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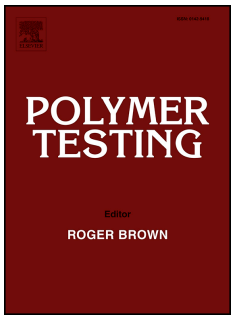

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ACCEPTED MANUSCRIPT

Flax and hemp nonwoven composites: the contribution of interfacial bonding to improving tensile properties

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Abstract:

The purpose of this article is to understand the influence of typical composite parameters (interfacial bond strength, surface-area and fibre mechanical properties) on the tensile properties of nonwoven composite materials. The materials investigated were flax, hemp and Poly-(propylene) (PP) and Maleic Anhydride-grafted PP (MAPP), which provide different configurations in terms of fibre mechanical properties, bundle individualisation and fibre/matrix interface. Whereas hemp fibres exhibit poorer tensile properties and lower bundle individualisation than flax fibres, their higher lignin content evaluated by FT-IR analysis improves the interfacial shear strength (IFSS) with PP and MAPP. However, the tight interface developed with hemp fibres has only a weak effect

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