Full Range of DHA Solutions

Detailed Hydrocarbon Analysis of Light Petroleum Streams and Light End in Crude Oils

- Workflow oriented, User-friendly DHA XLNC Software
- Unique DHA Combi allows the analysis of both Light Petroleum Streams and Light End in Crude
- Easy Instrument Validation through Dedicated Quality Control Samples
- In Compliance with ASTM D5134, D6729, D6730, D6733, D7900, Fast DHA, DHA Front End, IP601, prEN 15199-4

DHA Solutions

COMPLETE RANGE OF DETAILED HYDROCARBON ANALYSIS SOLUTIONS

PAC's AC Analytical Controls offers a full range of Detailed Hydrocarbon Analyzers (DHA) to determine individual hydrocarbon composition in light hydrocarbon streams, gasoline blending feedstocks and spark ignition engine fuels. Understanding the composition of these hydrocarbon streams is essential for the refining industry. DHA helps optimizing production, meet regulatory requirement and enhance profitability.

The AC DHA analyzers comply with ASTM standard methods D5134, D6729, D6730, D6733 and D7900. PAC offers a Fast DHA application to determine the individual components in gasoline blending feedstocks within 28 minutes. The product range also includes a DHA Front End (Light Hydrocarbons in Stabilized Crude according ASTM D7900/IP601/EN15199-4), and a DHA Combi, where the Front-End application is combined with a standard method in one solution.
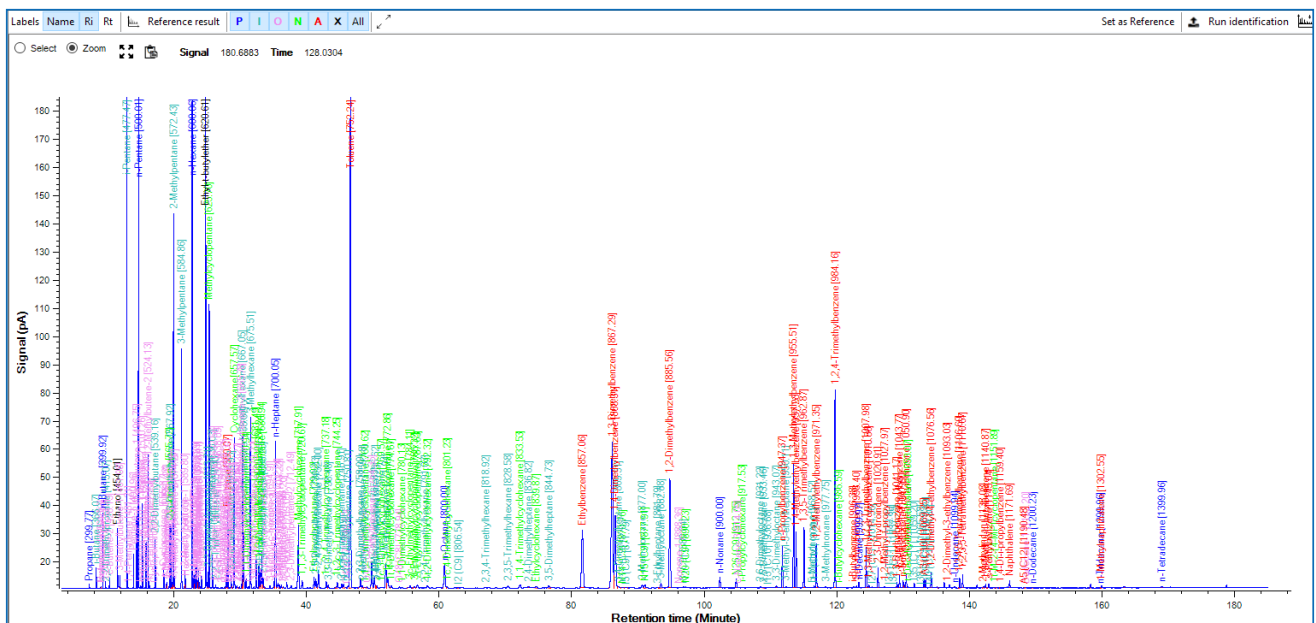
AC DHA Analyisis of Gasoline

DEDICATED QUALITY CONTROL SAMPLES FOR ENSURED VERIFICATION

To verify the DHA application, PAC offers a calibration sample and various quality control (QC) samples, including an n-alkane mixture. The QC sample range consists of:

- Reformer feed
- Reformate
- Alkylate
- Isomerate
- FCC naphtha
- Gasoline with ETBE & ethanol sample
- Gasoline with ethanol
- Gasoline with MTBE
- Crude

