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Experimental Technique to Study Colloid Deposition in Porous Media

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Abstract : The flows of colloidal suspensions in porous media find many applications in fields such as Petroleum, Hydraulic engineering, deep-bed filtration. For each application, the scientific problems can be summarized the flow in porous medium of a colloidal suspension whose particles having characteristic dimension is considerable in comparison with the pores dimension. In certain cases, one can observe a deposit of particles on the surface of the pores which results in a significant modification in the physical properties of the porous medium. The objective of our study is to use a non-destructive experimental method, the attenuation of g-rays, to study the influence of the number of Peclet on the deposit of latex particles in a consolidated porous medium. The first results obtained show a good agreement between local and global measurements of the deposit of the particles in porous medium. The deposit takes place in a progressive way along the porous medium and leads to a monolayer deposit of which the average thickness is of about the size diameter of the colloidal particles.

Keywords : colloid, gamma ray, Peclet number, permeability, porous medium
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