

THE EFFECT OF COMPATIBILIZER ON THE PROPERTIES OF IMPACT POLYPROPYLENE, PINUS RADIATA, WOOD POLYMER COMPOSITES

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ABSTRACT

The unique properties of impact polypropylene copolymers (Impact PPs), has made it one of the most widely used, commercial polymers of today. Wood polymer composites (WPCs) are used in the automotive and construction industry for a wide variety of applications and have gained considerable interest; these materials have low processing costs, are easy to produce¹ and the use of natural wood fibres provides both improved strength to the polymer matrix and addresses some of the environmental concerns associated with polymer products, since polypropylene and polyethylene wood composites are recyclable². The polymer matrix is essentially hydrophobic, while the wood fibres are hydrophilic in nature, so they don't readily interact or blend. The research focus has been on improving the compatibility between the two, with most studies focussing on polypropylene and polyethylene in WPCs. Not much research has been done regarding Impact PP-wood fibre composites. This study focuses on the relationship between the complex chemical composition distribution in Impact PP and the chemical composition of suitable compatibilizers when used in the preparation of WPCs. Two compatibilizers, polypropylene graft maleic anhydride³ (PP-g-MA) and ethylene vinyl alcohol⁴ (EVOH) were evaluated, in conjunction with two Impact PPs with differing ethylene content, and the effect of their use on the properties of the WPC materials are reported.

References:

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