Relict hydrocarbons in Riphean and Vendian oil producing strata and oil of the Siberian Platform

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Geochemical investigation of saturated fractions of bitumoids and oils ($T_{boiling}$>200°C) in the Riphean-Vendian terrigenous-carbonate complex shows them to be characterized by a wide spectrum of relict cyclic and acyclic hydrocarbons. Abundant 12- and 13-methylalkanes (C_{19}-C_{30}), tricyclic isoprenoids (C_{19}-C_{31}) and ethylcholestanes (C_{29}) are peculiar to the fluids studied.

The innovation of the investigations conducted consists in the fact that the increase of gas content in oil results in the decrease of 12- and 13-methylalkanes and acyclic isoprenoids (C_{13}-C_{25}). Cyclic isoprenanes display increase in tricyclic isoprenoids and isosteranes, particularly 24-isoethylcholestanes (C_{29}). Noteworthy is 24-ethylcholestanes prevalence in homologous series of α- and diasteranes. High content of these hydrocarbons appears to be peculiar to gas-condensate systems of hydrocarbon fluids.

The accomplished classification of the Riphean and Vendian oils by relict hydrocarbon composition enabled differentiation of two fluid subtypes. The first subtype (B_1) is characterized by great contribution of light acyclic (i-C_{13} - i-C_{16}) and tricyclic isoprenoids. Hopanes (C_{27}-C_{35}) in these fluids are minor. Oils of the second subtype (B_2) are rich in long-chain acyclic isoprenoids (i-C_{19} - i-C_{20}) and hopanes. Tricyclic isoprenoid concentration is low in these oils.