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Single ion conductor based on blend of PMMA ionomer and PEG end-capping with Li

폴리메틸메타크릴레이트 이오노머와 말단이 Li으로 치환된 폴리에틸렌글리콜 이오노머가 블랜드된 단이온 전도성 고분자 전해질에 대한 연구

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Blend-based single ion conductor composed of Poly(methyl methacrylate-co-lithium methacrylate) and lithium end-capping PEG ionomer has been prepared. Ionomers were characterized using NMR, IR and DSC. These blended polymer electrolytes show the suitable ionic conductivity with good mechanical properties. The flexibility was significantly enhanced with increase of the content of small molecular weight of PEG ionomer. The effect of the PMMA/PEG ionomer blend ratio and the Li content in PMMA ionomer on the ionic conductions in these electrolytes were investigated. The maximum ambient ion conductivity was 4×10^{-5} S/cm at 25°C without any additives. The effect of plasticizer was also investigated. Introducing of organic solvent to the blended polymer electrolyte enhances the ionic conductivity and interfacial property. The maximum ionic conductivity of plasticized polymer electrolyte was 2×10^{-4} S/cm at 25°C.