

## UV Resistibility of a Carbon Nanofiber Reinforced Polymer Composite

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**Abstract :** Nowadays, a great concern is placed on the harmfulness of ultraviolet radiation (UVR) which attacks human bodies. Nanocarbon materials, such as carbon nanotubes (CNTs), carbon nanofibers (CNFs) and graphene, have been considered promising alternatives to shielding materials because of their excellent electrical conductivities, very high surface areas and low densities. In the present work, carbon nanofibers have been synthesized from solutions of Polyacrylonitrile (PAN)/ N,N-dimethylformamide (DMF) by electrospinning method. The carbon nanofibers have been stabilized by oxidation at 250 °C for 2 h in air and carbonized at 750 °C for 1 h in H<sub>2</sub>/N<sub>2</sub>. We present the fabrication and characterization of transparent and ultraviolet (UV) shielding CNF/polymer composites. The content of CNF filler has been varied from 0.2% to 0.6 % by weight. UV Spectroscopy has been performed to study the effect of composition on the transmittance of polymer composites.

**Keywords :** electrospinning, carbon nanofiber, characterization, composites, nanofiber, ultraviolet radiation

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