

MATERIALS AND STRUCTURES SYMPOSIUM (C2)
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THERMAL EXPANSION PROPERTIES OF CARBON FIBER REINFORCED PEEK
UNIDIRECTIONAL PREPREG

Abstract

The thermal properties of carbon fiber reinforced PEEK(polyether ether ketone) unidirectional prepreg were studied in this paper. Composite micromechanics method was used to derive the equation calculating linear expansion coefficient of the unidirectional prepreg under constant tensile load. The linear expansion coefficients of unidirectional prepreg had been measured by thermal and creep tester under different tensile loads and different fiber contents. Results indicate that the effect of constant tensile load on the prepreg linear expansion coefficients is very small under eliminating the resin creep and small thermal-elastic deformation, the prepreg linear expansion coefficients decreased with the increasing of fiber contents, and the calculated values coincided with the measured values.