



### INFLUENCE OF A THERMAL TREATMENT ON MECHANICAL PROPERTIES OF FLAX FIBRES

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The green materials are mainly developed in the aim to reduce the impact of human activities on the environment. In this context, a growing interest appears for composites reinforced by natural fibres. Among natural fibres, flax fibres can be considered as the natural fibres with the best mechanical properties as their specific mechanical properties are very close to those of glass fibres. Thus flax fibres are quite adapted for the conception of competitive biocomposites. In this work, it is planned to associate by a thermocompression process a powder polymer with a flax fabric. For rheological considerations, this composite will be achieved at temperatures around 200°C. Thus, it is important to check if flax fibres can keep their initial mechanical properties after this stage of process. In order to test the heat resistance of the flax fibres, they are maintained at a given temperature during 5 or 30 minutes. The range of temperatures studied goes from 60 to 300°C in steps of 20°C. Then, a tensile test is made on the fibres at room temperature. The classical mechanical properties (Young's modulus, strength and ultimate strain) are measured on 30 fibres for each temperature. This work helps to define a maximum operating temperature during the processing of a flax fibre composite.