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Effect of Saline Environment on Mechanical Properties of Adhesive Joints

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Adhesive joints reduce stress concentration, are able to join distinct materials and reduce corrosion. However, the open literature shows that the effects of moisture and temperature on adhesive joints are very expressive [1-6]. In fact the environmental exposure promotes reduction in the failure strength, strain, toughness and fatigue threshold of the bonded joints [7]. If there are studies sufficient to establish a full knowledge of this subject, as can be noted, there are very few works about the effect of highly corrosive environments on the mechanical properties of adhesive joints.

This work intends to contribute for a better understanding about the effect of saline solution on mechanical properties of single-lap adhesive joints. The specimens were cut from steel plates with 1 mm thickness, and bonded with epoxy adhesive. The adhesive joints performance, and consequent degradation, was analyzed by tensile and fatigue tests.

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