



P-3-1068

**PREDICTION OF ORGANOCCLAY DISTRIBUTION IN PA6/EB-G-MAH BLENDS: THE EFFECT OF DIFFERENT TYPES OF SURFACTANT**

S. Gomari\*, I. Ghasemi, M. Karrabi, H. Azizi

*Iran Polymer and Petrochemical Institute, P.O.Box: 14965/115, Tehran, Iran.*

\*Corresponding author: [s.gomari@jppi.ac.ir](mailto:s.gomari@jppi.ac.ir)

Polymeric nanocomposite blends containing soft elastomer and rigid filler have attracted much attention in recent years, due to achieve an optimum balance of impact strength and stiffness. The ultimate properties of the blend are affected by distribution of filler between two phases. In this study the blends of Polyamide 6 and Maleic anhydride grafted Ethylene-octene copolymer (EOR-g-MAH) with several types of organo modified Montmorillonite (O-MMT) were prepared using melt mixing technique. Different blend compositions and clay contents were selected to examine the effect of these parameters. The types of O-MMT were cloisite 15A, cloisite 20A and cloisite 30B which have different polarities in order to investigate various levels of interactions between clay and polymer matrix. The highest and the lowest polarities are related to cloisite 30B and cloisite 15A, respectively. Distribution of nanoclays was evaluated using wettability parameter which was obtained from surface tension measurements. Thermal degradation of surfactant and reduction in surface tension of components with temperature has been considered in calculation of wettability parameter. According to the Young's equation, by calculation of the wetting parameter, one can predict the location of nanoparticles in each one of the phases or interphase. The morphology of the nanoclay was studied by X-ray diffraction and transmission electron microscopy (TEM). In addition, the rheological and dynamic-mechanical experiments were applied to confirm the location of nanoclays anticipated via wettability parameter. The results revealed that all types of the organoclays were located in PA 6 phase which means the strong interaction between nanoclay and PA 6 is dominated.