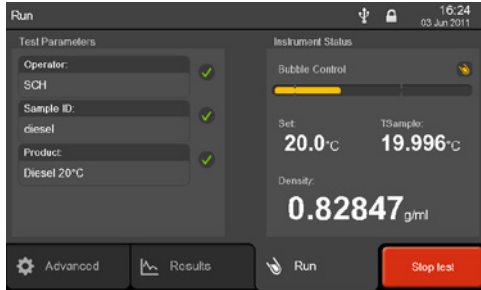
Automatic Injection



Manual Injection

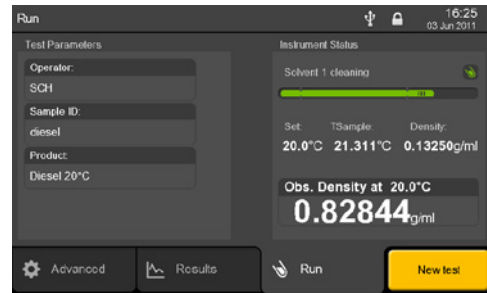
- Advanced Temperature Control – By using an oscillating U-tube sensor (made of metal) with integrated Pt-100 sensors and Peltier elements, VIDA is able to quickly and accurately respond to temperature variations during testing. This helps ensure accurate results since all samples of a given material must be processed at the same temperature.

- **Automatic Bubble Detection System\*** – The presence of bubbles in a sample can severely skew the results. With VIDA's automatic detection, operators no longer need to visually check for bubbles upon sample injection. Therefore, "difficult" samples (opaque, light, heavy) are ensured to be tested free of bubbles.



VIDA Bubble Detection Interface

- **Ultrasonic Cleaning** - VIDA includes a patented ultrasonic device that cleans the test cells faster and better than conventional methods. In addition, it performs an automatic cell cleanliness check to ensure all previous samples and their residue have been removed and the test cell is ready to be used. When testing any sample, it is essential that the test cell be completely clean to ensure accurate and precise results.



VIDA Ultrasonic Cleaning Interface

### Increases Productivity

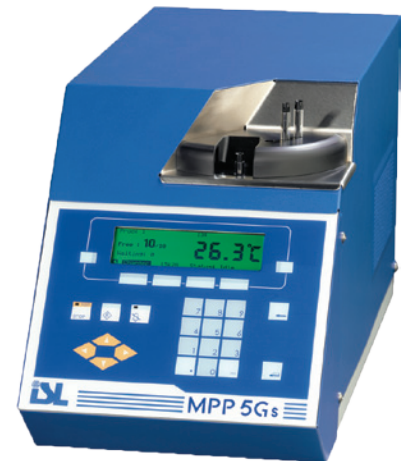
With decreased operator interaction and highly reliable and consistent results, laboratory productivity greatly increases since repeat analysis is not continuously needed due to manual errors or skewed results. Productivity is also improved through the quick and accurate results VIDA produces, which on average takes around 5-10 minutes of starting the test. This greatly increases the number of tests able to be performed within a given timeframe.

Through the high level of automation VIDA offers and its ability to provide repeatable and consistent results for a wide variety of samples, users benefit from higher quality products, improved safety, and increased productivity. This therefore increases the company's overall profitability, while also meeting increasingly rigorous industry regulations.

## ISL MPP 5G by PAC Meets ASTM Method D7689-11

PAC's Mini Cloud Point Analyzer is now in accordance with the procedures of the recently released "ASTM D7689-11 Standard Test Method for Cloud Point of Petroleum Products (Mini Method)". Precise measurement of the cloud point is essential for petroleum blending operations. The ASTM D7689-11 test method determines the cloud point in a shorter time period than ASTM test method D2500.

The ISL MPP 5G by PAC is a state-of-the-art cloud and pour point analyzer that provides fast and highly accurate results based on a novel mini-test method using only 0.5 ml sample. Since it is highly automated with single button operation and includes a powerful built-in cooling system with selectable cooling profiles, it is easy to use and requires no special programming or prior cloud and pour point measuring test knowledge. It also significantly increases test productivity and improves the repeatability of results. The ISL MPP 5G also complies with ASTM D7346 and correlates to ASTM D2500, ASTM D97, ISO 3015, and ISO 3016.



