

Anion exchange by the suspension of an iron rich montmorillonite clay

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The replacement of hydroxyl ions by fluoride ions is determined quantitatively for the Perrenjas clay mineral. The pH of the clay suspension in contact with fluoride ions increases because of the hydroxyl ions release. This iron rich montmorillonite clay mineral is washed out almost completely from its aluminum, iron, magnesium and hydroxyl groups by sulfuric acid treatment and afterwards was contacted with a fluoride ions solution. The hydroxyl concentration remains almost constant showing that fluoride ions replaces the hydroxyl groups bounded in the clay metal atoms. Infrared and chemical analysis of the clay before and after the acid treatment are used to determine the presence of hydroxyl groups and the metal ions clay.

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