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Structural features of the void space of hydrocarbon reservoirs of the Middle Ob group of fields (Western Siberia)

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The Middle Ob group of fields is a promising one in the West Siberian petroleum province. Structurally, these fields are located on the western slope of the Vartovsk Arch and are multi-level ones. The young Sortym formation and the Jurassic (J1, J2, etc) offer the best prospects.
Their reservoir rocks are represented by polymictic and medium-grained sandstones with argillaceous-carbonate-iron cement. The cement either forms a continuous medium or fills the pores.
Optical and scanning electron microscopic studies indicate that these pores are small and are classified as nano- and mesopores. The pore formation is governed by randomly oriented lamellae of clay minerals of various microstructures.
The total porosity of such cement zones can be as high as 50%. These pores are well connected. With regard to the clastic component of matrix minerals, the porosity of reservoirs of this type is 8-12%. The presence of such fine-pored cement indicates that these reservoirs can be considered a mesoporous medium. The pore size is comparable to the size of heavy hydrocarbon molecules. Therefore, these reservoirs can be molecular sieves that filter light hydrocarbon fractions.