Enhancement of tensile strength and flexibility of Polycaprolactone/Tapioca starch blends by Octadecylamine modified clay.

Abstract

Polycaprolactone/tapioca starch/octadecylamine modified clay (OMMT) nanocomposites were successfully prepared by melt blending. X-ray diffraction and transmission electron microscopy (TEM) of the products showed that they are nanocomposites of a mixture intercalated and exfoliated types. In addition, the TEM also revealed that the OMMTlayers are homogeneously distributed in the polymer matrix. The presence of 1 php of OMMT improved the compatibility of the polymers in the blends which consequently increased the tensile strength of the blend of more than 60% and elongation at break of more than 1,000%.

Keyword: Polycaprolactone; Tapioca starch; Modified clay.