EFFECT OF PRETREATMENT ON IMPACT STRENGTH OF POLYPROPYLENE REINFORCED PINEAPPLE FIBERS COMPOSITES

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New environmental legislation as well as consumer pressure has forced manufacturing industries to search for new materials. Because of this, in the years the use of natural fibers as reinforcement in thermoplastic matrix has generated much interest, due to their low cost, low density, biodegradability, renewability and abundance. These fibers are providing automobile part reinforcement due to drivers as reductions in weight, cost, CO_2 and the added benefit that these fibers sources are ecofriendly. However some drawbacks, such as the incompatibility between fibers and polymer matrices, the tendency to form aggregates during processing and the poor resistance to moisture, reduce the use of natural fibers as reinforcements in polymers. Incompatibility of components is responsible for poor thermal and mechanical properties. Because of this, several treatments are being used to improve fibers/matrix compatibility, such as bleaching, acetylation and alkali treatment. In this work, polypropylene reinforced with pineapple fibers and glass fibers composites was evaluated on impact strength. Pineapple fibers were modified with sodium hydroxide solution 1 % m/v at 25 ^{o}C. Scanning electron microscopy (SEM) and Infrared spectroscopy (FTIR) techniques were used to characterize the effect of the chemical modification fibers. Furthermore, pineapple (2.5 wt/wt%) and glass (2.5 wt/wt%) fibers were mixed with the polymeric matrice (PP) in a thermokinetic mixer, with speed rate maintained at 5250 rpm, in which fibers were responsible for 5 wt% in the composition. After the mixture, composites were dried, ground in mill and placed in an injector camera according to ASTM D-6110 specification. Composite fractures surface after tests were analyzed by scanning electron microscopy technique. Results showed that, the addition fibers in the composites improved the impact strength when compared to the pure polymer. This fact occurred due to chemical modification fibers that improved bonding interfacial between fibers and matrix.

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