

Evaluation of Mechanical Properties and Interfacial Adhesion of PLA/Lyocell Composite with Silane Coupling Agent

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Abstract: The purpose of this study was to evaluate mechanical properties of poly(lactic acid) (PLA) and lyocell composite and enhancing of interfacial adhesion of the composite by silane coupling agent. The composite was formed by carding process and hot-pressing at 180 °C for 5 min at a pressure of 100 kgf/mm². And phenyltrimethoxysilane (PTMS) was used as the coupling agent to make surface of lyocell fiber hydrophobic. The mechanical properties and effects of silane treatment were analyzed by measuring tensile strength and Izod impact strength using universal testing machine (UTM), and calculating the water absorption of the composite. From these tests, we concluded that the treatment with silane coupling agent enhanced interfacial adhesion of PLA and lyocell fiber.

Key words: *Poly(lactic acid), Lyocell, Silane coupling agent*