Abstract

In this research, the effect of nanoparticles clay and compatibility of oxide polypropylene were studied. Therefor the polypropylene was melted for two hours in contiguity of atmospheric oxygen and Lauryl -1alcohol it was oxidized. Then oxidized polypropylene (compatibility) in 3% optimal with nanoparticles clay in three level (0%, 2%, 4%) with wheat straw (normal phase) and for polymer phase municipal wastage mixed with extruder in certain proportion and with plates were made in 15×15 dimension and thickness of two *mm* by using hot pressure. Then the mechanical and physical properties of the boards such as tensile modulus, flexural strength, tensile strength, renitence strength, water absorption and thickness extension according to ASTM standards were studied. The result shows that increasing nanoparticles clay from 0% to 4% and by using oxidized polypropylene as the compatibilizer; it increased the mechanical and physical properties of the composite. Likewise increase of nanoparticles clay reduced the impact resistance, water absorption and thickness extension in the Nano-composite. Study of distribution of the nanoparticles clay and morphology of the composite by using X-ray diffraction and the transmition electron microscopy shows that the distribution of nanoparticles clay is a type of interlayer structure.

Keywords:

Wood-plastic Composite, Nanoparticles, Compatibilizer, Phragmites Plant, Polypropylene