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Evaluation of Polyurethane-Bonded Particleboard Manufactured with Eucalyptus Sp. and Bi-Oriented Polypropylene Wastes

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Abstract : The growth of the furniture manufacturing industry is one of the fundamental factors contributing to the growth of the particleboard industry. The use of recycled products into particleboards can contribute to the forest conservation, in addition to achieve a high quality sustainable product with low-cost production. This work investigates the effect of bi-oriented polypropylene (BOPP) waste particles and sealing product on the physical and mechanical properties of Eucalyptus sp. particleboards fabricated with a castor oil based polyurethane resin. Among the factors, only the seal coating was statistically significant. The wood panels of Treatment 2 were classified as H1, based on the internal bond strength and elastic modulus results data required by ANSI A208.1:1999. The bending strength data did not reach the minimum values recommended by NBR 14810:2006 and ANSI A208.1:1999. The thickness swelling data for 2h immersed in water achieved the standard requirement levels. High-density panels were achieved revealing their potential use in variety of particleboard applications.

Keywords : BOPP, mechanical properties, particleboards, physical properties
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