



Detailed Hydrocarbon Analyser (DHA)

FP100 | 110 | 120 | 130

- ASTM D6729, D6730, D6733, D5134, D7900, IP344/601
- DHA calculations fully integrated in Chromeleon datasystem
- High uptime due to modular injector/detector technology
- Data merge option of DHA Front End and SIMDIST



Get ready for tomorrow's analytics

DHA - Detailed Hydrocarbon Analyser

Detailed analysis of light petroleum streams is essential for hydrocarbon processing. GAS DHA analysers offer full characterisation of hydrocarbon streams like spark ignition engine fuels and gasoline blending feedstocks. The dedicated, fully automated software provides detailed reporting of sample composition and physical properties, and a straightforward workflow.

Principle of operation

DHA methods are based on obtaining as much as possible separation of the individual components, using a single high resolution capillary column (figure 1). Undiluted samples are injected using a Split-Splitless injector (SSL) and a FID is used for detection. The Thermo Trace GC1600 is the optimal choice for this type of analysis, because the low thermal mass oven design offers superb retention time stability. This is of great importance for DHA, since component identification relies on retention time indices from a database.

GAS DHA Calculator software

Besides reporting of individual components, hydrocarbon group type data is also presented. These groups include normal, iso- and cyclic saturates, unsaturates, aromatic components and oxygenates (PIONAX). Physical parameters like Specific Gravity, MON, RON, Vapour Pressure and Molar Weight are reported as well (figure 2). DHA calculations are fully integrated in Chromeleon datasystem, therefore data export to external software is not needed. The result is a highly reliable, user friendly and easy workflow based system. Identification, calculation and reporting start automatically after each run. DHA Calculator software provides the solution for all mentioned standardised methods. The database with retention indices of 500 components is part of the software package. The analysis results for each individual component are reported in mass % and volume % to the nearest 0.01% for accurate results (figure 2).

Instrument specification

- Thermo Trace GC1600 with iConnect SSL (Split-Splitless injector), capillary column and FID (Flame Ionisation Detector)
- Chromeleon chromatography data system and DHA Calculator software
- Runtime dependant on method
- Reporting of individual components, PIONA group and physical parameters
- Optional: PTV-Backflush injector for DHA-front-end (PF130)

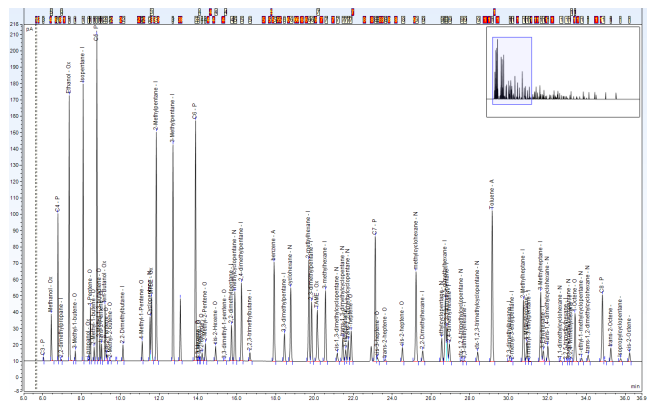


Figure 1 DHA example chromatogram

Detailed Hydrocarbon Analysis								
Instrument	GC1	Sequence name	# Data	G.A.S. FAST DHA pack (ASTM D6730)				
Instrument Method	DHA	Data Vault	ChromeleonLocal					
Processing Method	DHA - D6730 Calibration PIONA	Report Template	DHA Report D6730 V2.6					
Data File	DEHA-X	Seq. Line	8					
Injection Date	15/Aug/2014	Vial no.	116					
Injection Time	14:58	Inj Vol (uL)	0.2					
Calculation Type	Total	Peaks	159					
Physical property report								
Density @ 60/60 °F	0.7342	Notes:						
RVP @ 100 °F (psi)	4.75							
Research ON (RON)	65.8							
Motor ON (MON)	62.2							
MW (g/mol)	104.82	Gross Heat combustion @ 77 °F (25 °C)	Btu/lb	KJ/Kg				
Bromine number	16.99	Nett Heat combustion @ 77 °F (25 °C)	18281	45570				
Composition report (mass %)								
Filter: PIONAX								
Carbon	n-Paraffins	iso-Paraffins	Olefins	Naphthenes	Aromatics	Oxygenates	Unknowns	Total
C1						0.23		0.23
C2						4.76		4.76
C3	0.03						0.02	0.05
C4	1.14	0.34					0.04	1.52
C5	3.49	2.75	1.37			1.84	1.21	10.65
C6	3.78	6.89	1.88	2.66	1.63	1.56		18.40
C7	2.58	7.72	1.36	5.15	3.02		0.05	19.88
C8	1.55	5.02	0.55	2.74	3.33		0.63	13.83
C9	1.18	5.91	1.13	0.59	1.87		0.18	10.86
C10	1.11	3.40	0.50	0.47	5.34			10.84
C11	1.18				1.52			2.69
C12	1.08				1.97			3.05
C12+	3.24						0.01	3.25
Total	20.36	32.03	6.79	11.62	18.68	3.40	2.14	100.00
Composition report (vol %)								
Filter: PIONAX								
Carbon	n-Paraffins	iso-Paraffins	Olefins	Naphthenes	Aromatics	Oxygenates	Unknowns	Total
C1						0.21		0.21
C2						4.38		4.38
C3	0.04						0.03	0.07
C4	1.43	0.44					0.05	1.93
C5	4.06	3.23	1.54			1.81	1.41	12.04
C6	4.19	7.63	2.03	2.54	1.35	1.53		19.27
C7	2.75	8.23	1.41	4.93	2.54		0.05	19.92
C8	1.61	5.18	0.56	2.57	2.80		0.66	13.37
C9	1.20	6.04	1.13	0.57	1.58		0.18	10.70
C10	1.11	3.40	0.48	0.41	4.50			9.92
C11	1.16				1.29			2.45
C12	1.05				1.57			2.62
C12+	3.11						0.01	3.12
Total	21.71	34.16	7.15	11.03	15.63	3.34	2.39	100.00

Figure 2 DHA report

Ordering information	PF10X - ABCDE DHA ASTM 6729			
	PF11X - ABCDE DHA ASTM D6730			
	PF12X - ABCDE DHA ASTM D5134, D6733			
	PF13X - ABCDE DHA Front End for crude oil - ASTM D7900, IP344/601			
code X	0	1	2	3
GC model, power	1600, 230V	1610, 230V	1600, 115V	1610, 115V

For the selection of options (e.g. GC oven cryo valves, Power plug type and more), see the options table in the order guide.