

Effect Of Alkali Treatment On The Mechanical And Morphological Properties Of Polypropylene/Wood Flour Composite

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Abstract. In recent years, due to growing environmental concerns and the depletion and price of oil, there has been a growing renewal of interest in fibers derived from natural sustainable sources, as a result of their potential use in high performance composite materials. Many types of natural fiber have been identified as having appropriate mechanical properties for structural applications. However, natural fibers are hydrophilic in nature and exhibit poor interfacial adhesion between fiber and matrix. Modification of the fiber surface by chemical methods, such as alkalisation, benzylation and acetylation, has been used by researchers to improve this shortcoming. In this work we have study the effect of the wood flour's addition and their mercerisation treatment (5%w NaOH) on the properties of polypropylene/wood flour (PP/WF) composite. The results of mechanical properties show a decrease in impact resistance of the composite with the increase of wood floor content. However, a certain improvement of this mechanical property after the modification was observed. In addition, according to the results of microscopy with atomic force AFM, the roughness of PP/WF composites decreases with the alkaline treatment of the floor's surface.

Keywords: Composite, Surface Treatment, Mechanical Properties, Wood Flour.