
Interlayer Bonding in Kaolinite, Dickite and Nacrite

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Abstract: A simple electrostatic model has been used to demonstrate that the inner surface hydroxyls in kaolinite, dickite and nacrite are responsible for the interlayer bonding in these minerals. The contribution to the interlayer bonding of an individual hydroxyl hydrogen depends on the orientation of the hydroxyl group relative to the 1 : 1 layer since this orientation determines the H—O interlayer distance. If this distance is much greater than the sum of the van der Waals radii, $2 \cdot 60 \text{ \AA}$, there is essentially no bond. As the distance becomes less than $2 \cdot 60 \text{ \AA}$, the strength of the interlayer bond increases.

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