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## Determination of some parameters of a porous medium-liquid system by the pulsed field gradient NMR

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### Abstract

A possibility was considered to estimate the parameter of a porous medium  $S/V_p$ , where  $S$  and  $V_p$  are the surface area and the volume of pores, respectively, as well as the power of nuclear magnetic energy sinks  $\rho$  of a porous medium-liquid system by the example of randomly packed glass spheres 53-63  $\mu\text{m}$  in diameter and acetone, water, or decane as a liquid medium. Estimates were made by analyzing the time dependences of the effective self-diffusion coefficient  $D(t)$  and  $P(t)$ , the probability of return of a molecule to its initial position by time  $t$ . It was shown that the short-time parts of  $D(t)$  dependence allow us to obtain parameters  $S/V_p$  and  $\rho$ , whereas those of  $P(t)$ , only the  $S/V_p$ , parameter. The values of  $\rho$ , obtained from  $D(t)$ , and from the time of relaxation of longitudinal nuclear magnetization, differ from each other by an order of magnitude. As expected, the value of  $S/V_p$ , obtained for a given porous medium, is independent of the nature of introduced liquid.

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