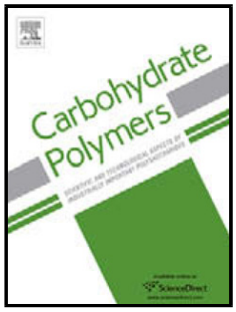

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Flexible starch-polyurethane films: Effect of mixed macrodiol polyurethane ionomers on physicochemical characteristics and hydrophobicity

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Highlights

- Films were produced by blending anionic poly(ether-ester)urethane (AEEPU) and starch
- Molecular entanglement and hydrogen bonding occurred between starch & AEEPU
- Miscibility and compatibility between starch & AEEPU were significantly high
- Flexibility, hydrophobicity and transparency of these films were close to that of LDPE
- Starch-AEEPU films can be used in packaging applications as an alternative of LDPE

Abstract

One of the most critical limitations in synthesizing starch-polyurethane (PU) hybrid materials is their microphase separation caused by physical incompatibility. This paper reports that the physical incompatibility and microphase separation between starch and PU can be overcome by using specifically designed anionic poly(ether-ester) polyurethane (AEEPU).