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# Change of *b*-Dimension with Swelling of Montmorillonite

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**Abstract:** The effect of swelling on the *b*-dimension of Na-saturated, Upton, Wyoming montmorillonite was re-examined using powdered silicon as an internal standard. After being corrected with reference to the internal standard, the *b*-dimension did not increase through the entire range of swelling as reported previously. It increased up to a water content of  $\sim 3.0$  g/g montmorillonite and remained constant thereafter. However, the diffraction peak of the internal standard shifted towards lower angles at higher water contents. This shift was attributed to a relaxation of the wetter samples away from the knife edge of the diffractometer. Presumably, a similar relaxation occurred in the earlier study and was responsible for the apparent increase in *b*-dimension at water contents above  $\sim 3.0$  g/g.

The *b*-dimension of Upton montmorillonite saturated with different cations was determined using powdered silicon and a colloidal quartz impurity as internal standards. The water content at maximal swelling decreased as the *b*-dimension increased.

*Clays and Clay Minerals*; July 1977 v. 25; no. 3; p. 201-204; DOI: [10.1346/CCMN.1977.0250305](https://doi.org/10.1346/CCMN.1977.0250305)

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