

Interaction of Phenol and Aniline with Montmorillonite and Illite. D.L. SPARKS and P.C. ZHANG*, Univ. of Delaware.

The interaction of phenol and aniline with montmorillonite and illite at low concentration ($1-5 \times 10^{-4}$ M) with CaCl_2 , NaCl and KCl as background electrolytes and at a constant ionic strength ($I=0.01$ M) were studied. Special attention was paid to avoiding the influences of light, biodegradation and organic matter. When organic matter was removed, no adsorption of phenol on montmorillonite and illite was observed in a one h period. Phenol adsorption was observed on montmorillonite if the organic matter was not removed, but illite did not have detectable organic matter and thus no phenol adsorption resulted. Aniline was adsorbed on both montmorillonite and illite irrespective of whether organic matter was present. Oxidation of phenol in a montmorillonite suspension was detected with GC/MS after 48 h of shaking. These results indicated that: 1) clays with negative charge

do not adsorb phenol from solution, and 2) the disappearance of phenol from solution reported by many investigators may be caused by the presence of organic matter on the surfaces of colloids and/or degradation of phenol. The latter will produce CO_2 and other intermediates which may then interact with clays.

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