ABSTRACT:

The influence of oil palm empty fruit bunch (OPEFB) fiber and oil palm empty fruit bunches grafted with poly(methyl methacrylate) (OPEFB-g-PMMA) on the tensile properties of poly(vinyl chloride) (PVC) was investigated. The OPEFB-g-PMMA fiber was first prepared with the optimum conditions for the grafting reaction, which were determined in our previous study. To produce composites, the PVC resin, OPEFB-g-PMMA fiber or ungrafted OPEFB fiber, and other additives were first dry-blended with a laboratory blender before being milled into sheets on a two-roll mill. Test specimens were then hot-pressed, and then the tensile properties were determined. A comparison with the composite filled with the ungrafted OPEFB fiber showed that the tensile strength and elongation at break increased, whereas Young's modulus decreased, with the incorporation of 20 phr OPEFB-g-PMMA fiber into the PVC matrix. The trend of the tensile properties obtained in this study was supported by functional group analysis, glasstransition temperature measurements, and surface morphological analysis.