

ABSTRACT

Nanoporous carbon consists of a solid material containing carbon and an empty (pore) cavity that has a size less than 100 nm. Some of the utilization of nanoporous carbon is, for example, as an absorbent and storage material of gases such as CO₂ and hydrogen, desalination, energy storage electrodes, and can absorb uranium metal ions. For capacitor electrode materials made of nanoporous carbon, carbon is required with high porosity and has a total pore volume above 90%. One of carbon source is a coconut shell. In this research, nanoporous carbon synthesized from coconut shells that was taken from five different places: Pasar Suci, Pasar Gedebage, Pasar Kiaracandong, Pasar Caringin, and Pasar Dayeuhkolot. Pores characterization was done using Nitrogen Isotherm Physisorption method and yields a maximum specific surface area of 891,212 m²/g with total pore volume of 0,467 cc/g. This maximum specific surface area was obtained from coconut shells which was taken from Pasar Caringin consisting of 84,7418 % carbon. The characterization of electric property was conducted using Cyclic Voltammetry with nanoporous carbon, black karbon, and PVDF based electrode that has 8:1:1 mass ratio. From this characterization, a maximum capacitance of 3,07 F/g was obtained from Pasar Gedebage's coconut shell that has 83,1582 % carbon. From all five samples, there was no relation between carbon percentage and nanoporous carbon's specific surface area.

Keywords: Nanoporous Carbon, Specific Surface Area, Initial Contents, Coconut Shell