

Effect of compatibilizer on mechanical properties and water absorption behaviour of coconut fiber filled polypropylene composite

Abstract

Compatibilizer is used to improve mechanical properties and water absorption behaviour of polypropylene/coconut fiber (PP/CF) composites by promoting strong adhesion between CF filler and PP Matrix. Maleic Anhydride Grafted Polypropylene (MAPP) treated and untreated composites were prepared in formulation of 10 wt%, 20 wt%, 30 wt%, and 40 wt%. The mechanical tensile test indicates that composite with 10 wt% has the optimum value of tensile strength, and the MAPP treated composite shows the tensile strength was increased. The modulus of elasticity was increased while the elongation at break was decreased by increasing of filler loading. Meanwhile, the swelling test discerned that the increase of filler loading increased the water absorption of composites and the presence of MAPP reduced the equilibrium water absorption percentage.

Keywords — Coconut fiber, composite, maleic anhydride grafted polypropylene, Polypropylene (PP)