



DC1469

Determination of resistance to freeze/thaw of thermoplastic roof tiles

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 - ii. Nothing in this Agreement shall exclude or limit BRANZ's liability to a Client for death or personal injury or for fraud or any other matter resulting from BRANZ's negligence for which it would be illegal to exclude or limit its liability.
 - iii. BRANZ is neither an insurer nor a guarantor and disclaims all liability in such capacity. Clients seeking a guarantee against loss or damage should obtain appropriate insurance.
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 - vi. The liability of BRANZ in respect of any claim for loss, damage or expense of any nature and howsoever arising shall in no circumstances exceed a total aggregate sum equal to 10 times the amount of the fee paid in respect of the specific service which gives rise to such claim or NZD\$50,000 (or its equivalent in local currency), whichever is the lesser.
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 - or
 - The date when the service should have been completed in the event of any alleged non-performance.
- b. Indemnification: The Client shall guarantee, hold harmless and indemnify BRANZ and its officers, employees, agents or subcontractors against all claims (actual or threatened) by any third party for loss, damage or expense of whatsoever nature including all legal expenses and related costs and howsoever arising relating to the performance, purported performance or non-performance, of any Services.
- c. Without limiting clause b above, the Client shall guarantee, hold harmless and indemnify BRANZ and its officers, employees, agents or subcontractors against all claims (actual or threatened) by any party for loss, damage or expense of whatsoever nature including all legal expenses and related costs arising out of:
- i. any failure by the Client to provide accurate and sufficient information to BRANZ to perform the Services;
 - ii. any misstatement or misrepresentation of the Outputs, including Public Outputs;
 - iii. any defects in the Products the subject of the Services; or
 - iv. any changes, modifications or alterations to the Products the subject of the Services.



Determination of resistance to freeze/thaw of thermoplastic roof tiles

1. CLIENT

Authentic Roof Australia
6, 691-695 Warringah Road
Forestville
NSW 2087
Australia

2. SUMMARY OF TESTING

Three black thermoplastic roof tiles, were supplied by the client (see Section 3 below). The tiles were to be tested to determine their resistance to cyclic freeze/thaw in accordance with AS 4046:2002, Method 6.

3. CAVEAT

While compliance with the performance requirements of AS 4046:2002, Method 6 indicate the general fitness for purpose of the thermoplastic roof tiles supplied, potential purchasers should consider that this report does not address the Quality Assurance systems of the manufacturer. In particular, BRANZ has no knowledge of the sampling criteria used to select the samples submitted for testing, nor how representative they are of the quality of "Authentic Roof™ 2000" tiles as a whole, or on a consistent or sustained basis. Consequently this report does not have the same weight as a formal product Appraisal.

4. DESCRIPTION OF MATERIAL TESTED

Three thermoplastic roof tiles were submitted for testing by the client. The tiles were coloured 'Bavarian Black' and labelled "Authentic Roof™ 2000". They measured approximately 300 mm wide, 455 mm long and 4.2 mm thick. The surface of the tiles to be exposed to the weather was textured to resemble a 'slate' or 'shingle' type of appearance.

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5. DESCRIPTION OF TEST PROCEDURE

The tiles were immersed in water at $+20\pm 2^{\circ}\text{C}$ for 24 hours prior to testing. At the end of the soaking period testing was carried out to AS 4046.6 with the following modification: A PVC tube of nominal 100 mm diameter was sealed to the textured surface of the tile using 'Fosroc Seelastrip'. This was used to contain the distilled water to a minimum depth of 12 mm.

The tile assemblies were subjected to five cycles in a Contherm 5900 Environmental Chamber. One cycle consisted of the following steps:

- (i) 2 hours at $+20\pm 2^{\circ}\text{C}$
- (ii) Reducing the temperature to $-20\pm 2^{\circ}\text{C}$ over 2 hours (nominal ramp rate of 1°C per 3 min).
- (iii) 2 hours at $-20\pm 2^{\circ}\text{C}$
- (iv) Increasing the temperature to $+20\pm 2^{\circ}\text{C}$ over 2 hours (nominal ramp rate of 1°C per 3 min).

After each cycle the surface of the tiles that was under test was examined for any defects and/or loose particles as specified in Clause 6(d) of AS 4046.6.

6. RESULTS

No evidence of any defects and/or loose particles were found at any stage during the testing.

7. REFERENCE

Standards Australia. AS 4046:2002 Methods of testing roof tiles. Method 6: Determination of resistance to freeze/thaw. Sydney, Australia.