

Poly(vinylidene fluoride)-Hexafluoropropylene-Methyl N-methylpyrrolidinium-N-acetate Trifluoromethanesulfonylimide-Lithium Trifluoromethanesulfonylimide Gel Electrolytes

김기섭, 김지현¹, Nguyen Dinh Quan¹, 의현주^{1,*}, 김훈식²
충주대학교; ¹한국과학기술연구원; ²경희대학교
(hjlee@kist.re.kr*)

New polymer-ionic liquid-lithium salt gel electrolytes (PILGEs) were prepared using poly (vinylidene fluoride)-hexafluoropropylene copolymer (PVdF(HFP), methyl N-methylpyrrolidinium-N-acetate trifluoromethanesulfonimide ([MMEPyr][TFSI]), and lithium trifluoromethanesulfonylimide (LiTFSI) in order to investigate the effect of ionic liquids containing ester group on electrochemical properties of polymer gel electrolytes. The free standing ionic gels consisting of PVdF(HFP), [MMEPyr][TFSI], and LiTFSI were prepared in the range of mole ratio of polymer / [MMEPyr][TFSI] / LiTFSI = 1 / 2 / 0.1~1. Ionic conductivities for the prepared PILGEs were measured with increasing temperature and changing weight ratio of LiTFSI and the obtained values were reasonable ($10^{-4} \text{ S}\cdot\text{cm}^{-1}$) over the operating temperatures.