

Abstract: Chemical treatment of cellular polypropylene (PP) films was carried out. Their charge storage properties were investigated using the open circuit thermally stimulated discharge (TSD) current spectra and charge TSD spectra. The charge storage thermal stability of the HF-treated samples is significantly improved, as shown by a very strong high temperature peak at about 176°C. The charge stability of treated films is improved further by appropriately prolonging HF treatment time at RT. It was found that the reaction rate of HF with the oxidized surface layer is obviously enhanced by light radiation or treating temperature. However, charge storage stability becomes worse even than the virginal film prolonging HF-treating time under light radiation. An in situ TSD charge spectrum contains combined information on the changes of the mean charge depth and the deposited charge value. The dynamic change of the mean charge depth during heating was investigated by the in situ TSD charge spectra.