

# LithoFact™ Rock Analysis Service and XRD Analysis

## REAL-TIME MINERALOGY ANALYSIS OF CUTTINGS SAMPLES

### OVERVIEW

X-ray diffraction (XRD) mineralogy delivers value-added information that is beneficial on conventional and unconventional wells in all phases of field analysis, including exploration, appraisal, and development wells. The data generated is utilized to identify formation tops and to differentiate complex lithologies for both wellbore positioning and enhanced geological understanding of the formations. This solution can identify key geological markers and changes in mineralogy, and provides a quantitative analysis of cuttings.

Responding to the need for fast, reliable, and accurate mineralogy in near real time at the wellsite, the LithoFact™ service from Halliburton Sperry Drilling utilizes the Bruker D2 XRD analyzer at the wellsite, and in our regional laboratories. The mineralogy of the geological formations drilled can be delivered within 1 to 2 hours, dependent on lag time of the cuttings. This could be ahead of logging-while-drilling (LWD) tool responses in environments with slow rates of penetration (ROPs). Our consistent methodology of gathering, cleaning, and preparing the samples ensures accurate and repeatable analysis.

This equipment is robust enough to be used in operations both onshore and offshore. The analyzer is easy to use, and utilizes the DIFFRAC.EVA software option to use TOPAS software in order to deliver automated mineralogy interpretation using Rietveld structure refinement, thus increasing accuracy while providing the capability of analyzing a group of samples in mere seconds.

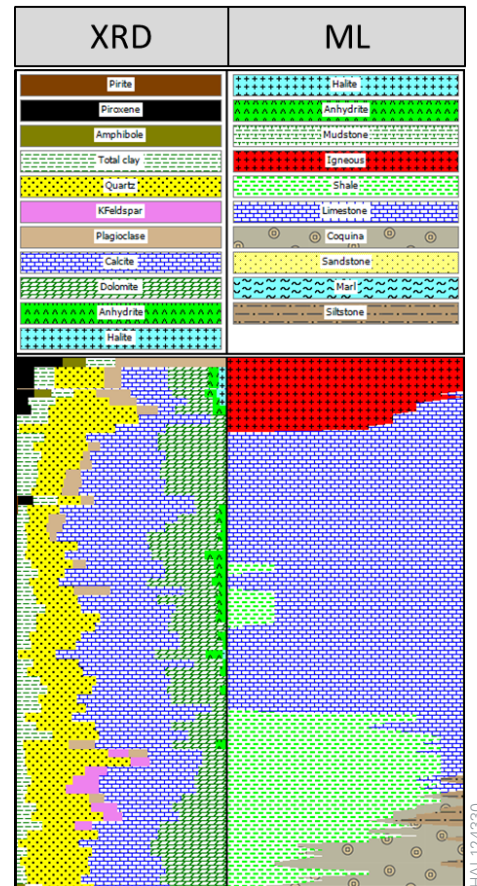


Bruker D2 compact XRD analyzer

HAL124330

### FEATURES

- » A robust, reliable, and accurate analyzer
- » Simple sample loading
- » Fast and efficient benchtop analyzer
- » Qualifies and quantifies different minerals, including trace minerals
- » Crystallography open database (COD) that is fully integrated to EVA software
- » Flexibility in detecting a wide variety of minerals
- » XRD data that can be integrated with X-ray fluorescence (XRF), validating mineral and elemental information



Mineralogy and lithology classification from XRD analysis

HAL124330

### BENEFITS

- » Delivers real-time mineralogy of cuttings samples
- » Identifies geological markers
- » Provides a quantitative mineralogical analysis of rock cuttings
- » Provides rapid evaluation of exploration, appraisal, development, and high-pressure/high-temperature (HP/HT) wells
- » Delivers mineralogy on unconventional wells, which can help identify sweet spots
- » Can be used as a geosteering tool in conjunction with measurement-while-drilling (MWD) and LWD data
- » Assists in understanding zones of borehole instability

For more information, contact us at [sperry@halliburton.com](mailto:sperry@halliburton.com) or visit us on the web at [www.halliburton.com](http://www.halliburton.com)

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