
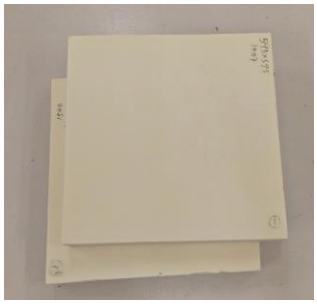
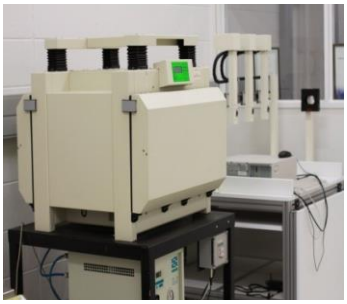

TEST REPORT

DI10856-001-01

THERMAL RESISTANCE OF TWO INSULATION SAMPLES

CLIENT
Delta Panels Pty Ltd
2828 Ipswich Road, Darra, QLD 4076, Australia

All tests and procedures reported herein, unless indicated, have been performed in accordance with the laboratory's scope of accreditation

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NATA

IANZ

TO WHOM IT MAY CONCERN

Both NATA (National Association of Testing Authorities, Australia) and IANZ (International Accreditation New Zealand) are signatories to the ILAC Mutual Recognition Arrangement. Under the terms of this arrangement, each signatory:

(i) recognises within its scope of recognition of this Arrangement the accreditation of an organisation by other signatories as being equivalent to an accreditation by its own organisation,

(ii) accepts, for its own purposes, endorsed* certificates or reports issued by organisations accredited by other signatories on the same basis as it accepts endorsed* certificates or reports issued by its own accredited organisations,

(iii) recommends and promotes the acceptance by users in its economy of endorsed* certificates and reports,

* *The word "endorsed" means a certificate or report bearing an Arrangement signatory's accreditation symbol (or mark) preferably combined with the ILAC-MRA Mark.*

Signed:

Jennifer Evans
NATA CEO

Date: 24 March 2014

Dr Llewellyn Richards
IANZ CEO

Date: 24th March 2014

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1. TEST SPONSOR

Delta Panels Pty Ltd

2828 Ipswich Road, Darra, QLD 4076, Australia

2. LIMITATION

The results reported here relate only to the item/s tested.

3. TERMS AND CONDITIONS

This report is issued in accordance with the Terms and Conditions as detailed and agreed in the BRANZ Services Agreement for this work.

4. DESCRIPTION OF TEST EQUIPMENT

The test equipment used were LaserComp Fox 600 and FOX 801 heat flow meters. The specimen for testing is placed horizontally in the apparatus, with upwards heat flow. The hot and cold plates each have a 250 mm x 250 mm heat flux transducer embedded in their surface. The edges of the specimen are insulated from the room ambient temperature.

5. PROCEDURE

The specimens were supplied by the client and consisted of two pieces of polyisocyanurate foam segment. The dimensions of the samples were approximately 600 x 600 mm. They were tested at their actual thicknesses, to the requirements of ASTM C518.

6. RESULTS

Table 1 Test condition set-points

Nominal Upper Plate Temperature	10.0	°C
Nominal Lower Plate Temperature	36.0	°C
Nominal Difference in Temperature	26.0	K
Nominal Mean Temperature	23.0	°C

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Table 2 Measured Results

Calibration check	01-Oct-18, SR06		
BRANZ reference		D6166	D6167a
Client reference		1	2
Sample weight	gram	1407	1540
'grams per sq. metre'	g/m^2	3974	4173
Test date		02-Oct	03-Oct
Test thickness	mm	98.2	98.7
Density	kg/m^3	40.5	42.3
Temperature difference	K	26.0	26.0
Mean temperature	°C	23.0	23.0
Heat-flux	W/m^2	6.57	6.12
Thermal resistance	m^2K/W	3.96	4.25
Thermal conductivity	W/mK	0.0248	0.0232
Difference between heat flux transducers	%	0.5	1.6

The best expanded uncertainty of measurement (3%) is only achieved with heterogeneous material with R-value greater than 0.1 m^2K/W when the percentage difference between the heatflux transducers readings is less than 5%. If the difference is greater than 5% then the uncertainty in the measurements of thermal resistance and conductivity will be greater than 3%.

Some foam insulation materials such as phenolic, polyurethane, polyisocyanurate and extruded polystyrene can exhibit the characteristic of aging of the material, the thermal conductivity increasing with time. Since the previous history of the test material is unknown and no accelerated aging has been performed, these results should without further information be considered as representative of the performance of new material only and actual longer-term in-service thermal conductivity may be higher.

7. REFERENCES

ASTM C518 *Standard Test Method for Steady-State Heat Thermal Transmission Properties by Means of the Heat Flow Meter Apparatus*.
American Society for Testing and Materials, Philadelphia, PA, 2017

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