

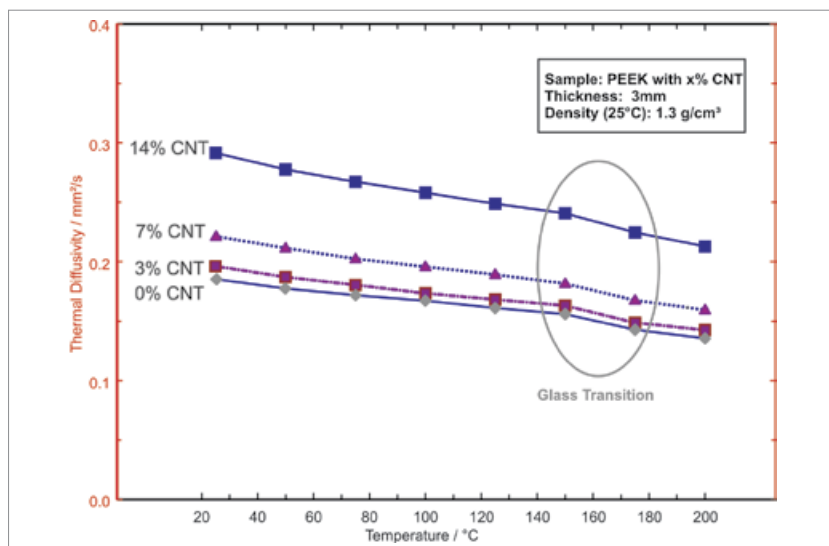
APPLICATION SHEET

POLYMERS – POLYMER MANUFACTURING

POLYETHERETHERKETONE (PEEK) WITH CARBON NANOTUBES (CNT)

The use of nanoparticles in a polymer matrix offers a broad range of possibilities to control the mechanical and thermophysical properties of polymers for later application. The influence of carbon nanotubes (CNT) on the thermo-

physical properties was investigated by LFA measurements and is shown in this application sheet. PEEK samples with different CNT contents were tested from room temperature up to 200°C.



Instrument

LFA 447 NanoFlash®

Test Conditions

Temperature range	25 ... 200°C
Sample holder	12.7 mm diameter
Sample thickness	3 mm

Results

The thermal diffusivity decreases with an increasing temperature and shows a step between 150°C and 170°C due to the glass transition of amorphous regions of semi-crystalline polymer matrix. Significant differences were detected depending on the CNT content. The thermal diffusivity increases with an increasing CNT content. The example clearly demonstrates that even a smallest increase in CNT contents can be detected with the LFA 447 without any problems.