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Porous polymer electrolyte based on poly(vinylidene fluoride)/comb-liked polystyrene via ionic band functionalization

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Abstract:

The grafted polymer modified by ionic bond was synthesized by a simple and scalable method based on sulfonated polystyrene (SPS) and the monoamine-terminated PEO derivative (M2070). Porous polymer electrolytes (PPEs) containing the grafted polymer and poly(vinylidene fluoride) (PVDF) were prepared by phase inversion process. The dense pores distributed in the polymer matrix, which could store liquid electrolyte and provide enough channels for ionic conduction, and the ionic conductivity of PPEs was thus improved effectively. Furthermore, the effect of the mass fraction of grafted polymer on porosity, electrolyte uptake, and ionic

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