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MECHANICAL AND TRIBOLOGICAL PROPERTIES OF POLYAMIDE–6/GLASS FIBERS/MICA TERNARY COMPOSITES

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Filler materials are added to polymers to produce composite materials with improved properties at lower production cost. In this experimental study, polyamide-6 composites were developed using mica and glass fiber as combining filler. Uniaxial tensile, flexural and Izod impact tests were carried out. Tensile strength, tensile modulus, elongation at break, impact energy, flexural strength and flexural modulus were obtained and compared. The results indicated that the tensile strength and tensile modulus of the polyamide-6 composite increases with the increase in filler or reinforcement addition. The impact strength and maximum elongation decreases with the increase in filler and reinforcemet ratio. For the composites having 30 wt.% of the total fillers, the highest tensile strength was observed at the filler containing 30wt.% of mica. In addition, partial replacement of glass fiber with mica resulted in reduced coefficient of friction and wearing rate of the materials.