

Phase behaviors of Polymer Blend(PEO-PPO) Electrolyte/KI/I₂ Systems in Dye-Sensitized Solar Cells

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Photoelectrochemical solar cells based on Dye-sensitized TiO₂ are considered to be promising alternatives to conventional silicon solar cells because of their low cost. Liquid DSSCs (Dye-Sensitized Solar Cells) and quasi-solid DSSCs have been studied by many groups up to now. Researches on the electrochemical applications of SPEs, Polymer Blends electrolytes have therefore focused on the ionic conductivity for each complex.

Polymer blend (poly(ethylene oxide) (PEO)-poly(propylene oxide) (PPO)) systems with different mole ratios, complexed with KI/I₂ redox couple, have been characterized at various temperatures and compositions using a thermo-optical analysis (TOA) technique. We also developed a new melting point depression theory based on the modified perturbed hard sphere chain model to interpret phase behavior of polymer blend electrolyte systems