ICE Core® Fluid Analysis Service

DOWNHOLE FLUID ANALYSIS WITH LAB-QUALITY RESULTS

Until now, downhole fluid analysis has been limited. Optical analyzers could determine when a sample was pure enough to collect, but rarely could determine which fluid components were present and in what proportions. The Halliburton ICE Core® technology provides that information. This technology is available in the Integrated Characterization Section (ICS) of the proven Halliburton Reservoir Description Tool (RDT™ tester).

HOW ICE CORE SERVICE TECHNOLOGY WORKS

Light shines through downhole fluids and then through Halliburton ICE Core sensors. Each sensor is programmed to recognize the chemical nature – or optical fingerprint – of a specific fluid component such as methane, ethane, propane, aromatics, saturates, or water. Measuring the intensity of light passing through any one sensor indicates the presence and proportion of a particular chemical component within the overall fluid.

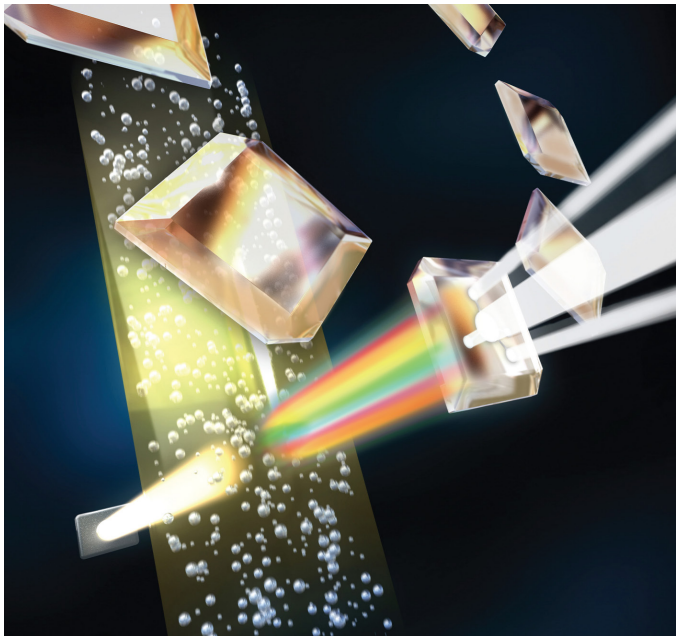
HOW ICE CORE SERVICE TECHNOLOGY DIFFERS

ICE Core technology relies on the ruggedness and simplicity of photometric detection, not spectroscopy. As a result, ICE Core technology does not require a computer to perform calculations on an optical spectrum like competing systems. Each ICE Core sensor is designed to respond specifically to the fingerprint of the selected analyte, using all of the useful information in the optical spectrum.

IDENTIFIES MORE FLUID COMPONENTS THAN ANY OTHER DOWNHOLE FLUID ANALYSIS METHOD

ICE Core technology captures information from the spectrum that other tools cannot read. As a result, it can reliably identify hydrocarbons, plus many other fluid components such as:

- CO_2
- Asphaltenes
- Methane
- Ethane
- Propane
- Water
- Saturates
- Aromatics
- Resins
- Gas/oil ratios (GOR)



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The ICS20 will take up to 20 ICE Core® measurements downhole using a rotating wheel of selected sensors.

BENEFITS OF ICE CORE® TECHNOLOGY COMPARED TO SPECTROMETRY

- More reliable
- More accurate
- Simpler, measures light directly, no downhole computer needed
- More precise
- Higher signal-to-noise ratio
- Better dynamic range
- Sensitive to mid-infrared
- Measures more fluid components

ICS (Integrated Characterization Section)

Dimensions and Ratings		
Maximum Temperature	350°F (176.7°C)	
Maximum OD	4¾ in.	
Maximum Pressure	20,000 psi (137.9 MPa)	
Weight	261 lb (118.4 kg)	
Length (Makeup)	65 in. (165.1 cm)	
Borehole Conditions		
Borehole Fluids	Salt ■ Fresh ■ Oil ■ Air ■	
Recommended Maximum Logging Speed	Stationary	
Tool Positioning	Centralized ■ Eccentralized ■	
Optical-Sensing Unit		
Quantity	One	
Number of Channels	20	
Optical Window	Sapphire	
Other Sensors		
Strain Gauge Pressure Transducers	Accuracy	± 0.1%
	Resolution	± 0.001% (± 0.2 psi for 20,000 psi)
	Repeatability	± 6 psi
RDT™ Device Temperature Sensor	Accuracy	±0.02%

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