

Title: Investigation of matter transport by means of PFG NMR

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Abstract: Estimation of transport-structural parameters such as porosity, tortuosity and surface-to-volume ratio of pores in beds of glass beads is the main goal of this study. These parameters were estimated for 5 samples with different distributions of sizes. The second goal is to probe a possibility to use the same approach to describe the self-diffusion in water solution of LiCl confined in two porous materials based on Al_2O_3 and glass, respectively. The last goal is the measurement of self-diffusion of water molecules in mesoporous geopolymeric material. Its capability of water transport at long scales have been documented. The measurements of apparent self-diffusion coefficients by means of NMR spectroscopy with pulsed field gradients was major methodology of this work.

Keywords: porous material, porosity, tortuosity, self-diffusion, NMR