IN-SITU MONITORING OF CROSSLINKING EPOXY RESIN BY FTIR AND RAMAN SPECTROSCOPY

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Resin Transfer Moulding (RTM) is rapidly gaining acceptance as one of the most promising manufacturing routes for composite structures in applications such as the aerospace and automotive industries. However, relatively limited information is available on the chemistry and cure characteristics of the types of thermosetting resins used in such applications. The validity of using FTIR and Raman spectroscopy to monitoring the cure chemistries of amine-cured epoxy is demonstrated by the Fourier Transform Infrared spectroscopy (FTIR) absorbance measurements with Raman measurements for diglycidylether of Bisphenol-A in own reaction. The intensity of normalized Raman peak at 1275cm^{-1}, assigned to the epoxide functionality. Raman spectroscopy was successfully applied to demonstrate that the changes observed in the cure reaction of the resin lead to a different composition.