

# Effect of OMMTs on the Mechanical, Thermal and Morphological Properties of Polypropylene / Nylon 6 Nanocomposite

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**Abstract**—*The present work is focused on Mechanical, thermal and Morphological Properties of Polypropylene/Nylon 6 Nanocomposites by incorporation of OMMT, varied from (0, 1, 3, 5 wt %). The Nanocomposite based on immiscible polymer blend system of PP/Nylon 6 has been fabricated by melt mixing process using twin screw extruder followed by injection moulding machine. The Mechanical properties of prepared Nanocomposite have been determined by using Universal Testing Machine (UTM), shore D and Izod Impact Tester. The Mechanical properties results reveals that there is significant improvement in tensile strength, hardness and toughness which might be attributed to the good interfacial adhesion between OMMT and polymer matrix. The Thermal property has been characterized by TGA. TGA results shows that there is remarkable improvement in thermal stability upon loading of OMMT in blend system. Structure-property relationship has been established using Fourier Transform Infrared Spectroscopy (FTIR). Morphological properties have been determined by SEM which shows that there is uniform dispersion of OMMT over the entire polymer matrix.*

**Keyword:** *OMMT, Blend, Nanocomposites, UTM, TGA, FTIR.*