Designed to provide highly accurate cloud and pour point temperatures of petroleum products during cooling, ISL's automated Mini Cloud Pour Point Analyzer is compact, portable, and delivers fast results (30°C in less than 30 minutes, and quick pour point correlation with no flow at 0.1°C determination).

The ISL MPP 5G also provides the following benefits:

- Highly precise results with resolution of 0.1°C
- Cloud pour point determinations in one test run
- Ultra low temperature testing down to -140°F without any external liquid or gas connection
- Up to 99 test results in local memory; networked, PC controlled operation data management is available with ISL's Automatic Laboratory Analyzer Network (ALAN) system

## PAC Releases Latest Software and Application Note for Antek MultiTek®

### Only Instrument to Combine Testing for Sulfur, Nitrogen, and Halides All in One

- Supports Multiple Configurations
- Provides Quick and Precise Results
- Compliant with ASTM D4629, ASTM D5176, ASTM D5453, ASTM D5762, ASTM D6667, ASTM D7183, ASTM D7359, ASTM D7184, ASTM D7551, DIN 38409, EN ISO 20846, ENV 12260, UOP 936, UOP 971, and EN 15486

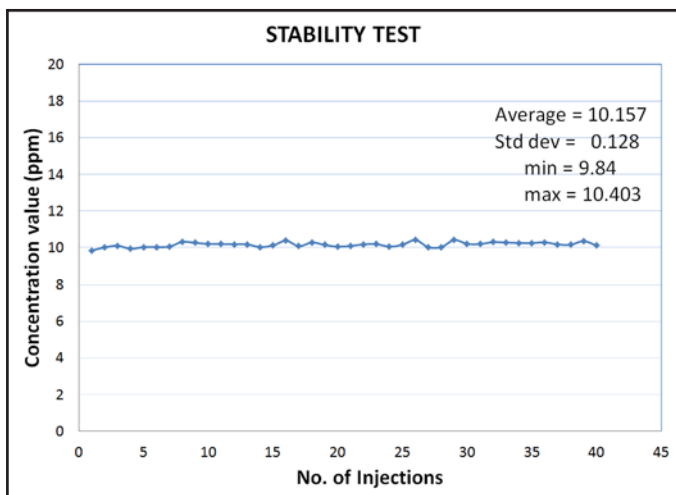
A new application note for Antek MultiTek called "Determination of Total Sulfur in Reformulated Gasoline by UVF- ASTM D5453 Correlation" is now available. Total sulfur content in hydrocarbons by combustion and UV fluorescence has been established as the preferred method to characterize feedstock, intermediate streams, and finished hydrocarbon products due to its sensitivity, linearity, dynamic range, and ruggedness. Since sulfur is a ubiquitous element in hydrocarbon streams responsible for many undesirable effects, including catalyst poisoning, detrimental product quality and ecosystem pollution, there is a need to quantify and monitor its content in every step of the industry's technical operations.

This application note focuses on the total sulfur content determination in gasoline according to the ASTM D5453 standard test method. Samples were analyzed in the new Antek MultiTek analyzer in a vertical configuration equipped with an autosampler and UV Fluorescence detector. As a validation method, the MultiTek performance was compared with the results from the ASTM Proficiency Testing Program (PTP) on Reformulated Gasolines. The results demonstrated that the MultiTek analyzer is a powerful tool for the determination of sulfur to ensure the final product quality of gasoline based on the exceptional

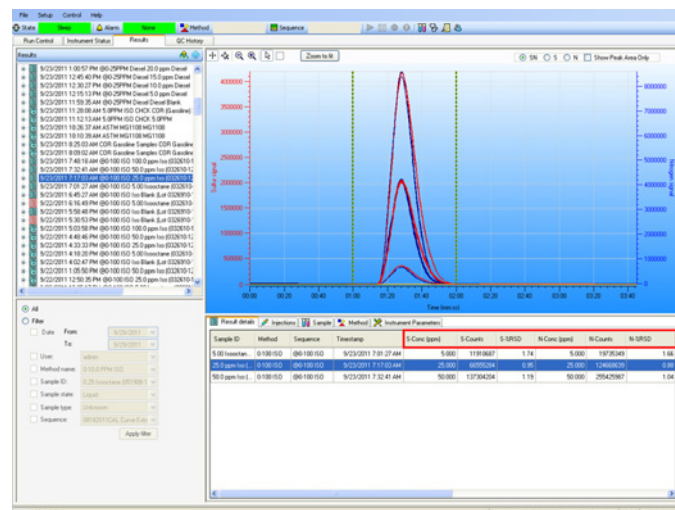
calibration linearity, low limit of detection, excellent repeatability, and extremely stable response. [Click here](#) to read the two-page MultiTek Application Note on determining the Total Sulfur in reformulated gasoline.

