

Poly(siloxane-graft-alkylene oxide) as solid polymer electrolytes for Lithium battery

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Polymer electrolytes are promising materials for electrochemical device applications, namely, high energy density rechargeable batteries, especially for Lithium battery. It can make the battery more thin in size. But the drawback of polymer electrolytes(SPE) is poor in ion conductivity. The room temperature conductivity generally is about $10^{-5} \sim 10^{-6} \text{ S cm}^{-1}$. In this study, we construct Poly(siloxane-graft-alkylene oxide) as the polymer electrolyte. The approach have been adopted to enhance the room temperature conductivity in the vicinity of $10^{-4} \text{ S cm}^{-1}$ as well as to improve the mechanical stability ,interfacial activity and thermal stability ($\sim 278^{\circ}\text{C}$) of SPEs.