## **Accepted Manuscript**

Compatibilization of co-plasticized cellulose acetate/water soluble polymers blends by reactive extrusion

Robert Quintana, Olivier Persenaire, Yahia Lemmouchi, Leïla Bonnaud, Philippe Dubois

PII: S0141-3910(15)30173-7

DOI: 10.1016/j.polymdegradstab.2015.12.023

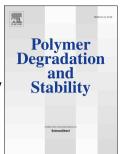
Reference: PDST 7830

To appear in: Polymer Degradation and Stability

Received Date: 23 September 2015 Revised Date: 15 December 2015 Accepted Date: 27 December 2015

Please cite this article as: Quintana R, Persenaire O, Lemmouchi Y, Bonnaud L, Dubois P, Compatibilization of co-plasticized cellulose acetate/water soluble polymers blends by reactive extrusion, *Polymer Degradation and Stability* (2016), doi: 10.1016/j.polymdegradstab.2015.12.023.

This is a PDF file of an unedited manuscript that has been accepted for publication. As a service to our customers we are providing this early version of the manuscript. The manuscript will undergo copyediting, typesetting, and review of the resulting proof before it is published in its final form. Please note that during the production process errors may be discovered which could affect the content, and all legal disclaimers that apply to the journal pertain.



### ACCEPTED MANUSCRIPT

# Compatibilization of co-plasticized cellulose acetate/water soluble polymers blends by reactive extrusion

Robert Quintana, <sup>1</sup> Olivier Persenaire, <sup>2</sup> Yahia Lemmouchi, <sup>3</sup> Leïla Bonnaud, <sup>2</sup> and Philippe 
<sub>5</sub> Dubois <sup>2</sup>

KEYWORDS. Cellulose acetate, polyvinyl alcohol, hydroxyethyl cellulose, plasticization,

15 biodegradation, biopolymer, reactive compatibilization

ABSTRACT. The present work reports the preparation of biodegradable blends of cellulose acetate (CA) with two water soluble polymers; polyvinyl alcohol (PVOH) and the biosourced hydroxyethyl cellulose (HEC). Like CA, HEC is advantageously both biodegradable and bio-sourced. For that purpose, plasticization of CA and PVOH was conducted by melt extrusion using triacetin and glycerol, respectively, while a two-step method consisting in a premixing step of HEC with plasticizer in presence of water, followed by the melt processing

<sup>&</sup>lt;sup>1</sup> Institute of Materials Research and Engineering (IMRE), Agency for Science, Technology and research (A\*STAR), Research link 3, Singapore, 117602.

<sup>&</sup>lt;sup>2</sup> Laboratory of Polymeric and Composite Materials (LPCM), Center of Innovation and Research in Materials and Polymers (CIRMAP), Materia Nova Research Center & University of Mons (UMONS), Académie Universitaire Wallonie-Bruxelles, Place du Parc 20, 7000 Mons (Belgium)

<sup>&</sup>lt;sup>3</sup> Group R&D, British American Tobacco, Regents Park Road, Millbrook, Southampton SO15 8TL, UK

## Download English Version:

# https://daneshyari.com/en/article/5201257

Download Persian Version:

https://daneshyari.com/article/5201257

<u>Daneshyari.com</u>