

Abstract

The degradation of uncompatibilized and compatibilized PP/PA-6 (70/30 wt %) with PP-g-MA under accelerated UV light was investigated using Fourier Transform Infrared Spectroscopy (FTIR) spectroscopy, melt flow index (MFI) tester, tensile test, differential scanning calorimetry (DSC), thermogravimetric analysis (TGA) and scanning electron microscopy (SEM). FTIR analysis of the structure of the compatibilized and uncompatibilized blends after exposure to UV light showed the formation of photoproducts corresponding to both components. The MFI and mechanical results obtained revealed that photooxidation started primarily in PA-6 rather than PP. In addition, the uncompatibilized blends exhibited a higher degradation rate compared to neat polymers for long exposure time, and the addition of PP-g-MA increased slightly their ageing rate in accordance with TGA data. Further, DSC analysis showed an increase in the crystallinity index and a decrease in the melting temperature of PP and PA-6 after UV exposure either as neat polymers or as blend components. SEM micrographs of the cryo-fractured surfaces of the samples illustrated the formation of cracks and fractures after UV irradiation. © 2014 Wiley Periodicals, Inc. *J. Appl. Polym. Sci.* 2015, 132, 41722. © 2014 Wiley Periodicals, Inc.