Thermophysical Properties of an Epoxy Resin

Denise Camarano [C, S], Pablo Grossi, Wellington Silva, Kássio Lacerda, Mariane Schnitzle, Adelina Santos, Clascídia Furtado and Ricardo Ferreira
CDTN/CNEN, Belo Horizonte, Minas Gerais, Brazil

The Flash Laser method has been systematically employed to evaluate the thermal conductivity at room temperature of an epoxy resin based on diglycidylether bisphenol A (DGEBA) crosslinked with amine hardener. In the Flash Laser method, the front surface of a small sample is subjected to a very short burst of radiant thermal energy. The resulting temperature rise on the opposite surface of the sample is measured, and the thermal diffusivity is computed from the temperature rise vs time data. A mathematical model based in this method was developed here in order to obtain the thermophysical properties values. The results of thermal diffusivity and thermal conductivity of an epoxy resin are included here to illustrate the viability of the mathematical model. Details of thermal characterization from thermogravimetry and differential scanning calorimetry of the epoxy resin are also discussed.