

A Pull-Out Fiber/Matrix Interface Characterization of Vegetal Fibers Reinforced Thermoplastic Polymer Composites, the Influence of the Processing Temperature

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Abstract : This work presents an improved single fiber pull-out test for fiber/matrix interface characterization. This test has been used to study the Inter-Facial Shear Strength 'IFSS' of hemp fibers reinforced polypropylene (PP). For this aim, the fiber diameter has been carefully measured using a tomography inspired method. The fiber section contour can then be approximated by a circle or a polygon. The results show that the IFSS is overestimated if the circular approximation is used. The Influence of the molding temperature on the IFSS has also been studied. We find a molding temperature of 183°C leads to better interface properties. Above or below this temperature the interface strength is reduced.

Keywords : composite, hemp, interface, pull-out, processing, polypropylene, temperature

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