EFFECT OF SURFACE TREATMENT ON MORPHOLOGY AND MECHANICAL PROPERTIES OF POLYPROPYLENE REINFORCED KAOLIN

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Abstract

Sodium Hexametaphosphate has been successfully applied to enhance the dispersion of kaolin in a liquid state while quaternary ammonium compounds improved the mechanical properties of montmorillonite /polymer composite. Therefore, in this research, polypropylene was treated with SHMP and cetylpyridinium chloride (CPC), and its effects on mechanical properties and morphology were evaluated. The mechanical properties such as elongation at break, impact strength and tensile strength showed significant improvements after the treatment. The above observations are attributed to the "plastisizer" and "bridging" effects. The "bridging" effects between the CPC and SHMP/PP are introduced by the hydrophobic and hydrophilic segments of the surfactant. The observation from SEM showed that a formation of fibrous and soft interface around kaolin particle with addition of CPC. However, a decrease of modulus and tensile strength is observed in comparision to Kaolin/PP composite.