

## #1605 – High Pressure Gas Condensate Analyzer

### Configuration:

**Configured by method:**

STO Gasprom 5.5, part B

**Analyzer Configuration:**

2xPiston injectors,  
Packed pre-column and column Porapak Q located in the Auxiliary oven,  
Cap. column 100%PDMS, 30x0.53x1.5um,  
# Oven cooling system (optional)  
Mini-chiller  
Air pressurizing (6 Bar) for Piston injectors  
pneumatic control  
Floating piston cylinders  
High pressure gas regulator and fittings for sample overpressurizing

**Instrument Configuration:**

C9000, 1xFID, 1xTCD, 3-ch UEPC

**Sample Type:**

Gas condensate liquefied overpressurized up to 100 Bar, (provided that sample is fully liquid being under high pressure).

**Analyzed Compounds:**

Nitrogen, Carbon dioxide, hydrogen sulfide, methanol, Hydrocarbons C1 – C40

**Quantification range:**

0.005% and higher, for H<sub>2</sub>S: 0.01% and higher

**Run Time:**

60 min

**Oven temperature:**

0 – 320 °C

**Carrier Gas:**

Helium

### Features & Benefits:

- Full analysis of condensate in a single run by 1 Gas chromatograph.
- Not required separation into liquid and gas phase, thus extremely saves time for analysis.
- 2 channels provide determination of light gases (N<sub>2</sub>, CO<sub>2</sub>, C<sub>1</sub>-C<sub>3</sub>, H<sub>2</sub>S) and hydrocarbons up to C<sub>44</sub>.
- Complete solution includes

### Analyzer description

**Sample handling.** Sample of condensate is collected and transported in floating piston sample cylinders (working pressure up to 100 Bars). Before sample loading into GC, sample in piston cylinder is overpressurized to avoid phase separation into gas and liquid when sample loading into GC.

**Injection.** Piston injector for sample introduction under high pressure up to 100 Bar. Top part of piston injector body is cooled by circulating cooling liquid flow from mini-chiller, so sample channel is not heated higher than 40°C. Bottom part of the injector is heated up to 350°C to provide vaporization when sample is injected. This solution provides accurate injection of condensate and determination of components in wide boiling point range. At loading sample is gently passed through the sample channel of Piston injector. Sample flow is adjusted by metering valve to optimize sample flow rate and avoid bubbles in flow. At injection a rod with sample volume is transferred from sample channel into vaporization chamber.

