

Electrokinetic Studies of Silica and Related Surfaces

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Using streaming current measurements, silica isoelectric points are determined by extrapolation with a series of electrolyte solutions. The influence of electrolyte valence and concentration upon desorption of adsorbed organic species will be examined subsequently.

In a parallel study, electrophoretic measurements made upon kaolinite particles have shown a shift in isoelectric point to a higher pH in the presence of Mg^{2+} and Ca^{2+} relative to those observed in the presence of monovalent cations. In order to examine these shifts, and their effect upon desorption, kaolinite clay platelets are adsorbed onto polymethylmethacrylate surfaces and thermally annealed there for streaming current experiments. This process has been used by other workers to study smectite clays [1]. Shifts in isoelectric points will then be compared to those observed in electrophoretic measurements made upon kaolinite particles.

References:

[1] S. Nishimura, K. Yao, M. Kodama, Y. Imai, K. Ogino, and K. Mishima; *Langmuir*, **2002**, *18*, 188-193.