Accepted Manuscript

Effect of carbon nanotube and functionalized liquid rubber on mechanical and electrical properties of epoxy adhesives for aircraft structures

L. Vertuccio, L. Guadagno, G. Spinelli, S. Russo, G. Iannuzzo

PII: \$1359-8368(17)31547-0

DOI: 10.1016/j.compositesb.2017.07.021

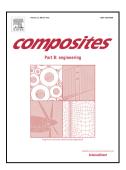
Reference: JCOMB 5157

To appear in: Composites Part B

Received Date: 4 May 2017
Revised Date: 5 July 2017
Accepted Date: 13 July 2017

Please cite this article as: Vertuccio L, Guadagno L, Spinelli G, Russo S, Iannuzzo G, Effect of carbon nanotube and functionalized liquid rubber on mechanical and electrical properties of epoxy adhesives for aircraft structures, *Composites Part B* (2017), doi: 10.1016/j.compositesb.2017.07.021.

This is a PDF file of an unedited manuscript that has been accepted for publication. As a service to our customers we are providing this early version of the manuscript. The manuscript will undergo copyediting, typesetting, and review of the resulting proof before it is published in its final form. Please note that during the production process errors may be discovered which could affect the content, and all legal disclaimers that apply to the journal pertain.



ACCEPTED MANUSCRIPT

Effect of carbon nanotube and functionalized liquid rubber on mechanical and electrical properties of epoxy adhesives for Aircraft Structures

L. Vertuccio^{a*}, L. Guadagno^{a*} G. Spinelli^b, S. Russo^c, G. Iannuzzo^c

^a Department of Industrial Engineering University of Salerno, Via Giovanni Paolo II, Fisciano (SA) Italy

^b Department of Information and Electrical Engineering and Applied Mathematics University of Salerno, Via Giovanni Paolo II, Fisciano (SA) Italy

^cLeonardo SpA, Aircraft Division, Engineering Airframe, Viale dell'Aeronautica, Pomigliano D'Arco (NA), 80038, Italy

*lvertuccio@unisa.it; *lguadagno@unisa.it; gspinelli@unisa.it; salvatore.russo@leonardocompany.com; generoso.iannuzzo@leonardocompany.com

Abstract

New electrical conductive adhesives based on Multi Wall Carbon Nanotubes (MWCNTs) and functionalized liquid rubber have been designed and characterized. The elastomeric domains play a very relevant role in enhancing flexibility and mechanical performance of the adhesive formulation. Lap shear adhesion tests have shown enhancements in the stress up to 69 % for the sample containing 25 phr of elastomeric phase in the matrix. The inclusion of MWCNTs in the toughened adhesive can be advantageously employed for further enhancing adhesive properties simultaneously imparting electrical conductivity, which results of 11 orders of magnitude higher than the unfilled formulation.

Keywords:

- A. Carbon-carbon composites (CCCs)
- B. Adhesion
- B. Electrical properties
- D. Mechanical testing

Download English Version:

https://daneshyari.com/en/article/5021150

Download Persian Version:

https://daneshyari.com/article/5021150

<u>Daneshyari.com</u>