

Testing sorption properties of halloysite by means of the laser interferometry method

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The objective of the present study has been to test the laser interferometry method in terms of its usability for investigating sorption properties of minerals. This method was used to test the absorption capacity of halloysite with reference to glucose, which is often found in industrial wastewater and whose excess can disturb the environmental eco-balance. The sorption capacity of halloysite was thus determined indirectly, basing on the comparison of concentration profiles as well as time characteristics of glucose quantities released from the control solution and from the solution incubated with a halloysite adsorbent. An analysis of glucose diffusion was conducted in a two-chamber membrane system. On the basis of the obtained concentration profiles, the evolution of the concentration field was determined; so were the removal efficiency (%) and the amount of glucose adsorbed at equilibrium (q_e , mg/g). The obtained results confirm good sorption properties of halloysite with respect to the investigated substance as well as usability of the method for this kind of investigations. The presented tests suggest that the measurement set-up can be optimised in such a way that visual rendering and testing the kinetics of the adsorbed substance direct release from the studied material become possible.