

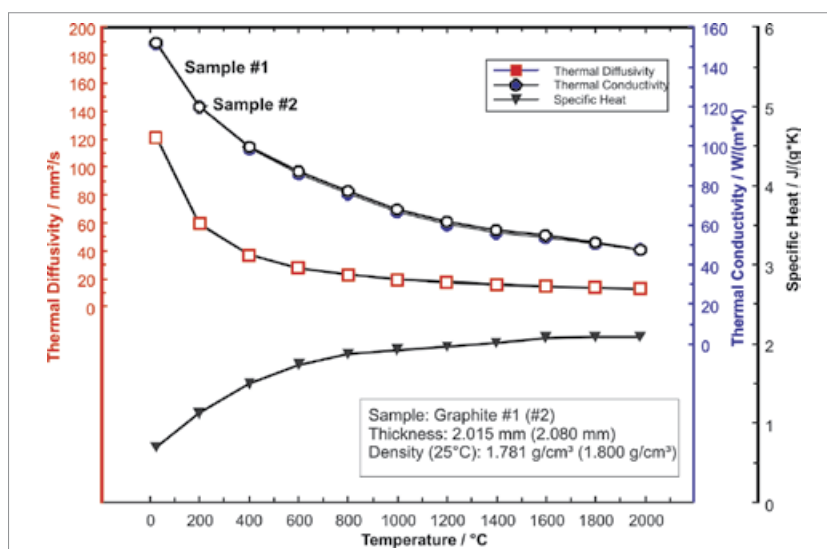
APPLICATION SHEET

CARBON COMPOSITE – CHEMISTRY

CARBON COMPOSITE

Carbon products were developed three decades ago to replace metal components in highperformance, military aircraft engine afterburners. Nowadays, these composites are used as aircraft and other brakes (e.g. racing brakes), vacuum furnace parts, in chemical reactors and a host of other industrial applications. Carbon materi-

als are used when light weight, chemically inert and/or high temperature strength are important issues. For example, these materials surpass superalloys in specific strength. This application sheet shows the thermophysical properties of a carbon composite measured with the LFA 427.



Instrument

LFA 427

Test Conditions

Temperature range	RT ... 2000°C
Sample holder	12.7 mm diameter
Sample thickness	approx. 2 mm
Sample surface preparation	graphite
c_p from LFA, standard	poco graphite

Results

The results show the typical behavior of carbon samples with decreasing values for the thermal diffusivity and thermal conductivity above room temperature. The presented values for two samples of the same material show a good agreement and reproducibility. The specific heat increases over the entire temperature range as expected from the Debye theory. The values are typical for graphite composites. The example clearly demonstrates that the LFA 427 can analyze carbon composites in high temperature range without any problems.