Mechanical Properties and Morphology of Oil Palm Empty Fruit Bunch-Polypropylene Composites: Effect of Adding ENGAGE TM 7467.

ABSTRACT

Composites of polypropylene and oil palm empty fruit bunch (OPEFB) were prepared by melt blending using ENGAGE™ 7467 (polyolefin elastomer) as an impact modifier. ENGAGE™ 7467 is a polyolefin elastomer. The mechanical properties and morphology of composites have been studied. Tensile tests showed that addition of ENGAGE™ 7467 improved the elasticity of the composite, thus reducing the stiffness of the composites but no significant changes on tensile strength. The impact strength was also improved with the addition of ENGAGE™ 7467, but no significant effect on flexural test was observed. This result indicates that the ENGAGE™ 7467 forms a flexible interphase around the OPEFB particles, giving the composites better impact strength for both notched and unnotched samples without degrading the fiber and matrix interaction. The ENGAGE™ 7467 composites characterized using Fourier transmission infrared spectroscopy showed that there is no shifting of peaks, indicating that the addition of ENGAGE™ 7467 does not affect the interaction between matrix and filler.

Keyword: Biocomposites; Mechanical properties; Impact modifier; Morphology.