

## **PALM OIL POLYOL/ POLYURETHANE SHAPE MEMORY NANOCOMPOSITES**

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### **ABSTRACT**

A series of nanoclay reinforced thermoplastic polyurethane with shape memory effect have been successfully synthesized via two-step polymerization process. The polyurethanes are composed of polycaprolactonediol, palm oil polyol, 4,4'-diphenylmethane diisocyanate and 1,4-butanediol. Nanoclay was added in order to improve the overall properties of the pristine polyurethane. Besides, the addition of palm oil polyol is believed to enhance the crosslinking process and further improve the properties. X-ray diffraction result showed that there is a decrease in crystallinity of polyurethane nanocomposites as clay is added. Good shape memory and mechanical properties of resulting polyurethane nanocomposites were obtained in this work.

*Keywords: clay; palm oil polyol; polyurethane; shape fixity; shape recovery*

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