

Determination of thermal diffusivity Polypyrrole and Polypyrrole/Bismuth oxide conducting polymers using laser flash technique

ABSTRACT

The determination of conducting polymer's thermal properties is essential in engineering processes and design. Thermal diffusivity is one of the important thermal properties in non-steady state situations. This fundamental knowledge is useful in the development of processes and control, selection of materials and prediction of end use properties in many engineering process and design. In this research, laser flash technique is employed to determine the thermal diffusivity of Polypyrrole and Polypyrrole/Bismuth Oxide conducting polymers. Measurements were carried out from room temperature up to 420 K. It was observed that the presence of secondary doping agent of bismuth oxide enhanced the thermal properties of polypyrrole conducting polymer.

Keyword: Polypyrrole; Iron (3) Chloride 6-hydrate; Bismuth oxide; Laser flash; Thermal diffusivity; Thermal