ABSTRACT

EFFECT OF ACTIVATED BY NaOH ON THE PERFORMANCE OF TiO$_2$/C REINFORCED CERAMICS AS ELECTRODE OF SUPERCAPACITOR

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Effect of activated by NaOH on the performance of TiO$_2$/C reinforced ceramics as electrode of supercapacitor have been done. Synthesis of TiO$_2$ sol was used sol-gel method. Membrane of ceramic as template TiO$_2$/C growth that activated by NaOH was prepared as electrode of supercapacitor which used polymer hydrogel electrolyte, polyvinyl alcohol as separator and phosphoric acid (H$_3$PO$_4$) as electrolyte. Effect activated by NaOH at the electrode of supercapacitor can increase the capacitance at temperature calcined 250°C and 300°C. Based on characterization of EDX (Energy Dispersive X-Ray), the most high contain of carbon was electrode after activated at temperature calcined 300°C was 60.67%, which is the higest capacitance was 14540 nF with concentration of electrolyte H$_3$PO$_4$ 0.5 M, voltase 0.62 volt and current 5.3 µA at charger time 30 minutes with conductivity 45.4x10$^{-5}$ S/cm.

Keywords: Supercapacitor, TiO$_2$, Activated, Capacitance, Polymer hydrogel electrolyte