

## **Polypropylene/Red Mud Polymer Composites: Effects of Powder Size on Mechanical and Thermal Properties**

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**Abstract :** Polymer/clay composites have received great attention in the past three decades owing to their light weight coupled with significantly better mechanical and barrier properties than the corresponding neat polymer resins. An investigation was carried out on the effects of red mud powder size and ratio on the mechanical and thermal properties of polypropylene /red mud polymer composites. Red mud, in four different concentrations (0, 10, 20 and 30 wt %) and three different powder size (180, 63 and 38 micron) were added to PP to produce composites. The mechanical properties, including the elasticity modulus, tensile & yield strength, % elongation, hardness, Izod impact strength and the thermal properties including the melt flow index, heat deflection temperature and vicat softening point of the composites were investigated. The structures of the composites were investigated by scanning electron microscopy and compared to mechanical and thermal properties as a function of red mud powder content and size.

**Keywords :** polypropylene, powder, red mud, mechanical properties

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