

Effect of filler loading and coupling agent on tensile and impact properties of polypropylene with oil palm ash composites

ABSTRACT

The purpose of this research is to investigate the effect of filler loading and using coupling agent on tensile and impact properties of thermoplastic polypropylene composite with oil palm ash (OPA) powder. This research is intended to discover the dependant various effect of loading percentage weight of filler OPA and coupling agent maleated anhydride polypropylene (MAPP) on tensile and impact properties of thermoplastic composite. This materials is weighed as OPA loading percentage 0%, 1%, 3%, 5% and 7% while the loading percentage of coupling agent MAPP 0%, 3%, 6%, 10% and 12% affect the mechanical properties of thermoplastic composite. Mixture process has been carried out using double-screwed extruder machine at constant speed and temperature, while board manufacturing of PP/OPA composite are made used hot press and cold press machine. Loading OPA and MAPP effect on polypropylene composite were tested through mechanical testing, specifically for tensile and impact properties. All testing methods are predicated from ASTM's standard (American Society for Testing and Material). Results showed lower OPA content and highest MAPP in ratio giving the highest tensile and impact strength of the composite.

Keyword: Oil palm ash; Particulate filler; Composites