

323. DYNAMICS AND MECHANISMS OF ORGANIC POLLUTANT INTERACTIONS ON CLAY MINERALS.

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The interactions of clay minerals with organic pollutants were investigated using different techniques to elucidate dynamic and mechanistic information. Batch experiments were conducted to determine the sorption and desorption of several organic pollutants on clays. Kinetics of sorption and desorption were also studied using a stirred-flow chamber. Calorimetric and FTIR spectroscopic measurements were conducted to characterize the nature of the interactions between the organic pollutants and the clay surfaces. At low organic concentrations the sorption isotherms of acetonitrile and acrylonitrile were linear and noncompetitive. The magnitude of the heats of sorption was low. FTIR spectroscopic data showed that the wave numbers of C≡N and C-H bands of the adsorbed organic molecules were not altered. These results led to the conclusion that sorption was not due to specific sorption sites on the clay surfaces but was due to a partition between the surface phase and the bulk solution phase.