Abstract
To circumvent the current pollution-prone disposal of the spent bleaching earth (SBE), an experimental program was conducted to recover the waste SBE and to use it for air dehumidification application. Waste SBE was obtained from the damping site of the oil industry, and the entrained oil was recovered via hexane extraction while the remaining hydrocarbons were oxidized with 30% H₂O₂ and heat at 550 °C. This reactivation procedure affords oil useful in other ole-chemical applications and active SBE for air dehumidification. For the purpose of adsorbent development, SBE regeneration was found to follow two routes, solvent extraction followed by oxidation using 30% H₂O₂ which retains the elasticity of the clay crucial in molding the adsorbents and thermal processing at 550 °C after molding. Experiments were carried out in batch system, and the effects of parameters including, activation temperature, contact time, The sorption characteristic of the adsorbent established two peaks when activated at 550 °C and 650 °C with a capacity of 27.07 and 26.63% respectively. The regenerated SBE proved to be a promising adsorbent for moisture since its sorption capacity was higher than that of clay (15%) which is commonly used as commercial desiccant.

Key Words: Activation; Spent Bleaching Earth; Dehumidification.