Div. S-2 — Soil Chemistry

Kinetics of Cation Exchange on Clay Minerals Using Pressure-Jump Relaxation. C. AHARONI, L. TANG* and D.L. SPARKS, Univ. of Delaware.

Cation exchange reactions on soils and soil constituents are usually very rapid and are diffusion-controlled. Rate coefficients for such reactions determined using traditional batch and flow techniques are apparent for chemical reactions. Relaxation methods enable one to measure the rates on millisecond and microsecond time scales. In this study, rate coefficients of Ca and Mg exchange on Na- and K-montmorillonite at 295K and 313K were measured using a pressure-jump relaxation technique at an 0.01 ionic strength. Single relaxations were observed. Equilibrium constants obtained from batch and pressure-jump techniques were compared and the thermodynamics of the cation exchange reactions were discussed. Liya Tang (302) 451-1595