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Preparation of Rubber Toughened Nylons with EPDM-g-M and SEBS-g-M and Investgation of Their Properties

A.S.A. Ramazani (a), H. Bordbar (a), A.-A. Yousefi (b)
(a) Department of Chemical and Petroleum Engineering, Sharif University of Technology, Tehran, Iran
(b) Iran Polymer Institue, P.O. Box 14965/159, Tehran, I.R. Iran

Rubber toughened nylon 6 and 6,6 with EPDM grafted maleic anhydride and SEBS-g-M are prepared and steady rheological behavior of rubbers and nylons and mechanical properties of nylons and rubber toughened nylon samples have been investigated. The EPDM maleic grafting preparation was done in the framework of this study where SEBS grafted maleic was prepared from a commercial source. Our results showed ultra toughening results for SEBES-g-M samples where EPDM toughed samples in same conditions of preparation and blending did not show significant toughening results. Impact and tensile test results for a toughened sample with 20% of SEBS-g-M rubber showed an increase about 1600% in impact and 240% in elongation at break of nylon samples where these test results only showed reduction of less than 30% for Young Modulus of samples. Rheological investigations showed a very near viscosity for SEBS-g-M and nylon samples where viscosity of EPDM rubber and nylons were completely different at blending conditions. Morphological studies by SEM photos revealed a co-continuous or nano-scale-dispersing phase of SEBS-g-M in Nylons phase where for EPDM toughed samples showed an average of some micrometers for dispersed phase.