

Effect of Water Absorption on the Fatigue Behavior of Glass/Polyester Composite

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Abstract : The composite materials of glass fibers can be used as a repair material for damage elements under repeated stresses, and in various environments. A cyclic bending characterization of a glass/polyester composite material was carried out with consideration of the period of immersion in water. These tests describe the behavior of materials and identify the mechanical fatigue characteristics using the Wohler Curve for different immersion time: 0, 90, 180 and 270 days in water. These curves are characterized by a dispersion in the lifetimes were modeled by straight whose intercepts are very similar and comparable to the static strength. This material deteriorates fatigue at a constant rate, which increases with increasing immersion time in water at a constant speed. The endurance limit seems to be independent of the immersion time in the water.

Keywords : fatigue, composite, glass, polyester, immersion, wohler

Conference Title : ICCM 2016 : International Conference on Composite Materials

Conference Location : Paris, France

Conference Dates : January 21-22, 2016