

Ionic liquids containing double bond as electrolytes for electrochemical double layer capacitor

오철진, 이제승^{1,†}
경희대학교; ¹경희대
(leejs70@khu.ac.kr[†])

Electrochemical double layer capacitor (EDLC) is promising energy storage device with fast charge/discharge performance, high power density, and long life cycle. Electrolytes are one of the most important factors in the performance of EDLC because they are directly involved in forming electrochemical double layers at the surface of electrodes. Two ionic liquids (ILs), 1-allyl-3-methylimidazolium bis(trifluoromethanesulfonyl)imide ([AMIm]TF2N) and 1-allyl-3-vinylimidazolium bis(trifluoromethanesulfonyl)imide ([AVIm]TF2N), were used as electrolytes of EDLC. The electrochemical stability and ionic conductivity of ILs were observed as up to 4.7 V, 4.5 V and 7.4 mS cm⁻¹, 6.1 mS cm⁻¹, respectively. The symmetric coin cells were assembled using the activated carbon derived from phenolic resin as electrodes and their charge/discharge performances were studied.