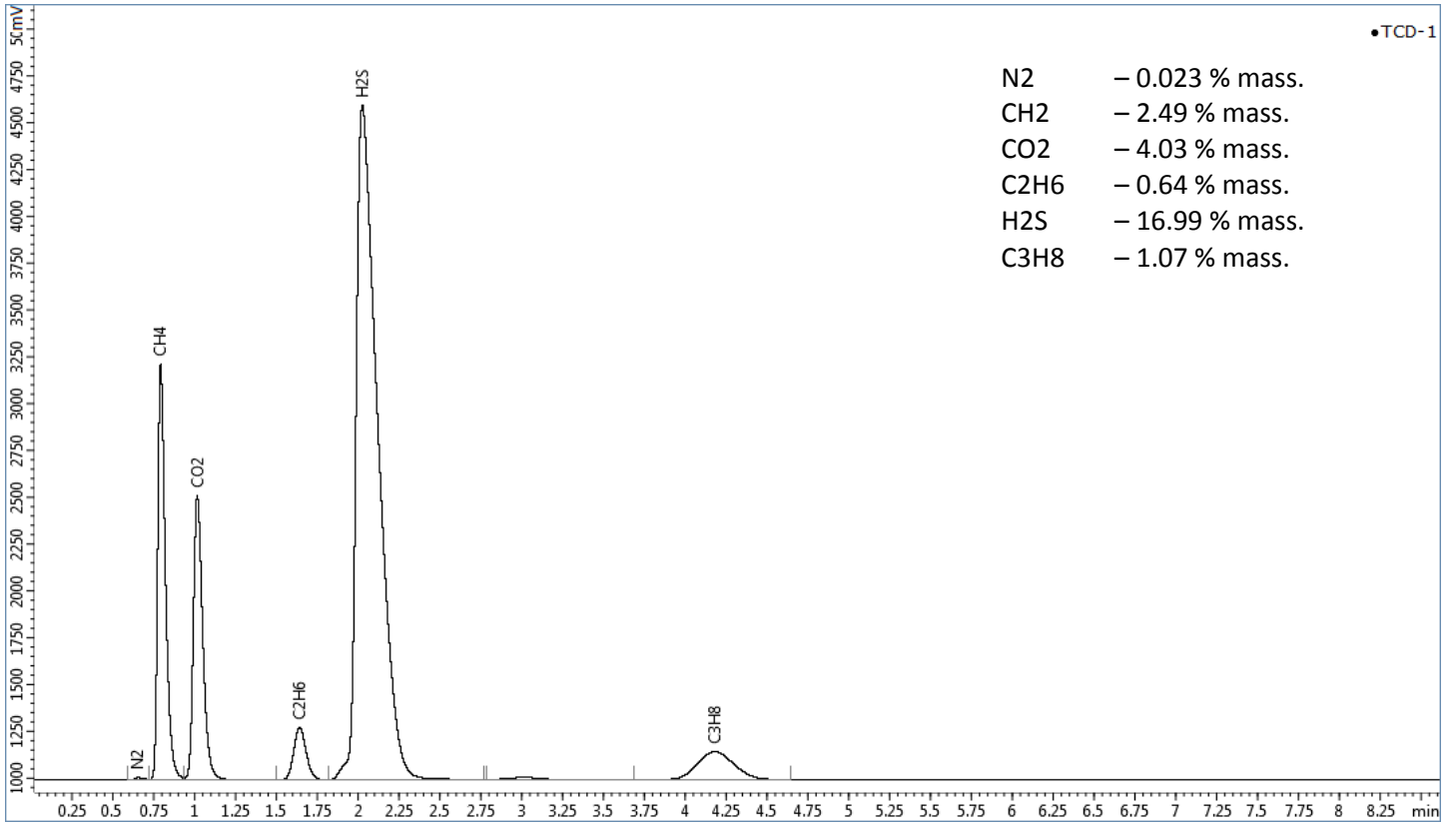
**Gas chromatograph.** GC *Chromatec-Crystal 9000* mainframe contains 2 channels: TCD and FID and 2 piston injectors for each channel.

Channel TCD: Sample size 1.2 µL injected into packed Porapak pre-column and then light components (N<sub>2</sub>, CO<sub>2</sub>, C<sub>1</sub>-C<sub>3</sub>, H<sub>2</sub>S, methanol) are separated on the main Porapak column. Heavier hydrocarbons are backflushed from pre-column.

