Data in Brief 15 (2017) 445–448

Contents lists available at ScienceDirect

Data in Brief

journal homepage: www.elsevier.com/locate/dib

Data Article

Data on physicochemical properties of active films derived from plantain flour/PCL blends developed under reactive extrusion conditions

Tomy J. Gutiérrez *, Vera A. Alvarez

Grupo de Materiales Compuestos Termoplásticos (CoMP), Instituto de Investigaciones en Ciencia y Tecnología de Materiales (INTEMA), Facultad de Ingeniería, Universidad Nacional de Mar del Plata (UNMdP) y Consejo Nacional de Investigaciones Científicas y Técnicas (CONICET), Colón 10850, B7608FLC Mar del Plata, Argentina

ARTICLE INFO

Article history:
Received 21 September 2017
Accepted 26 September 2017
Available online 30 September 2017

Keywords:
Active films
Antimicrobial properties
Cross-linking
Poly(ε-caprolactone)
Starchy

ABSTRACT

The data given below relates to the research paper entitled: "Eco-friendly films prepared from plantain flour/PCL blends under reactive extrusion conditions using zirconium octanoate as a catalyst", recently published by our research group [1]. This article provides information concerning the physicochemical properties of the above-mentioned film systems: thickness, density, opacity, moisture content and surface moisture.

Specifications Table

Subject area	*Polymers.*
More specific subject area	*Active eco-friendly films derived from plantain flour/PCL blends using zirconium octanoate ($Zr(Oct)_4$) as a catalyst under reactive extrusion (REx) conditions.*
Type of data	*Table.*

DOI of original article: http://dx.doi.org/10.1016/j.carbpol.2017.09.026

* Correspondence to: Institute of Research in Materials Science and Technology, Faculty of Engineering, National University of Mar del Plata and National Council of Scientific and Technical Research (CONICET), Colón 10850, B7608FLC Mar del Plata, Argentina. Fax: +54 223 481 0046.
E-mail addresses: tomy.gutierrez@fi.mdp.edu.ar, tomy_gutierrez@yahoo.es (T.J. Gutiérrez).

http://dx.doi.org/10.1016/j.dib.2017.09.071

How data was acquired	*Thickness was determined with a digital micrometer. Density and moisture content were calculated gravimetrically. Opacity and surface moisture were estimated with the aid of a UV–vis spectrophotometer (u-2001) and a Moisture Analyzer (Model MA150), respectively.*
Data format	*Raw, calculated and analyzed.*
Experimental factors	*The films were conditioned at ~ 57% relative humidity in desiccators at 25 °C for 7 days using a saturated NaBr solution.*
Experimental features	*Film thickness was determined from eighteen random positions on each sample. Film density and moisture contents were determined at 105 ± 1 °C for 24 h. Film opacity was measured at 600 nm. Surface moisture content of the different films was measured after drying at 105 °C for 120 s.*
Data source location	*Mar del Plata, Argentina.*
Data accessibility	*Data are presented in this article.*

Value of the data

- The data gives detailed descriptions of the physicochemical properties of active eco-friendly films based on plantain flour/PCL blends using $Zr(Oct)_4$ as a catalyst under REx conditions.
- The data provides information to researchers about the effects of the catalyst and the PCL-containing blends on the opacity of the materials.

1. Data

The data given in this study (Table 1) shows the physicochemical properties (thickness, density, opacity, moisture content and surface moisture) of active films derived from plantain flour/PCL blends under REx conditions, described in the article by Gutiérrez and Alvarez [1]. These characteristics add to the properties previously investigated [1]. This data widens the knowledge we have about the physicochemical properties of plantain flour/PCL systems cross-linked under REx conditions using $Zr(Oct)_4$ as a catalyst. Thickness, density, opacity, moisture content as well as surface moisture were evaluated.

Equal letters in the same row indicate no statistically significant differences ($p \leq 0.05$).

Film systems: plantain flour (TPPF), plantain flour + PCL (M_w = 10,000 g/mol) (TPPF/PCL(10,000)), plantain flour + PCL (M_w = 10,000 g/mol) + catalyst (TPPF/PCL(10,000)+CAT), plantain flour + PCL (M_w = 80,000 g/mol) (TPPF/PCL(80,000)) and plantain flour + PCL (M_w = 80,000 g/mol) + catalyst (TPPF/PCL(80,000)+CAT).

Table 1
Thickness (e), density (ρ), opacity, moisture content (MC) and surface moisture of the different films.

Parameter	TPPF	TPPF/PCL (10,000)	TPPF/PCL(10,000)+ CAT	TPPF/PCL (80,000)	TPPF/PCL(80,000)+ CAT
***e* (mm)**	1.23 ± 0.04^{b}	1.03 ± 0.04^{a}	1.04 ± 0.04^{a}	1.17 ± 0.06^{b}	1.14 ± 0.05^{b}
ρ (g/cm^3)	1.2 ± 0.1^{a}	1.24 ± 0.03^{a}	1.19 ± 0.04^{a}	1.1 ± 0.1^{a}	1.16 ± 0.09^{a}
Opacity	0.32 ± 0.01^{d}	0.20 ± 0.01^{b}	$0.22 \pm 0.01^{b,c}$	0.16 ± 0.01^{a}	0.19 ± 0.01^{b}
***MC* (%)**	$17.2 \pm 0.5^{b,c}$	16.1 ± 0.6^{b}	16.64 ± 0.08^{b}	16 ± 1^{b}	13.3 ± 0.4^{a}
Surface moisture (%)	0.9 ± 0.6^{a}	0.8 ± 0.2^{a}	0.7 ± 0.1^{a}	0.8 ± 0.1^{a}	0.72 ± 0.02^{a}