Invitation to Review for Polymer Composites, PC-13-0363

onbehalfof+dbaird+vt.edu@manuscriptcentral.com on behalf of dbaird@vt.edu

Sun 5/5/2013 3:05 PM

Reviewing Activity

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

05-May-2013

Dear Dr. Eldessouki,

Manuscript ID PC-13-0363 entitled "Effect of nano ZrO2 on the thermal and chemical resistance properties of starch bionanocomposites.", by Swain, Sarat; Pradhan, Gopal; Dash, Satyabrata, 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?

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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,

Dr. Donald Baird
Executive Editor
Polymer Composites Journal

MANUSCRIPT DETAILS

TITLE:
Effect of nano ZrO2 on the thermal and chemical resistance properties of starch bionanocomposites.

AUTHORS:
Swain, Sarat; Pradhan, Gopal; Dash, Satyabrata

ABSTRACT:
Starch zirconium oxide bionanocomposites (Starch/ZrO2) were prepared using various percentage of nano ZrO2 by solution technique. The interaction of ZrO2 with starch matrix was studied by Fourier transform infrared spectroscopy (FTIR) and the structural behavior was investigated by X-ray diffraction (XRD). The dispersion of ZrO2 within virgin starch was noticed by field emission scanning electron microscope (FESEM). The thermal properties of starch/ZrO2 bionanocomposites was studied by thermogravimetric analysis (TGA). The conductivity of starch/ZrO2 was measured and increase in conductivity was observed due to the increase in ZrO2 concentrations. It was noticed that the thermal stability and chemical resistance of the bionanocomposites were higher than that of the virgin starch. Further, the biodegradability of Starch/ZrO2 bionanocomposites was reduced as compared to starch due to insertion of stable ZrO2 filler. The thermally stable, chemical resistant starch bionanocomposites with conducting property may enable the materials for making of semiconducting devices.