Elementary Layers in the Interstratified Clay Minerals as Revealed by Electron Microscopy

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Abstract: Interstratified layer structures were studied by electron microscopy and electron diffraction. In order to distinguish between expansible and non-expansible layers, interstratified mica-smectite was treated with laurylamine hydrochloride solution. Electron micrographs of the layers at the curled edges of the crystals show expanded basal spacings of 24 Å and unexpanded spacings of 10 Å. It was observed that adjacent pairs of expanded and unexpanded layers in the micrographs form non-expansible units. Arrangement of the expanded and unexpanded layers shows that the layers expanded by sorption of laurylammonium ions have expansible and non-expansible surface characteristics on opposite sides of the layer. The relationships between the ratio of component layers and basal spacings in two component systems are discussed.

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