

## The Effect of Nanoclay on the Biodegradability of Biodegradable Polyurethane Nanocomposite Films

조태웅, 전승호<sup>1</sup>, 김성우\*  
경기대학교; <sup>1</sup>폴리사이언텍  
(wookim@kyonggi.ac.kr\*)

Most of the biodegradable polymers have some drawbacks in thermal, mechanical and barrier properties. In this study, preparation of nanocomposites based on biodegradable poly(ester) urethane was attempted to overcome the defects of PU itself. The dispersion state of clays in the nanocomposites was observed using XRD analysis and TEM observation. In addition, the effects of the clay contents on the mechanical tensile and barrier properties were investigated. In order to examine the influence of clay on biodegradability, films were decomposed in incubator( $58^{\circ}\text{C} \pm 2^{\circ}\text{C}$ , moist condition) with compost as a function of decomposition time. The biodegradability was evaluated in terms of measurements of molecular weight, mechanical and barrier properties. It was confirmed that the incorporated clay substantially gave a contribution in suppression of the bio-decomposition rate of the films due to increased permeation resistance to oxygen and water vapor molecules.