In addition, the latest MultiTek NS software version, 1.3.0.0, is now available. This software is used in combination with the MultiTek instrument. With version 1.3.0.0, users will benefit from additional features, including:

- A powerful graphical interface where users can now view peak areas of multiple results simultaneously
- An improved audit trail function providing even more detailed information about the systems historical status
- Simplified instrument parameters makes setup easier for all MultiTek configurations



Long Term Repeatability Test on 10 ppm S sample



Customizable Results Interface with MultiTek NS Software

## New Autosampler Provides Essential Capabilities With Overall Economic Benefit

> Continued from page 1

The newly available Model 758 Robotic Liquid Autosampler provides all the essential automated sample analysis capabilities, such as bubble elimination, syringe washes, and controlled injection speed for a wide variety of viscosities, while also being more affordable than typical autosamplers. With its turret design, the Model 758 Liquid Autosampler is designed for sampling and preparation of liquid samples for the Antek MultiTek® and 9000 Elemental Analyzers. It is available in 100V, 115V, and 230V configurations. The 110-position tray is able to accommodate 2 mL vials and will be positioned on the right-hand side for horizontal configurations and on the left-hand side for vertical configurations. The syringe holder can support 10, 25, or 100 µL syringe sizes.

This latest model joins the current PAC portfolio of liquid sample introduction systems, Model 735 and Model 748. The Model 735 Syringe Drive is an automated system for single sample introduction. The Model 748 Liquid Autosampler provides the greatest flexibility for labs that need to run larger sample vials, need the fastest sample throughput, and highest automation.

With Model 758, PAC's portfolio of syringe sample introduction units can now suit any laboratory needs.



## PAC Participates in Upcoming Gulf Coast Conference

PAC announces it is exhibiting and presenting at the upcoming Gulf Coast Conference in Galveston, TX USA on October 11-12, 2011. This conference is devoted to the education and knowledge advancement of Chemical Analysis Technology for the Petrochemical, Refining, and Environmental fields.

PAC scientist, Aaron Mendez, will present a twenty-minute paper titled, "Simultaneous Determination Of Trace Sulfur and Nitrogen by Combustion UV-Fluorescence and Chemiluminescence in Reformulated Gasolines". This presentation will take place on Tuesday, October 11th at 11:10 am in the Vine I room.

In addition, PAC will also present two posters:

- "Determination of Fame Contamination in Aviation Turbine Fuel Using Gas Chromatography" - presented by Jorge Colonia, PAC Business Development Manager, on Wednesday, October 12th at 9:40 am in the Exhibit Hall
- "Determination of Nitrogen in Solids by Chemiluminescence" - presented by Rick Trevino, PAC Applications Chemist, on Wednesday, October 12th at 10:00 am in the Exhibit Hall

PAC will also be exhibiting at the Gulf Coast Conference. Please visit booth #103 to learn more about our core analyzer technologies, including chromatography, elemental analysis, physical properties, fuels composition, and laboratory automation.



### PAC Presents Industry Knowledge at Leading Conferences

PAC and Neolab, the distributor representing PAC for CIS countries, recently participated in the Rosneft Symposium in Angarsk, Eastern Siberia, on September 19- 23, 2011. PAC and Neolab co-presented the PAC physical properties product lines, ISL and Herzog, as well as the PAC Gas Chromatography product line, AC Analytical Controls®. All presentations were translated into Russian, which generated a great deal of interest from the 200 attendees.

In addition, Larry Spino, PAC Product Manager, will present a poster at the upcoming International Conference on Stability Handling and Use of Liquid Fuels (IASH). He will present on Monday evening, October 17th. PAC will also be exhibiting at the IASH conference, which will be held on October 16-20, 2011 in Sarasota, FL USA.

