

SYNTHESIS AND DECAY OF NATURAL HYDROCARBONS AND THEIR ROLE IN ORE DEPOSITION

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Polycondensate transformations of simple carbon compounds and hydrogen give rise to a variety of natural light and heavy hydrocarbons. Reduced compounds thus produced (CH_4 , C_2H_6 , etc.) may participate in the metal-organic compounds which can be subsequently decomposed at increased temperature or (and) oxygen content. Stability of the metal-organic compounds depends on chemistries of their metallic constituents. A relationship was established between the metal loading of the source material (natural oil) and products of its processing versus oxidizing and thermal degradation grade of the source materials. Natural oils carry metalliferous decay products asphaltene (Zn, Co, Ag, Au, W), carbonaceous matter (Fe, Ca, Ba, Sr, Rb, Cs, Cr, TR, Sc, Th, U, Ta, Hg, Sb, Cd), and resins (V, Ni). Occurrence of chemical elements in the oil processing products is established: gasoil-350°C-Si, P, Ga; gasoil-420°C-Hf, W, Ru, Pd, P, Ga; masout-Ba, Sr, La, Ce, Pr, Nd, Yb, U, Hg, Ge, As; goudron-Co, Mo, Se, Te, Ag, Ru; bitumen-Rb, Be, B, Mg, Al, Sc, Y, Ti, V, Cr, Mn, Ni, Zr, Nb, Rh, Cu, Zn, Sb, Br. Natural oil fractions produced as a result of the hydrocarbons' oxidation and relevant chemical elements are: light oil-Gd, Ho, Os; highly viscous oil-a numerous set of elements; combustible shale-Re, Ag; bitumen-Sc, V, Y, noble metals. In some environments, synthesis of hydrocarbons involves enrichment of organic carriers in metals. Conversion of hydrocarbons is accompanied by increased metal loading of the decay products, both liquid and solid.