

*Clay Research, Vol. 39, No. 1, pp. 1-8 (2020)*

## **Dielectric Properties of Kaolin Material with Different Concentrations of NaOH**

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**Abstract**—Kaolin powder ( $Al_2O_3 \cdot 2SiO_2 \cdot H_2O$ ) with average grain size of 350 5 $\beta$ m was mixed with five different concentrations (2, 3, 5, 8, 16) M of NaOH solutions. The capacitance and reactance of prepared samples were measured using LCR meter. At frequencies smaller than 1000 Hz, the addition of sodium hydroxide to kaolin resulted in a significant increase of capacitance, while the sample at concentration 3M showed significant stimulation in the capacitance and reactance. At high frequency, the sample at concentration 2 M was the most stimulating samples. At the 20 Hz and at the few concentrations of sodium hydroxide, the 3 M sample showed significant stimulation in the capacitance value. It found that the concentrations of the electrolytic solution create electrostatic forces that affect the prepared sample leading to an increase in dielectric constant and decreasing reactance which can be candidate for supercapacitor applications.

**Keywords:** Dielectric Properties, Electrolytic Solution, Kaolin, Reactance, Supercapacitor.