Maisse, E.; **Pousin, J.**
Diffusion and dissolution/precipitation in an open porous reactive medium. (English)
Zbl 0893.76087

Summary: A mathematical model is proposed for dissolution/precipitation with diffusion in a reactive open porous medium when many chemical species in solid phase can dissolve. For this purpose, the concept of saturation concentration for a chemical species in liquid phase is introduced, and the mathematical properties of the functions representing such saturation concentrations are investigated. Then the equations of dissolution/precipitation are stated and investigated in order to be reformulated as an obstacle problem. Finally, an original mathematical model is derived, and this model can be used for predictive numerical simulations.

MSC:

76R50	Diffusion
76S05	Flows in porous media; filtration; seepage
76V05	Reaction effects in flows
80A32	Chemically reacting flows

Cited in **5** Documents

Keywords:

phase change; jumping nonlinearities; semilinear parabolic equation; differential inclusion; saturation concentration for chemical species; obstacle problem

Full Text: DOI

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