عنوان مقاله:

Prediction the Temperature-Dependent Thermo-Physical Properties of Elastomeric Composite at High Temperature

محل انتشار:

دومین کنفرانس بین المللی کامپوزیت (سال: 1389)

تعداد صفحات اصل مقاله: 6

نویسندگان:

F Arabgol - *Ph.D. student*

,M Kokabi - *Professor*

A.R Bahramian - *Assistant professor, Polymer Engineering Department*

خلاصه مقاله:

In this work, a method for predicting the thermo-physical properties; apparent thermal diffusivity, α, specific heat capacity, Cp, and thermal conductivity, k, of polymer composites exposed to high heat flux at one direction perpendicular to the specimen has been developed. This method expresses the thermal diffusivity of the polymer composite as a function of temperature using the temperature profiles. The temperature profiles of polymer composite with a constant volume were measured at different depths through the thickness using oxyacetylene flame test. The thermal diffusivity was calculated from the temperature profile using inverse solution of mass and energy equations. Specific heat capacity and thermal conductivity of polymer composite at high temperature can be determined by considering the decomposition of polymer which is endothermic. A decrease of density, an increase of specific heat capacity and the change of apparent thermal diffusivity and thermal conductivity were observed for elastomeric matrix composite at high temperature conditions. The accuracy of the predicted thermo-physical properties were evaluated .by comparing the results attributed to various time scales of oxyacetylene flame tests according to ASTM E-285-80

کلمات کلیدی:

Elastomeric composite, thermal diffusivity, thermo-physical properties, hightemperature