A Morphological Study of Selected Synthetic Clays by Electron Microscopy

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Abstract: The morphology of synthetic montmorillonite and hectorite was studied using electron microscopy and X-ray diffraction techniques. Interstratified montmorillonite-mica particles may be identified in these specimens by electron microscopy and electron diffraction techniques. Magnesium-substituted samples were found to exhibit an increasing amount of curling with increasing magnesium content except for the end-member magnesium clay. Synthetic hectorite clays do not necessarily have the same morphology as natural hectorite clays. A study was made also of the morphology of a series of samples obtained from a study of kinetics of crystallization. Boehmite and montmorillonite were the basic components of the system. It was found that the montmorillonite clay particles curled around the boehmite which had been adsorbed on the basal surfaces on the montmorillonite.

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