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Tribo-Mechanical and Chemical Characterization of Natural Fiber Based Composite Materials

Roberto D'Amato

ETSIDI- Universidad Politécnica de Madrid, Ronda de Valencia,3 – 28012 Madrid (Spain)- r.damato@upm.es

Abstract

Natural fiber reinforced composites have emerged as a potential environmentally friendly and cost-effective alternative to synthetic fiber reinforced composites. The worldwide natural fiber reinforced composites industry sector reached estimated to grow 10% worldwide per 5 years [1]. In the last ten years, automotive, construction and packaging industries have devoted considerable efforts to the progress of new composite materials reinforced with natural fibers.

The possibility of being able to use these fibers as a reinforcement for composite materials arises from the growing availability and ease of production of the same. All these reasons have led several researchers to study the feasibility, in terms of tribological, mechanical and chemical characterization of the application of these fibers as a reinforcement in composite materials, and the extent to which they meet the specific requirements in the various industrial applications [2].

This persuaded to introduce new techniques both for the treatment of different natural fibers and for their tribo-mechanical characterization [3,4].

For this reason, the purpose of this study is to introduce and explain the different techniques for the tribo-mechanical characterization of new composite materials reinforced with vegetable fibers. The study techniques used during these years for the manufacture of new composite materials will be introduced. In particular, the results of the tribo-tests carried out and of the mercury porosimetry, for the characterization of the pores of the natural fibers used, will analyze.

References

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