



OIL QUALITY ASSESSMENT IN NEAR REAL-TIME

The G9+ service provides customers with the characterization of liquid hydrocarbons in drill cutting samples through the application of detailed gas chromatography. It can be applied in reservoir rocks to detect and characterize oil occurrence and in source rocks to define source type

and properties. Newly acquired cuttings at the wellsite are analyzed in a very short time preventing any loss of lighter hydrocarbons.

The average quality of discovered oil is decreasing through time and oils with very different properties are coexisting

in many wells. As a consequence of this, good completion and flow assurance strategies can guarantee more value from assets.

A continuous oil quality profile of a reservoir, produced at wellsite, can support important decisions for well completion,

avoiding costly downhole sampling programs, and lengthy delays waiting for lab results. Now, through the use of GEOLOG's G9+ service, reservoir fluids can be rapidly characterized in near real-time, with just a few minutes delay, with low ROPs, using low cost thermal extraction techniques, formerly applied only in analytical laboratories.

This original approach provides rapid, timely assessments of oil quality including for example wax content, presence of biodegradation or water washing and differentiation of oil intervals with different API gravities, all this without any additional rig time. The service delivers rapid measurements of the liquid hydrocarbons in the range C9-C27 from cuttings. Successful applications have been delivered in areas including West Africa and the Middle East where both heavy and high quality oils commonly occur in the same intervals.

BENEFITS

- Liquid hydrocarbon detection in the presence of oil based muds
- Identification of reservoir oil properties to better evaluate the economics of the asset (gravity, viscosity, biodegradation)
- Relative abundance of liquid hydrocarbons aids in reservoir evaluation and completion design
- A complementary fluid contact identification method (GOC, OWC)
- Reservoir connectivity for improved reserves evaluation and completion design
- Identification and evaluation of source rock type and maturity for asset and regional evaluations
- Oil-source rock correlation

CASE HISTORY

Fingerprinting Fluid Properties Direct from Cuttings over Multiple Fields

G9+ provides detailed analysis of cuttings for fluid characterization. As shown in the graphs above, the thermal desorption process can distinguish different fluid characteristics, helping the reservoir engineer better understand the reservoir fluid properties and at the same time identify the signatures of contaminating agents such as (synthetic) oil based muds.

These unique fingerprints can easily identify the presence of pay zones and oil-to-water contacts, can help trace the connectivity of reservoirs and provide a fast proxy for the determination of the biodegradation index of fluids absorbed onto cuttings. Its use at the wellsite helps in optimizing sampling programs and the resources allocated for the completion of the well.

