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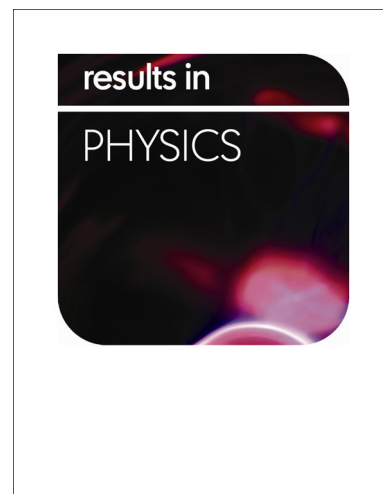
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**EFFECT OF PHOSPHORIC ACID ON THE MORPHOLOGY  
AND TENSILE PROPERTIES OF HALLOYSITE-  
POLYURETHANE COMPOSITES**

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**Abstract**

The high aspect ratio of nanoscale reinforcements enhances the tensile properties of pure polymer matrix. The composites were first made by adding halloysite nanotubes (HNTs) at low weight percentages of 1, 2, and 3 wt.% to thermoplastic polyurethane (TPU). Then, HNTs were phosphoric acid-treated before adding to TPU at same weight percentage to create phosphoric acid HNTs-TPU composites. The samples were fabricated using injection moulding. The HNTs-TPU composites were characterized according to the tensile properties including tensile strength, tensile strain and Young's modulus. The loading has shown its highest tensile values at 2 wt.% HNTs loading and same findings are shown with the samples that treated with phosphoric acid. The tensile strength increased to reach 24.65 MPa compare with the 17.7 MPa of the neat TPU showing about 26% improvement. For the phosphoric acid-treated composites, the improvement has reached 35% compared to the neat sample.

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