

Characterization of Oil Palm Empty Fruit Bunch (OPEFB) Fiber Reinforced PVC/ENR Blend

ABSTRACT

Previous studies on the blends of poly(vinyl chloride), PVC and epoxidized natural rubber, ENR revealed that the two polymers are miscible at all compositional ranges. In this work, the effect of oil palm empty fruit bunch(OPEFB) fiber and poly(methyl acrylate) grafted OPEFB on the thermal and structural properties of PVC/ENR blends were investigated. The composites were prepared by mixing the fiber and the PVC/ENR blend using HAAKE Rheomixer at the rotor speed of 50 rpm, mixing temperature 150°C and mixing period of 20 min. Studies on dynamic mechanical analysis (DMA) indicate that the T_g of the PVC/ENR composites shifts to higher temperature with the addition of the OPEFB fiber. Thermogravimetric analysis (TGA) does not show any significant changes in the thermal stability of the composites. However, Fourier Transform Infra Red (FTIR) spectrometry did not reveal the exact nature of interaction involved in the composites.

Keyword: PVC/ENR blend composites, grafting, OPEFB fiber, poly(methylacrylate), thermal properties