

Accepted Manuscript

Effect of interface on composites made from DREF spun hybrid yarn with low twisted core flax yarn

Mahadev Bar, Apurba Das, R. Alagirusamy

PII: S1359-835X(18)30003-4
DOI: <https://doi.org/10.1016/j.compositesa.2018.01.003>
Reference: JCOMA 4884

To appear in: *Composites: Part A*

Received Date: 22 May 2017
Revised Date: 31 December 2017
Accepted Date: 2 January 2018

Please cite this article as: Bar, M., Das, A., Alagirusamy, R., Effect of interface on composites made from DREF spun hybrid yarn with low twisted core flax yarn, *Composites: Part A* (2018), doi: <https://doi.org/10.1016/j.compositesa.2018.01.003>

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.



Effect of Interface on Composites Made from DREF Spun Hybrid Yarn with Low Twisted Core Flax Yarn

Mahadev Bar^{a*}, Apurba Das^a, R. Alagirusamy^a

^aDepartment of Textile Technology, Indian Institute of Technology Delhi, New Delhi, India

*Corresponding author email ID: mahadevbar07@gmail.com, Tel: +91-9654338778(M)

Abstract

In the present work, the influence of interface and hybrid yarn structure on flax-PP based unidirectional composite properties have been studied thoroughly. Flax-PP based core-sheath structured DREF spun hybrid yarns are manufactured after varying the core yarn twist and sheath percentage at three different levels and using MAgPP treated and untreated flax yarn as core. These hybrid yarns are consolidated to manufacture unidirectional composite samples and the resultant composites are tested accordingly. It is observed that MAgPP treatment of the core flax yarn improves the tensile and flexural properties of the hybrid yarn reinforced unidirectional composites while impact strength decreases after the treatment. A negative impact on the tensile and flexural properties of the unidirectional composite samples is observed with increasing core twist and sheath content of the reinforcing hybrid yarn. The impact strength of the composite samples increases for similar changes in hybrid yarn parameters.

Keywords:

A. Biocomposite; A. Hybrid; A. Yarn; B. Interface/interphase

Introduction:

The ever growing problem related to solid waste disposals, legislative pressures related to environment and people's growing interest on sustainability have bolstered the interest in sustainable, environment friendly materials in consumer industry [1-7]. Use of vegetal resources and recyclable thermoplastic matrices for composite manufacturing fit well into this picture.

Download English Version:

<https://daneshyari.com/en/article/7889720>

Download Persian Version:

<https://daneshyari.com/article/7889720>

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