

Alaa H. Ali

Materials Engineering Dept.,
University Of Technology,
Baghdad, Iraq.
moe@uotechnology.edu.iq

Mohammed H. AL-Taie

Materials Engineering Dept.,
University Of Technology,
Baghdad, Iraq.

Ihab F. Ayoob

Materials Engineering Dept.,
University Of Technology,
Baghdad, Iraq.

Received on: 04/11/2018
Accepted on: 27/02/2019
Published online: 25/04/2019

The Extraction of Alumina from Kaolin

Abstract- Alumina has wide industrial and technological applications that can be extracted from different locations, different methods and materials. Kaolin from Iraq Alduikhla astrologer has used as a raw material source for alumina production. The alumina concentration in the Iraqi kaolin is more than 34% which considered as a good replacement for bauxite rack. Crushing and ground is the first process to reduce the kaolin particle size to the micron level which increases the surface area of kaolin.

The kaolin is heat treated at different temperatures (600, 650, 700 and 750) °C for 2 hours to remove some of the impurity like organic materials and crystal water before acid treatment. A different concentration of hydrochloric acid (pH) (0.45, 0.5, 0.55, 0.6 and 0.65) has used for extraction of alumina from kaolin. The reaction between the hydrochloric acid and kaolin has studied at different temperature (30, 60 and 90) °C. The extraction of alumina has decreased with increase in the reaction temperature. Finally, the alumina extraction by this method has characterized using XRD and XRF to investigate the crystal structure and the amount of impurities presented there. The final extracted alumina has a cubic crystal structure (γ alumina) with purity above 95%.

Keyword- kaolin; extraction; Alumina.

How to cite this article: A.H. Ali, M.H. AL-Taie and I.F. Ayoob, "The Extraction of Alumina from Kaolin," *Engineering and Technology Journal*, Vol. 37, Part A, No. 04, pp. 133-139, 2019.
