

The effect of compatibilization in presence of maleic acid on moisture barrier and physical properties of Poly(vinyl alcohol) (PVA)/linear low-density polyethylene (LLDPE) blends

박희영<sup>1,2</sup>, 이준영<sup>1,†</sup>, 황기섭<sup>1</sup>, 박재중<sup>2</sup>, 정세민<sup>3</sup>, 권혁준<sup>2</sup>

<sup>1</sup>한국생산기술연구원; <sup>2</sup>연세대학교; <sup>3</sup>성균관대학교

(jaylee@kitech.re.kr<sup>†</sup>)

Blends of poly(vinyl alcohol) (PVA)/linear low-density polyethylene (LLDPE) were prepared by conventional thermoplastic processing technique. The PVA and LLDPE were blended to give the following blend ratios(wt%): 5/95, 10/90 and 20/80. The effect of maleic acid via in situ cross-linking on processability, component interaction, thermal stability, tensile properties, morphology, hygroscopic degree and moisture barrier of PVA/LLDPE blends was investigated in this research. The results indicated that the presence of maleic acid increases moisture barrier properties of PVA/LLDPE blends. The formation of cross-linking was confirmed by Fourier transform infrared analysis and depression of melting points of PVA and LLDPE in the blends. The thermal stability, moisture barrier properties and mechanical properties such as tensile strength and elongation-at break of the LLDPE/PVA blends also improved in the presence of maleic acid. Evidence for greater compatibility between PVA and LLDPE was confirmed by scanning electron microscopy micrographs.