

Fabrication Porous Carbon Derived from PVDC-g-PMMA to Increase EDLC Electrochemical performance with Non-aqueous Electrolyte

박건우, 송은호, 이소연, 박정태[†]

건국대학교

(jtpark25@konkuk.ac.kr[†])

There are two type of supercapacitor; one is electrochemical double-layer capacitors (EDLCs), and the other is pseudo-capacitors. Because EDLC charges and discharges charges on the surface of electrodes, the size of the non-surface area and pores are one of the indicators of performance comparison to improve the performance of EDLC. In electrode materials, we replaced activated carbon to porous carbon derived from PVDC-g-PMMA (pc-PP). The pc-PP can make PP through NaOH and activation. The process of activation produces chemical activation by carbonizing the PP at 600 °C and then applying heat at 850 °C degrees with NaOH. We used pc-PP fabricated to button type EDLC with non-aqueous electrolyte TEABF₄/PC. The characterizations of pc-PP were checked morphology, crystallinity, and structure by field emission scanning electron microscopes (FE-SEM), Fourier transform infrared spectroscopy (FT-IR), X-ray diffraction (XRD), and Raman spectroscopy. Although fabricated symmetric supercapacitor confirmed electrochemical performance by cyclic voltammetry (CV), galvanostatic charge/discharge (GCD), electrochemical impedance spectroscopy (EIS), and calculate capacitance.