

Issued by

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Your Order No.: 13003

### Thermal Conductivity of Aerogel UK Insulation Blanket –NT1310

**Client** Aerogel UK Ltd, 7 Spring Lane, Mortimer Common, Reading, Berkshire, RG7 3RT

1. **Sample\*** Identified by the client as “Aerogel UK Insulation Blanket – NT1310”.  
Conditioned before testing to constant mass at 23°C and 50% RH.  
Product Standard applicable to tested specimens – N/A
2. **Method** LaserComp FOX 603 Instrument single specimen heat flow meter apparatus.  
Serial No. 12051473  
Heat flow meter method to ISO 8301:1991 / BS EN 12667  
Heat flux direction – vertically upwards.  
Edge heat losses minimised by additional edge temperature controls and edge insulation mask.  
All temperature, dimensional and heat flow measurements have traceability to national standards.

### 3. Thermal Conductivity

Mean Temperature °C	Thermal Conductivity W/mK	Mean Thickness mm	Density Kg/m <sup>3</sup>
10.0	0.02257 ± 2.6%	10.9	192

The results only apply to the sample tested as described in this report

*A. Simpson*

The reported expanded uncertainty is based on a standard uncertainty multiplied by a coverage factor  $k=2$ , providing a level of confidence of approximately 95%. The uncertainty evaluation has been carried out in accordance with UKAS requirements.

#### 4. Test Details

Measured Specimen thickness	m	0.01093
Relative thickness change during test	%	0.00
Dimensions	m	0.610 x 0.605
Relative volume change during test	%	0.00
Mass before test	g	773.2
Mass after test	g	772.6
Relative mass change during test	%	-0.08
Relative mass change during drying	%	N/A
Relative mass change during conditioning	%	0.00
Density of conditioned material as tested	kg/m <sup>3</sup>	192
Mean Temperature of Test	°C	10.0
Average temperature drop across specimens	K	12.03
Density of heat flow rate	W/m <sup>2</sup>	24.84
Date of Test		8 October 2013
Duration of Test	hours	3
Ambient temperature surrounding the apparatus during the test	°C	23
Type and pressure of gas surrounding specimens		Air at Atmospheric Pressure
Interface Medium		None
Water tight - envelope		5 micron plastic

#### 5. Date of Last Heat Flow Meter Calibration Check

The heat flow meter calibration was checked on 30 September 2013 and 18 October 2013 using 3) 100 mm EPS material and found to be within specification.

Calibrations are used that are based on

- 1) 25 mm EPS material ( EPS#1108112, traceable to IRMM-440) with thermal resistance at 10°C of 0.78 m<sup>2</sup>K/W. EPS#1108112 was last calibrated at LaserComp, Inc. in July 2012 and is due to be recalibrated in July 2017.
- 2) stable 20 year aged 50 mm EPS with thermal resistance at 10°C of 1.41 m<sup>2</sup>K/W, which was last calibrated in the Salford University UKAS accredited guarded hot plate during September 2012, and is due to be recalibrated in September 2017.
- 3) stable 20 year aged 100 mm EPS with thermal resistance at 10°C of 2.82 m<sup>2</sup>K/W, which was last calibrated in the Salford University UKAS accredited guarded hot plate during September 2012, and is due to be recalibrated in September 2017.

## 6. Thickness Measurement

The mean thickness was determined by the FOX 603 Instrument by measuring the hot and cold plate separation at each corner. The separation was checked with calibrated electronic calipers.

## 7. Specimen preparation and method of conditioning

The sample identified by the client as “Aerogel UK Insulation Blanket – NT1310”, was conditioned at 23°C and 50% RH for 19 days to constant weight, then wrapped in a plastic envelope before testing.

## 8. Errors in measured property

The maximum expected error in the measured thermal conductivity is within 2.6 %. This includes the errors arising from non-compliances.

## 9. Non-compliances

This test conformed with the requirements of Standard Test Method ISO 8301 / BS EN 12667 with the exception of:-

- 1) an additional uncertainty of 1% has been applied to allow for the uncertainty in the thickness of a 10mm sample.

## 10. Name of Test Operator/s

A. Simpson

**\* Sample Retention Period - Unless advised otherwise by the client, samples will be retained for up to 1month from the test completion date. After this the samples will be destroyed.**