Environmental Silicate Nano-Biocomposites

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Poly(Butylene Succinate) and Poly[(Butylene Succinate)-co-Adipate] Nanocomposites

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Abstract

In the recent years, biodegradable aliphatic polyesters-based composite materials have attracted substantial interest, primarily due to their sustainable production, use and end-life. This chapter discusses the preparation, characterisation, and properties of nanoclay-containing composites of biodegradable poly(butylene succinate) (PBS) and poly[(butylene succinate)-co-adipate] (PBSA). Various nanocomposite structures arising from the incorporation of layered silicate particles, both pristine and organically modified, into the neat PBS and PBSA matrices is critically reviewed. Good dispersion of the layered silicates, especially the organically modified layered silicates, tends to result in an improvement in a number of properties of the final nanocomposites: storage modulus, tensile modulus, gas barrier properties, degradability, and thermal stability, when compared with the neat polymers.