
Sedimentation Behavior of a Fine Kaolinite in the Presence of Fresh Fe Electrolyte

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Abstract: The sedimentation behavior of a fine kaolinite, comprising a substantial proportion of colloidal particles as well as non-colloidal ones, has been studied when fresh FeCl_3 or $\text{Fe}_2(\text{SO}_4)_3$ electrolytes are added. The sedimentation behavior depends on the pH and the nature of electrolytes and can be explained qualitatively, in our study, by the theory of Derjaguin, Landau, Verwey, and Overbeek (DLVO theory). Fe helps also to aggregate the kaolinite particles in flocs. Two extreme kinds of qualitative sedimentation have been observed: flocculation-sedimentation and accumulation-sedimentation. However, the transition between the two kinds of sedimentation is quite progressive. The present results are discussed in reference to the DLVO theory and the hydrolysis behavior of Fe electrolytes.

Key Words: Colloid • Flocculation • Iron • Kaolinite • Sedimentation

Clays and Clay Minerals; October 1992 v. 40; no. 5; p. 586-592; DOI: [10.1346/CCMN.1992.0400513](https://doi.org/10.1346/CCMN.1992.0400513)

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