

Procedure for the estimation of the thermal conductivity of samples with infrared thermography

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Thermal conductivity is one of the fundamental thermal properties of materials. Different ISO procedures for its determination can be found in the technical literature.

The main aim of this paper is to present a simple and fast methodology for the estimation of this important parameter. The proposed procedure is applied to several samples of different materials, and the obtained results indicate that the method is successful. Any available infrared equipment can be used, and the necessary installation and laboratory conditions are not too demanding. The methodology is based on the application of Fourier's law to one-dimensional heat conduction under steady conditions. The paper is also a good learning tool for review of all the important heat transfer concepts.

Keywords

Experimental procedure, infrared thermography, thermal conductivity, thermal properties