
Adsorption of 1,10-Phenanthroline by Some Clays and Oxides

S. G. de Bussetti, E. A. Ferreiro and A. K. Helmy

Instituto de Edafología e Hidrología, Universidad Nacional del Sur 8000 Bahía Blanca, República Argentina

Abstract: The adsorption of 1,10-phenanthroline (OP) onto some clays and oxides was studied as a function of concentration, pH, and time. The adsorption was found to be irreversible and the isotherms, except for silica gel, were hyperbolic and gave rise to plots similar to that of Langmuir. Kinetic and light scattering studies show that OP is adsorbed as a micellar unit composed on the average of 3.5 molecules/micelle. This fact explains the overestimation observed in the surface areas of some sorbents since no true monomolecular layer of OP is formed on the surfaces. The adsorption was also found to be pH dependent, attaining a maximum, independent of the sorbent, at about pH 6. This maximum was approximately at the same pH in which only the molecular form of OP began to be present. The partial desorption of OP as the pH increased beyond 6 is possibly associated with the aggregation of micelles on the surfaces.

Key Words: Adsorption • Kaolinite • Montmorillonite • Oxides • Phenanthroline

Clays and Clay Minerals; April 1980 v. 28; no. 2; p. 149-154; DOI: [10.1346/CCMN.1980.0280212](https://doi.org/10.1346/CCMN.1980.0280212)

© 1980, The Clay Minerals Society

Clay Minerals Society (www.clays.org)
