

# **THERMOPHYSICAL PROPERTIES OF THE NI-BASED ALLOY NIMONIC 80A UP TO 2400 K, III**

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Nimonic 80A is a Nickel-Chromium alloy which is strengthened by additions of titanium and aluminum. The alloy is used for high temperature, high strength applications. This superalloy is used in gas turbine hot section components, for hot working applications and forging hammers.

By the means of a fast pulse heating technique several thermophysical data for the solid and liquid material have been measured and presented for temperatures above 1100 K in previous papers.

The optical measurement of temperature is limited by our fast pyrometers with  $T_{\min} = 1200$  K for this material.

To obtain the new presented data a differential - scanning – calorimetry technique (DSC) is used for determination of the specific heat capacity, and out of this the enthalpy values, from 500 K up to 1500 K.

By combining this two methods it is now possible to assign a temperature to the electrical resistivity and thermal conductivity in the observed temperature range. The thermal conductivity is estimated using the Wiedemann - Franz law.

The investigated specific heat capacity, enthalpy, resistivity and thermal conductivity data as function of temperature are presented and compared to literature-values.

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