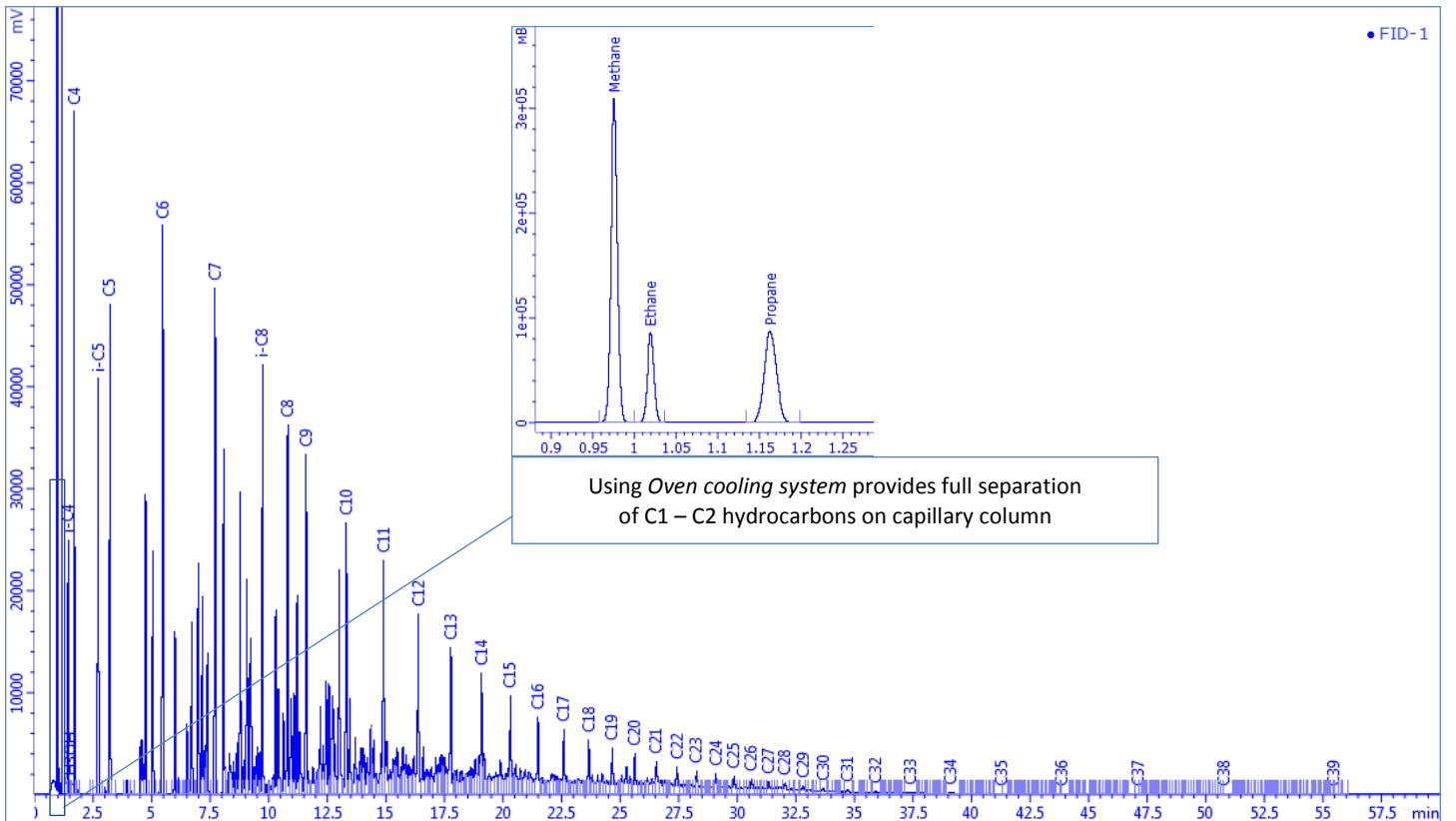
Channel FID. Sample size 0.25 µL. Capillary column provides separation of Hydrocarbons from C<sub>1</sub> to C<sub>40</sub>. Using *Oven cooling system* provides full separation of C<sub>1</sub> – C<sub>2</sub> hydrocarbons on capillary column.

**Software.** *Chromatec Simdist* software is applied for reporting results: component and fractions composition by C-number in chain as well as distribution boiling point.

