Once Ignore Now Hero: Novelty Polymer from Palm Oil Waste

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Oil Palm Shells(OPS) are produced in large quantity by the oil mills. for the instanceit was estimate that over 4 million tonnes of ops solid waste is produced annually and only a fraction is used for fuel used as solid fuels for steam boilers at palm mill and other application such as a palliative for un tarred roads and for production activated carbon. OPS have potential as reinforcement in thermoplastic composite. The objective our research is to characterize OPS and to investigate the effect on the mechanical properties of polypropylene (PP) reinforce with Oil Palm Shell (OPS). We dry air the OPS to remove moisture content. Next step is grind the OPS into small particle. Both PP and OPS were compounded using internal mixer machine. Composition of OPS and PP were weighted accordingly into 10%, 20 and 30% . the compounding produces we crushing into smaller size. The next step is compounding compression moulding via hot press machine to form a sheet. After forming the composite sheet, samples were prepared for tensile test (ASTM D638) and impact test (ASTM D256). Based on the result, in the bending test produces Modulus of Rupture(MOR) and Modulus of elasticity is decrease when increasing an amount of Oil Palm Shell. But when we add a maleic anhydride polypropylene(MAPP) about 3%, it produces a better result than 100%PP. This trend also shown in tensile test. when increasing a OPS, Elongation of break and Tensile Strength also decrease in small value but when we added MAPP, it produces a better result. We conclude this present study showed that a useful composite with good properties could be successfully developed using treated saw dust OPS as a new alternative in production wood plastic composite (WPC) as filler for the PP matrix .

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