USER-FRIENDLY DHA XLNC SOFTWARE FOR RELIABLE AND REPEATABLE PERFORMANCE

Easy Operation for Accurate Analysis

- Fast, work-flow, oriented intuitive interface (one-click access, drag-and-drop, smart filter)
- Configurable import, processing, reporting and LIMS transfer of results
- Supports unlimited different test method and product definitions
- Intelligent peak identification
- Co-elution handling including ratio settings
- Boiling point distribution available in all modes (^{0}C/F)
- Research Octane Number (RON)
- Patented D86 calculation in all modes
- Reference graph available for each product
- Hydrocarbon group-type filtering
- Carbon number versus group-type pivot table
- Automated recalculation upon changes
- Product configurable limits on peaks/groups/identification
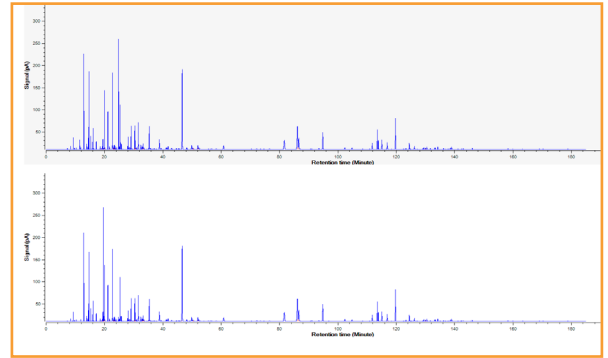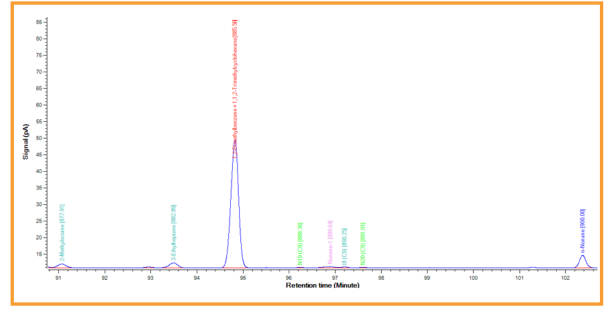
Key Advantages

- ASTM D7900: pioneered from the AC DHA FE (IP601/EN15199-4), for more accurate crude oil analysis
- Provides boiling point distribution and individual compound analyses up to Nonane
- AC 8612 Analyze: ASTM D86 calculation based on the Fugacity film model for group type 1 and 2
- D5134/ D6729 / D6730 / D6733, full compliancy including performance calculations
- AC FAST DHA: Detailed hydrocarbon analysis within 30 min
- DHA XLNC Software
  - Independent from Chromatography data systems
    - Supports: Openlab EZChrom, Openlab Chemstation, ChromPerfect, Chromeleon, Galaxie, Kompass, Atlas.
  - Multi-language support (and compatible with Windows 10)
    - English, Chinese, Spanish, Russian, Portuguese, French, Korean.

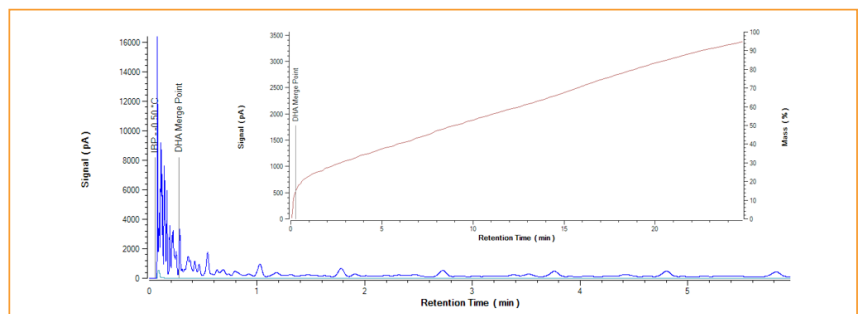# UNIQUE DHA COMBI ALLOWS THE ANALYSIS OF BOTH LIGHT PETROLEUM STREAMS AND LIGHT END IN CRUDE

The AC DHA Combi allows analysts to combine two DHA applications into one gas chromatograph (GC). Using the unique AC DHA Combi inlet, the instrument includes both the DHA Front End (FE) application for light end analysis in crude oil and one of the following standard ASTM test methods: D6729, D6730, D6733 or the AC Fast DHA application.
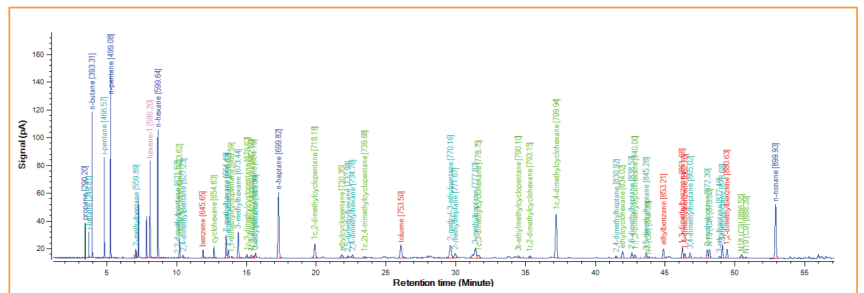
DHA FE complies with IP 601, EN15199-4 and ASTM D7900 to characterize the C1 - nC9 fraction in crude oil. PAC pioneered and developed the innovative software to merge the DHA FE analysis data with High Temperature SIMDIS results for improving the crude oil analysis accuracy according to IP 545, EN 15199-3 and ASTM D7169.

