

# Acid strength at clay mineral surfaces

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## Abstract:

The interactions of  $\text{Al}^{3+}$ -montmorillonite,  $\text{Na}^+$ -montmorillonite and  $\text{Na}^+$ -kaolinite with selected Hammett indicators have been reinvestigated. The use of a series of indicators with different acid strengths,  $H_0$ , to determine the activity of protons on the clay surface was based on the assumption that the activity of  $\text{H}^+$  on the clay surface is equivalent to activity in solution. The results show that  $\text{Al}^{3+}$ -montmorillonite had the highest acid strength, especially after drying at 110°C.  $\text{Na}^+$ -kaolinite had the lowest acid strength, at two moisture levels: before washing with ethanol and after evaporation of this alcohol. At all moisture levels the acid strength of  $\text{Al}^{3+}$ -montmorillonite was greater than that of either  $\text{Na}^+$ -montmorillonite or  $\text{Na}^+$ -kaolinite.