World Academy of Science, Engineering and Technology International Journal of Materials and Metallurgical Engineering Vol:16, No:11, 2022

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

Authors : Iman Taraghi, Sandra Paszkiewicz, Daria Pawlikowska, Anna Szymczyk, Izabela Irska, Rafal Stanik, Amelia Linares, Tiberio A. Ezquerra, Elżbieta Piesowicz

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

Conference Title: ICPNT 2022: International Conference on Polymer Nanocomposites and Technology

Conference Location : London, United Kingdom **Conference Dates :** November 18-19, 2022