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# Geochemical Features of Mature Hydrocarbon Systems and Indicators of their Recognition

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Highly transformed oils in the zones of catagenesis are characterized by the low contents of "biogenic" elements – V, Ni, and Fe. The total content of these elements is usually lower than 10 ppm. The oil is ascribed to either nickel (Ni > Fe > V) or iron (Fe > Ni > V) type. In the weakly degraded oils with relatively high content of primary asphaltic-resinous components inherited from initial OM, the total content of V, Ni, and other metals associated with heteroatomic compounds is higher than in the oil pools formed in more severe natural thermo barometric conditions, which cause partial loss of resinous-asphaltic matters. This is accompanied by the increase of light fractions and, correspondingly, increase of Cu, Fe, and, occasionally, Pb contents in oils. Thus, the study of the dynamics of TE variations in oils and OM of rocks by the example of the Volga-Ural, Timan-Pechora, Ciscaucasus, and other petroleum basins showed that the increase in the thermo catalytic degradation of oils is accompanied by significant decrease of elements related to the heteroatomic components and decrease of V/Fe, V/Cu, V/Pb, Ni/Cu, and other ratios. The diagnostic indicators of the thermal maturity of OM and oils most clearly manifest themselves for sapropel initial OM in the mature oil generation zone in the interval of Ro from 0.6 to 1.1%, more rarely 1.3%. These ratios correlate well with such geochemical index of catagenetic degradation of oil HC as cyclohexane to cyclopentane ratio in benzine fraction.

## Biography:

V.L. Shuster graduated from the Russian State University of oil and gas in Moscow and became a geologist. V.L. Shuster have worked for 3 years in West Siberia, than for 5 years in Moscow Region, than for 15 years in Turkmenistan, for 4 years in Vietnam and India. Now V.L. Shuster worked as a Chief Researcher, DSC, Professor in Geology in Oil and Gas Research Institute of the Russian Academy of Sciences, Moscow, Russia. I published more than 200 publications. Shuster Vladimir has an experience in assessing the prospects for the oil and gas potential of basement, including reservoir properties of reservoir rocks and geochemical conditions of oil and gas deposits formations according to the assessment we can suggested the most favorable directions of exploration, separate forecast for hydrocarbons is made.