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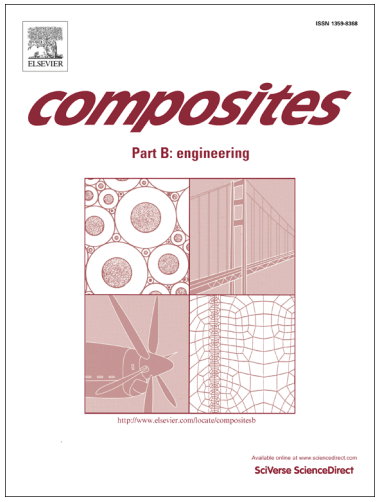

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Thermoplastic polybutadiene-based polyurethane/carbon nanofiber composites

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ABSTRACT: The series of polyurethane – carbon nanofiber (PU/CNF) elastomers was prepared and characterized. Polyurethane elastomeric matrix was made from polybutadiene-based macrodiol of MW ca. 2000, 1,6-diisocyanatohexane, and butane-1,4-diol. Carbon nanofibers (up to 2.25 wt. %) were dispersed in the mixture of monomers, i.e., before polyurethane formation. The influence of the nanofiber concentration on functional properties was studied by the series of microscopic, thermal, mechanical and electrical techniques of analysis. The best functional properties has PU/CNF composite containing 0.75 wt. % of CNF.

Key words: Carbon fibre, Polymer-matrix composites (PMCs), Mechanical properties, Thermal properties

1. Introduction

Polymer nanocomposites belong to the most studied and characterized current polymer materials due to the almost inexhaustible possibilities in acquiring of functional properties. As a consequence of the high aspect surface-to volume ratio, even very small