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Simultaneously Improved Electromagnetic Interference Shielding and Mechanical Performance of Segregated Carbon Nanotube/Polypropylene Composite *via* Solid Phase Molding

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Abstract

Conductive polymer composite with segregated structure has been well demonstrated to achieve high electromagnetic interference shielding effectiveness (EMI SE) due to the selectively distributed electrical nanofillers to establish desirable conductive networks. Nevertheless, the formation of segregated structure in low-melt-viscosity semi-crystalline polymer is still challenged and the segregated composite always suffers poor mechanical performance. Herein, elevated pressure and temperature were utilized to make a typical semi-crystalline polymer, polypropylene (PP), hold solid phase to restrict the diffusion of carbon nanotube (CNT) into its interior. Segregated