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**Polyurethane/Organoclay Nanocomposite Materials via *in-situ*
Polymerization**

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Polyurethane/organoclay nanocomposites have been synthesized via *in-situ* polymerization. The organoclay firstly prepared by intercalation of lyramine or aminolauric acid into montmorillonite-clay (MMT) through ion exchange process. The syntheses of polyurethane/organoclay hybrid films containing different ratio of clay were carried out by swelling the organoclay, into diol and diamine or into different kinds of diols, followed by addition of diisocyanate. The nanocomposites with dispersed structure of MMT was obtained as evidence by scanning electron microscope and x-ray diffraction. Xray analysis showed that the d-spacing increased to more than 44Å since there is no peaks corresponding to d-spacing in organoclay with all the ratios (1, 5, 10, 20%). Also, SEM results confirm the dispersion of nanometer silicate layers in the polyurethane matrix. This indicated that the clay was completely exfoliated and homogeneous dispersion in the polyurethane matrix. Also, it was found that the presence of organoclay leads to improvement the mechanical properties. Since, the tensile strength increased with increasing the organoclay contents to 20% by the ratio 194% in compared to the 1H: with 0% organoclay. Also, the elongation is a decreases with increasing the organoclay contents. The results shown the tensile strength of PU/SMA/ALA-MMT nanocomposites is high by 6-7 times than the corresponding to PU/Tvr-MMT.