

**INTERFACIAL BEHAVIOR OF EPOXY/E-GLASS FIBER COMPOSITES UNDER WET-DRY CYCLES BY
FOURIER TRANSFORM INFRARED MICRO SPECTROSCOPY**

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Abstract

The interfacial behavior of epoxy/glass fiber micro-composites under cycles of wet and dry environment change was investigated by Fourier Transform Infrared (FTIR) microspectroscopy. The adsorbed water content in the epoxy/fiber interphase under moist conditions is reduced by treating the glass fibers with a silane coupling agent, γ -aminopropyltriethoxysilane. This results in a significant decrease in the ring-opening polymerization of epoxy in the epoxy/fiber interphase. It is also found that the wet-dry cycles cause significant variation of the residual adsorbed water in the interphase regions. There is an indication that the debonding in the epoxy/silane-treated fiber interphase is slower than the epoxy/heat-cleaned fiber interphase.