

ABSTRACT

Supercapacitor is a charge storage device that are being developed from conventional capacitor. There are two important materials which is compose supercapacitor electrode and electrolyte. The electrode consists of porous material (activated carbon), conductive material (carbon black), and adhesive (binder).

In the manufacture of electrode, there is a problem of lack of adhesion (adhesiveness) between the three mixtures of these carbon materials and the current collector plate. This is due to the mismatch of bonds between the particles of the three materials. To solve this problem, electrode fabrication is carried out using the hot press method to bond the carbon particles by applying a certain pressure and temperature. Electrode fabrication was carried out by varying the pressure 8, 24, and 40 MPa and temperature 100 °C to evaluate porosity, adhesion (adhesiveness), electrical properties and specific capacitance.

The produced electrodes then characterized using adhesive characterization with adhesives, electrical properties using the four-point probe method. Furthermore, the measurement of the electrical properties of the electrode were carried out using a potentiostat using the Cyclic Voltametry method. Based on the results of the I-V measurement on the potentiostat, the specific capacitance is then calculated. From the three characterizations, it has been analyzed the influence of pressure to the adhesiveness, resistivity and the specific capacitance of the supercapacitor.