

Abstract

Nanocomposites based on an organically modified bentonite, from Maghnia Algeria (OBT) and a copolymer of methyl methacrylate with 4-vinylpyridine (PMM4VP) synthesized in dioxan at room temperature using a neutral Ni(II) α -benzoinoxime complex as a single component initiator, were elaborated via solution intercalation method and characterized by several techniques. X-ray diffraction and transmission electron microscopy investigations indicate that mainly exfoliated and intercalated PMM4VP/OBT nanocomposites were elaborated and that the degree of exfoliation decreases with an increase of the OBT loading. Thermal analyses of these nanocomposites compared with their virgin copolymer confirmed a significant improvement of their thermal stability as evidenced by an increase of 28°C in their onset degradation temperatures. In addition, differential scanning calorimetry displayed an increase in the range of 12-18°C in their glass transition temperatures relative to their virgin copolymer