

Comparison of mechanical properties of polypropylene/acrylonitrile butadiene rubber/rice husk powder composites modified with silane and acetic anhydride compound

Abstract

Polypropylene(PP)/Acrylonitrile butadiene rubber(NBRr)/rice husk powder(RHP) composites was fabricated with silane and acetic anhydride treatment agent. The in- situ formed RHP filled PP/NBRr composites were prepared by melt mixing technique using Haake internal mixer at 180 °C. The tensile properties of the both treatment methods were investigated with Instron mechanical analysis. The results indicated that acetic anhydride treatment was found to exhibit better mechanical properties for RHP filled PP/NBRr composites. Good compatibility and stronger interaction between anhydride moieties with PP/NBRr was resulted.

Keywords — Acetic anhydride, acrylonitrile butadiene rubber(NBRr), mechanical properties, polypropylene(PP), rice husk powder(RHP), silane