## Chromatograms:



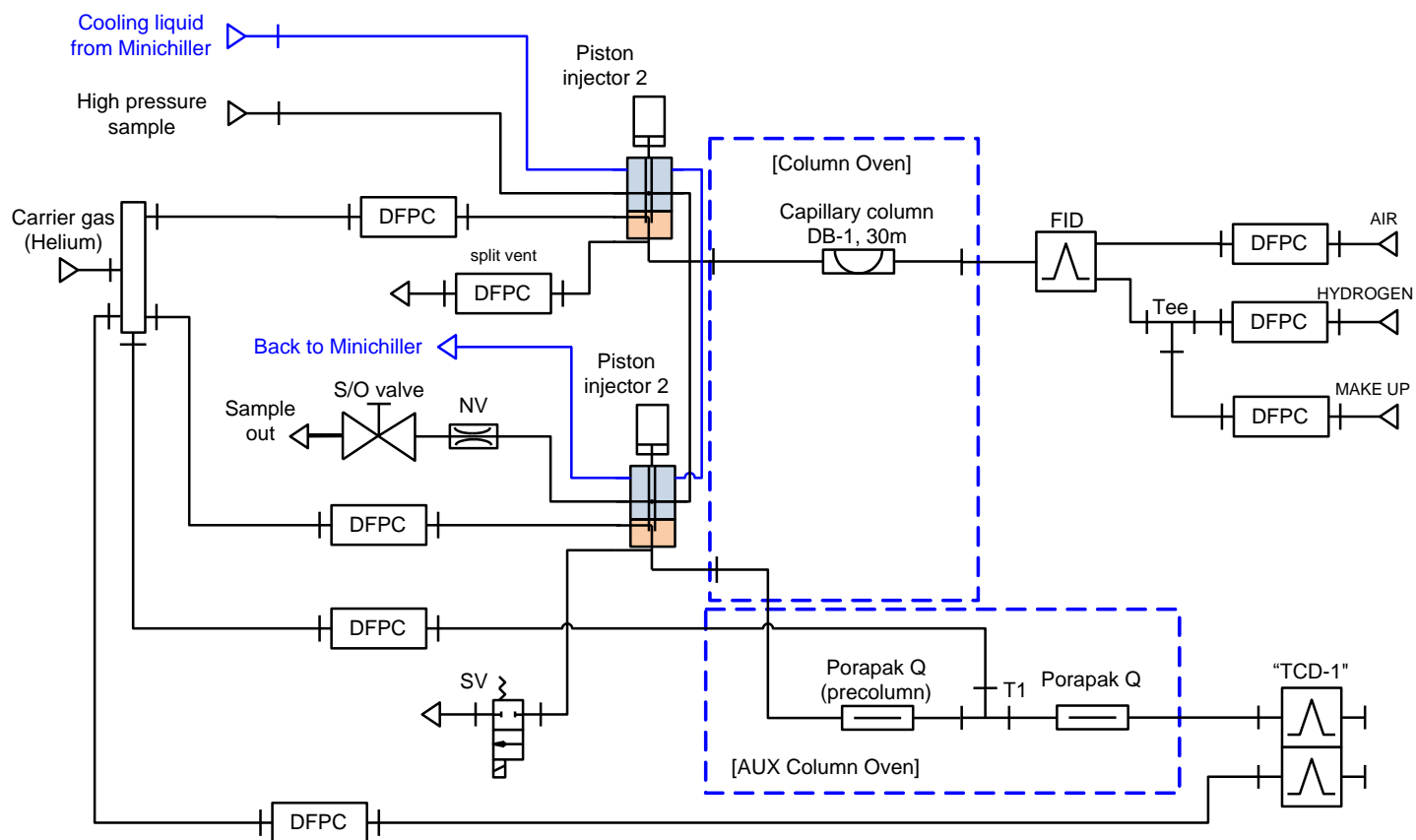
TCD – channel. Light components on Porapak Q packed column



FID channel – Hydrocarbons on capillary column

## Flow diagram

### Flow diagram High Pressure Gas Condensate Analyzer (HPGCA)



TCD, FID - detectors  
DFPC – digital flow & pressure controller

N/V – metering valve to adjust sample flow  
S/O valve – shut/off valve  
SV – solenoid valve for backflushing of precolumn



The data provided herein can be changed without prior notice.  
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Yoshkar-Ola, Russian Federation  
Date of current version: 15.07.2017  
Date of first version: 15.07.2017  
09-112-7019EN

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