SUB · SURFACE · SYSTEM · SPECIALISTS

ShalePayFinder Bakken Shale

GEOS4's exclusive ShalePayFinder Technology

This science-based technology provides the basin modelling parameters needed for predicting charge timing, fluid volume and composition, rapidly and inexpensively.

The Bakken Formation of the Williston Basin is a prime example for tight-oil systems and is one of the most prolific unconventional oil plays currently under exploration.

The focus of this ShalePayFinder package is on the light oil potential of the Devonian-Mississippian Bakken Formation in the Williston Basin.
Akin to our ShaleGasFinder packages, published and proprietary data are here collated and summarised to provide a key insight into predicting GOR and phase behaviour.

The GEOS4 ShalePayFinder Bakken Shale package provides

- data on thirteen representative samples both from the Lower and Upper Bakken formation,
- bulk kinetic parameters for timing predictions using slow heating rates,
- Petroleum Type Organofacies for predicting bulk petroleum types,
- 2- and 4-component gas/oil ratio prediction in time and space (five samples),
- 14-component physical property/PVT prediction in time and space (five samples),
- two samples with PhaseKinetic characterisation of both cumulative and instantaneous generated fluid compositions,
- kinetic data provided as tables as well as digital files for direct import into PetroMod® (SLB).

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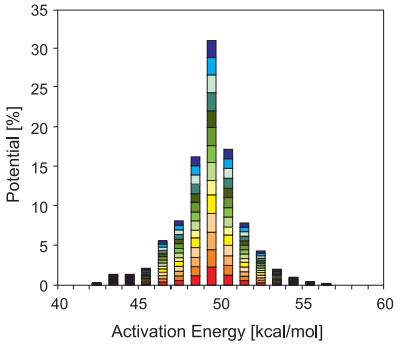
ShalePayFinder Bakken Shale

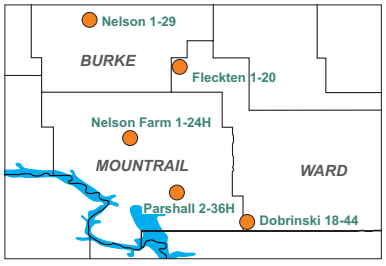
USA

Representative source rock samples from the Lower and the Upper Bakken Formation were selected and provide a unique set of PhaseKinetic data for petroleum system modelling.

Thirteen immature Bakken Formation samples representing total bulk kinetic variability have been analysed. Out of these five carefully selected samples were analysed following the PhaseKinetic* approach. For two samples instantaneous fluid compositions are described in addition to the cumulative fluid descriptions standardly available in our PhaseKinetic models.



Formation	Well	Sample Depth (ft)	T max (°C)	HI
Upper Bakken	Dobrinski 18-44	8,629.9	427	425
Upper Bakken	Dobrinski 18-44	8,630.9	423	408
Lower Bakken	Dobrinski 18-44	8,661.5	415	50
Upper Bakken	Fleckten 1-20	7,652.0	427	514
Upper Bakken	Fleckten 1-20	7,653.8	427	531
Lower Bakken	Fleckten 1-20	7,688.0	429	117
Lower Bakken	Fleckten 1-20	7,690.5	427	228
Lower Bakken	Nelson 1-29	7,453.7	433	478
Lower Bakken	Nelson 1-29	7,454.9	437	461
Upper Bakken	Nelson Farms 1-24H	9,618.5	438	504
Upper Bakken	Parshall 2-36H	9,261.2	431	471
Upper Bakken	Parshall 2-36H	9,262.5	433	443
Upper Bakken	Parshall 2-36H	9,273.4	429	526



Instantaneous Compositions

PhaseKinetics reproduce the cumulative phase expelled by source rocks at increasing levels of transformation. In unconventional plays the question arises whether the fluid compositions observed in the source rock porosity represent cumulatively or instantaneously generated fluids. Here we offer for two representative samples also PhaseKinetic models which reproduce the instantaneous phase generated, exclusive for unconventional fluid predictions.

* di Primio, R. and B. Horsfield, 2006, From petroleum type organofacies to hydrocarbon phase prediction: AAPG Bulletin, Vol. 90.

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