

Adsorption-Desorption Kinetics of Atrazine on Vermiculite  
Using a Stirred-flow Technique. L. TANG\* and D. L.  
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The rates of atrazine adsorption-desorption on a Llano-vermiculite were measured using a stirred-flow technique. Both adsorption and desorption followed a two-step reaction scheme, i.e., an initial fast reaction for 30 min followed by a slow one continuing up to two hours. Various experiments were conducted to distinguish between three types of models: a instantaneous equilibrium model, a sorptive concentration-dependent kinetic model, and a sorptive concentration-independent kinetic model. Experiments included varying the flow rate and sorptive concentration, and stopping the flow for a period of time. Our results indicated the sorptive concentration dependent model was suitable to describe the adsorption-desorption of atrazine on vermiculite. One of the implications of this research is that adsorption kinetic parameters should be included in atrazine transport models, particularly if one is studying soils dominated by vermiculite and micaceous clay minerals.