Invitation to Review for Polymer Composites, PC-14-2099

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Thu 11/13/2014 10:50 AM

_Journal Review Activities

To:Mohamed Eldessouki <eldesmo@tigermail.auburn.edu>;

13-Nov-2014

Dear Dr. Eldessouki,

Manuscript ID PC-14-2099 entitled "Effects of Polymer Matrix and Fiber Modifications on the Mechanical Properties of Thermoset Biocomposites", by Ngo, Truc; Kohl, James; Paradise, Tawni; Khalily, Autumn; Simonson, Duane, has been submitted to Polymer Composites.

I invite you to review this manuscript. The abstract appears at the end of this letter, along with the names of the authors. Please let me know within 5 days if you will be able to review this paper. If you are unable to review this paper, would you take a moment to please recommend one or two other possible referees with expertise in this area?

Please consider whether you have any conflict(s) of interest that may have an impact on the impartiality of your review (including in relation to any Company and/or commercial product mentioned in the article). If your conflict is serious enough to preclude your participation you should decline this invitation to review. Please contact me or the Editorial Office prior to accepting this invitation if you'd like to discuss what constitutes a serious conflict.

If you do choose to review this manuscript, please indicate your acceptance by clicking, "Agree", via email below.

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I would hope that you complete your review within few weeks. Please know that and the authors and I appreciate your service.

Sincerely,

Prof. Scott Case
Scott W. Case
Associate Editor - Polymer Composites Journal

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MANUSCRIPT DETAILS

TITLE:
Effects of Polymer Matrix and Fiber Modifications on the Mechanical Properties of Thermoset Biocomposites

AUTHORS:
Ngo, Truc; Kohl, James; Paradise, Tawni; Khalily, Autumn; Simonson, Duane

ABSTRACT:
There have been many recent studies on the mechanical properties of biocomposites. Unfortunately, the mechanical properties of biocomposites are often inferior compared to their conventional counterparts. It is hoped that by increasing the mechanical properties, biocomposites may be able to replace traditional, petroleum-based composites. A traditional epoxy resin and a linseed oil-based bioresin were used in this study. Two different types of fibers, fiberglass and hemp, in form of fabrics, were used to reinforce the thermoset polymer matrix. The fiber/polymer matrix interface was modified using two different approaches: adding a plant-based oil (pine or linseed) to the polymer matrix, and coating the fibers with 3-(aminopropyl)triethoxysilane (APTES) prior to integrating them into the polymer matrix. Result show that hemp fibers with APTES prime coat used in either epoxy or UVL matrix exhibited some potential improvements in the composite's mechanical properties including tensile strength, modulus of elasticity, and ductility. It was also found that adding oil to the epoxy matrix reinforced with fiberglass mostly improved the material's modulus of elasticity while maintaining its tensile strength and ductility. However, adding oil to the epoxy matrix reinforced with hemp doubled the material's ductility while slightly reducing its tensile strength and modulus of elasticity.