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GEOCHEMISTRY OF ORGANIC MATTER OF THE UPPER JURASSIC OIL SHALES FROM THE RUSSIAN PLATFORM

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The Upper Jurassic oil shales from the Russian platform are related to the Volga-Pechora oil shale megabasin. The most studied area of the northern part of the megabasin is the Sysola shale area. High C_{org} is determined both in deposits of the Sysola shale area, and among deposits of the Volga basin. Ratio S_{org}/C_{org} in high-carbon rock kerogen testifies to a high degree of geopolymer sulphurization and according to Orr (Orr, 1986) allows classifying it as type II-S.

We studied oil shales from sections Vazh'u, Koigorodok, Ib and Sinegorye, relating to the Sysola shale area, and also Kashpir oil shales of the Volga basin (city of Syzran, Saratov region). The *n*-alkanes distribution in both areas is characterized by bimodal character with maxima at *n*-C_{16}, C_{17} and *n*-C_{29}, C_{31}. In the deposits of the Sysola area the percentage of the latter is slightly higher in comparison to Kashpir deposits. It is likely due to increased input of humus component in the northern part of the Volga-Pechora province. The high contents of the thermodynamically unstable ββ-hopanes, ααα- and βαα-steranes evidence the low degree thermal maturity of organic matter. The lower values of the pristan/phytan indicate that a reduction conditions play an important role during deposition of the oil shales. In aromatic bitumen fraction of oil shales isorenierathene derivatives were found. Kashpir oil shales are distinguished by a more various distribution of arylcarotinoid data; here they are presented by a greater number of isomers. Concentrations of the most high-molecular diaromatic structures (C_{38}, C_{40}) dominate over other isomers. The concentrations of free and sulphur-bound n-alkanes of the bitumens of the Kashpir oil shales are similar. The distribution of the hopane hydrocarbons is characterized by the predominance of the high-molecular-weight homologous in desulphurization products.

The structure of kerogen pyrolysis products of high-carbon deposits of the Sysola shale area is similar to the structure of kerogen pyrolyzate of Kashpir oil shales. The structure of kerogen specifies that the main process at shale strata formation was the process of organic matter sulphurization. This factor considerably affects OM structure of investigated rocks. Thus, in the structure of products of kerogen pyrolysis products of the Upper Jurassic oil shales from the Sysola area and Kashpir deposits with average C_{org} (to 30 %) basic generated

components are 2-*n*-alkylthiophenes, 2-methyl-5-*n*-alkylthiophenes, 2-ethyl-5-*n*-alkylthiophenes. Whereas C_{org} exceeding 30% the structure of pyrolyzate sharply changes – *n*-alkylsubstituted thienylthiophenes, phenylthiophenes and also thienyl- and phenylbenzothiophenes become basic generated components. The composition of aliphatic fraction of pyrolyzate is characterized of n-alkanes and n-alkenes as main component of this fraction.

Thus, conditions of organic matter formation of Kashpir oil shales and oil shales from the Sysola shale area are closely related which testifies to the consistency of lithologic geochemical conditions in an extensive Volga-Pechora shale province.

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