Kinetics and mechanisms of pentachlrophenol sorption/desorption with an organo-clay. M.S. Stapleton*, D.L. Sparks, and S.K. Dentel, University of Delaware.

Hydrophobic ionizable organic compounds (HIOCs) have the potential to exist as both protonated and deprotonated forms. We have previously shown a significant difference in the equilibrium' sorption between the protonated and deprotonated forms of Pentachlorophenol (PCP) with a surfactant-modified organo-clay. We investigated the kinetics and mechanisms of the sorption and desorption reactions for both forms of PCP with an organo-clay. EXPerimental conditions were: pH 4 and 8; initial sorptive concentration 15, 30, and 60 μm; SUSPension concentration 100, 200 and 300 mg L^{-1}; and temperature 283, 298, and 343K. Aqueous sorptive concentrations were determined by uv absorbance of the suspension as it passed through a flow through cell in a uv diode array spectrophotometer. This method of analysis allows for the rapid detection of the sorptive during the reaction without interferences. Results showed that the sorption and desorption reactions were rapid and reversible for both species.