

Special aspects of correlation between the dynamic viscosity and the nuclear magnetic relaxation characteristics in case of binary system 'oil+resin'

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Abstract

This paper describes the study of correlations between the nuclear magnetic relaxation characteristics and the viscosity of the petroleum model samples made from petroleum oil and resin as the main petroleum component. This approach seems to be the most promising because it allows to analyze the impact of the component composition on the investigated relaxation characteristics and the dynamic viscosity. It is shown that the viscosity of the system depends on the content of solid components. In this solid-state component content nonlinear depends on the resin content in the model system. We show the basic possibility and prospects of use of model samples for studying of influence of component structure on relaxation characteristics and dynamic viscosity of samples of high-viscosity oil.

Keywords

Nuclear magnetic resonance (NMR), Petroleum, Relaxation, Viscosity