



# PAC

solid partners  
proven solutions



**Advanced Analytical  
Instrumentation for  
Lab and Process  
Applications**

[www.paclp.com](http://www.paclp.com)

# Company Overview

PAC is a leading global manufacturer of advanced analytical instruments for laboratories and online process applications in industries such as petrochemical, refinery, upstream, biofuels, environmental, food & beverage, lubricants, automotive and pharmaceutical.

With a product portfolio of over 200 testing instruments, PAC serves its customers with cutting-edge technology and significant research and development resources to support its core technologies: chromatography, elemental analysis, physical properties, fuels composition, and laboratory automation.

Our corporate strength is built upon the quality of our product lines, our powerful technology team, and our commitment to customer support.

We are a leader in standards development, and we work tirelessly to establish benchmark procedures that scientists and analysts around the world rely on every day to build better products and a cleaner environment.

PAC operates as a unit of Roper Technologies, Inc., a diversified technology company and a constituent of S&P 500, Fortune 1000, and Russell 1000 indices.

*The most respected and long-established brands of analytical equipment in one single organization*

## Product Lines

PAC has combined the world's most respected and long-established brands of analytical and testing equipment into a single manufacturing, marketing and service organization. Each of our brands have long histories of developing best-in-class analytical instrumentation for lab and process applications. In fact, the dynamic synergy of the PAC team and its unique technologies has led to the development of unique, cutting-edge instruments.

In close cooperation with various standards organizations throughout the world, PAC introduces innovative instruments & applications which adhere to various standards by ASTM, CEN, DIN, GPA, IP, ISO, and UOP. PAC also complies with ISO 9001-2000 standards.



# Services, Support & Training

Our individualized instrument service programs help our customers ensure maximum quality and repeatability, while complying with standards and regulatory requirements.

In addition to service programs, we also offer individual services for preventative maintenance, calibration, and relocation services. Our Service Repair Centers, located around the world, are ISO-9001 accredited. All work is performed by skilled certified service technicians.

PAC offers a wide selection of training and educational programs to support our customers throughout the range of industries that our instruments serve.

Our training programs may take place in one of our PAC facilities worldwide or right at the customer's facility. We also offer webinars of some of our key technologies online.



## Iris Software

An advanced, laboratory results management and reporting software system developed by PAC. The Iris Software provides customers the advantage of connecting their laboratory instruments, locally or worldwide, and managing these instruments from a single computer. This greatly improves laboratory efficiency, which reduces the amount of training needed when working with multiple software platforms. In addition, it can perform data reprocessing without rerunning a sample, which increases laboratory productivity. IRIS Software is also compliant with security and quality protocols.



## Certified Reference Materials

PAC offers a broad range of Certified Reference Materials (CRM), calibration standards and reference samples to support your testing needs. By routinely verifying your instrument's performance, you can ensure consistent quality that meets expected performance demands. This will help you establish good inter-laboratory correlation and generate reliable test data.

### Benefits:

- Ensures dependable performance of your equipment
- Isolates testing bias before it impacts product quality
- Certified values determined through International round robin testing by a minimum of 12 labs
- Meets traceability requirements for ISO/NAMAS accreditation

# Lab Instruments Overview



Category	Gas Analysis			Boiling Point Distribution				
Model	AC HiSpeed RGA AC FastRGA	AC NGA	AC Sulfur in LPG/ Natural Gas Analyzer	AC 8612™ Analyzer	AC8634™ Analyzer	AC SIMDIS Analyzers	AC HT SIMDIS	AC CNS SIMDIS
Standard Method	D1946 , D2163, D2598, D3588, EN ISO 7941, IP 405, EN 15984, DIN 51666, UOP 539, GOST 31371, GOST R 54484	D1945 ISO 6974 GPA 2261  Extended NGA: ISO 6975, GPA 2286, GOST 31371	D2712, D6159, D6228, GOST R 53367	ASTM D86 equivalent for groups 0, 1 and 2  GOST 2177	ASTM D86 equivalent for groups 3 and 4 , D2887, EN ISO 3924, IP 406, GOST 2177	D7096, D3710, D2887, D6417, D5442 (wax), IP 406, ISO 3924, DIN 51435, D7213, D7900	D6352, D5307*, D7169, D7500, IP 545 (Crude Oils) IP 480, IP 507, DIN 51581-2 (MOV), EN 15199-1, EN 15199-2, EN 15199-3 *obsolete	Complies to: D7807 Comparable to: D2887, D3710, D7096, ISO3924, IP406 D6352, D7500, D6417, D7213, D7398 D7169, EN15199-3, IP545
Application	Non-condensable Gases, C1-C5, C5+ hydro carbons	<b>NGA:</b> C1-C6, C6+ hydro carbons, Hydrogen sulfide <b>Extended NGA:</b> C1-C14, C14+ hydrocarbons, Non- condensable gases: nitrogen, carbon dioxide and oxygen, hydrogen sulfide	Individual volatile sulfur- containing compounds	Simulated Distillation, Atmospheric Distillation, Gasoline	Simulated Distillation, Atmospheric Distillation	Simulated Distillation, Atmospheric Distillation, Gasoline, Petrochemical Analysis	Simulated Distillation, Atmospheric Distillation, Crude	Simultaneous Simulated Distillation for Carbon, Nitrogen and Sulfur for crude and crude products. IBP > 151 °C (304 °F) FBP <700 °C (1292 °F)
Refinery Gas	•		•					
Natural Gas		•	•					
LPG			•					
Gas in Petrochemical			•					
Straight Run/ Naphtha				•		•		•
Depentanized Bottom				•		•		•
Reformate				•		•		•
FCC-Light				•		•		•
FCC-Middle						•		•
FCC-Heavy						•		•
Visbreaker				•		•		•
Alkylate				•				•
Isomate				•				•
Gasoline Blend				•		•		•
Gasoline with Oxygenates				•		•		•
Jet Fuel					•	•		•
Diesel					•	•		•
Lubricant (stock base) with and without Oxygenates							•	•
Thermal Crack Feed							•	•
Crude Oil							•	•
Residue							•	
Biofuels								



