DATA SHEET

HALLIBURTON

Enhanced reservoir analysis

BENEFITS

- Four-in-one gas analyzer:
  - Total hydrocarbon Analyzer (THA)
  - C1-C5 and C1-C8 gas chromatograph (GC)
  - Inorganics (H_2, He, N_2, CO_2)
- Analyzes C1-C5 and DBM gases (ethylene, propylene) in 30 seconds
- Switches between C1-C5 and C1-C8 while drilling
- C1 separation ratio >1000:1
- Eliminates recycled gases with gas-out/gas-in measurements
- Remote operation capable
- Identifies fractures via helium and hydrogen detection

FEATURES

- Adaptable hydrocarbon/non-hydrocarbon measurements while drilling without switching analyzers
- Higher C1-C5 resolution with DBM detection
- Improved hydrocarbon evaluation accuracy
- Gas-while-drilling interpretation
- Detects well flows and kicks
- Reduces rack footprint with 4-in-1 analyzer
- Enhances formation evaluation, fluid characterization, and sampling
- Quantitative measurements using CVE Thermal Plus™ extractors
- CO_2 baseline determination for CCUS wells

GasFact® Pro analyzer

Hydrocarbon and inorganic compound analysis to enhance reservoir understanding



Overview

Accurate hydrocarbon characterization is crucial to surface data logging. This analysis offers an early view of the geology's hydrocarbon potential. Extended range gas chromatography is key to understanding reservoir fluids.

GasFact® Pro is a versatile, advanced four-in-one analyzer for comprehensive fluid analysis. It combines a total hydrocarbon analyzer (THA), C1-C5 or C1-C8 gas chromatograph (GC), and an inorganics module to enhance reservoir characterization.

GasFact® Pro delivers a vital first assessment of hydrocarbons in geological formations and enables detailed analysis and deeper insight into reservoir fluids.

Detailed understanding of reservoir fluids

GasFact® Pro enables adaptable formation fluid analysis while drilling, without equipment changes. It features:

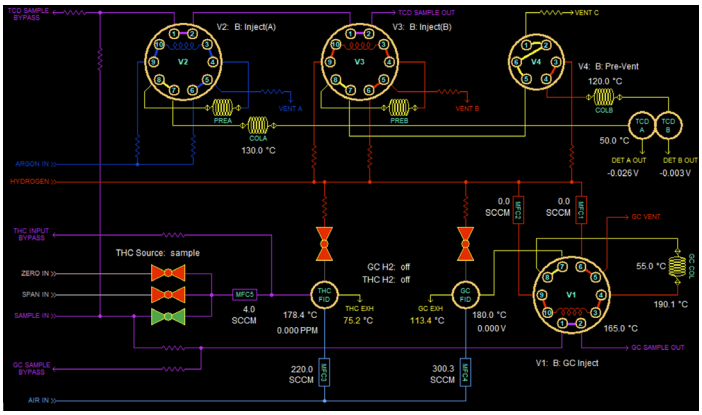
- C1-C5 GC with drill bit metamorphism (DBM) gases (30-sec cycle) to detect bit wear
- C1-C8 GC with DBM gases (70-sec cycle), including Benzene, Toluene, and Methylcyclohexane
- Inorganics module (H_2, He, N_2, CO_2) in a 90-sec cycle

When paired with constant-volume extractors (CVE) or CVE Thermal Plus™, GasFact® Pro provides early hydrocarbon detection and reservoir fluid analysis. Optional analyzers, like the Isologger (measuring the carbon isotopes of C1 to C3), expand capabilities to assess gas origin and maturity. Our expert teams integrate all available data, offering high-quality interpretation for full reservoir understanding.

GasFact® Pro's inbuilt inorganics module supports geothermal and CCUS wells, using helium and hydrogen to identify fractures and CO_2 monitoring for CCUS.

Improved safety and efficiency

The GasFact® Pro, a four-in-one multi-gas analyzer, allows for adaptable formation fluid analysis, which includes inorganics (H_2, He, N_2, CO_2) in 90 seconds. It enables a seamless switch between C1-C5 and C1-C8 configurations while drilling without a change in equipment, enhancing data collection. With 1-second THA data samples, GasFact® Pro identifies drilling issues, and supports real-time safety decisions. Its remote control capability improves operational flexibility. Detects drill bit wear gases within 30 seconds, enabling early identification of bit degradation and potential of reducing non-productive time (NPT). High-density data aids in fluid behavior insight, prevents kicks, and optimized operations.



GasFact® Pro specifications

GASFACT® PRO MINIMUM SPECIFICATIONS	
Power	110-240 VAC, 50/60 Hz, 6A fused
Sample pressure	15 psig
Hydrogen pressure	70 psig
Size	19-in. rack, 5u, 30-in., 50 lbs
Calibration	<+/-5% for 5 days stability
Communication protocol	Modbus TCP/IP

SPECIFICATIONS	TOTAL HYDROCARBON ANALYZER	GAS CHROMATOGRAPH (ORGANICS)	GAS CHROMATOGRAPH (INORGANICS)
Cycle time (data point to data point)	NA	C1 to C5 - 30 seconds/ C1 to C8 - 70 seconds	90 seconds
Species detected	NA	▪ Methane through pentane detection with iso/normal C4/C5 and ethylene and propylene in 30 seconds ▪ Methane through octane (hexane, cyclohexane, heptane, benzene, methylcyclohexane, toluene, octane) detection with iso/normal C4/C5 and ethylene and propylene in 70 seconds	Hydrogen (H_2), Helium (He), Nitrogen (N_2), Carbon Dioxide (CO_2)
Resolution	1 ppm	1 ppm	1 ppm
LoQ	10 ppm	10 ppm	10 ppm
Range	10 ppm to 100% equivalent methane		H_2, He - 10 ppm to 100,000 ppm N_2 -10% to 100% CO_2 - 10 ppm to 100,000 ppm
Accuracy	+/-5% value	+/-5% value	+/-5% value
Precision	+/-2% value	+/-2% value	+/-2% value
Separation	NA	1000:1 C1:C2 separation	NA
Detector	Flame ionization detector		Thermal Conductivity Detector
Calibration	Multilinear or fitted curve calibration method built into system		
Carrier Gas	Hydrogen		Argon
Transmission	Electronically transmit concentrations with chromatograms (vector or intensities per time) in real time		
Automation	Remote operation capable. Remote calibration possible with remote control gas panel.		

For more information, contact your local Halliburton representative or visit us on the web at www.halliburton.com

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