

NRC Publications Archive Archives des publications du CNRC

Long fiber thermoplastic pet-based composites: fiber content and consolidation pressure

Trudel-Boucher, David; Labonté, Sylvain; Cridelich, Carine

This publication could be one of several versions: author's original, accepted manuscript or the publisher's version. /
La version de cette publication peut être l'une des suivantes : la version prépublication de l'auteur, la version acceptée du manuscrit ou la version de l'éditeur.

Publisher's version / Version de l'éditeur:

Design, Manufacturing and Applications of Composites: Proceedings of the Eighth Joint Canada-Japan workshop on Composites, p. 8, 2010-10-12

NRC Publications Archive Record / Notice des Archives des publications du CNRC :
<https://nrc-publications.canada.ca/eng/view/object/?id=98dd63ce-5c2f-45eb-b72e-14ecfc08cf26>
<https://publications-cnrc.canada.ca/fra/voir/objet/?id=98dd63ce-5c2f-45eb-b72e-14ecfc08cf26>

Access and use of this website and the material on it are subject to the Terms and Conditions set forth at
<https://nrc-publications.canada.ca/eng/copyright>

READ THESE TERMS AND CONDITIONS CAREFULLY BEFORE USING THIS WEBSITE.

L'accès à ce site Web et l'utilisation de son contenu sont assujettis aux conditions présentées dans le site
<https://publications-cnrc.canada.ca/fra/droits>

LISEZ CES CONDITIONS ATTENTIVEMENT AVANT D'UTILISER CE SITE WEB.

Questions? Contact the NRC Publications Archive team at
PublicationsArchive-ArchivesPublications@nrc-cnrc.gc.ca. If you wish to email the authors directly, please see the first page of the publication for their contact information.

Vous avez des questions? Nous pouvons vous aider. Pour communiquer directement avec un auteur, consultez la première page de la revue dans laquelle son article a été publié afin de trouver ses coordonnées. Si vous n'arrivez pas à les repérer, communiquez avec nous à PublicationsArchive-ArchivesPublications@nrc-cnrc.gc.ca.

Long fiber thermoplastic PET composites: fiber content and consolidation pressure

David Trudel-Boucher and Sylvain Labonté
Industrial Materials Institute
National Research Council of Canada
75 de Mortagne
Boucherville, Quebec, Canada J4B 6Y4

Carine Cridelich
Hochschule Karlsruhe
Technik und Wirtschaft
Moltkestr. 30
76133 Karlsruhe
Germany

ABSTRACT

PET-based long glass fiber thermoplastic (LFT) composites manufactured from PET fibers and E-glass fibers have been studied. To manufacture these composites, PET and glass fibers are first cut to the same length and laid-down into a mold in thin alternate layers to obtain a regular distribution of the polymer and reinforcing fibers. The charge is then compression molded in a steel mold into rectangular plates. In this study, the influence of the glass fiber content and consolidation pressure on the void content, void distribution and mechanical properties is investigated. Results obtained for the influence of the fiber content show significant improvements of the tensile properties with increasing glass fiber content. Only small improvements are however measured for the flexural properties. This is thought to be related to the presence of large and continuous voids in the fiber bundles. Results of mechanical tests also show an improvement of the tensile modulus with increasing consolidation pressure.