

Temperature- and Angle-Resolved Infrared Spectral Directional Emissivity of SiC, Alumina, and Pt for Temperatures Up To 1000 °C

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This paper reports the first comprehensive results obtained from a fully functional, recently established infrared spectral emissivity capability at NIST [1]. Emissivity measurements are made by a comparison of the sample spectral radiance to that of a reference blackbody at a similar (but not identical) temperature. Initial materials selected for measurement are potential candidates for use as emissivity standards, or are of particular technical interest. Temperature and angle-resolved measurements of the spectral directional emissivity of several materials, including SiC, alumina, and Pt, have been measured in the spectral range of 2 to 20 μm , over a temperature range of 300 up to 1000 °C and an angular range from normal to $\geq 60^\circ$.

- [1] L.M. Hanssen, S.N. Mekhontsev, and V.B. Khromchenko, 'Infrared spectral emissivity characterization facility at NIST,' Proc. SPIE 5405, 1-12 (2004).