

Volatiles Analysis Service (VAS)

Obtain petroleum system insights from cuttings or core plugs

The **Volatiles Analysis Service (VAS)** from Baker Hughes is a unique lab-based measurement and advisory service that evaluates fluid, petrophysical, and geomechanical properties of the formation using drilled cuttings or core plugs. Information gathered helps customers optimize drilling and completion decisions for enhanced reservoir production.

Reservoir fluid analysis is critical for understanding oil migration occurrences and variable reservoir characteristics when designing a field development plan. The VAS can distinguish productive and less-productive zones, as well as provide a qualitative assessment of water saturation. The service also provides estimates for ultimate recovery (EUR). The VAS measurements deliver valuable insights about the hydrocarbon migration history that are used to map present vs. historical hydrocarbon accumulation and oil-water contacts, identify compartmentalization, and detect a well's proximity to a pay zone.

Specific properties identified by the VAS include:

- C1-C10 content gas
- Relative fracturability

- Formation permeability
- Presence of acetic and formic acid
- Fluid saturations
- Compositional variations, such as Toluene/Benzene, gas-oil ratio (GOR), and heavies/lights, paraffins, naphthenes, and aromatics

The VAS identifies landing zones from pilot hole cuttings and characterizes the lateral to aid efficient completion strategies. Core extractions can be used to conduct the same analysis. To help our customers further optimize fracturing stage placement and cluster intensity, the VAS can differentiate faults from rubble zones and water-filled from oil-filled fractures when combined with a high-resolution borehole image.

A cost-effective supplement to conventional formation evaluation (FE) methods, the VAS is also effective in extreme well conditions, such as high-pressure/high-temperature (HP/HT) or where downhole technologies are limited or have failed and conventional methods cannot be used.

The Baker Hughes team will integrate all available FE data and ensure the VAS interpretation is completed within days

Applications

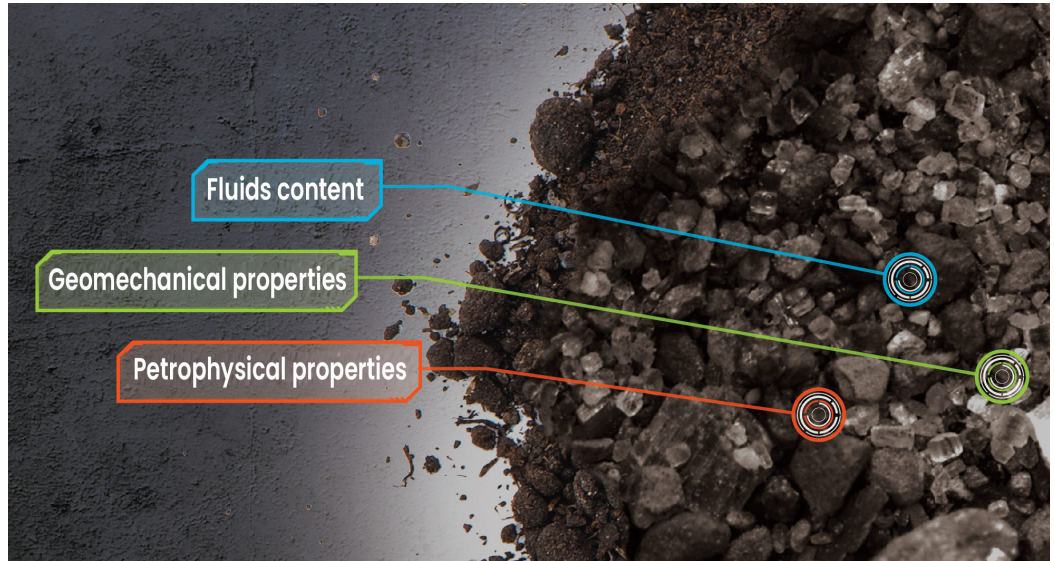
- Wells with complex hydrocarbon systems
- Lateral characterization
- Fracture and fault detection
- Pay zone identification

