



EFFECT OF NA-MONTMORILLONITE SLURRY ON MECHANICAL AND THERMAL PROPERTIES OF UNSATURATED POLYESTER RESIN

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In this work, nanocomposites were obtained by mixing an unsaturated polyester resin with a sodium montmorillonite slurry. Procedure by steps was clay slurry and polyester resin were stirring and subsequently monomer, initiator and catalyst were added to induce the cross-linking reaction. As comparative with pristine resin, it was found that with 1 phr clay slurry content flexural modulus has an increment of 57 % and with 5 phr increases of 120 %, but a decrement of 50 % in strain at break on flexural test was determined. About tensile properties with 1 phr clay slurry increases of 17 % in modulus and with 5phr of 34 %. Furthermore, thermal stability was better and increments were obtained in gelling temperature until of 45°C, as compared to the polyester resin without clay, exhibiting the effect of the clay. The montmorillonite silicate layers were found to be intercalated at nanometer level in the nanocomposites by electron transmission microscopy technique and fracture morphology was studied by scanning electron microscopy, revealing the effect of water and clay.