

Document details

[< Back to results](#) | 1 of 1[Export](#) [Download](#) [Print](#) [E-mail](#) [Save to PDF](#) [Add to List](#) [More... >](#)[Full Text](#) [View at Publisher](#)Materialpruefung/Materials Testing
Volume 57, Issue 10, 2015, Pages 904-908

Flexing test of HDPE/EPR filled CNT radiated nanocomposites for sport shoe soles (Article)

Khalit, M.I.B.^a [✉](#), Anuar, H.B.^b, Shaffiar, N.M.^b [👤](#)^aDivision of Mechanical Engineering, Faculty of Engineering, University Selangor, Man Timur Tambahan, Kuala Selangor Selangor Darul Ehsan, Malaysia^bKuala Lumpur, Malaysia

Abstract

[View references \(18\)](#)

This study was conducted to examine the effect of electron beam (EB) irradiation on the flexing of high density polyethylene (HDPE)/ethylene propylene rubber (EPR) blends and HDPE/EPR filled carbon nanotube (CNT) nanocomposites. The blends are compression molded into the soles of shoes before exposed to EB irradiation. Radiated and nonradiated matrixes as well as nanocomposites were subjected to single force and flexed at specified angles of 900 according to ISO 17707 for flexing test. The flexes were more for samples that were exposed to EB irradiation. Moreover, samples filled with CNT showed a lower flex number. © Carl Hanser Verlag GmbH & Co. KG.

Author keywords

Carbonnanotubes Electron beam Irradiation Flexing test Nanocomposites Sport shoes

Indexed keywords

Engineering controlled terms: Carbon Electron beams High density polyethylenes Irradiation Nanocomposites Sports Yarn

Compendex keywords EB irradiation Electron beam irradiation Exposed to Filled carbon nanotubes High density polyethylene(HDPE) Sport shoe

Engineering main heading: Carbon nanotubes

ISSN: 00255300
CODEN: MTPRA
Source Type: Journal
Original language: EnglishDOI: 10.3139/120.110786
Document Type: Article
Publisher: Carl Hanser Verlag

References (18)

[View in search results format >](#) All [Export](#) [Print](#) [E-mail](#) [Save to PDF](#) [Create bibliography](#)

- 1 Norton, E.I., Clay, R.L., Smotrycz, Z.O. (1986) *United States Patent 4, 574*, p. 498. Boston, MA

Metrics [🔗](#)0 Citations in Scopus
0 Field-Weighted Citation ImpactPlumX Metrics [▼](#)

Usage, Captures, Mentions, Social Media and Citations beyond Scopus.

Cited by 0 documents

Inform me when this document is cited in Scopus:

[Set citation alert >](#)[Set citation feed >](#)

Related documents

Mechanical and biomechanical characterization of running shoes with different midsole materials before and after aging

Brueckner, K. , Heidenfelder, J. , Odenwald, S. (2011) *Footwear Science*

Potential of irradiated high density polyethylene/ethylene propylene rubber-carbon nanotube nanocomposite as shoe sole

Lutpi, H.A. , Anuar, H. , Mohamed, M.A. (2016) *Proceedings of the Institution of Mechanical Engineers, Part P: Journal of Sports Engineering and Technology*

Enhancing fatigue life of filament winding laminar and curved pipes containing carbon nanotubes, and their fatigue failure

Taşyürek, M. , Tarakçıoğlu, N. (2017) *Polymers and Polymer Composites*

- 2 Manjunatha, C.M., Taylor, A.C., Kinloch, A.J., Sprenger, S.
The cyclic-fatigue behaviour of an epoxy polymer modified with micron-rubber and nano-silica particles

(2009) *Journal of Materials Science*, 44 (16), pp. 4487-4490. Cited 30 times.
doi: 10.1007/s10853-009-3653-y

[View at Publisher](#)

- 3 Manjunatha, C.M., Bojja, R., Jagannathan, N., Kinloch, A.J., Taylor, A.C.
Enhanced fatigue behavior of a glass fiber reinforced hybrid particles modified epoxy nanocomposite under WISPERX spectrum load sequence

(2013) *International Journal of Fatigue*, 54, pp. 25-31. Cited 22 times.
doi: 10.1016/j.ijfatigue.2013.04.008

[View at Publisher](#)

- 4 Kane, R.J., Converse, G.L., Roeder, R.K.
Effects of the reinforcement morphology on the fatigue properties of hydroxyapatite reinforced polymers

(2008) *Journal of the Mechanical Behavior of Biomedical Materials*, 1 (3), pp. 261-268. Cited 34 times.
doi: 10.1016/j.jmbbm.2008.01.004

[View at Publisher](#)

- 5 Loos, M.R., Yang, J., Feke, D.L., Manas-Zloczower, I., Unal, S., Younes, U.
Enhancement of fatigue life of polyurethane composites containing carbon nanotubes

