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Study of Effective Parameters on Mechanical Properties of Toughened PP Compounds in Presence of Biofillers and Blowing Agents

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Abstract : Wood-plastic composites foam is one of the most used products were the industry today. In this study, composite foam polypropylene in the presence of different biofilers such as Spruce wood, wheat and rice husk as well as 3 different types toughening agents such as polyolefin elastomer, styrene butadiene styrene and styrene-ethylene butadiene styrene, and two types of cause blowing agents azodicarbonamide and sodium bicarbonate was prepared. For improving dispersion of biofilers, in the mixing process we used polypropylene coupling agent grafted with maleic anhydride. Due to the large number of variables, the statistical analysis of response surface to analyze the results of the impact test, tensile modulus and tensile strength and modeling were used. Co-rotating twine extruder was made composite melt mixing method and then to perform mechanical tests using injection molding, respectively.Images from electron microscopy showed cell sandwich structure in composite amply demonstrates.

Keywords : polypropylene, wood plastic composite foam, response surface analysis, morphology, mechanical properties
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