Benefits

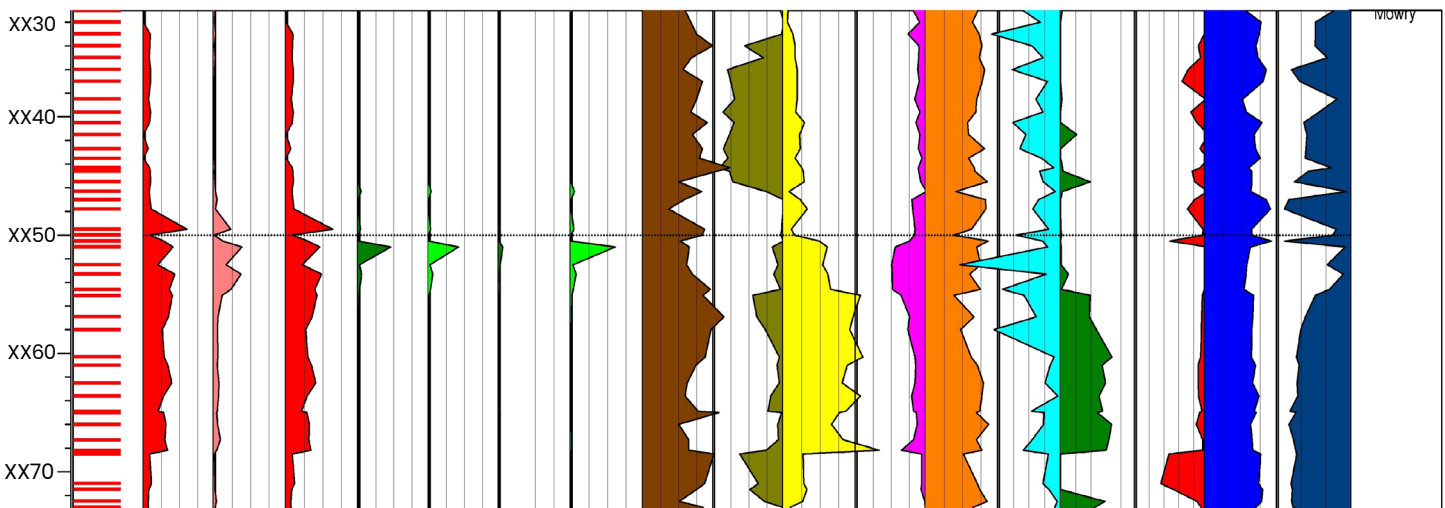
- Facilitates informed reservoir development decisions by analyzing cuttings
- Identifies optimal landing zones and missed pay zones
- Distinguishes between productive and unproductive intervals
- Provides evaluation results quickly
- Reduces risks and costs

of extraction—facilitating fast, informed decision-making for your reservoir development program.

Contact your local Baker Hughes representative to learn how the Volatiles Analysis Service can help identify landing zones and improve completion strategies.



DEPTH	SAMPLES	METHANE Volume	C2 to C4 Volume	TOTAL GAS Volume	C5 to C10 Paraffins	C6 to C10 Naphthenes	C6 to C8 Aromatics	TOTAL OIL Volume	MECHANICAL STRENGTH	PERMEABILITY Aliquot 2 vs. 1	FORMIC ACID Proximity to pay	ACETIC ACID Proximity to pay	TOTAL WATER Absolute	TOLUENE/ BENZENE	(C9 + C10) / (C5+..C10)	GOR Subject to gas loss	PARAFFINS (Paraffins + Naphthenes)	AROMATICS (Aromatics + Naphthenes)	TOPS
		0 7,500	0 1,000	0 7,500	0 750	0 500	0 250	0 2,500	10 20	100 100	0 12,000	6,000 0	0 500	10 0	0 100	40,000 0	0 100	100 0	
	GAS <Analytical values, ppm (rock volume) This aliquot>	OIL					RESERVOIR (This aliquot)					PRODUCT (This aliquot)							



VAS output illustrating depth-dependent fluids content, rock mechanical and petrophysical indices.