(2013) *Composites Part B: Engineering*, 44 (1), pp. 740-744. Cited 44 times.
doi: 10.1016/j.compositesb.2012.01.038

[View at Publisher](#)

- 6 Yu, N., Zhang, Z.H., He, S.Y.
Fracture toughness and fatigue life of MWCNT/epoxy composites

(2008) *Materials Science and Engineering A*, 494 (1-2), pp. 380-384. Cited 94 times.
doi: 10.1016/j.msea.2008.04.051

[View at Publisher](#)

- 7 Brückner, K., Odenwald, S., Schwanitz, S., Heidenfelder, J., Milani, T.
Polyurethane-foam midsoles in running shoes - Impact energy and damping

(2010) *Procedia Engineering*, 2 (2), pp. 2789-2793. Cited 8 times.
<http://www.sciencedirect.com/science/journal/18777058>
doi: 10.1016/j.proeng.2010.04.067

[View at Publisher](#)

- 8 Rama Sreekanth, P.S., Naresh Kumar, N., Kanagaraj, S.
Improving post irradiation stability of high density polyethylene by multi walled carbon nanotubes

(2012) *Composites Science and Technology*, 72 (3), pp. 390-396. Cited 28 times.
doi: 10.1016/j.compscitech.2011.11.031

[View at Publisher](#)

- 9 Kanagaraj, S., Varanda, F.R., Zhil'tsova, T.V., Oliveira, M.S.A., Simões, J.A.O.
Mechanical properties of high density polyethylene/carbon nanotube composites

(2007) *Composites Science and Technology*, 67 (15-16), pp. 3071-3077. Cited 203 times.
doi: 10.1016/j.compscitech.2007.04.024

[View at Publisher](#)

- 10 Szabényi, G., Romhány, G., Vajna, B., Czvikovszky, T.
EB treatment of carbon nanotube-reinforced polymer composites

(2012) *Radiation Physics and Chemistry*, 81 (9), pp. 1383-1388. Cited 5 times.
doi: 10.1016/j.radphyschem.2011.11.015

[View at Publisher](#)

- 11 Quinn, E.
(2014) *When to Replace Running Shoes*
<http://sportsmedicine.about.com/od/tipsandtricks/a/replaceshoes.htm>

- 12 Cavanagh, P.R.
(1980) *The Running Shoe Book*. Cited 102 times.
Mountain View: Anderson World, London, UK

- 13 ISO
(2005) *Footwear - Test Methods for Outsoles - Flex Resistance*, 3.
17707 BSI, London, UK

- 14 Rigas, C.
Spatial parameters of gait related to the position of the foot on the ground

(1984) *Prosthetics and Orthotics International*, 8 (3), pp. 130-134. Cited 18 times.
doi: 10.3109/03093648409146073

[View at Publisher](#)

- 15 Jamal, N.A.
(2011) *Effects of Electron Beam Irradiation and Maleic Anhydride Polyethylene on HDPE/EPDM Nanocomposites*
MSC Thesis, International Islamic University, Malaysia

- 16 Ahmad, I., Lane, C.E., Mohd, D.H., Abdullah, I.
Electron-beam-irradiated rice husk powder as reinforcing filler in natural rubber/high-density polyethylene (NR/HDPE) composites

(2012) *Composites Part B: Engineering*, 43 (8), pp. 3069-3075. Cited 11 times.
doi: 10.1016/j.compositesb.2012.04.071

[View at Publisher](#)

- 17 Tang, W., Santare, M.H., Advani, S.G.
Melt processing and mechanical property characterization of multi-walled carbon nanotube/high density polyethylene (MWNT/HDPE) composite films

(2003) *Carbon*, 41 (14), pp. 2779-2785. Cited 298 times.
doi: 10.1016/S0008-6223(03)00387-7

[View at Publisher](#)

🔍 Khalit, M.I.B.; Division of Mechanical Engineering, Faculty of Engineering, University Selangor, Man Timur
Tambahan, Kuala Selangor Selangor Darul Ehsan, Malaysia; email:ilhamkhalit@unisel.edu.my

© Copyright 2017 Elsevier B.V., All rights reserved.

< Back to results | 1 of 1

^ Top of page

About Scopus

What is Scopus
Content coverage
Scopus blog
Scopus API
Privacy matters

Language

日本語に切り替える
切换到简体中文
切换到繁體中文
Русский язык

Customer Service

Help
Contact us

ELSEVIER

[Terms and conditions](#) [Privacy policy](#)

Copyright © 2017 Elsevier B.V. All rights reserved. Scopus® is a registered trademark of Elsevier B.V.

Cookies are set by this site. To decline them or learn more, visit our [Cookies page](#).

 RELX Group™