

# AWTA PRODUCT TESTING

Australian Wool Testing Authority Ltd – trading as AWTA Product Testing  
A.B.N. 43 006 014 106  
1st Floor, 191 Racecourse Road, Flemington, Victoria 3031  
P.O. Box 240, North Melbourne, Victoria 3051  
Phone (03) 9371 2400 Fax (03) 9371 2499

## TEST REPORT

CLIENT : AUSTRALIAN URETHANE SYSTEMS  
PO BOX 986  
KINGS LANGLEY NSW 2147

TEST NUMBER : 7-579537-NN  
ISSUE DATE : 05/07/2011  
PRINT DATE : 05/07/2011  
ORDER NUMBER : WINSTON

SAMPLE DESCRIPTION Clients Ref: "PIRE45"  
Polyurethane Product  
Nominal Thickness: 25mm

ISO 8302-1991 Thermal Insulation (Guarded Hot Plate Test)

Test conditions:

Mean Heat Flux(W/m<sup>2</sup>) 1.496  
Mean Rct(m<sup>2</sup>K/W) 1.256

SEE SPREADSHEET FOR RESULTS

The thermal resistance values contained in this report are determined by testing in accordance with ISO 8302 and specifically describe the steady state thermal properties of the tested product associated with that method of test

Results contained in this report do not infer thermal information where the product is used under conditions differing from those under which the product was tested

It should be noted that whilst sufficient time has been allowed prior to testing for the product to recover from compression during transit it has been tested at the thickness nominated in the report. This may differ from the client's expectations of nominated thickness at the point of manufacture, we have therefore included the additional calculated measure of the thermal resistance at the client's nominated thickness

The results contained in the report are those which have been requested and do not necessarily denote compliance in entirety to AS/NZS 4859.1

187912

1

( END OF REPORT )

PAGE 1

© Australian Wool Testing Authority Ltd  
Copyright - All Rights Reserved

Samples, and their identifying descriptions have been provided by the client unless otherwise stated. AWTA Ltd makes no warranty, implied or otherwise, as to the source of the tested samples. The above test results relate only to the sample or samples tested. The above test results are designed to provide THE CLIENT WITH GUIDANCE INFORMATION ONLY.

This document shall not be reproduced except in full and shall be rendered void if amended or altered.

This document, the name AWTA Product Testing and AWTA Ltd may be used in advertising providing the content and format of the advertisement have been approved in advance by the Managing Director of AWTA Ltd.



# AWTA PRODUCT TESTING

**AS/NZS 4859.1:2002 - Materials for the thermal insulation of buildings. Part 1: General criteria and technical provisions (Section 2.3) - (Thermal Resistance)**

Date:	04-Jul-11		
Project Number:	187912		
Sample Description and orientation:	Clients Ref: PIRE45 Polyisocyanurate Foam		
	Sample 1	Sample 2	Mean
Test Plate Area:	$6.58 \times 10^{-2}$	$6.58 \times 10^{-2}$	$6.58 \times 10^{-2}$ m <sup>2</sup>
Hot Surface Temperature:	24.001	24.000	24.000 °C
Cold surface Temperature:	22.090	22.183	22.137 °C
ΔT	1.911	1.817	1.864 °C
Mean Temperature	23.046	23.092	23.069 °C
Relative Humidity	65.000	65.000	65.000 %
Heat Flux:	1.54	1.45	1.496 W/m <sup>2</sup>
Bare Plate Resistance	0.063	m <sup>2</sup> /KW	
Total Thermal Resistance (R)	1.37	1.27	1.319 m <sup>2</sup> /KW
Thermal Resistance [R]	1.306	1.206	1.256 m <sup>2</sup> /KW
Tested Thickness	27.0	mm * #	Δ Thickness
Recovered Thickness	27.0	mm	0.0 mm
Client Nominated Thickness	25.0	mm	-2.0 mm
Error and Uncertainty of Measurement U <sub>95</sub>	8.400%	* Calculated in accordance with ISO GUM.	
Coverage Factor	1.980	* Calculated in accordance with ISO GUM.	
Plate emissivity	0.810	*5	
Test Method:	ISO8302:1991 - Thermal insulation - Determination of steady-state thermal resistance and related properties - Guarded hot plate apparatus.		
Wind Velocity:			0.00 m/s
Mass Change:			
Mass <sup>Initial</sup>	341.80	339.50	340.65 g
Mass <sup>Final</sup>	341.80	339.50	340.65 g
Δ mass	0.00	0.00	0.00 %
Dimensions (Complete Specimen)			
Thickness	27.00	mm	0.027 m
Width	498.00	mm	0.498 m
Length	498.00	mm	0.498 m
Tested Volume	0.0067	m <sup>3</sup>	
Density (ρ)	50.87	kg/m <sup>3</sup>	
Transfer Factor (γ)	0.0218	0.0215	0.0217 W/mK (Calculated) <sup>*1</sup>
Apparent Thermal Conductivity (λ <sub>k</sub> )	0.0207	0.0224	0.0215 W/mK (Calculated) <sup>*2</sup>
U - Value	0.730	0.788	0.759 W/(K.m <sup>2</sup> ) (Calculated) <sup>*3</sup>
Calculated R-Value for recovered thickness	N/A	m <sup>2</sup> /KW	(Calculated) <sup>*4</sup>
Calculated R-Value for client nominated thickness	N/A	m <sup>2</sup> /KW	(Calculated) <sup>*4</sup>

Acceptable

Tested on Guarded Hotplate Apparatus Model:10.5 S/N 306-401 Manufactured by: Measurement Technology Northwest System componentry includes Guarded Hotplate Assembly, Airflow Hood with variable speed fans, Ambient and Hotplate temperature sensors, RH and Windspeed sensors, Control and Logging System and Environmental Chamber. All Specimens are tested in a horizontal position.

# Where applicable. The mass applied is 9.836 kg

## Test plate dimension is 260mm x 260mm, Complete guarded apparatus dimension is 510mm x 510mm.

\*1 Calculated in accordance with ISO8302:1991(E) Section 3.5.2

\*2 Calculated in Accordance with ASTM C653-97 Section 3.2.1.

\*3 Calculated as 1/R.

\*4 Linear interpolation based on nominal thickness from measured R-Value

Kelvin units and measured Temperature (°C) units may be read as interchangeable where variations from absolute zero are not required.

\*5 Plate emissivity was measured by CSIRO using a TASCO Osaka Model THI-300, S/N 826 041.