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Study on the Morphology and Dynamic Mechanical and Thermal Properties of HIPS/Graphene Nanocomposites

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Abstract : In this article, a series of high impact polystyrene/graphene (HIPS/Gr) nanocomposites were prepared by solution mixing method and their morphology and dynamic mechanical properties were investigated as a function of graphene content. SEM images and X-Ray diffraction data confirm that the graphene platelets are well dispersed in HIPS matrix for the nanocomposites with Gr contents up to 5.0 wt%. Mechanical properties analysis demonstrates that yielding strength and initial modulus of HIPS/Gr nanocomposites are highly improved with the increment of Gr content compared to pure HIPS.

Keywords : nanocomposite, graphene, dynamic mechanical properties, morphology
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