

Abstract Submitted
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Biodegradability and mechanical properties of poly(butylene succinate) composites with finely dispersed hydrophilic poly(acrylic acid)
SAWAKO MIZUNO, ATSUSHI HOTTA, Keio Univ — Biodegradability and mechanical properties of aliphatic poly(butylene succinate) (PBS) films with finely dispersed hydrophilic poly(acrylic acid) (PAA) were investigated. First, 3.5 wt% of PAA was chemically grafted onto the surface of the PBS films (surface-grafted PBS) by photo grafting polymerization, and then the grafted PAA was homogeneously and finely dispersed into PBS by dissolving the surface-grafted PBS into chloroform before mixing and drying to get solid PAA-dispersed PBS. Degradation of these modified PBS was investigated using gel permeation chromatography (GPC) and tensile testing. According to the GPC results, it was found that the PAA-dispersed PBS had intermediate biodegradability with the intermediate water intake, and the reaction constant of PAA-dispersed PBS was in between those of untreated PBS and surface-grafted PBS, in fact 25% higher and 17% lower, respectively. The experimental results presented that the biodegradability of PBS could be well controlled by the dispersion of PAA, possibly leading to the widespread use of PBS for biodegradable polymers.

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