NEW GREEN BULK COMPOSITES WITH HIGH NATURAL FIBRE CONTENT

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ABSTRACT

In previous works, [1-3] we showed that it was possible to prepare composite films made of 100% natural and renewable resources. One of the limiting mechanical performances of these composite films was the difficulty to be able to perform a standard extrusion process a content of fibre greater than 20%. In this work we show that it is possible to obtain green bulk composites with fiber contents greater than 50%. Samples (prepared from raw non-edible wheat flour [4] and bamboo fibers) were processed following a protocol which associates traditional extrusion and high pressure molding and then characterized by thermogravimetric analysis (TGA), density and hardness measurements, impact test and three points bending tests. These new results show that these green composites could be used for industrial purposes. However, further characterizations are needed (thermal stability, flammability, ageing and biodegradability) to assess their life-cycle and find the applications that fit the best to their life expectancy.

References:

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