AC DHA Analysis

AC SIMDIS Analysis

SPECIFICATIONS

Ordering Information

Single Channel Systems	CCG6510.002A/C	DHA FAST SYSTEM ON 120V 7890 GC
	CCG6510.003A/C	DHA D 6730 SYSTEM ON 120V 7890 GC
	CCG6510.006A/C	DHA D 6729 SYSTEM ON 120V 7890 GC
	CCG6510.008A/C	DHA D 6730 COMBI SYSTEM ON 120V 7890 GC
	CCG6510.010A/C	DHA FAST COMBI SYSTEM ON 120V 7890 GC
	CCG6510.013A/C	DHA D 6729 COMBI SYSTEM ON 120V 7890 GC
	CCG6510.014A/C	DHA D 6733 SYSTEM ON 120V 7890 GC
	CCG6510.015A/C	DHA D 6733 COMBI SYSTEM ON 120V 7890 GC
	CCG6512.002A/C	DHA FE SYSTEM ON 120V 7890 GC
	CCG6510.016A/C	DHA D 5134 SYSTEM ON 120V 7890 GC
Additional Channels* * Allows for additional channel only when first channel is also AC DHA. Additional channel not possible in DHA Combi	CCG6530.002	ADDITIONAL FAST DHA CHANNEL ON 7890 GC
	CCG6530.003	ADDITIONAL DHA D6730 CHANNEL ON 7890 GC
	CCG6530.006	ADDITIONAL DHA D6729 CHANNEL ON 7890 GC
	CCG6530.014	ADDITIONAL DHA D6733 CHANNEL ON 7890 GC
	CCG6530.016	ADDITIONAL DHA D5134 CHANNEL ON 7890 GC

Utilities Requirements

Carrier gas	Helium (99.999%), hydrogen (99.999%) for Fast DHA
Detector gas	Hydrogen (99.999%) and air
System power	110 – 230 Volts
Cryogenic oven cooling	Liquid nitrogen or liquid CO_2

Standard Methods

Standard Test Methods	Scope	Max FBP (°C)	Conc. Range (%mass)	Max Olefin Content	Column Length	Run time (min)	Separation Comments
ASTM D6729	Spark ignition engine fuels oxygenate blends	225°	0.01-30	25	100	140	No separation of vital oxygenates and toluene
ASTM D6730	Spark ignition engine fuels oxygenate blends	225°	0.01-30	25	100 + 3	170	Separation is tuned for major components. No 1-methylnaphthalene/tridecane separation
ASTM D6733	Spark ignition engine fuels oxygenate blends	225°	0.01.15	20	50	150	No separation of benzene, toluene and vital oxygenates for ambient method. Uses ASTM D3606 or D5580 for Benzene/Toluene, ASTM D5599 or D4815 for oxygenates
ASTM D5134	Virgin naphthas, reformates, and alkylates.	250°	0.01-30	< 2%	50	120	Scope up to C9, Olefin free samples
Fast DHA	Spark ignition engine fuels oxygenate blends	225°	0.01-30	20	40	28	No separation of vital oxygenates and toluene. The resolution between peaks depends on the individual concentration of the components
DHA FE	Stabilized crude oils, straight naphta, reformates, alkylates.	n.a.	0.01-30	20	50	118	Separates up to C9, after C9 SIMDIS is used for data merge
DHA Combi	Mixed application	Method Dependent					Combines DHA FE with D6729, D6730 or D6733

Continuing research and development may result in specifications or appearance changes at any time

ABOUT PAC

PAC develops advanced instrumentation for lab and process applications based on strong **Analytical Expertise** that ensures **Optimal Performance** for our clients. Our analyzers help our clients meet complex industry challenges by providing a low cost of ownership, safe operation, high performance with fast, accurate, and actionable results, high uptime through reliable instrumentation, and compliance with standard methods.

Our solutions are from industry-leading brands: AC Analytical Controls, Advanced Sensors, Alcor, Antek, Herzog, ISL, Cambridge Viscosity, PSPI, and PetroSpec. We are committed to delivering superior and local customer service worldwide with 16 office locations and a network of over 50 distributors. 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.

HEADQUARTERS

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