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Investigation of the Surface Acidity of a Bentonite Modified by Acid Activation and Thermal Treatment


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Abstract: The adsorption of n-butylamine from its solution in cyclohexane on acid-activated and thermally treated Kütahya/Turkey bentonite (KB) samples was followed using a UV-VIS spectrophotometric method. The experimental data were evaluated by the Langmuir adsorption equation and the total number of surface acid centers ($n_{m/mol} g^{-1}$) was determined. The variation in n_m values as a function of the mass percent of H_2SO_4 used in activation (10%-70%) and its correlation with variations in surface area (A) and pore volume (V) as a function of the mass percent of H_2SO_4 were investigated for acid- activated KB samples. The variation in n_m values as a function of thermal treatment temperature (200 °C-1300 °C) and its correlation with variations in A and V as a function of thermal treatment temperature were investigated for thermally treated KB samples and the results are discussed.

Key Words: Acid activation, bentonite, n-butylamine, pore volume, surface acidity, surface area, thermal treatment

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