Ionic liquid - polymer gel electrolytes

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New rubbery gel electolytes have been prepared from morpholinium - based ionic liquid and poly (vinylidene fluoride)-hexafluoropropylene copolymer[PVdF(HFP)]. The ionic liquids employed in these preparations were N-butyl-N-methyl morpholinium bis(trifluoromethane sulfonyl) imide. The ionic liquid-PVdF(HFP) gels are freestanding, flexible films with room temperature conductivities ranging from 0.017 to 3.93 mS/cm. Because the morpholinium salt and the PVdF(HFP) are nonvolatile and are thermally stable, the gels can be operated at elevated temperatures without performance degradation.