DEPOSITION AND DISSOLUTION IN SINGLE AND MULTIPHASE FLOW THROUGH POROUS MEDIA

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Summary. A precise analysis of these processes necessitates several ingredients such as a method to reconstruct porous structures, and techniques to calculate flow and transports.

A first sequence of alternate deposition and dissolution processes is analysed in fractures in single phase flow.

Then, in two phase flow, deposition onto the walls may have two consequences that are studied separately. In the first case, the solid phase is increased by deposition; porosity is progressively decreased until clogging occurs and stops the flow and the deposition process; during this stage all the quantities such as the absolute permeability and the relative permeabilities vary as function of time; such a situation is common in formation damage. In the second case, the solute does not clog the porous space and its only influence is to modify the local wettability of the solid walls; this may be a schematization of deposition of asphaltenes. Our major major results will be presented.

Finally, various extensions on the Darcy scale will be summarized in heterogeneous porous media and in fractured media.