

Influence of glass fiber content on tensile properties of polyamide-polypropylene based polymer blend composites

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ABSTRACT

In recent years, the rapid development of polymer composites is replacing the use of metals and alloys in high performance engineering applications, particularly in automotive and aerospace industries. In this research study, influence of glass fiber (GF) content on tensile properties of polyamide-polypropylene (PA-PP) based blend composites was investigated. Considering, 0%, 3%, 6%, 9% and 12% GF content, PA6-PP-GF composites of five compositions were prepared through injection molding method. In the experiments, tensile tests were performed under strain rate of 5 mm/min for all types of composite specimens. Test results show that tensile properties of composites of five different compositions are influenced by glass fiber content. In general, tensile strength of composite increases gradually with increase in fiber content. On the other hand, tensile modulus increases significantly with increase in fiber content. Experimental data also revealed that yield strength, strength at fracture and strain at break of the composites are influenced by the content of glass fiber. Test data also show that tensile strain at maximum load almost corresponds to the tensile strain at break for all composite specimens.

KEYWORDS

Tensile properties; Polyamide-polypropylene; Glass fiber; Composites; Injection molding

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