

Comparison of alkali versus acid activation of Kosovo bentonites to be used for oil regeneration

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Abstract

Clay minerals are natural products with very high absorbent, ion-exchange and catalytic properties; chemical nature and pore structure have an important impact on these properties. In this paper, it is proposed to modify the Bentonite clay of Kosovo (Goshica region) by acid and alkali activation to be used for oil recycling. Acid and alkali activation was performed in ratios (10, 30 and 50%) in order to see the effect of acid and alkali treatment on the properties of Goshica Bentonite. The samples were characterized using X-ray powder diffraction (XRD), Fourier transform infrared (FTIR), structural and chemical analysis. Physio-chemical analysis was performed to find out the best activation treatment in order to increase the bentonite's adsorption and ions exchange capacity. Significant changes were observed in the original pore structure. All the conclusions drawn correlate well with the amount of activator used. This study will provide valuable data on the effect of acid and alkali activated bentonite for the treatment and recyclability of UMO, which is essential for local industry.