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Influence of Halloysite Nanotubes Hybridized with Kenaf Core Fibers on the Physical and Mechanical Properties of Low Density Polyethylene/Thermoplastic Sago Starch Blends (Article)

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Abstract

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In this work, halloysite nanotubes (HNTs) were hybridized with kenaf core fibers (KCF) to reinforce low density polyethylene (LDPE)/thermoplastic sago starch (TPSS) blends. The effects of HNT loading (3-15 wt.%) on the mechanical and physical properties were examined. The results showed an enhancement in tensile strength and modulus with the inclusion of HNTs. Formation of FTIR bands that are assigned to Al-OH and Si-O vibrations indicated the presence of HNTs in the system. Moreover, the thermal stability of hybrid composites was improved with the addition of HNTs. Water uptake decreased as higher amount of HNTs imparted to the hybrid composites. © 2014 Copyright Taylor and Francis Group, LLC.

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Bonding Halloysite nanotubes Kenaf core fibers Mechanical Thermoplastic sago starch

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Nanoporous-walled silica and alumina nanotubes derived from halloysite: Controllable preparation and their dye adsorption applications

Shu, Z. , Chen, Y. , Zhou, J. (2015) *Applied Clay Science*

The effect of sepiolite on the compatibilization of polyethylene-thermoplastic starch blends for environmentally friendly films

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Preparation and characterization of low density polyethylene/thermoplastic sago starch/kenaf core fiber composites and their hybrid composites with halloysite clay
Sarifuddin, N. , Ismail, H. , Ahmad, Z.
(2014) *Advances in Environmental Biology*

References (31)

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- 1 Sam, S.T., Ismail, H., Ahmad, Z.

Soil burial of polyethylene-g-(maieic anhydride) compatibilised LLDPE/Soya powder blends

(2011) *Polymer - Plastics Technology and Engineering*, 50 (8), pp. 851-861. Cited 20 times.
doi: 10.1080/03602559.2011.551977

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Studies of Polyethylene-Based Biocomposites, Bionanocomposites and Other Non-Biobased Nanocomposites

Sarifuddin, N. , Ismail, H.
(2016) *Polyethylene-Based Biocomposites and Bionanocomposites*

The effect of kenaf core fibre loading on properties of low density polyethylene/thermoplastic sago starch/kenaf core fiber composites

Sarifuddin, N. , Ismail, H. , Ahmad, Z.
(2013) *Journal of Physical Science*

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- 2 He, Y., Kong, W., Wang, W., Liu, T., Liu, Y., Gong, Q., Gao, J.

Modified natural halloysite/potato starch composite films

(2012) *Carbohydrate Polymers*, 87 (4), pp. 2706-2711. Cited 31 times.
doi: 10.1016/j.carbpol.2011.11.057

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- 3 Prachayawarakorn, J., Hommanee, L., Phosee, D., Chairapaksatien, P.

Property improvement of thermoplastic mung bean starch using cotton fiber and low-density polyethylene

(2010) *Starch/Staerke*, 62 (8), pp. 435-443. Cited 17 times.
<http://onlinelibrary.wiley.com/doi/10.1002/star.201000002/pdf>
doi: 10.1002/star.201000002

[View at Publisher](#)

- 4 Avella, M., Bogoeva-Gaceva, G., Bužarovska, A., Errico, M.E., Gentile, G., Grozdanov, A.

Poly(lactic acid)-based biocomposites reinforced with kenaf fibers

(2008) *Journal of Applied Polymer Science*, 108 (6), pp. 3542-3551. Cited 81 times.
<http://www3.interscience.wiley.com/cgi-bin/fulltext/117930306/PDFSTART>
doi: 10.1002/app.28004

[View at Publisher](#)

- 5 Ismail, H., Shaari, S.M.

Curing characteristics, tensile properties and morphology of palm ash/halloysite nanotubes/ethylene-propylene-diene monomer (EPDM) hybrid composites

(2010) *Polymer Testing*, 29 (7), pp. 872-878. Cited 43 times.
doi: 10.1016/j.polymertesting.2010.04.005

[View at Publisher](#)

- 6 Gwon, J.G., Lee, S.Y., Chun, S.J., Doh, G.H., Kim, J.H.

