



PREPARATION AND CHARACTERIZATION OF ALUMINIUM OXIDE/ POLY(ETHYLENE-CO-BUTYL ACRYLATE) NANOCOMPOSITES

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This paper presents data on the preparation and characterization of pure or silanized Al₂O₃ nanoparticles in poly(ethylene-co-butyl acrylate) (EBA). Two types of Al₂O₃ nanoparticles, differing in specific surface area, were functionalized using either amino- or octyl-terminated silane. A higher surface coverage was obtained with the amino-terminated silane, compared to the octyl-terminated silane. Functionalized, as well as untreated, nanoparticles were then processed into EBA, containing either 13 or 28 wt. % butyl acrylate (BA), by extrusion compounding. The melting temperature and degree of crystallization of the nanocomposites were similar to those of the unfilled EBA matrixes. The dispersion of all materials was characterized by scanning electron microscopy. The best dispersion was obtained for the octyl-terminated aluminium oxide nanoparticles in EBA containing 13 wt. % BA.