

ABSTRACT

Poly(lactic acid) (PLA), poly(butylene succinate) (PBS), and thermoplastic starch (TPS) are good models for biodegradable multi-layered films. In the first part, PLA and PBS are formed as multi-layered film. The phase separation between PLA and PBS is observed. This is the reason why poly(lactic acid-*b*-butylene succinate) (PLA-*b*-PBS) copolymer is prepared via conjugating reaction to be a compatibilizer. The addition of PLA-*b*-PBS copolymer for 0.5 phr can improve compatibility between PLA and PBS phases resulting in improvement of oxygen barrier properties and mechanical properties, especially elongation at break. In the second part, PLA and TPS are blown as multi-layered film. The elongation at break of multi-layered films increases when the amount of TPS increases as well as the percent of water absorption.