# Lab Instruments Overview

## PHYSICAL PROPERTIES



Category	Distillation			Cold Behavior				Vapor Pressure	
Description	Atmospheric Pressure Distillation	Atmospheric Distillation (micro-distillation)	Vacuum Distillation	Automatic Cloud & Pour Point Analyzer (mini method)	Automatic Cloud & Pour Point Analyzer	Automatic Cloud & Pour Point Analyzer	Automatic Cold Filter Plugging Point Analyzer	Automatic Cold Filter Plugging Point Analyzer	Automatic Vapor Pressure Analyzer
Model	Herzog Optidist	ISL PMD 110	Herzog HDV 632	ISL MPP 5Gs	Herzog HCP 852	ISL CPP 5Gs	ISL FPP 5Gs	Herzog HCP 842	Herzog HVP 972
Standard Method	D86, D1078, D850, IP 123, IP 195, ISO 3405, EN 3405, GOST 2177, GB/T6536	D7345, GOST 2177, GOST 11011 Correlates to: D86, D1160 (FAME)	D1160, GOST 11011	D7346-14, D768911, Correlates to: D97, D2500, ISO 3015, ISO 3016, JIS K2269	D2500, D5853, D6892, D97, IP 15, IP 219, IP 444, ISO 3015, ISO 3016, JIS K2269	D2500, D5771, D5853, D5950, D97, IP 15, IP 219, IP 444, ISO 3015, ISO 3016, JIS K2269	EN 16329, EN 116, D6371, IP 309, JIS K2288, GOST 22254, SH/T 0248	EN 16329, EN 116, D6371, IP 309, JIS K2288, GOST 22254, SH/T 0248	D5191, D6378, EN 13016, IP 394
Applications	Atmospheric Distillation	Atmospheric Distillation	Vacuum Distillation	Cloud Point, Pour Point	Cloud Point, Pour Point	Cloud Point, Pour Point	Cold Filter Plugging Point	Cold Filter Plugging Point	Vapor Pressure



Category	Flash Point					
Description	Automatic Pensky Martens Closed Cup Flash Point Tester	Automatic TAG Closed Cup Flash Point Tester	Automatic ABEL Closed Cup Flash Point Tester	Automatic Cleveland Flash Tester	Semi-Automatic TAG Closed Cup Flash Point Tester	Semi-Automatic TAG Closed Cup Flash Point Tester
Model	OptiFlash Pensky Martens	OptiFlash TAG	OptiFlash ABEL	ISL FP925G2	Herzog HFP 384	ISL HFP 382
Standard Method	D93, EN ISO 2719, IP 34, ISO 2719, JIS K2265, GB/T 261, GOST R EN ISO 2719	ASTM D56	EN ISO 13736, IP 170	D92, ISO 2592, GOST 4333	ISO 13736, GOST R EN ISO13736	D56, GOST R 53717
Applications	Flash Point Pensky-Martens	Flash Point TAG Cup	Flash Point ABEL Cup	Flash Point Cleveland Open Cup	Flash Point TAG Cup	Flash Point TAG Cup



Category	Cetane	Density	Others					
Description	Automatic Derived Cetane Number (DCN) Analyzer	Automated Digital Density Meter	Micro Carbon Residue Tester	Noack Evaporation Loss Tester	Automatic Ring and Ball Tester	Ring & Ball Testers	Automated Salt in Crude	Gum Test
Model	Herzog Cetane ID 510	ISL VIDA	Alcor MCRT 160	ISL NCK 2 5G	ISL RB 36 5G	Herzog HRB 754	Herzog SC-960	Herzog HGT 915, HGT 917
Standard Method	ASTM D7668, EN 16715, IP 615	D4052, D5002, IP 365, ISO 12185, DIN 51757, SH/0604	D189, D4530, DIN 51551, GB/T 17144, IP 398, ISO 10370, ISO 6615, JIS K2270; GB/T 17144	D5800, CEC L 40 A 93, IP 421	D36, E28, EN 1427, IP 58, ISO 4625	D36, E28, EN 1427, IP 58, ISO 4625	D3230	D381, EN 5, IP 131, IP 540, ISO 6246
Applications	Combustion Cetane	Density	Carbon Residue	Evaporation Loss	Bitumen Ring and Ball	Bitumen Ring and Ball	Salt in Crude Corrosion	Gum Content

All our instruments can be customized to your specific needs. Due to continuing product development, specifications are subject to change at any time without notice.

