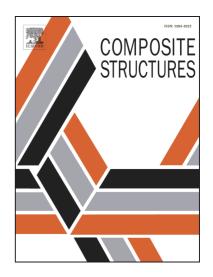
Accepted Manuscript

Influence of low and high temperature on mixed adhesive joints under quasistatic and impact conditions

J.J.M. Machado, E.A.S. Marques, Lucas F.M. da Silva

PII:	S0263-8223(18)30454-9
DOI:	https://doi.org/10.1016/j.compstruct.2018.03.093
Reference:	COST 9540
To appear in:	Composite Structures
Received Date:	30 January 2018
Revised Date:	19 March 2018
Accepted Date:	26 March 2018



Please cite this article as: Machado, J.J.M., Marques, E.A.S., da Silva, L.F.M., Influence of low and high temperature on mixed adhesive joints under quasi-static and impact conditions, *Composite Structures* (2018), doi: https://doi.org/ 10.1016/j.compstruct.2018.03.093

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

Influence of low and high temperature on mixed adhesive joints under quasi-static and impact conditions

J. J. M. Machado¹, E. A. S. Marques¹, Lucas F. M. da Silva^{2*}

¹Instituto de Ciência e Inovação em Engenharia Mecânica e Engenharia Industrial (INEGI), Rua Dr. Roberto Frias, 4200-465 Porto, Portugal

²Departamento de Engenharia Mecânica, Faculdade de Engenharia (FEUP), Universidade do Porto, Rua Dr. Roberto Frias, 4200-465 Porto, Portugal

Abstract

The increasing use of composite structures in the automotive industry is due to strict regulations regarding fuel efficiency and safety standards. The main advantage of the use of adhesives is the possibility of joining dissimilar materials, particularly composites. The technique studied was the mixed adhesive joints, as two or more adhesives can be used in a single lap joint combining the properties of those adhesives to attain mechanical performance superior to that obtained using those adhesives individually. The main goal was to assess if a previously validated combination of mixed adhesives in a composite joint, tested under quasi-static and impact conditions, offers the same advantage over the use of a single adhesive when subjected to low (-30 °C) and high (80 °C) temperatures. The influence of temperature on the behaviour of the composite joints was assessed in quasi-static and impact conditions allowing to infer the effect on each adhesive. Another important aspect of the use of this type of technique is to avoid the early delamination of the composite substrates. This method was found to improve the performance under quasi-static and impact conditions although its behaviour under the wide range of temperature tested was found to vary significantly.

^{*}Corresponding author. Tel: +351225081706. Fax: +351225081445. Email: lucas@fe.up.pt

Download English Version:

https://daneshyari.com/en/article/6703448

Download Persian Version:

https://daneshyari.com/article/6703448

Daneshyari.com