



Organomontmorillonites Having Different Charges for Wastewater Treatment: Adsorption of Phenol Molecules

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Abstract: The intercalation of the hexadecyl trimethyl ammonium cations into two montmorillonites with different charge values is reported. The effect of selected counter ions (Br⁻, Cl⁻ and OH⁻) on the adsorption of C16TMA was investigated. The aim of this study is to gain further insight into the influence of the type of surfactant solutions and the physicochemical properties of raw clays on their intercalation behaviours. The intercalated amounts depended on the CEC values of the starting clays and the type of C16TMA solutions. The content of surfactants was higher in the raw clay with higher charge, and followed the trend C16TMABr>C16TMACl>C16TMAOH. These organoclays were tested in the phenol sorption. The amount of phenol was improved with the increase of the initial concentration and decreased with the low content of surfactant intercalated within the interlayer spacing of the starting montmorillonites.

Keywords: *montmorillonites, organoclays, x-ray diffraction, adsorption, phenol.*

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