

Hierarchically Porous, Three-Dimensional Graphene Aerogels for Ultrahigh Capacity and Fast Kinetics of Adsorption

윤솔, 박호석*

경희대학교

(phs0727@khu.ac.kr*)

Herein, we demonstrate macroscopic graphene aerogels with hierarchical pore systems that consist of 3D inter-networked macroporosity, mesoporosity, and microporosity. For electrochemical systems, the specific capacitance is the most critical parameter for evaluation of electrode materials. The hierarchical porous structure of hpGAs was observed using field emission scanning electron microscopy (FE-SEM, LEO SUPRA 55, 10kV), field emission transmission electron microscopy (FE-TEM, Tecnai G2 F30 S-Twin). X-ray photoelectron spectroscopy (XPS, AXIS Ultra DLD) was used to determine the chemical composition of rGO film, GAs, hpGAs. Raman spectra were recorded from 100 to 2500 cm^{-1} at room temperature using a Raman spectroscopy (RENISHAW inVia Raman Microscope, 785nm) equipped with a $\times 100$ objective was used. The specific area and pore distribution of GAs and hpGAs were obtained using a Brunauer-Emmett-Teller apparatus (BET, BELSORP-miniII).