

Study of poly (ethylene terephthalate) nanocomposites for biomedical application

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PET nanocomposites with the fillers and the matrix polymer blend is of interest. The advantage of both organic material and inorganic fillers composite materials used good flexibility towards weight of the material, moulding ability and enhancement in the elongation strength of the polymer material. PET is well known semicrystalline polymer used for packaging, fabrication and automotive applications. PET is used for biological materials wrapping due to its excellent chemical resistance. Its composite is flexible towards thermal stress capacity, crystallization and heat dissipation.

With the addition of fillers in the nanoparticle form such as Al₂O₃, BaTiO₃ results in unique combination for useful applications. Nanocomposites based on such nanofillers with polymer (PET) are obtained by preparation using melt extrusion process. The concentration of nanoparticles was varied in four different microscales. In the characterization of a composite TGA, SEM and IR data is discussed. Dielectric property was improved with composites using Nonconducting antioxidant particles was studied using dielectric tester LCR Meter. The polymer material structure improvement in the poly dispersion form was observed in SEM micrograph. Due to the density variation of the particle effect on viscosity of the nanocomposite was studied using TGA data. Structural morphology is examined from IR data. The material shows improvement in the thermomechanical property. The smaller size can be innovation of encapsulation for packaging material of biomedical application.

Keywords: PET, Nanocomposite, biomedical application, Packaging

Biography

S. M. Pawde currently working as Associate Professor of Physics Department of Institute of Chemical Technology, Mumbai (India), she is working for more than 25 years in the field of Polymer Physics area. She has done her Ph.D. from Institute of Chemical Technology, Mumbai, in the area of Polymer composite base piezoelectric materials. At Present, teaching rheological science to engineering student of Institute of Chemical Technology. She has published more than 10 international reputed journal papers and presented more than 20 papers in conferences.

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