Physical and mechanical properties of wood-plastic composites hybridized with inorganic fillers

(2012) *Journal of Composite Materials*, 46 (3), pp. 301-309. Cited 19 times.
doi: 10.1177/0021998311413690

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-
- 7 Nakamura, R., Netravali, A.N., Morgan, A.B., Nyden, M.R., Gilman, J.W.
Effect of halloysite nanotubes on mechanical properties and flammability of soy protein based green composites

(2013) *Fire and Materials*, 37 (1), pp. 75-90. Cited 24 times.
doi: 10.1002/fam.2113

View at Publisher
-
- 8 Ansari, M.N.M., Ismail, H., Zein, S.H.S.
Effect of multi-walled carbon nanotubes on mechanical properties of feldspar filled polypropylene composites

(2009) *Journal of Reinforced Plastics and Composites*, 28 (20), pp. 2473-2485. Cited 12 times.
doi: 10.1177/0731684408092377

View at Publisher
-
- 9 Balakrishnan, H., Hassan, A., Imran, M., Wahit, M.U.
Toughening of Polylactic Acid Nanocomposites: A Short Review

(2012) *Polymer - Plastics Technology and Engineering*, 51 (2), pp. 175-192. Cited 51 times.
doi: 10.1080/03602559.2011.618329

View at Publisher
-
- 10 Li, Z.H., Chen, T.
The Mechanical and Tribological Properties of MAH-Grafted HDPE-Filled Clay/PEI Composites

(2012) *Polymer - Plastics Technology and Engineering*, 51 (8), pp. 776-779. Cited 11 times.
doi: 10.1080/03602559.2012.663848

View at Publisher
-
- 11 Balakrishnan, H., Masoumi, I., Yussuf, A.A., Imran, M., Hassan, A., Wahit, M.U.
Ethylene Copolymer Toughened Polylactic Acid Nanocomposites

(2012) *Polymer - Plastics Technology and Engineering*, 51 (1), pp. 19-27. Cited 18 times.
doi: 10.1080/03602559.2011.603978

View at Publisher
-
- 12 Pasbakhsh, P., Ismail, H., Fauzi, M.N.A., Bakar, A.A.
EPDM/modified halloysite nanocomposites

(2010) *Applied Clay Science*, 48 (3), pp. 405-413. Cited 109 times.
doi: 10.1016/j.clay.2010.01.015

View at Publisher
-
- 13 Prashantha, K., Lacrampe, M.F., Krawczak, P.
Processing and characterization of halloysite nanotubes filled polypropylene nanocomposites based on a masterbatch route: Effect of halloysites treatment on structural and mechanical properties

(2011) *Express Polymer Letters*, 5 (4), pp. 295-307. Cited 75 times.
<http://www.expresspolymlett.com/letolt.php?file=EPL-0001728&mi=c>
doi: 10.3144/expresspolymlett.2011.30

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-

-
- 14 Kakati, K., Pugazhenth, G., Iyer, P.K.
Effect of organomodified Ni-Al layered double hydroxide (OLDH) on the properties of polypropylene (PP)/LDH nanocomposites

(2012) *International Journal of Polymeric Materials and Polymeric Biomaterials*, 61 (12), pp. 931-948. Cited 18 times.
doi: 10.1080/00914037.2011.610060

[View at Publisher](#)
-
- 15 Ismail, H., Pasbakhsh, P., Fauzi, M.N.A., Abu Bakar, A.
Morphological, thermal and tensile properties of halloysite nanotubes filled ethylene propylene diene monomer (EPDM) nanocomposites

(2008) *Polymer Testing*, 27 (7), pp. 841-850. Cited 162 times.
doi: 10.1016/j.polymertesting.2008.06.007

[View at Publisher](#)
-
- 16 Ansari, M.N.M., Ismail, H.
Effect of compatibilisers on mechanical properties of feldspar/polypropylene composites

(2009) *Polymer - Plastics Technology and Engineering*, 48 (12), pp. 1295-1303. Cited 8 times.
doi: 10.1080/03602550903204162

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-
- 17 Cao, X.V., Ismail, H., Rashid, A.A., Takeichi, T., Vo-Huu, T.
Mechanical properties and water absorption of kenaf powder filled recycled high density polyethylene/natural rubber bicomposites using mape as a compatibilizer

(2011) *BioResources*, 6 (3), pp. 3260-3271. Cited 19 times.
http://www.ncsu.edu/bioresources/BioRes_06/BioRes_06_3_3260_VietCao_IRTT_Mechan_Water_Kenaf_HDPE_MAPE_Compat_1709.pdf

[View at Publisher](#)
-
- 18 Kahar, A.W.M., Ismail, H., Othman, N.
Effects of polyethylene-grafted maleic anhydride as a compatibilizer on the morphology and tensile properties of (thermoplastic tapioca starch)/(high-density polyethylene)/(natural rubber) blends

(2012) *Journal of Vinyl and Additive Technology*, 18 (1), pp. 65-70. Cited 16 times.
doi: 10.1002/vnl.20289

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-
- 19 Ismail, H., Norjulia, A.M., Ahmad, Z.
Curing characteristics, mechanical and morphological properties of kenaf fibre/halloysite nanotubes hybrid-filled natural rubber compounds

