



Biomethane analysis

BIOMETHANE
REFINERY GASES
NATURAL GASES
INDUSTRIAL EMISSIONS AND VOCS
INDUSTRIAL AND SPECIALITY GASES

APPLICATIONS

Certified measurement of Gross Calorific Value of Biomethane processes.

Through metrological certification (ISO 6976), our device is able to provide the High Heating Value that leads to Biomethane tariffication before injection in Natural gas network.

One module is mandatory for this 2 min certified analysis.

PixLPro software gives you direct overview of the measurement.

On the ChromPix® or ChromEx 400 device, you can add three optionnal modules to analyse sulfur compounds (H₂S and odorizant) and other compounds

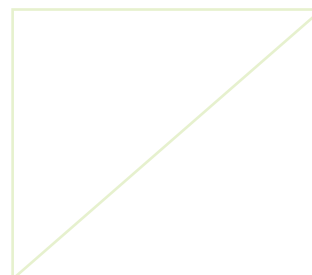
SYSTEMS



ChromPix2®



ChromEx200/400®



SAMPLE

Typical biomethane gas sample, before and after purification

CONCLUSIONS

APIX systems are pending certified for the measurement of Gross Heating Value of Biomethane.

Only one analytical modules (PPU10) is mandatory for performing this certified measurement.

System configuration can be completed with three other modules for providing analysis of supplementary compounds (permanent gases, suflur compounds...).

Due to system modularity, hydrogen can also be analyzed to increase valorisation of biomethane processes.

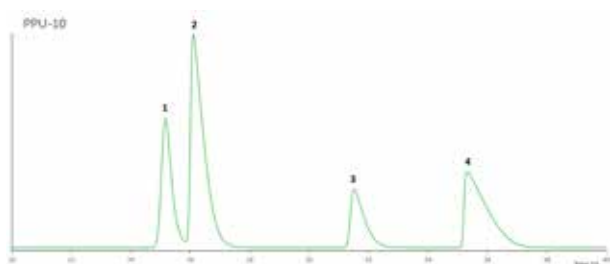
MODULE A

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 ₂ H ₆	2ppm	6ppm	0.25% (11.81%)

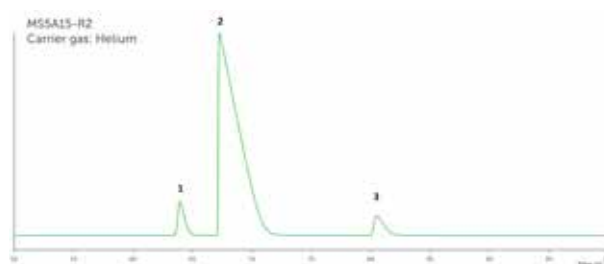
MODULE B

Reference	MK10-TCD-2µL-MS5A15-PPU5-R2
Detector	TCD
Column	MS5A (Molsieve) 15m
Internal Diameter	0.25mm
Phase Thickness	20µm
Precolumn	PPU (Pora-Plot) 5m
Backflush	✓
Sample Loop	2µL
Regeneration	✓

METHOD

Carrier Gas	Helium
Carrier Gas Pressure (max)	36.2 psi - 2.5 bar maxi
Detector T°C	70°C
Column T°C	140°C
Column Pressure	1.6 bar
Sample Loop T°C	70°C
Sample Loop Pressure	0.5 bar
Injection Time	23s
Analysis Time	120s

CHROMATOGRAM



RESULTS

		LOD	LOQ	RSD
1	O ₂	20ppm	60ppm	0.5% (5%)
2	N ₂	20ppm	60ppm	0.25% (89.5%)
3	CH ₄	20ppm	60ppm	0.5% (5%)

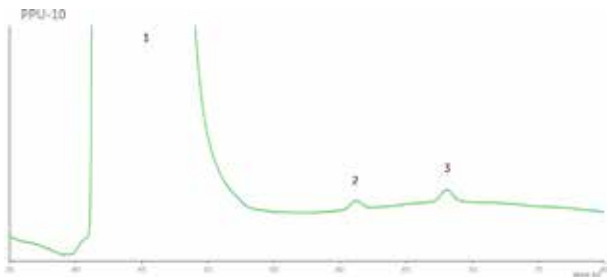
MODULE C

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 ₂ S	1ppm	3ppm	10% (3ppm)
3	COS	1ppm	3ppm	10% (3ppm)

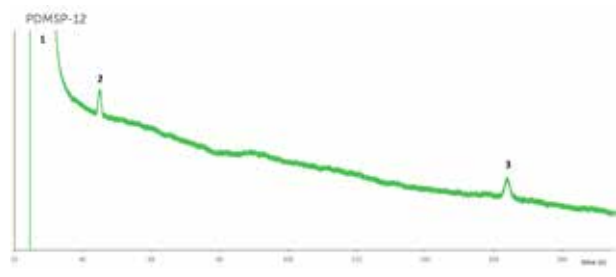
MODULE D

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)