

Preparation of Nanocomposites Based on Biodegradable Polycaprolactone by Melt Mixture

Authors : Mohamed Amine Zenasni, Bahia Meroufel, André Merlin, Said Benfarhi, Stéphane Molina, Béatrice George

Abstract : The introduction of nano-fillers into polymers field lead to the creation of the nano composites. This creation is starting up a new revolution into the world of materials. Nano composites are similar to traditional composite of a polymer blend and filler with at least one nano-scopie dimension. In our project, we worked with nano composites of biodegradable polymer: polycaprolactone, combined with nano-clay (Maghnite) and with different nano-organo-clays. These nano composites have been prepared by melt mixture method. The advantage of this polymer is its degradability and bio compatibility. A study of the relationship between development, micro structure and physico chemical properties of nano composites, clays modified with 3-aminopropyltriethoxysilane (APTES) and Hexadecyltriméthyl ammonium bromide (CTAB) and untreated clays were made. Melt mixture method is most suitable methods to get a better dispersion named exfoliation.

Keywords : nanocomposite, biodegradable, polycaprolactone, maghnite, melt mixture, APTES, CTAB

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