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Temperature dependences of tridecane self-diffusion coefficient in porous media

Maklakov A., Dvoyashkin N., Khozina E., Skirda V.

Kazan Federal University, 420008, Kremlevskaya 18, Kazan, Russia

Abstract

Effective self-diffusion coefficients (D) of tridecane added to caolinite and dispersed magnesia were measured by NMR spectroscopy with pulse gradient of magnetic field over 258-415 K temperature range. Temperature relationships in lg D - 1÷T coordinates are presented as straight lines for the samples with $\theta<1$ (where θ is degree of pores filling by liquid). It is suggested that in a such samples the part of liquid is in vaporous state and the condition of fast exchange (from NMR point of view) is obeyed. Explanation of the obtained temperature relationships is given and the values of activation energies are calculated.