
Electrokinetic Effects in Kaolin-Water Systems. I. The Measurement of Electrophoretic Mobility

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Abstract: A new apparatus for the measurement of electrophoretic mobilities of particles in concentrated suspensions has been developed. The usual techniques for the study of electrophoretic mobility, such as the microelectrophoretic method and the moving-boundary method, are in general not applicable to suspensions more concentrated than about 1% by volume of dispersed phase, nor are they readily applied to suspensions of particles having an appreciable sedimentation velocity. The new apparatus, which employs an improved design of mass-transport cell, has been used to study suspensions containing up to 50% by volume of dispersed phase. Gravitational effects are eliminated by continuous rotation of the cell during a mobility determination.

Data on kaolin-water systems are presented to illustrate the experimental technique and precision of the measurements. These data are also used to show the relation between the salt flocculation value of a suspension and its electrophoretic mobility.

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