

Synthesis of flaked-shaped porous carbon via spray pyrolysis and evaluation as an electrode materials for supercapacitors

박혜영, 정경열[†], 민병호
공주대학교
(kyjung@kongju.ac.kr[†])

Porous carbons including activated carbon (AC), graphene and carbon fibers are known as the efficient electrode materials for supercapacitors due to their excellent conductivity and chemical stability. The electrochemical performance of carbon-based electrodes is affected by the specific surface area, pore size and shape affects. Also, the microstructure of electrode is also important to achieve high capacitance and fast charging-discharging properties. In this work, flaked-shaped carbon with meso- and micro-pores was synthesized by spray pyrolysis and evaluated as the electrode for a supercapacitor. In terms of maximize substantial surface involved in ion adsorption, the synthesized flaked-shaped carbon was better than the microporous activated carbon. But, the electrical conductivity of electrode prepared by the synthesized carbon was lower than AC. Thus, the electrode was prepared by using the synthesized carbon flake with microporous activated carbon with high surface area to achieve a synergy effect in terms of the conductivity and capacitance. Detailed electrochemical properties of electrode were investigated by changing the weight ratio of synthesized carbon flake to AC.