

Non-destructive evaluation of adhesive joints using acoustic methods

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In recent times, adhesive joints are used in numerous applications in different industrial sectors. This increment of bonded components has led to develop new methods for evaluation of the structural health of bonded joints. While NDTs have proven to be a great tool to guarantee reliability in assembled structures by welding or riveting, these methods have not been widely investigated and developed for the purpose monitoring adhesive joints [1]. Acoustical techniques (ultrasounds, acoustic emission, are irreplaceable tools for non-destructive evaluation of adhesive joints for the aerospace and automotive industries [2]. In the last decade, much progress has been made in the development and improvement of acoustical methods for the investigation of adhesively bonded structures [3,4]. These methods allow to detect voids, delamination, porosities, cracks, and poor adhesion.

A non-destructive Sound Pressure Levels (SPL) evaluation and monitoring technique that have proven their effectiveness classify the size of the defect in the study of adhesive joints were used in this study.

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[2] J. Moysan et al, 19th World Conference on Non-Destructive Testing (2016)

[3] A. Baudot et al. J Adhesion, 90, 555 (2014)