

Swelling based fabrication of Cellulose nanofibrils reinforced polypropylene nanocomposites

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Cellulose nanofibrils (CNFs) are sustainable and non-toxic nanofillers for fabrication of polymer nanocomposite with high performances due to its three-dimensional anisotropy and high mechanical strength. A critical challenge in fabricating high-performance polymer-CNF nanocomposites is dispersion of CNFs in a polymer matrix. Here, we report a facile preparation process for polypropylene / CNF composite. CNFs are adsorbed on micron to nanometer-sized polypropylene particles. This method assures fine dispersion and enhances filler-loading, and provides a general way for a minimized use of solvent for the production of high-quality polymer / CNF nanocomposites.