Accepted Manuscript

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PII: S1359-8368(18)31713-X

DOI: 10.1016/j.compositesb.2018.09.067

Reference: JCOMB 6037

To appear in: *Composites Part B*

Received Date: 29 May 2018

Revised Date: 23 July 2018

Accepted Date: 21 September 2018

Please cite this article as: Machado JJM, Nunes PDP, Marques EAS, da Silva LFM, Adhesive joints using aluminium and CFRP substrates tested at low and high temperatures under quasi-static and impact conditions for the automotive industry, *Composites Part B* (2018), doi: https://doi.org/10.1016/j.compositesb.2018.09.067.

Adhesive joints using aluminium and CFRP substrates tested at low and high temperatures under quasi-static and impact conditions for the automotive industry

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Abstract

The use of adhesives to bond metallic and composite structural components has increased substantially over the last decades. The aim of this work is to understand and predict the behaviour of dissimilar adhesive joints, using composite and aluminium substrates, under quasi-static and impact loads. Several testing temperatures (-30 to 80 ºC) were considered, following the requirements for the automotive industry. It was possible to conclude that dissimilar adhesive joints, if used in conjunction with modern crash resistant adhesives, can effectively be used for the construction of automotive structures, without significant sacrifices in joint performance, with good energy absorption capabilities under impact.

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