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Mineral-petrographic features of hydrocarbon reservoirs of the Tevlinsko-Russkinskoe oil deposit (Western Siberia)

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The Tevlinsko-Russkinskoe oil field is located in the central part of the West Siberian lowland. It concerns a group of multistory deposits and is one of the perspective deposits in the West Siberian oil and gas province. The young Sortym formation and the Jurassic sediments offer the best prospects. Layers are consisted of sand-clay deposits of Mesozoic-Cainozoic sedimentary cover and rocks of the pre-Jurassic basement.
Core material of base drill holes of the Tevlinsko-Russkinskoe oil field was studied in order to obtain detailed lithological and mineralogical characteristics of rocks features. These drill holes found out main productive horizons. Sandstones of productive horizons of Jurassic petroliferous complex are of a homogeneous and monotonous structure. In the studied samples of core material massive structures prevail.
Mineral composite of clastic component of sandstones is polymictic and it is represented by quartz, orthoclase, microcline, plagioclases, biotite, strongly changed dark-coloured minerals, fragments of effusive rocks and quartzite of different degrees of recrystallization.
Cluster formation – grains accretion into separated quartzite-like parts - is typical for these rocks. Process of cluster formation is accompanied by change of sandstone structure. This results in reservoir quality alteration and extension of porosity and permeability properties. In the studied rocks-reservoirs of Jurassic oil complex processes of cluster formation were lasting during period of diagenesis and were followed by repartition of cement mass.
We carried out electron microscopic research of reservoirs structure to analyze void space structure. Electron microscopic studies were spent on the scanning electron microscope of XL-30 system (Phillips company). The conducted research testifies that reservoirs can be considered a mesoporous-nanoporous medium. Its' studying is of a great importance for realization of questions of Tevlinsko-Russkinskoe oil field working out.