Mechanical properties of particleboard made from leather shavings and waste papers

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Abstract

The demand for particle board has been increasing over the years. Currently, most particleboards are produced from wood which may not be sustainable in the long term. Therefore, there is need of exploring alternative materials such as making particleboards from waste materials. This study investigated the mechanical properties of particleboard consisting of waste leather shavings and waste papers blended together by unsaturated polyester. A single-layered particleboards were manufactured using compression method. Different resin content (60%, 70%, 80%, and 90%) and leather/paper ratios (1:1, 1:3, 3:1) were used to determine the effects on the mechanical properties (internal bond, bending strength, compression and impact strength) of fabricated boards. From the results of this study, it was found that leather shavings and waste papers can be used as alternative raw materials for particleboard production and that mechanical properties were depended on the resin content and the blend ratio. Also, mechanical properties were reduced with resin content increment, except for impact strength and improved by high paper blend ratio

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