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Colloidal deposition and aggregation in the presence of charged collectors BEHNAM SADRI, ARVIND RAJENDRAN, University of Alberta, SUBIR BHATTACHARJEE, Water planet engineering, COLLOIDS AND COMPLEX FLUID LABORATORY TEAM[1] — The transport of colloidal particles in porous media is of great importance in sub-surface environments. These colloidal particles facilitate transport of contaminants, low-soluble compounds and metals in groundwater. Here, we have studied transport dynamics of colloids inside porous medium using a combination of column experiments and batch studies. Polystyrene latex beads (100nm), as colloidal agents, and soda lime glass beads, as porous medium, are employed in this work. On the one hand, batch experiments are undertaken to better understand concurrent aggregation and deposition of particles. On the other hand, column experiments are performed to understand the flow induced deposition of colloidal particles in the interstitial voids. Effect of collector surface preparation, pH, colloidal suspension concentration and collector beads mass is studied. Chemical release and shear field are revealed as two significant factors lying behind the coagulation of colloidal particles. These findings help us to better distinguish mechanisms responsible for the transport of colloids inside porous medium.

[1]We are collaborators. Behnam Sadri is master of science student while two other professor are supervising his research work.

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