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Improved Mechanical and Electrical Properties and Thermal Stability of Post-Consumer Polyethylene Terephthalate Glycol Containing Hybrid System of Nanofillers

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Abstract : Currently, the massive use of thermoplastic materials in industrial applications causes huge amounts of polymer waste. The poly (ethylene glycol-co-1,4-cyclohexanedimethanol terephthalate) (PET-G) has been widely used in food packaging and polymer foils. In this research, the PET-G foils have been recycled and reused as a matrix to combine with different types of nanofillers such as carbon nanotubes, graphene nanoplatelets, and nanosized carbon black. The mechanical and electrical properties, as well as thermal stability and thermal conductivity of the PET-G, improved along with the addition of the aforementioned nanofillers and hybrid system of them.

Keywords : polymer hybrid nanocomposites, carbon nanofillers, recycling, physical performance
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