DYNATECH

THERMAL CONDUCTIVITY OF HOT PRESSED BERYLLIUM BETWEEN 4 AND 600 K

MT-004-0

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Thermal Conductivity of Hot Pressed Beryllium Between 4 and 600 K

(a) Material Studied

The material provided for the investigation was stated to be hot pressed beryllium. Eight samples were provided in the form of rods approximately 12.7 mm diameter and 150 mm long. They were in two batches of four.

Chemical compositions have been supplied for the material but at the present time there is a discrepancy between the data given to Westinghouse by the supplier and that actually determined by Westinghouse. Four analyses are being carried out and the confirmed final results will be provided in the final report.

On receipt of the samples each was given a Dynatech identification. Then the dimensions, weight and derived density of each were measured. Following this the electrical resistivity at approximately 21C was determined for a given length approximately 100 mm long between two knife edges. Each rod was then sent away to be machined into a suitable test sample for the thermal conductivity measurements. This test sample was approximately 100 mm long and of uniform diameter of approximately 12.7 mm. It had a hole 6 mm diameter and 25 mm deep drilled at the centre of one end and a taper machined at the other end to fit into the base of the appropriate test stack. Small holes approximately 0.3 mm diameter were drilled in four positions along the centre line some 10 mm apart giving a total of 40 mm between extremes. Two further small longitudinal holes were drilled 12 mm deep into the material at the end of the rod containing the 6 mm hole. Table I contains details of the identification of the samples and the electrical resistivity at room temperature.

Specimen Serial #	Dynatech Sample Number	Electrical Resistivity at 21C 10^8 Ωm
A89242 Longitudinal	1	4.48
A89291 Longitudinal	2	4.45
C 596 Longitudinal	3	4.98
C 597 Longitudinal	4	4.98
A89285 Transverse	5	4.34