## PAC Welcomes Mark Venske as New Vice President of Sales & Support for Americas

PAC is pleased to announce that Mark Venske has now joined the growing PAC team as the Vice-President of Sales and Support for the Americas. Mark has over thirty years of engineering and sales experience from Spectra Tech Applied System and Varian, which was acquired by Agilent in 2010.

Throughout his career, Mark has held such job positions as field engineer, district sales manager, and US regional sales manager. Mark focuses on bringing value to his customers and helping them solve key issues they face in today's competitive landscape.

"I decided to join PAC because as a market leader with tremendous growth ahead, it's an exciting time," says Mark. "I am looking forward to using the skills and knowledge I have acquired throughout my career to make PAC even more of a success."



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## PAC Opens New Middle East Office

PAC recently opened a new office in Dubai at the Airport Free Zone to better serve customers in the Middle East and Indian subcontinent. Countries supported include those in the Gulf Cooperation Council, as well as Lebanon, Jordan, Iraq, Yemen, Pakistan, Afghanistan, India, Sri Lanka, Bangladesh, and Nepal.

Vac Hanemaaijer, PAC Regional Sales Manager, leads the staff at this office, which includes an application support manager, an application specialist, and regional sales manager. The current staff originates from different parts of the world so PAC can better communicate with clients in their local languages. PAC also plans to grow the office to at least 9-10 employees total, which includes additional sales support.

PAC is dedicated to providing excellent customer service and training services to local clients in the Middle East. As part of this initiative, the Dubai office has been equipped with extensive training rooms and lab facilities to make it more convenient for local clients to attend. The training courses will be conducted in different languages, including Arabic. PAC will be holding regular training courses at this office in the near future. Please keep tuned to the PAC Insider and [www.paclp.com](http://www.paclp.com) for more details. Additional training at this office is also available upon request.

In addition, meet the members of the PAC Middle East and India team at the International Basra Oil & Gas event that will be held in Basra, Iraq, on November 25-28, 2011. The team will be at booth #J44 and is looking forward to greeting you.

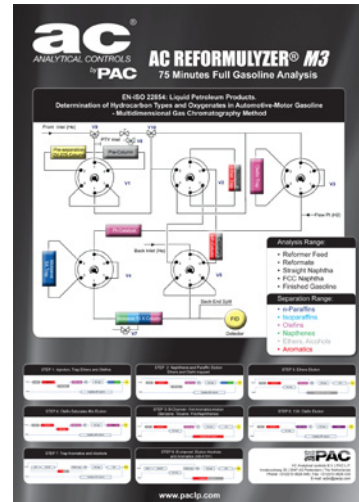


Opening of new PAC Dubai office: from left to right - Khalid Tastrasti, Latif Faroqui, Jeroen Schmits, Mohamed Hassan, and Sanjay Ingle

# New AC Analytical Controls® Reformulyzer® M3 Poster Now Available

A new poster is now available for the AC Analytical Controls Reformulyzer Mark 3 (M3) and will be shipped out with each unit sold. This new poster includes an easy to read, step-by-step overview of the complete separation principle of the instrument. This poster is a great reference tool to place on your lab wall to facilitate training on the instrument installation and also make maintenance information readily available.

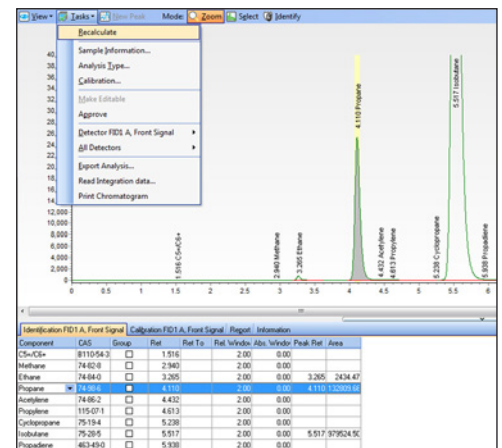
The Reformulyzer M3 provides complete identification and quantification of all hydrocarbon types, oxygenates, and carbon number distribution with numerous features. Precise and accurate full gasoline analysis results are available in 75 minutes. In addition, it is in compliance with ASTM D6839, EN 14517, IP 526, and ISO 22854.



