
Selectivity Effect of Cesium on Clay Size Weathered Mica; Transmission Electron Microscopy Studies*

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Abstract: The use of electron diffraction contrast to detect local concentrations of interlayer cations in mica-vermiculites was examined. Cs and Mg, because of their contrasting atomic scattering amplitudes for electrons, were chosen as exchange ions for Ca. Cs was absorbed to the near exclusion of Mg by the clays from the three soils and by weathered clay-size muscovite and phlogopite. The presence of Cs in addition to the other interlayer cations, K and Ca, caused bending and perhaps splitting of the mica-vermiculite layers. Extinction bend contours were common in Cs-treated specimens but not those Ca-treated. After freeze-drying of specimens of Cs-Ca Nason clay, differential destruction by the electron beam of the central core in clay-size vermiculite containing hydrated Ca ions may indicate the edge location of Cs.

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