

عنوان مقاله:

Environmental Effects on Mechanical Properties of Glass/Epoxy and Fiber Metal Laminates, Part I: Hygrothermal Aging

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نویسندگان:

Moslem Najafi - *Department of Mechanical Engineering, University of Guilan*

Reza Ansari - *Department of Mechanical Engineering, University of Guilan*

Abolfazl Darvizeh - *Department of Mechanical Engineering, University of Guilan*

خلاصه مقاله:

In this article, the effect of hygrothermal aging on mechanical properties of fiber metal laminates (FMLs) and E-glass/epoxy (GE) composites is investigated. First, FML and GE specimens were built using wet lay-up technique under vacuum pressure. Hygrothermal aging simulation was then carried out on both specimen types in distilled water at a constant temperature of 90 °C for 5 weeks. The resulting behavior of degradation for both types of specimens caused by hygrothermal aging was evaluated by bending and Charpy impact testing. As expected, because of the protective role of aluminum layers, FML specimens showed remarkably lower water absorption after hygrothermal aging compared to the glass/epoxy composites. Experimental results also revealed that the flexural properties of both the FML and GE laminates were affected by the hygrothermal aging, whereas a lower level of deterioration in impact strength was found.

کلمات کلیدی:

Fiber metal laminates (FMLs), Glass/epoxy composites, Hygrothermal aging, Impact properties, Flexural properties

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