(2010) *Polymer - Plastics Technology and Engineering*, 49 (9), pp. 938-943. Cited 15 times.
doi: 10.1080/03602551003773171

[View at Publisher](#)
-
- 20 Ning, N.-y., Yin, Q.-j., Luo, F., Zhang, Q., Du, R., Fu, Q.
Crystallization behavior and mechanical properties of polypropylene/halloysite composites

(2007) *Polymer*, 48 (25), pp. 7374-7384. Cited 147 times.
doi: 10.1016/j.polymer.2007.10.005

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-

-
- 21 Prachayawarakorn, J., Sangnitdej, P., Boonpasith, P.
Properties of thermoplastic rice starch composites reinforced by cotton fiber or low-density polyethylene
(2010) *Carbohydrate Polymers*, 81 (2), pp. 425-433. Cited 78 times.
doi: 10.1016/j.carbpol.2010.02.041
View at Publisher
-
- 22 Othman, N., Ismail, H., Mariatti, M.
Effect of compatibilisers on mechanical and thermal properties of bentonite filled polypropylene composites
(2006) *Polymer Degradation and Stability*, 91 (8), pp. 1761-1774. Cited 64 times.
doi: 10.1016/j.polymdegradstab.2005.11.022
View at Publisher
-
- 23 Alhuthali, A.M., Low, I.M.
Influence of halloysite nanotubes on physical and mechanical properties of cellulose fibres reinforced vinyl ester composites
(2013) *Journal of Reinforced Plastics and Composites*, 32 (4), pp. 233-247. Cited 6 times.
doi: 10.1177/0731684412467392
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-
- 24 Jose, A.J., Alagar, M., Aprem, A.S.
Thermal and barrier properties of organoclay-filled polysulfone nanocomposites
(2012) *International Journal of Polymeric Materials and Polymeric Biomaterials*, 61 (7), pp. 544-557. Cited 16 times.
doi: 10.1080/00914037.2011.593065
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-
- 25 Belhassen, R., Boufi, S., Vilaseca, F., López, J.P., Méndez, J.A., Franco, E., Pèlach, M.A., (...), Mutjé, P.
Biocomposites based on Alfa fibers and starch-based biopolymer
(2009) *Polymers for Advanced Technologies*, 20 (12), pp. 1068-1075. Cited 34 times.
<http://www3.interscience.wiley.com/cgi-bin/fulltext/121589781/PDFSTART>
doi: 10.1002/pat.1364
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-
- 26 Wang, S., Yu, J., Yu, J.
The compatible thermoplastic starch/polyethylene blends by one-step reactive extrusion
(2005) *Plast. Technol.*, 285, pp. 279-285. Cited 3 times.
-
- 27 Alamri, H., Low, I.M., Alothman, Z.
Mechanical, thermal and microstructural characteristics of cellulose fibre reinforced epoxy/organoclay nanocomposites
(2012) *Composites Part B: Engineering*, 43 (7), pp. 2762-2771. Cited 58 times.
doi: 10.1016/j.compositesb.2012.04.037
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-
- 28 Gupta, A.P., Sharma, M., Kumar, V.
Preparation and characterization of potato starch based low density polyethylene/low density polyethylene grafted maleic anhydride biodegradable polymer composite
(2008) *Polymer - Plastics Technology and Engineering*, 47 (9), pp. 953-959. Cited 17 times.
doi: 10.1080/03602550802274597
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-

- 29 Chang, S.Y., Ismail, H., Ahsan, Q.
Effect of maleic anhydride on kenaf dust filled polycaprolactone/thermoplastic sago starch composites
(2012) *BioResources*, 7 (2), pp. 1594-1616. Cited 12 times.
http://www.ncsu.edu/bioresources/BioRes_07/BioRes_07_2_1594_Chang_Ismail_Maleic_Anhyd_Kenaf_PCL_Starch_Compos_1996.pdf
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-
- 30 Pasbakhsh, P., Ismail, H., Fauzi, M.N.A., Bakar, A.A.
Influence of maleic anhydride grafted ethylene propylene diene monomer (MAH-g-EPDM) on the properties of EPDM nanocomposites reinforced by halloysite nanotubes
(2009) *Polymer Testing*, 28 (5), pp. 548-559. Cited 77 times.
doi: 10.1016/j.polymertesting.2009.04.004
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-
- 31 Siriwardena, S., Ismail, H., Ishiaku, U.S., Perera, M.C.S.
Mechanical and morphological properties of white rice husk ash filled polypropylene/ethylene-propylene-diene terpolymer thermoplastic elastomer composites
(2002) *Journal of Applied Polymer Science*, 85 (2), pp. 438-453. Cited 48 times.
doi: 10.1002/app.10713
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