

Q =

Document type

Conference Paper

Source type

**Book Series** 

ISSN

10139826

ISBN

978-303571274-2

DOI

10.4028/p-j27v8q

Publisher

Trans Tech Publications Ltd

CODEN

KEMAE

Original language

English

Volume Editors

Md Din M.F., Hashim F.R., Makmor N.F., Abdullah N.S., Wan Ali W.F.F., Rejab N.A., Sulaiman M.A.

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# Prediction and Optimization on Tribological Behaviour of Kenaf/Carbon Fiber Reinforced Epoxy Matrix Hybrid Composites

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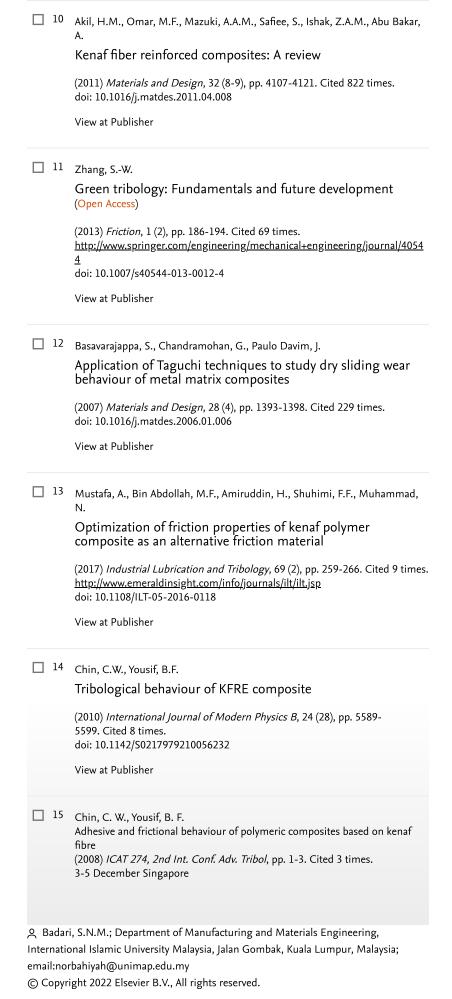
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The awareness on sustainability of the environment among the researchers leads to the exploration of natural fiber composite materials. Hybridization of synthetic fiber and natural fiber is one of the potential strategies to enhance the mechanical properties as well as the degradability of such composite materials. However, less information concerning the optimization of tribological properties of this hybrid composite is available in literature. The aim of this study is to propose a statistical model to predict and optimize wear and coefficient of friction of kenaf / carbon reinforced epoxy composite. The value of parameters; load and sliding velocity ranges from 10 to 30 N and 20.9 to 52.3 m/s, respectively, are used to assess wear and coefficient of friction (COF) of different stacking sequences using the Analysis of Variance (ANOVA). The tribological test was conducted using a pinon-disc tribometer. Multifactorial design analysis was employed to optimize the test control variables. It was found that, the optimized factors that affects the coefficient of friction and wear is at load 30 N and sliding velocity of 52.36 m/s. The proposed statistical models for wear and COF have 99.5% and 97.6% reliability, respectively. The generated equation models are bounded within the wear test control factors and ranges. The outcome from this study will be very useful for main parameter prediction for an optimized wear and COF. © 2022 Trans Tech Publications Ltd, Switzerland.

10.4028/p-j27v8q; ANOVA; Coefficient of friction; DOE; Factorial design; Hybrid composite; Sliding wear

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	Barari, B., Ellingham, T.K., Ghamhia, I.I., Pil S., Sabo, R.  Mechanical characterization of scala based composites made using liqui process  (2016) Composites Part B: Engineering, 84, doi: 10.1016/j.compositesb.2015.08.040  View at Publisher	able cellulose nano-fiber d composite molding





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