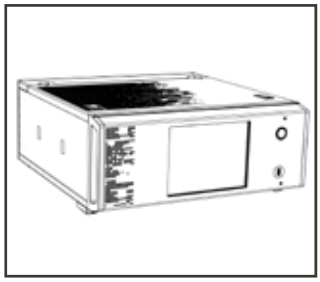
Natural gas analysis

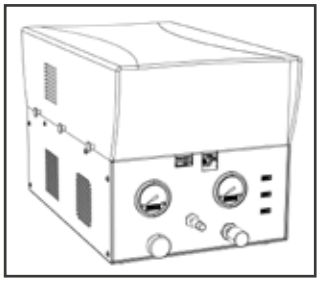
APPLICATIONS

Certified measurement of Gross Calorific Value of Natural gas processes.
Through metrological certification (OIML R140, Welmec 7.2 et ISO 6976), our device is able to provide the Calorific Value that leads to natural gas tarification.
2 modules are mandatory for this 2 min analysis.
PixLPro software gives you direct overview of the measurement.
On the ChromPix® or ChromEx 400 device, you can add two optionnal modules to analyze sulfur compounds (H_2S and odorizant - TBM or THT)

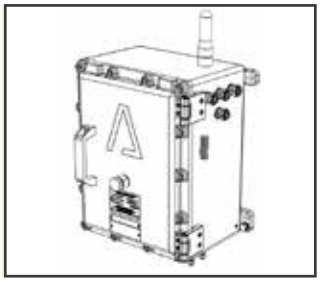
SYSTEMS



ChromPix2®



TwinPix®



ChromEx200/400®

SAMPLE

Typical natural gas sample

CONCLUSIONS

APIX systems are pending certified for the measurement of Gross Heating Value of Natural Gas.
Two analytical modules (PPU10 and PDMS10) are mandatory for performing this certified measurement.
System configuration can be completed with two other modules for providing analysis of supplementary compounds (sulfur compounds...)

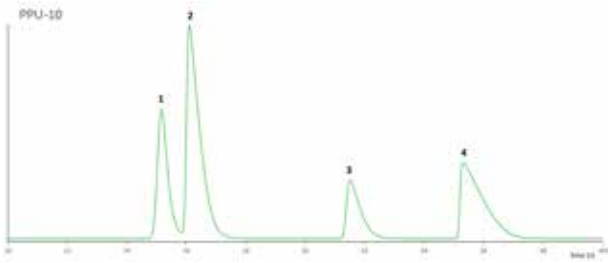
MODULE A

Reference	**MK10-TCD-2µL-PPU10-PPU1-F1**
Detector	**TCD**
Column	**PPU (Pora-Plot U) 10m**
Internal Diameter	**0.25mm**
Phase Thickness	**12µm**
Precolumn	**PPU (Pora-Plot U) 1m**
Backflush	✔
Sample Loop	**2µL**
Regeneration	✖

METHOD

Carrier Gas	**Helium**
Carrier Gas Pressure (max)	**36.2 psi - 2.5 bar**
Detector T°C	**70°C**
Column T°C	**70°C**
Column Pressure	**0.8 bar**
Sample Loop T°C	**70°C**
Sample Loop Pressure	**0.5 bar**
Injection Time	**10s**
Analysis Time	**120s**

CHROMATOGRAM



RESULTS

		LOD	LOQ	RSD
1	N_2+O_2	2ppm	6ppm	0.9% (0.6%)
2	CH_4	1%	3%	0.05% (82.81%)
3	CO_2	2ppm	6ppm	0.25% (0.29%)
4	C_2H_6	2ppm	6ppm	0.25% (11.81%)

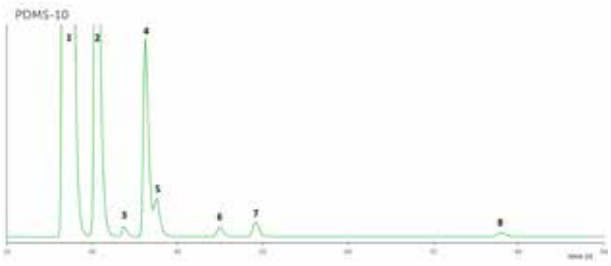
MODULE B

Reference	**MK6-TCD-2µL-PDMS10-F1**
Detector	**TCD**
Column	**PDMS (100% Methyl Polysiloxane) 10m**
Internal Diameter	**0.15mm**
Phase Thickness	**1.2µm**
Precolumn	**None**
Backflush	✖
Sample Loop	**2µL**
Regeneration	✖

