A Mössbauer and I.R. Spectroscopic Study of the Structure of Nontronite

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Abstract: Mössbauer and i.r. spectra of a series of nontronites show that Fe^{3+} and Al^{3+} are distributed between tetrahedral and octahedral sites. The Mössbauer results have reaffirmed the occupation by Fe^{3+} of octahedral sites at which these ions are coordinated to pairs of OH groups in both *cis* and *trans* configurations. The distribution of Fe^{3+} between these two sites varies considerably but in all of the nontronites some Fe^{3+} occurs in the *trans* site in contrast to the all *cis* occupancy of the centrosymmetric structure proposed by Mering and Oberlin (1967). In one of the nontronites the distribution of Fe^{3+} between these two sites approaches that in the ideal non-centrosymmetric structure proposed for montmorillonite.

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