Stretching Frequencies of Structural Hydroxyls of Hectorite and K-Depleted Phlogopite as Influenced by Interlayer Cation and Hydration

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Abstract: The frequencies of structural OH stretching vibrations in swelling trioctahedral minerals such as hectorite or K-depleted phlogopite depend on the ionic form and hydration of the sample. The trioctahedral structure is evidently a suitable case for the observation of spectral changes, since hydroxyl groups are in conditions of high reactivity with the surrounding medium. These changes are attributed to the field which originates either from the cations or the residual water molecules, and the joint analysis of spectroscopic and X-ray diffraction data permits an interpretation that frequencies quoted for unaltered mica are only perturbed frequencies.

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