## JET FUEL ANALYSIS



Category	Thermal Stability		
Description	Jet Fuel Thermal Oxidation Tester for Fast and Accurate Jet Fuel Analysis	Ellipsometric jet fuel thermal oxidation heater tube scanner	Automatic Freezing Point Analyzer
Model	Alcor JFTOT IV	OptiReader	ISL FZP 5G2s
Standard Method	D3241, IP 323, ISO 6249		D7153, MIL-DTL-5624V Correlates to: D2386, IP 16, IP 529 (DEF STAND 91-91), ISO 3013, JIS K2276
Applications	Thermal Oxidation JFTOT	Heater tube scanning	Freezing Point

## SPECTROSCOPY



Category	Spectroscopy	
Description	Ethanol Purity/Ethanol in Gasoline	Diesel Fuel Dye Marker & ASTM Color
Model	PetroSpec QuickSpec™	PetroSpec DT 100
Standard Method	D4806	
Applications	Ethanol Purity	Color and Haze

## VISCOSITY MEASUREMENT



Category	Viscosity							
Description	Small Sample Viscometer	Temperature Controlled Viscometer	Micro Sample Viscometer	High Pressure Viscometer	Multirange Viscometer	HVU Series Automated Viscometers	Viscometer Houillon	Manual Viscometer Bath
Model	CVI VISCOlab 4000	CVI VISCOlab 3000	CVI VISCOlab5000	CVI VISCOlab PVT	Herzog HVM 472	Herzog HVU 481, HVU482	ISL VH1, VH2	ISL TVB 445
Standard Method	D7483	D7483	D7483	D7483	D445, D446, IP 71, ISO 3104, EN ISO 3104, ISO 3105, GOST 33, GB/T 265	D445, D446, DIN 51562, IP 71, ISO 3104, EN ISO 3104, ISO 3105, GOST 33, GB/T 265	D7279	D445, D446, DIN 51562, IP 71, ISO 3104, EN ISO 3104, ISO 3105, GOST 33, GB/T 265
Applications	Absolute Viscosity	Absolute Viscosity	Absolute Viscosity	Absolute Viscosity	Viscosity	Viscosity	Viscosity	Viscosity

## ELEMENTAL ANALYSIS



Category	Antek MultiTek Standard Application Testing	Antek MultiTek Premium Application Testing	Antek MultiTek Custom Application Testing
Model	Multitek S, Multitek N, MultiTek S-N, MultiTek LLS	Multitek S, Multitek N, MultiTek S-N, MultiTek LLS MultiTek IC, MultiTek N-C, MultiTek S-IC, MultiTek N-S-C	MultiTek
Standard Method	Sulfur: D5453, ISO 20846, EN 20846, IP 490, SH/T0689 Nitrogen: D5176, D5762, D4629	Sulfur: D5453, ISO 20846, EN 20846, IP 490, SH/T0689 Nitrogen: D4629, Halides: D7359	
Applications	<ul style="list-style-type: none"> <li>Sulfur ASTM D5453 Gasoline within 0 - 100 mg/kg S</li> <li>Sulfur ASTM D5453 Diesel within 0 - 20 mg/kg</li> <li>Nitrogen ASTM D5176 water within 0 - 1000 mg/kg</li> <li>Nitrogen ASTM D5762 Heavy Oil within 0 - 10,000 mg/kg</li> <li>Nitrogen ASTM D4629 Liquid Hydrocarbons within 0.3 - 100 mg/kg</li> <li>Sulfur ASTM D5453 Jet Fuel within 0 - 3000 mg/kg</li> <li>Sulfur ASTM D5453 Biodiesel within 0 - 25 mg/kg</li> </ul>	<ul style="list-style-type: none"> <li>Sulfur ASTM D6667 LPG within 1 - 100 mg/kg in C3/C4</li> <li>Sulfur ASTM D7183 Aromatics within 0.5-100 mg/kg in toluene or xylene</li> <li>Nitrogen LPG within 1-300 mg/kg in C3/C4</li> <li>Nitrogen in Polymers within 0-500 mg/kg</li> <li>Halides LPG within 1-300 mg/kg F/Cl in C3/C4</li> <li>Halides ASTM D7359 Aromatics within 0.5-50 mg/kg F/Cl in toluene or xylene</li> <li>Trace Nitrogen ASTM D6069/D7184 Nitrogen within 0.1-2 mg/kg in toluene or xylene</li> </ul>	<p>Examples of Customized Elemental Applications are:</p> <ul style="list-style-type: none"> <li>Nitrogen in Food</li> <li>Halides in Coal</li> <li>Fluoride in Aluminum Oxide</li> </ul> <p>Please contact PAC for information on your specific requirements</p>



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