SUITABILITY OF DEVELOPING ZEOLITE *Y* FROM EDIKO NIGERIA CLAY

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Abstract
In this study, emphasis was placed on the development of Zeolite Y from Ukukudu kaolin clay. Investigations were carried out on the compositional characteristics of the clay with an account to ascertaining their industrial applications. The clay sample was subjected to beneficiation using de-ionized water for a period of 5 days and metakaolinization at 750 °C for 5 hours. The obtained metakaolin was reacted with 60% w/w purity H_2SO_4 to obtain dealuminated samples using novel method and thereafter reacted with analytical grade sodium hydroxide pellet for gelation process. The gelated samples were aged at 34^oC for 7 days and subsequently crystallized at 100^oC for 24 hours. X- Ray Fluorescene analytical technique spectroscope was applied as the approaches to anatomize for chemical composition of Ukukudu kaolinite clay. The obtained results shows the clay sample to contain silica and alumina in the right proportion with 56.6 / 32.6 , 60.3 /32.0 and 67.1 / 15.0 for raw , calcined and dealuminated samplrs respectivel with minimal impurities. The synthesized zeolite Y therefore gives SiO_2/Al_2O_3 ratio of 7.6. which was suppoted with further analysis using XRD and SEM. This corroborate the findings of Babalola, 2014 and hence confirmed the suitability of developing Zeolite Y from Ukukudu clay.

Keyword : Crystallization, metakaolinization, gelation, XRF, XRD