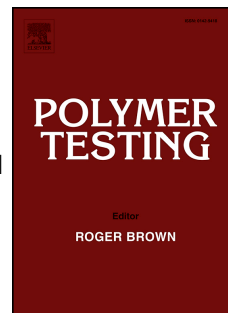


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**The effect of modified cellulose particles on morphology and properties
ethylene vinyl acetate copolymer**

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ABSTRACT

More ecofriendly packaging can be obtained with the use of cellulose as a reinforcement and barrier. For this work, cellulose particles were incorporated in EVA matrix to obtain transparent EVA composite films with cellulose particles at different concentrations focusing on the improvement of the barrier properties. The films were obtained by solution casting. Commercial microcrystalline cellulose (MCC) was modified with glacial acetic acid, reducing the particle size. These modifications were monitored by FTIR, XRD, NMR and SEM. The composites formed by EVA/MCC were characterized by XRD, thermogravimetric analysis and mechanical properties to understand the influence of these particles on the displacement of the crystalline planes of the polymer matrix. The degree of crystallinity was also altered as larger concentrations of cellulose were added to EVA. TGA results showed no significant changes in the thermal degradation temperature of the material and, from DSC, it was seen that cellulose did not behave as a nucleating agent in EVA. The storage modulus obtained from the DMA analysis was inversely proportional to the cellulose content, indicating that there was an increase in the rigidity of the material caused by the dispersion of cellulose, which acts as a material reinforcement. These data were corroborated by the increase in the proton spin-lattice relaxation time values determined by NMR relaxometry

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