

Interaction of Vegetable Fillers with Polyethylene Matrix in Biocomposites

Authors : P. V. Pantyukhov, T. V. Monakhova, A. A. Popov

Abstract : The paper studies the diffusion of low molecular weight components from vegetable fillers into polyethylene matrix during the preparation of biocomposites. In order to identify the diffusible substances a model experiment used where the hexadecane acted as a model of polyethylene. It was determined that polyphenolic compounds and chlorophyll penetrate from vegetable fillers to hexadecane to the maximum extent. There was found a correlation between the amount of polyphenolic compounds diffusible from the fillers to hexadecane and thermal oxidation kinetics of real biocomposites based on polyethylene and vegetable fillers. Thus, it has been assumed the diffusion of polyphenols and chlorophyll from vegetable fillers into polyethylene matrix during the preparation of biocomposites.

Keywords : biocomposite, composite, diffusion, polyethylene, vegetable filler

Conference Title : ICCM 2015 : International Conference on Composite Materials

Conference Location : London, United Kingdom

Conference Dates : January 19-20, 2015