Organic geochemical and gas analytical services

Source rock, oil and gas analyses

Do you want to better understand source rock intervals and hydrocarbon occurrences in petroleum systems?
Do you need to predict recoverable liquid & gas-rich sweet-spots using accurate analytical methods?
Do you need to better understand interactions between climate and organic biodegradation cycles?

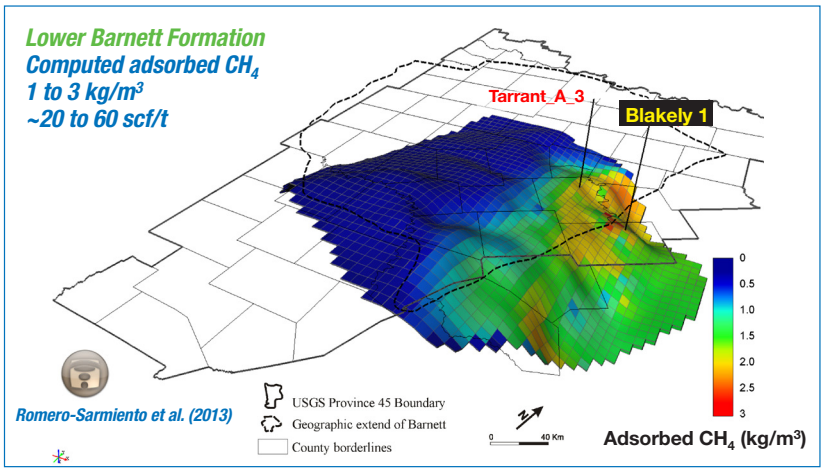
IFPEN capabilities

Rock and oil characterization

- Source rock characterization:
  - Rock-Eval® pyrolysis – Shale Play™ method,
  - Organic matter isolation systems,
  - Organic solvent extractions.
- Open-system pyrolysis:
  - Bulk-kinetic models.
- Closed-system pyrolysis:
  - Compositional kinetic models,
  - Liquid chromatography (SAR) by MPLC,
  - Whole oil gas chromatography.
- Sulfur and carbonate characterization.
- CHONS elemental and C-H(-S) isotopic analyses on liquid and solid samples.

Integrated gas analyses:

- Natural & artificial gas molecular composition.
- Carbon and hydrogen stable isotopes on gas samples.
- Noble gas.



Our goal: **provide innovative solutions to source rock characterization, environmental forensics and gas analysis projects**

Continuous validation of analytical methods and daily calibration

Our goal: **ensure reliability and accuracy with high-quality analytical results and reproductible measurements**

IFP Energies nouvelles (IFPEN) is a public research and training player. It has an international scope, covering the fields of energy, transport and the environment. From research to industry, technological innovation is central to all its activities.

Key benefits

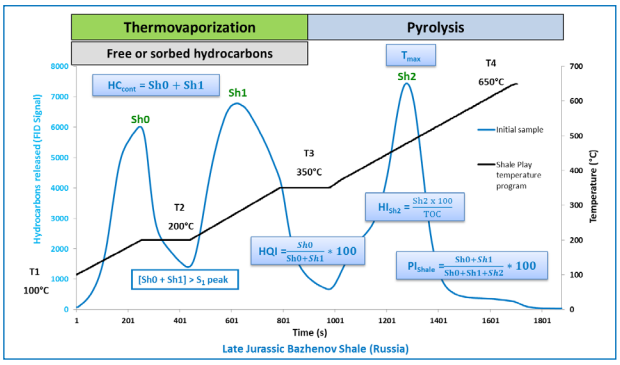
New generation of Rock-Eval® devices in partnership with Vinci Technologies

Since 1980, Rock Eval® devices have been widely used to estimate, at the laboratory scale, the petroleum generation potential of sedimentary organic matter. However, what is the reliability of the classical S1 peak (well-known as the quantity of free hydrocarbons) obtained from these methods and their corresponding extrapolation/signification to the geological conditions?

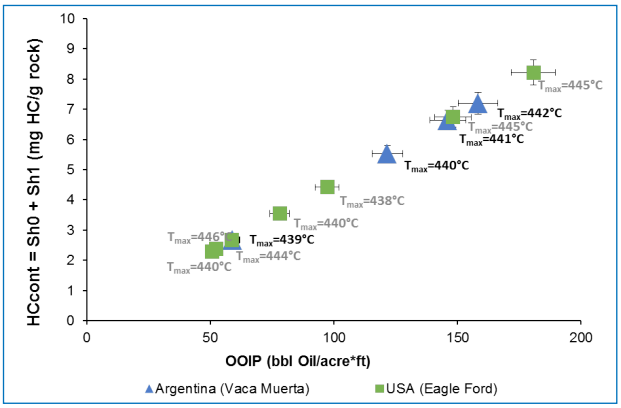
A specific pyrolysis program for characterization of source-reservoir rock samples has been developed by IFPEN: the Rock-Eval® Shale Play™.

This method provides new Rock-Eval® parameters (Sh0, Sh1 & Sh2 peaks; HCcont; HQI; PIShale) that can be used to obtain:

- Better quantification of free and retained hydrocarbons in source-reservoir rock samples,
- Potential producible oil intervals,
- Accurate Rock-Eval® Tmax values for in-situ liquid hydrocarbon or non-extracted samples,
- Correct original oil in place (OOIP) estimations in early exploration campaign for shale oil assessment,
- Definition of "sweet spots" in shale liquid plays.



The IFPEN Rock-Eval® Shale Play™ (Romero-Sarmiento et al. 2014, 2016, 2017). IFPEN Patent 14/55.009 (2014)

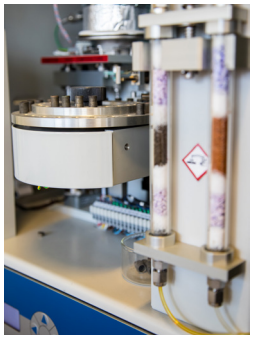


Conversion of Sh0+ Sh1 peaks to oil using abacus including the Rock-Eval® Shale Play™ parameters (Romero-Sarmiento et al. 2014, 2016, 2017)

The integrated IFPEN analytical workflow can be applied to evaluate any conventional and unconventional petroleum systems around the world that are still at an exploration stage and/or at an early stage of development.

Modern laboratories and equipment, some examples

Organic matter isolation system (IFPEN kérogènatron®)
8 small and 3 big reactors - Automatized dosimeter for acids



Rock-Eval® devices: Rock-Eval® 6 & Rock-Eval® including sulfur analysis

IFPEN expertise

Extensive experience on hydrocarbon exploration and reservoir studies (petroleum system evaluation, reservoir compartmentalization, monitoring, H_2S production risk) through a large number of partnerships with oil companies and research institutes, and thanks to the integration capabilities of the obtained geochemical data into basin and reservoir modeling software.

More than 32 advanced services contracts, 3 patents and 5 papers in the past 4 years.

For more information, please contact us!

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