CHARACTERIZATION OF KAOLIN DEALUMINATION PRODUCTS

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ABSTRACT
The fast depletion of global bauxite deposits in quantity and quality called for urgent development of alternative sources for alumina production; hence, kaolin being the next to bauxite in alumina content presents itself for consideration. This paper highlights the basic routes to alumina extraction from kaolin. The identification and properties of the alumina and its by-products were determined via the conventional analytical tools such as x-ray diffractometer, infrared spectrometer, energy dispersive x-ray meter, scanning electron microscope and micrometrics instrument. A pure phase γ-alumina with average surface area of 107.81 m²/g and mesoporous channels of about 40 to 44 nanometers was identified and characterized alongside high crystalline ammonium alum as an intermediate product and the residual clay gangue as crude silica. The crude silica is of moderate surface area, about 31 m²/g, suggested to be due to partial pore blockage by residual sulfate ions.