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Conductivity, Viscosity, and Thermodynamic Properties of Propylene Carbonate Solutions in Ionic Liquids

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Abstract. Ionic liquids (ILs) are a series of stable, non-flammable, non-volatile organic compounds containing only ionic species. ILs can be used to make stable electrolyte solutions with low viscosity and high conductivity for electrochemical energy storage and conversion devices such as lithium ion batteries, fuel cells, and supercapacitors, leading to improved performance in capacity and stability. Propylene carbonate (PC) has also been used as a solvent / co-solvent to prepare electrolyte solutions for these energy storage devices. In this work, we have used a series of experimental methods such as calorimetry, gas chromatography, Fourier Transform Infrared Spectroscopy (FTIR), viscosity and conductivity measurements to characterize the properties of PC / IL solutions and the solvation

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