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Abstract

Nylon 6/cellulose nanofibrils (CNFs) melt-spun nanocomposite filaments were melt spun using a capillary rheometer to explore their capacity as textile materials with potentially improved fabric comfort. The effects of CNF loading level (0-10 wt%) on the morphological structures, mechanical and physical properties of the nanocomposite filaments were evaluated. The nanocomposite filaments have much rougher surfaces and non-uniform diameters compared to neat Nylon 6 filaments. Nanoindentation test on the cross-section of the filaments revealed that there was no significant agglomeration of CNFs. As the CNF loading level was increased, the complex viscosity and storage modulus of the nanocomposite filaments were increased, whereas thermal stability was retained. Tenacity

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