

### **Revisitation of the Structural Models for Ferrihydrites**

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Ferrihydrite is a generic term for various poorly ordered Fe(III) oxyhydroxides. They are also characterized by small particle size, as evident from X-ray diffraction patterns. They in fact consist of a number of broad peaks varying from 2 to 6; the extreme forms are referred to as 2-line and 6-line ferrihydrite, while the 4-line one is better known as ferroxhyte. The lack of experimental details causes concern about the uniqueness of structural interpretation of XRD data.

In spite of this [1,2], several models have been proposed: however, the agreements with the experiments were reached assuming a mixture of two or three crystalline structures which made use of sets of rather unreasonable atomic occupancies. Besides, some Fe-Fe distances obtained from EXAFS analysis are not consistent with those interpretations.

We present here structural models for the three forms of ferrihydrites in which the oxygen atoms have unitary weights and the iron atoms, with half weights according to the oxide stoichiometry, are set in all the available octahedral sites.

[1] Drits V.A., Sakharov B.A., Salyn A.L., Manceau A., *Clay Minerals*, 1993, **28**, 185. [2] Jansen E., Kyek A., Schafer W., Schwertmann U., *Appl. Phys. A*, 2002, **74**, S1004.

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