



Precambrian crystalline Basement of the Tatarstan and the Origin of Oil Fields

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Geodynamic processes have produced numerous dislocations in the crystalline basement of Tatarstan, which have been revealed by the exploratory drilling. Fractured zones with the varying thickness, decompression degree and fluid content have been recorded by a great number of wells that penetrated the crystalline basement. The deep well Novoelkhovo-20009 can serve as the best example. The most complex study of a fluid content in the Tatarstan's crystalline rocks was commenced after the production of a highly mineralized, gas-cut fluid from a depth of 5099 m in the deep well Minnibaev-20000. Geochemical studies have shown the following. Bitumen of the crystalline basement mainly contains hydrocarbons with C14 to C33, occasionally - with C9. A range of hydrocarbons becomes wider in the zones of cataclasm and mylonization. The bitumen content directly depends on the degree of fracturing. A comparison of hydrocarbon composition for basement's bitumen and oil of the Novoelkhovo field has indicated that they have a similar distribution of normal and isoprene alkanes and hydrocarbons of the hopane series. Crystalline rocks contain specific carbonaceous matter - "migration" bitumen. Two deep wells have recorded that the gas content grows in the drilling mud with depth. In the well 20009 the bitumen content grows with depth. Water of the crystalline basement is similar in oil and gas content to that of the terrigenous Devonian, Riphean and Vendian.