
Effect of the Dielectric Constant on the Double Layer on Clays

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Abstract: Electric potentials as a function of distance were calculated for a model of the double layer on clays in which a surface zone a few water molecules thick has a low dielectric constant. This zone is followed by bulk water with a normal dielectric constant. The double layer potentials were found to be lower than those obtained from the Gouy model, in which water has a normal dielectric constant throughout the double layer.

Key Words: Dielectric constant • Double layer potential • Gouy model • Montmorillonite • Water

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