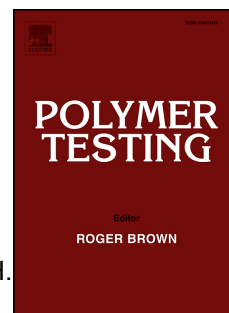


Accepted Manuscript

Degradation during processing of vegetable fiber compounds based on PBAT/PHB blends

Anna Raffaella M. Costa, Lízzia T.A. Reul, Fernanda M. Sousa, Edson N. Ito, Laura H. Carvalho, Eduardo L. Canedo



PII: S0142-9418(18)30418-5

DOI: [10.1016/j.polymertesting.2018.05.031](https://doi.org/10.1016/j.polymertesting.2018.05.031)

Reference: POTE 5478

To appear in: *Polymer Testing*

Received Date: 12 March 2018

Accepted Date: 21 May 2018

Please cite this article as: A.R.M. Costa, Lí.T.A. Reul, F.M. Sousa, E.N. Ito, L.H. Carvalho, E.L. Canedo, Degradation during processing of vegetable fiber compounds based on PBAT/PHB blends, *Polymer Testing* (2018), doi: 10.1016/j.polymertesting.2018.05.031.

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.

Degradation during processing of vegetable fiber compounds based on PBAT/PHB blends

Anna Raffaella M. Costa¹, Lizzia T. A. Reul³, Fernanda M. Sousa³, Edson N. Ito², Laura H. Carvalho³, Eduardo L. Canedo³

¹ *Programa de Pós-Graduação em Ciência e Engenharia de Materiais, Universidade Federal de Rio Grande do Norte, 59078-970, Natal RN, Brazil.*

² *Departamento de Engenharia de Materiais, Universidade Federal de Rio Grande do Norte, 59078-970, Natal RN, Brazil.*

³ *Departamento de Engenharia de Materiais, Universidade Federal de Campina Grande, Campina Grande PB 58429-900, Brazil.*

* corresponding author: raffaella_matos@yahoo.com.br

ABSTRACT

The effect of the type of filler and concentration on the degradation rate of compounds based on a blend of poly (β -hydroxybutyrate) (PHB) and poly (butylene adipate-co-terephthalate) (PBAT) were studied using a fast and simple procedure of monitoring polymer degradation under processing conditions using torque rheometry. It was found that both the presence and level of two types of filler, taken from two different layers of the babassu palm fruit (mesocarp and epicarp), greatly increase incipient degradation of the blend when processed in an internal laboratory mixer. The qualitative trends and quantitative estimates may be explained by the chemical and morphological characteristics of the two fillers, as observed by optical microscopy. Fracture surface morphology was investigated by scanning electron microscopy (SEM) and indicated better filler-matrix adhesion in PHB-rich blends in epicarp compounds.

Keywords: PBAT, PHB, babassu, compounds, processing and degradation

Download English Version:

<https://daneshyari.com/en/article/7824727>

Download Persian Version:

<https://daneshyari.com/article/7824727>

[Daneshyari.com](https://daneshyari.com)