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### **Effect of coupling agent on cellulose triacetate reinforced polystyrene composite**

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The increased demand for natural fiber in the development of the composites has grown rapidly due to cost effectiveness, low density, biodegradability, renewability, and abundance. In the present study, the main objective is to develop and characterize the thermo-chemical and thermo-mechanical properties of polystyrene reinforced with four level of cellulose triacetate (10, 20, 30 and 40 wt%) while using Fusabond MB-100D (3 and 5 wt%) as a coupling agent. The addition of Fusabond enhanced the interfacial adhesion demonstrated by the improvement of storage modulus and reduction in the damping peak values of the composites. The inclusion of FB not only increases the tensile strength but also improves the impact strength of cellulose triacetate reinforced polystyrene composite under high dynamic loading. Moreover, the obtained results of X-ray photo spectroscopy and fracture surface morphology indicate the evidence of interaction between the polystyrene with the cellulose triacetate.

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