

Charge Properties of Edge Surfaces of 2:1 Clay and Their Role in Ion Adsorption and Flocculation.

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This study was conducted to determine the effect of edge surface properties of 2:1 clay on particle-particle interaction and boron (B) adsorption. Pyrophyllite which show little deviation from the ideal formula of dioctahedral structure of 2:1 clay type, was used for that purpose. The critical flocculation concentration (CFC) of the pyrophyllite increased with increasing pH and the gel volume increases with electrolyte concentration at pH 8.5.

The role of the edge surfaces in clay flocculation was evaluated based on the electrical properties of these surfaces. Boron adsorption increases with ionic strength. This influence was explained by the effect of electrolyte concentration at various pHs on the diffuse double layer associated with the edge surfaces. It was suggested that B adsorption is associated with the structural Al located on the edge surfaces. A mechanism for B - clay interaction was proposed.