# Announcing GAS XLNC® and DHA Software Updates

PAC recently released new versions of AC Analytical Controls® GAS XLNC and Detailed Hydrocarbon Analysis (DHA) software packages, which are now fully Windows® 7 compatible. GAS XLNC version 1.2 also contains a set of new script modules and standard calculations for CO2 emission factor, DIN 51666, Schilling Density, and mass – based British Thermal Unit calculations for all Hi-Speed and Fast Refinery Gas Analysis (RGA) systems.

DHA version 8.1 now contains the additional calculations for true mass percentage and volume percentage boiling point distributions, and an update to SQL2005 Database server. With these updates, all AC Analytical Controls software packages are now compatible with Windows 7, which also includes SIMDIS and Reformulyzer®. All Windows 7 upgrades are backwards compatible to Windows XP.



AC GAS XLNC Software Version 1.2

# New Application Note for FTO D6296 - Fast Total Olefin Analysis

A new application note called, “Fast Total Olefin According ASTM D6296 By Gas Chromatography” was recently released. This ASTM test method provides for the quantitative determination of total olefins in the C4 to C10 range in spark-ignition enginefuels or related hydrocarbon streams, such as naphthas and cracked naphthas.

The combination of the configured Gas Chromatography (GC) system (configuration provided in application note), selected capillary GC columns, proprietary injection port and liner, adherence to chemical standards, and the worldwide application installation and support by certified PAC Services, provide a complete solution for the fast measurement of total olefin concentration. The Fast Total Olefin (FTO) system analyzes streams with concentrations of 0.2%-35% olefins.

This GC system determines C4 - C10 olefins in all finished motor gasolines, straight naphthas, and Fluid Catalytic Cracking (FCC) naphthas. It reports in weight and liquid volume percentage, and a full analysis takes only 20 minutes. The FTO analysis exceeds the repeatability capabilities of ASTM D1319 (the Fluorescent Indicator Absorption, FIA, method) and incorporates ASTM D6296 - Total Olefins in Spark-Ignition Engine Fuels by Multi-Dimensional GC.

[Click here](#) to read the full application note.



## Upcoming Events

### October 8 - 12

**LABTECH 2011**  
Ritz Carlton  
Qatar  
Exhibiting with GBA

### October 11 - 12

**Gulf Coast Conference 2011**  
Moody Gardens Convention Center  
Galveston, TX USA  
Booth #103

### October 12 - 14

**Analytica Anacon India**  
Bombay Exhibition Center  
Mumbai, India  
Exhibiting with MARSAP at Booth A10

### October 16 - 20

**International Conference on Stability  
Handling and Use of Liquid Fuels (IASH)**  
Sarasota Hyatt Regency  
Sarasota, FL USA  
Booth # 7

### November 2-4

**EXPO ARPIA 2011**  
Buenos Aires, Argentina  
Exhibiting with SUPERTEC at booth 121

### November 25-28

**International Basra Oil & Gas  
Conference and Exhibition**  
Basra Internal Fair Ground  
Booth# J44  
Basra, Iraq

### December 4 - 8

**ASTM Meeting**  
D02 Petroleum Products and  
Lubricants  
Sheraton New Orleans  
New Orleans, LA USA

## Upcoming Training Sessions and Workshops

PAC training courses are an essential part of the services PAC offers. To assist operators in their day-to-day operation of PAC systems, we developed a complete offering of factory, customized, and on-site training. Check the following listings to find an upcoming training session that you can attend. To sign up for a class or if you have any questions, please email [service@pacpl.com](mailto:service@pacpl.com). Additional training is also available upon request.

### Lauda, Germany

#### CID 510 Workshop

October 10-11  
English

#### MultiTek® NS Training

October 18-19  
English

#### Distillation Workshop

November 7-9  
English

#### Physical Testing Training

November 10-11  
English

#### Distillation Workshop

November 14-16  
German

### Flash Point Workshop

November 17-18  
German

### HCP 852 Training

November 28  
English

### Singapore

#### AC Hi-Speed refinery Gas Analyzer Training

October 18-20  
English

#### AC Reformulyzer® M3 Training

November 15-18  
English

### Houston, TX USA

#### Antek 9000 Training

October 12-14  
English

#### OptiDist Training

November 9  
English

#### JFTOT III

November 10-11  
English

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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