METHOD

Carrier Gas	**Helium**
Carrier Gas Pressure (max)	**36.2 psi - 2.5 bar**
Detector T°C	**70°C**
Column T°C	**60°C**
Column Pressure	**1.2 bar**
Sample Loop T°C	**60°C**
Sample Loop Pressure	**0.5 bar**
Injection Time	**1s**
Analysis Time	**100s**

CHROMATOGRAM



RESULTS

		LOD	LOQ	RSD
1	Injection			
2	C3	1ppm	3ppm	0.1% (7%)
3	iC4	1ppm	3ppm	0.2% (0.1%)
4	nC4	1ppm	3ppm	0.1% (2%)
5	neoC5	1ppm	3ppm	0.3% (0.35%)
6	iC5	1ppm	3ppm	0.2% (0.1%)
7	nC5	1ppm	3ppm	0.4% (0.15%)
8	nC6	1ppm	3ppm	0.6% (500ppm)

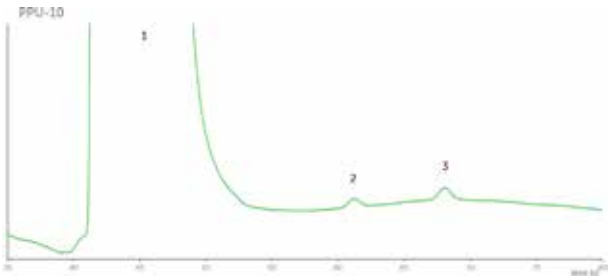
MODULE C

Reference	**MK10-TCD-20µL-PPU10-PPU1-F1**
Detector	**TCD**
Column	**PPU (Pora-Plot U) 10m**
Internal Diameter	**0.25mm**
Phase Thickness	**12µm**
Precolumn	**PPU (Pora-Plot U) 1m**
Backflush	✔
Sample Loop	**20µL**
Regeneration	✖

METHOD

Carrier Gas	**Helium**
Carrier Gas Pressure (max)	**36.2 psi - 2.5 bar**
Detector T°C	**80°C**
Column T°C	**105°C**
Column Pressure	**1.5 bar**
Sample Loop T°C	**105°C**
Sample Loop Pressure	**0.5 bar**
Injection Time	**13s**
Analysis Time	**80s**

CHROMATOGRAM



RESULTS

		LOD	LOQ	RSD
1	Injection			
2	H_2S	1ppm	3ppm	10% (3ppm)
3	COS	1ppm	3ppm	10% (3ppm)

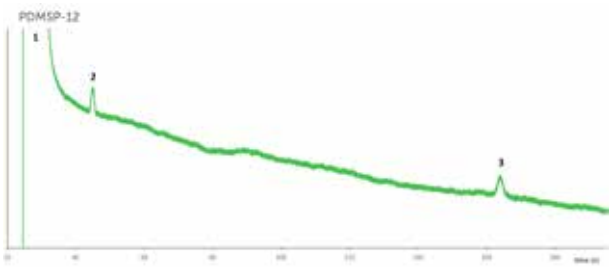
MODULE D

Reference	**MK6-TCD-20µL-PDMSP12-F2**
Detector	**TCD**
Column	**PDMSP (20 % Diphenyl - 80 % Methylpolysiloxane) 10m**
Internal Diameter	**0.25mm**
Phase Thickness	**1µm**
Precolumn	**None**
Backflush	✖
Sample Loop	**20µL**
Regeneration	✖

METHOD

Carrier Gas	**Helium**
Carrier Gas Pressure (max)	**36.2 psi - 2.5 bar**
Detector T°C	**60°C**
Column T°C	**60°C**
Column Pressure	**1.5 bar**
Sample Loop T°C	**60°C**
Sample Loop Pressure	**0.5 bar**
Injection Time	**1s**
Analysis Time	**200s**

CHROMATOGRAM



RESULTS

		LOD	LOQ	RSD
1	Injection			
2	TBM	1ppm	2ppm	<10% (2ppm)
3	THT	1ppm	2ppm	<10% (2ppm)