



Composites Part A: Applied Science and Manufacturing

Volume 123, August 2019, Pages 301-309

Improving moisture durability of flax fibre composites by using non-dry fibres

Maria Morissa Lu ^{a, b}  , Aart Willem Van Vuure ^a Show more<https://doi.org/10.1016/j.compositesa.2019.05.029>[Get rights and content](#)

Abstract

Non-dry flax fibre and polyester resin that has low sensitivity to moisture were used in the production of composites and the effects on flexural and moisture sorption properties of composites under wet-dry cycling were determined. Results showed that composites made of non-dry fibre have lower moisture sorption and degree of swelling and shrinking compared to composites made of dried fibre. Mean strength and modulus of composites made of non-dry fibre are 4–12% and 13–14% respectively, higher than composites made of dried fibre in longitudinal direction. Mean strength and modulus of composites made of non-dry fibre are 18–22% and 11–21% respectively, higher than composites made of dried fibre in transverse direction after the wet-dry cycling. The results suggest that composites made of non-dry fibre could be used for enhancing moisture durability of composites and lessen the time, cost and embodied energy to produce the composites, by omitting the step of drying the fibres.


 PreviousNext 

Keywords

Natural fibres; Polymer-matrix composites; Moisture; Mechanical properties

[Recommended articles](#)

Citing articles (0)

Start tracking your Reading History 

Sign in and never lose track of an article again.

[Register for free >](#)

We use cookies to help provide and enhance our service and tailor content and ads. By continuing you agree to the [use of cookies](#).

Copyright © 2019 Elsevier B.V. or its licensors or contributors. ScienceDirect® is a registered trademark of Elsevier B.V.