



## Low-level oxygenates analyser

PF420 | 430



- ASTM D7423, ASTM D7754, UOP 960
- Robust, modular, high uptime
- For liquid samples; options for gas and LPG
- Using FID detector; Mass Spectrometer optional

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# Low-Level Oxygenated components analyser

The low-level oxygenates analyser from GAS analyses oxygen-containing components like alcohols and ethers at (sub) ppm level. The presence of these components in hydrocarbon feedstock reduces catalyst lifetime, even at low ppm level. Analysis at low levels is also demanded by environmental requirements.

## Principle of operation

ASTM D7423 and UOP 960 cover the analysis of oxygen containing components with boiling points up to 100 °C in hydrocarbon streams with final boiling point below 250 °C. The concentration range is 0.1-1000 ppm. Figure 1 shows the instrument diagram. A highly selective analytical capillary column (Lowox) separates the components of interest from the hydrocarbon matrix. The system is equipped with a SSL module (liquid sample injector) with backflush option for removing components with boiling point above 100 °C using a Rtx-1 pre-column. Figure 2 shows a 100 ppm calibration standard and figure 3 demonstrates the repeatability. This analyser covers ASTM D7754 as well, for samples containing 1-15% ethanol, with the use of a longer pre-column.

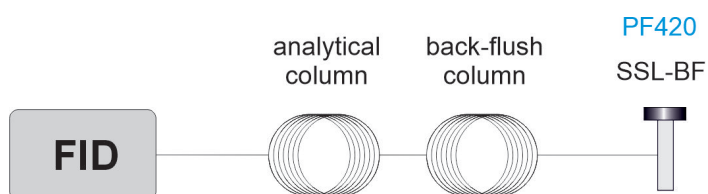
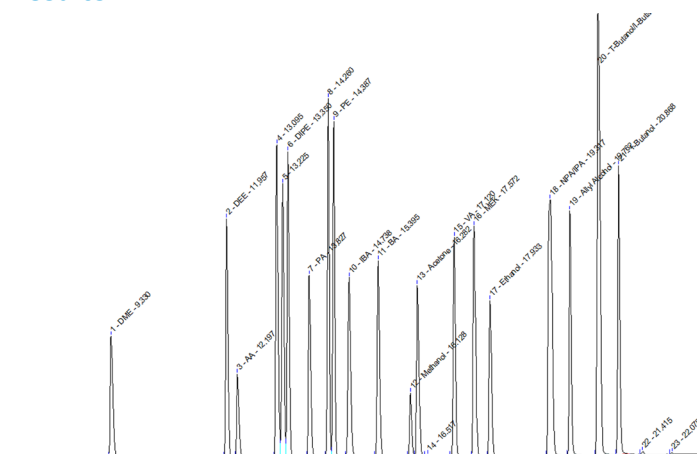


Figure 1 Diagram ASTM D7423 / D7754 / UOP 960 analyser

## Results



CALIBRATION STANDARD (100 ppm for each component)	
Dimethylether	Methyl Ethyl Ketone
Acetaldehyde	Diethylether
Methanol	Iso-Butanol
Ethanol	N-Butanol
Propylether	Iso-Butanal
Propionaldehyde	Buthyraldehyde
iso-propanol	Ethyl Tert Butyl Ether
T-Butanol	Di-Isopropylether
Propanol	Methyl Tert Butyl Ether

Figure 2 100 ppm calibration standard, liquid injection

## Instrument specification

- Thermo Trace GC1600 with iConnect SSL (Split-splitless injector), two capillary columns (Rtx-1 and Lowox) and FID
- Deans back-flush column switch
- Chromeleon chromatography data system
- Runtime 22 minutes
- Option: Mass Spectrometer instead of FID (PF430)

	ETBE Area	MTBE Area	DIPE Area	TAME Area	PE Area	MEK T-Butanol, Iso... Area	1-Butanol Area	
217590.00	219186.00	225544.00	234268.00	221104.00	197462.00	668182.00	352884.00	
218929.00	223651.00	228403.00	238190.00	225201.00	199992.00	674969.00	364892.00	
216047.00	220135.00	223283.00	232977.00	220184.00	195684.00	661960.00	356955.00	
223290.00	227834.00	233581.00	243023.00	229025.00	201593.00	684831.00	353251.00	
215944.00	218017.00	224411.00	233341.00	219821.00	194399.00	658748.00	339042.00	
216799.00	220695.00	227555.00	235189.00	221814.00	194438.00	661578.00	348803.00	
218518.00	220454.00	227493.00	236573.00	223679.00	193629.00	661017.00	351983.00	
223242.00	224438.00	232150.00	241893.00	228996.00	197467.00	675404.00	353714.00	
215976.00	215819.00	222285.00	232897.00	219837.00	190374.00	646960.00	347844.00	
222034.00	224530.00	232040.00	241757.00	227848.00	195446.00	664451.00	354400.00	
Min:	215944.00	215819.00	222285.00	232897.00	219821.00	190374.00	646960.00	339042.00
Max:	223290.00	227834.00	233581.00	243023.00	229025.00	201593.00	684831.00	364892.00
Mean:	218836.90	221455.90	227674.50	237010.80	223749.90	196048.40	665810.00	352376.80
Std Dev:	2974.18	3624.26	3916.83	3966.46	3776.53	3234.66	10573.04	6631.43
%RSD:	1.36	1.64	1.72	1.67	1.69	1.65	1.59	1.88

Figure 3 Repeatability of analysis of low level oxygenates components. 100 ppm calibration standard

Ordering information	PF42X - ABCDE Low Level Oxygenates Analyser using FID			PF43X - ABCDE Low Level Oxygenates Analyser using Mass Spectrometer detection		
code X	0	1	2	3		

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

## About GAS

Global Analyser Solutions provides GC & GC-MS solutions for Energy, Refinery, Chemical and Environmental markets. Our analysers address a broad spectrum of measuring requirements with high precision and reliability. Please reach out for more information on our website.

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