

이온빔 조사에 의한 기능성 고분자 필름의 표면 특성

홍성민*, 김영준

(주)유아이피 기술연구소

Polymer films have been irradiated with various kinds of ions according to energy and dose. Change of the optical transmittance and chemical characteristics were confirmed by UV-VIS and FT-IR(ATR) spectroscopy respectively. These UV-A block in 400 nm were variable from 10% to 100% according to energies and doses. Surface electrical resistance of polymer film irradiated by ion beam is $10^6 \Omega/\text{cm}^2$ - $10^{13} \Omega/\text{cm}^2$, which reveal variation of conduction. Contact angle of film irradiated by ion beam was decreased than that of pristine film. Polymer surface morphology was examined by means of atomic force microscopy (AFM). As expected, degradation of polymer film was higher after irradiation with heavier Xe ions but the roughness in the polymer surface morphology were more pronounced for Ar ions. This observed effect can be explained by stronger compaction of polymer surface layer in the case of Xe irradiation, connected with a reduction of free volume available.