Effect of Cellulose Concentration of Cellulose/ [AMIM]Cl Solution on the Liquid Crystalline Spinning

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Abstract

Cellulose is extremely difficult to dissolve cellulose in water and most common organic solvents due to their stiff molecular structure, close chain packing and intermolecular hydrogen bonds. Recently, cellulose solutions using ionic liquids (ILs) as a green solvent have been known to form cholesteric liquid crystalline phase at high cellulose concentration. In this study, the phase transition and rheological behaviors of concentrated cellulose/[AMIM]Cl solution were investigated using polarized optical microscopy and rheometry. Studies were conducted to characterize the influence of cellulose concentration on the phase transition of the cellulose solution and the mechanical properties of the regenerated fibers spun from the anisotropic cellulose/[AMIM]Cl solutions.

Reference

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