

Accepted Manuscript

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PII: S1359-8368(16)31366-X

DOI: [10.1016/j.compositesb.2016.10.073](https://doi.org/10.1016/j.compositesb.2016.10.073)

Reference: JCOMB 4672

To appear in: *Composites Part B*

Received Date: 20 July 2016

Revised Date: 4 October 2016

Accepted Date: 27 October 2016

Please cite this article as: Espinach FX, Granda LA, Tarres Q, Duran J, Fullana-i-Palmer P, Mutjé P, Mechanical and micromechanical tensile strength of eucalyptus bleached fibers reinforced polyoxymethylene composites, *Composites Part B* (2016), doi: 10.1016/j.compositesb.2016.10.073.

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Mechanical and micromechanical tensile strength of Eucalyptus bleached fibers reinforced polyoxymethylene composites

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Abstract

Composite materials search a combination of the properties of the phases that compose such materials. In the case of natural fiber composites, as an alternative to mineral fiber reinforced composites, the matrices are limited to those with processing temperatures under 200°C. Actually, the most commonly reinforced polyolefin are polypropylene and polyethylene, but the literature shows that the tensile properties of such composites had almost reached their ultimate values. Then, the use of matrices with higher tensile strengths opens the field to develop stronger composite materials. Polyoxymethylene has been used with success with mineral reinforcements or man-made cellulose, but has showed poor results with natural fiber based reinforcements. In this work, natural fiber polyoxymethylene composites have been prepared and tested, showing tensile strengths higher to that of natural fiber reinforced polypropylene, and comparable to uncoupled fiberglass polypropylene composites. The interphase of the composites, as a main

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