ABSTRACT

The Using of Carbon Paper as Electrode in Supercapacitor

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Carbon paper with variation size and method of supercapacitors were prepared as electrode of supercapacitor with polymer hydrogel electrolyte, polyvinyl alcohol, as separator and phosphoric acid (H₃PO₄) as electrolyte. Supercapacitor was assembled by rolling method and plate/sandwich method with variation of surface area. If surface area was high, so capacitance value was high too. Optimum capacitance was gotten in rolling method, was 1.266 µF with surface area 3 x 20 cm, charge time 60 minutes and concentration of electrolyte H₃PO₄ 0,1 N. Beside that, optimum capacitance of plate/sandwich method was 0,012 µF with surface area 6 x 5 cm, charge time 60 minutes and concentration of electrolyte 0,1 N. Carbon from palm kernel shells were added to paper carbon sheets with particular size was 90 µm and temperature calcined 400°C can increase the capacitance became 1331,8 µF for rolling method and 0,099 µF for plate/sandwich method.

Keywords : Supercapacitor, ECLC, Capacitance, Polymer hydrogel electrolyte, Palm kernel shell