
Electron-Optical Investigations on Montmorillonites—II: Morphological Variations in the Intermediate Members of the Montmorillonite-Beidellite Series

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Abstract: Dioctahedral aluminum smectites from bentonite deposits in Argentina, Brazil, Czechoslovakia and Japan represent, according to the MgO content of the bulk samples, intermediate members in the montmorillonite-beidellite series. The smectite particles in these samples occur in a variety of forms such as; (a) laths and diamond-shaped units with a well developed crystal habit, (b) loosely folded aggregates with an irregular morphology and (c) flat and compact lamellae with well developed {001} forms but with complete lack of {hk0} forms. Such lamellae have been described in two groups: the thin ones (10– 50 Å) and the thicker ones. Thin lamellae may give SAD spot patterns with a non- hexagonal symmetry. Lamellae having thicknesses greater than 50 Å resemble a single crystal but their SAD patterns indicate that they do not have a three-dimensional periodicity.

The question arises whether the morphologically different particles in a sample belong to the same intermediate phase or if they represent different members in the montmorillonite-beidellite series coexisting in the same sample.

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