

FOURIER-IR SPECTROSCOPIC STUDIES OF n-C₆H₁₄ AND n-C₆H₁₄ + H₂O SYSTEMS

Wednesday, 13 July 2022 10:20 (20 minutes)

Radiation-catalytic processes for the production of molecular hydrogen from a mixture of hexane and hexane-water. It is of great interest to discover new ways of conversion and use of ionizing radiation for the production of molecular hydrogen, which is a universal energy carrier. The results of the research may be important to clarify the mechanism of the processes that occur under experimental conditions under the influence of ionizing radiation in the hexane, hexane-water system, as well as under natural conditions in oil and gas fields under the influence of natural radionuclides.

In the presented work, Fourier-IR spectroscopic studies of n-C₆H₁₄ and n-C₆H₁₄ + H₂O systems were performed. The results of spectroscopic studies suggest that the ratios of the intensities of the absorption bands characterizing the CH₂, CH₃ groups vary depending on the dose rate (valence and deformation oscillations of CH₂ and CH₃ are 2800 - 2970 cm⁻¹ and 1300 - 1500 cm⁻¹, respectively. 1 are located in the spectral regions). Absorption bands - (CH₂) belong to the long chain type of type n (n \times 4) and CH₂ lattice oscillations (spectral region ν = 650 - 850 cm⁻¹). During radiolysis of the n-hexane + water system (3:1) after gamma radiation, 5 new bands are observed in the frequency range ν = 2600 - 2700 cm⁻¹, which indicates that the decomposition of n-hexane produces heavier paraffin during radiation-chemical processes. - The change and distribution of the maximums and intensities of absorption bands in the chain region of (CH₂) (ν = 650 - 850 cm⁻¹) indicates the formation of paraffins of type C₁ - C₅. The formation of C₁ - C₅ products is confirmed by the spectra of gases in the system under study. The decomposition of water in the studied system is followed by the formation of absorption bands of OH-groups in the spectra in the frequency range ν = 3000 - 3600 cm⁻¹ (valence region), ν = 1700 - 1600 cm⁻¹ (deformation region). The formation of olefins as a result of radiolysis of the n-hexane + water (3:1) system was not observed in the IR spectra.

The speaker is a student or young scientist

No

Section

1. Design and development of charged particle accelerators and ionizing radiation sources

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Session Classification: Poster session