



Description of sorbing tracer transport in short and long fissures with a lattice BGK model

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A 2D lattice BGK model has been applied to the study of the transport of a sorbing solute through a fractured media. The model describes very closely the breakthrough curve of experiments performed in laboratory cores and in natural formations with wall sorption and diffusion into the rock matrix. Sorption reactions may either reach instantaneous equilibrium or be rate-limited, usually a first-order rate.

The length of the flow domain influences the sorption. Short cores show a more important wall sorption, whereas long cores have a greater matrix diffusion. The main advantage of the lattice BGK model over analytical and numerical approaches is its higher versatility for the analysis of complex geometries.