

PureFlex surface fluids logging while-drilling service

Provides fast and true at-surface hydrocarbon composition

Applications

PureFlex* surface fluids logging while-drilling service is a modular wellsite gas analyzer measuring continuous total gas, alkanes (C₁ to C₅), and alkenes (ethene and propene) to assist drillers and geologists with safety and formation evaluation applications in any environment while drilling the well.

How it improves wells

PureFlex service provides the first indication of hole instability and potential hydrocarbon zones. Total gas (TG) is the driller reference to identify produced gases, such as connection or trip gas, and assist in crucial decision making related to well control practices. Additionally, measuring light alkenes enables bit-wear prediction and supports pull-out-of-hole decisions.

Fast gas chromatography provides quick insight on formation fluids in terms of fluid type and alteration. PureFlex service reflects the true composition of reservoir fluids, enabling continuous and automated removal of most known mud contaminants, like amines and alcohols, discriminating the light alkenes that are by-products of the drillbit metamorphism (DBM), from the genuine alkanes originating from the formation—eliminating the effect of the artificially generated alkanes from extreme DBM.

How it works

Mud gas extracted at the shaker and at the active pit is transported to the mud logging unit and analyzed in the PureFlex service flame ionization detection (FID) gas analyzer.

TG and gas chromatograph detectors are calibrated at the base and checked before drilling begins. Hybrid connectors installed within the chassis distribute the different flows from hydrogen, air, and gas samples to the total gas detector and the three chromatograph modules connected to the same chassis.

In a typical configuration, two modules detect main and backup C₁ to C₅ gases, whereas the third module measures alkenes with an analysis cycle time of 20 s or 40 s.

An anticontaminant filter installed ahead of the gas chromatographs neutralizes mud contaminants, such as amines and alcohols, before the analysis. The gas analyzer is controlled by dedicated computer with unified gas software (UGS) through direct link to Ethernet network interface.

What else I should know

PureFlex service can be run in different configurations with one or two constant volumetric degassers (CVDs) or heated CVD to measure gas out (at shakers) and gas in (at the active pit) to eliminate the effect of the gas recycling. When running with the isotope logging service, it enables full correction of the isotope $\delta^{13}\text{C}$ of methane when extreme DBM is present.

Specifications	
Technology	FID
Measured hydrocarbons	TG, C ₁ –C ₅ , ethene, propene
Analysis cycle time	20–40 s
Total gas range	1 ppm–100%
Chromatograph range	1 ppm–75%
C ₁ and C ₂ separation, ppm	Up to 1,500
Mud contaminants removal	Yes (amines, alcohols)
Remote capabilities	Yes
Data backup	Double (gas analyzer and UGS)



The PureFlex service features a modular wellsite gas analyzer for safety and formation evaluation.

*Mark of Schlumberger
Other company, product, and service names are the properties of their respective owners.
Copyright © 2021 Schlumberger. All rights reserved. 21-WCMS-833972