



Thermal Properties of Bazhen fm. Sediments from Thermal Core Logging

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The Bazhen formation (B. fm.) is the hugest self-contained source-and-reservoir continuous petroleum system covering by more than 1 mln. km² (West Siberia, Russia).

High lithological differentiation in Bazhen deposits dominated by silicic shales and carbonates accompanied by extremely high total organic carbon values (of up to 35%), pyrite content and brittle mineralogical composition deteriorate standard thermal properties assessment for low permeable rocks. Reliable information of unconventional system thermal characteristics is the necessary part of works such as modelling of different processes in reservoir under thermal EOR for accessing their efficiency, developing and optimizing design of the oil recovery methods, interpretation of the well temperature logging data and for the basin petroleum modelling.

A unique set of data including thermal conductivity, thermal diffusivity, volumetric heat capacity, thermal anisotropy for the B.fm. rocks was obtained from thermal core logging (high resolution continuous thermal profiling) on more than 4680 core samples (2000 of B.fm. samples are among) along seven wells for four oil fields.

Some systematic peculiarities of the relation between thermal properties of the B.fm. rocks and their mineralogical composition, structural and texture properties were obtained. The high-resolution data are processed jointly with the standard petrophysical logging that allowed us to provide better separation of the formation.

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