Copper-fiber Reinforced Polymers (PA)

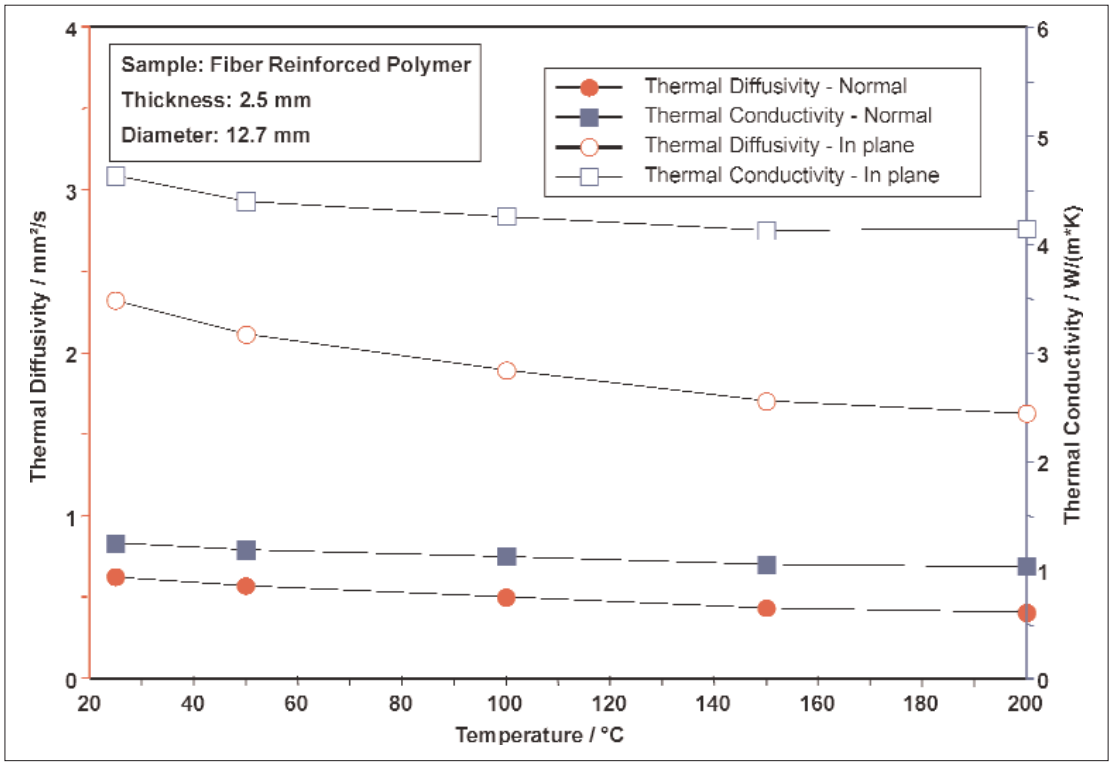
AS-087-2006

Fiber-reinforced polymers are being increasingly utilized in modern industrial applications. Low specific weight and high E-modulus are only some of the features of this group of materials. However, if metal or carbon fibers are used as reinforcement, a significant anisotropy in the thermophysical properties can be induced into a part. If the properties are not known, problems can arise for applications where heat transfer plays an important role. Due to the fact that the flash technique works in an orientated fashion, the LFA 447 *NanoFlash*™, together with in-plane or laminate sample holders, can measure the thermal diffusivity and thermal conductivity in the different directions with unmatched reproducibility and accuracy.

Test Conditions:

Temperature range: RT ... 200°C
Sample holder: 12.7 mm diameter

Sample surface preparation: Graphite coating



Results:

The measurement result for the copper-fiber reinforced polymer clearly shows that in the fiber orientation (in-plane), a significantly higher thermal diffusivity and thermal conductivity were obtained than for the results normal to the fiber orientation. The results were in perfect agreement with the user's expectations based on their experiences in the real application of the material.

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