

FIS Fluid Inclusion Stratigraphy Analysis

Rapid wellbore evaluation for exploration and development decisions

APPLICATIONS

Rapid analysis of trapped oil and gas in rock cuttings, sidewall or fullbore cores, and outcrop samples

BENEFITS

- Address a wide variety of petroleum system questions with a single analysis
- Identify migration and paleo accumulations in the absence of conventional shows
- Inform completions decisions with quick turnaround time
- Evaluate causal relationships among rocks and fluids
- Produce a regional picture of petroleum history
- Anticipate the eventual prospectivity and distribution of emerging unconventional plays
- Achieve new insight for mature production areas

FEATURES

- Minimal rock material required
- Ability to use cuttings, core, and outcrop samples of any age
- Standardized analytical methods
- Effective prospect ranking tools
- Advanced petroleum geochemistry analysis
- Interpretive framework based on 25 years of experience
- Centralized technical and domain support from leading geochemists

Unravelling the origin and history of petroleum systems and hydrocarbon fluids is a complex and complicated process. An array of natural processes must be aligned to form an economically viable accumulation of oil or gas. Successful discovery and exploitation of these resources require workflows that are increasingly methodic, technologically advanced, and integrated across disciplines. With today's economic environment, petroleum geoscientists and engineers require cost-effective, knowledge-based answers that are supported by past success.

The FIS* fluid inclusion stratigraphy analysis rapidly evaluates the entire borehole for the abundance, distribution, and composition of hydrocarbon and nonhydrocarbon species trapped in inclusions in cuttings or core samples. FIS analysis is applicable to any lithology or reservoir, providing information within five days for approximately 500 cutting samples. Interpretation of results are based upon more than 25 years of experience and evaluation of several million samples—from virtually every depositional environment on every continent.

Results provide a depth-based view of the cumulative interaction of the five main elements of a petroleum system: source rock, migration, reservoir, trap, and seal. Evaluation of these fluids—which become isolated and confined within tiny cavities in mineral grains through cementing and fracture healing events—provides the mechanism for determining the present and past distribution of petroleum.

Applicable to any lithology, reservoir, or sample size

Application of FIS analysis for unconventional reservoirs helps you identify the most productive vertical and horizontal penetrations, providing useful information for staged fracturing as well as emerging resource plays and regional boundaries for prospectivity mapping.

In addition, using only a small amount of sample material, FIS analysis enables you to create a new fluids database by revisiting historical rock databases and government repositories for more information. Drilling fluids rarely cause contamination issues, and there is no shelf life for old samples.



FIS analysis is based on proprietary mass spectrometry equipment and a sample introduction process.

FIS Analysis

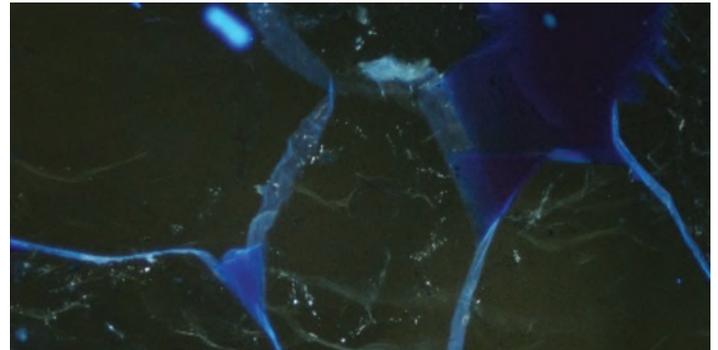


In-depth information about mineral and chemical facies can be easily integrated with wireline logs, providing guidance for more advanced mineralogical or geochemical studies.

Methodic, technologically-advanced workflows

With efficient geochemical screening provided by FIS analysis at Schlumberger Reservoir Laboratories, you can determine the most appropriate samples for more detailed analysis, such as biomarkers, gas isotopes, and source rock richness. This rapid and powerful screening tool integrates with our other rock and fluids services as well as mud gas logging, wireline logs, or basin modeling.

Combined with RockEye* automated high-resolution photography and PDQ-XRF* automated X-ray fluorescence elemental analysis, more than 500 cutting samples can be characterized within five days to help inform your well completion or other decisions.



Fluid inclusions in UV light on the boundary of various mineral grains provide a unique chemical signal in the FIS analysis.



FIS analysis combined with RockEye photography and PDQ-XRF analysis provides a rapid, cost-effective evaluation of the entire wellbore.

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