

Effect of boron carbide composition in SiC/B4C composite on surface temperature decay as revealed by thermal wave method

ABSTRACT

We report the results of a thermal wave study on SiC/B4C composites of different B4C compositions. Thermal wave, generated subsequent to sample absorption of pulse laser, was observed by means of a wide-band infrared detector. The information content of the thermal wave is then analysed by using a least-squares method. Temperature decay time, as measured from thermal wave decay curve, varies with % of B4C in the composites. Up to 50% B4C the decay time was found to vary inversely with thermal diffusivity of the composites as predicted.

Keyword: Composites; Thermal wave method; Temperature decay; Thermal diffusivity; Decay time