Mössbauer Spectra of Dioctahedral Smectites

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Abstract: Mössbauer spectra of 15 smectites were investigated. In these samples, ferric iron occupies both M(1) and M(2) octahedral sites, the distribution being partly determined by the relative covalency of the bonds formed.

The quadrupole splittings are linearly related to b^{-3}. They show that Fe^{3+} octahedra are much more distorted in montmorillonite and beidellite than in nontronite and volkonskoite and that M(I) sites are more prone to change than M(2). Ferrous iron occurs in relatively undistorted octahedra in some otherwise distorted octahedral sheets and vice versa.

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