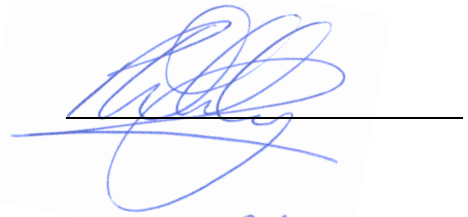


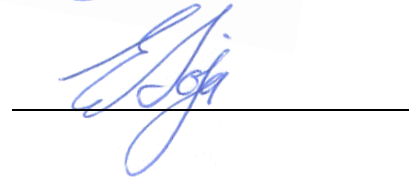
# FH 4518

## **Cone Calorimeter Test and BCA Specification C1.10a Performance of Vescom Vinyl Wallcovering (nominally 350 g/m<sup>2</sup>)**

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All tests reported herein have been undertaken at the BRANZ Ltd laboratories located in Judgeford, Porirua, New Zealand, unless stated otherwise.

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International Accreditation New Zealand (IANZ) has a Mutual Recognition Agreement (MRA) with the National Association of Testing Authorities, Australia (NATA). Users of test reports are recommended to accept test reports in the name of either accrediting body.



BRANZ's agreement with its Client in relation to this report contains the following terms and conditions in relation to ***Liability and Indemnification***

- a. Limitation and Liability
- i. BRANZ undertakes to exercise due care and skill in the performance of the Services and accepts liability to the Client only in cases of proven negligence.
  - 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.
  - iv. Neither BRANZ nor any of its officers, employees, agents or subcontractors shall be liable to the Client nor any third party for any actions taken or not taken on the basis of any Output nor for any incorrect results arising from unclear, erroneous, incomplete, misleading or false information provided to BRANZ.
  - v. BRANZ shall not be liable for any delayed, partial or total non-performance of the Services arising directly or indirectly from any event outside BRANZ's control including failure by the Client to comply with any of its obligations hereunder.
  - 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.
  - vii. BRANZ shall have no liability for any indirect or consequential loss (including loss of profits).
  - viii. In the event of any claim the Client must give written notice to BRANZ within 30 days of discovery of the facts alleged to justify such claim and, in any case, BRANZ shall be discharged from all liability for all claims for loss, damage or expense unless legal proceedings are commenced in respect of the claim within one year from:
    - The date of performance by BRANZ of the service which gives rise to the claim;
    - 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.



# Cone Calorimeter Test and BCA Specification C1.10a Performance of Vescom Vinyl Wallcovering (nominally 350 g/m<sup>2</sup>)

## 1. CLIENT

Eurowalls  
38/110 Bourke Road ‘  
Bourke Centre’,  
Alexandria  
NSW 2015  
Australia

## 2. GENERAL

The product submitted by the client for testing was identified by the client as Vescom vinyl wallcovering with a total nominal weight 350 g/m<sup>2</sup>. The composition was stated to be a vinyl topcoat of approximately 310 g/m<sup>2</sup> on a cotton backing of 40 g/m<sup>2</sup>. Specimens were adhered to nominally 10 mm thick standard grade paper-faced plasterboard using PRO-880 “Universal adhesive/for all wallpapers” adhesive. Figure 1 illustrates the wallcovering tested.



Figure 1. Tested specimen vinyls  
(from left to right, FH4518-50-1, FH4518-50-2, FH4518-50-3, exposed face at top)

  
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## 2.1 Sample Measurements

The following physical parameters were measured for each specimen prior to testing.

Specimen	Specimen ID	Initial properties		Overall apparent density (kg/m <sup>3</sup> )
		Mass (g)	Mean thickness (mm)	
Vescom vinyl wallcovering (350 g/m <sup>2</sup> )	FH4518-50-1	66.6	10.2	653
	FH4518-50-2	66.1	10.2	648
	FH4518-50-3	66.9	10.2	656

## 3. EXPERIMENTAL PROCEDURE

### 3.1 Test Standard

The tests were carried out according to the test procedure described in AS/NZS 3837:1998 'Method of test for heat and smoke release rates for materials and products using an oxygen consumption calorimeter' (the test standard). The sample preparation and test procedure were as described in 3.4 and 3.5.

### 3.2 Test Date

The tests were conducted on 29<sup>th</sup> March 2011 by Mr Paul Wong.

### 3.3 Specimen Conditioning

All specimens were conditioned to moisture equilibrium (constant weight), at a temperature of 23 ± 2 °C and a relative humidity of 50 ± 5% immediately prior to testing.

### 3.4 Specimen Wrapping and Preparation

All tests were conducted and the samples prepared in accordance with the test standard. The spark igniter and the stainless steel retainer frame were used. All specimens were wrapped in a single layer of aluminium foil, covering the unexposed surfaces.

### 3.5 Test Program

The test program consisted of three replicate specimens as identified in the above table, tested at an irradiance level of 50 kW/m<sup>2</sup>. All tests were carried out with the specimen horizontal, and with a nominal duct flow rate of 0.024 m<sup>3</sup>/s.

  
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## 4. EXPERIMENTAL PROCEDURE

### 4.1 Test Results and Reduced Data

Material	Vescom vinyl wallcovering (350 g/m <sup>2</sup> )			Mean Value
	FH4518-50-1	FH4518-50-2	FH4518-50-3	
Specimen test number	1	2	3	
Time to sustained flaming	s	12	13	12
Observations	i	i	i	
Test duration <sup>a</sup>	s	250	312	306
Mass remaining, $m_f$	g	57.2	53.4	54.6
Mass pyrolyzed	%	14.1%	19.2%	18.4%
Specimen mass loss <sup>b</sup>	kg/m <sup>2</sup>	1.03	1.40	1.35
Specimen mass loss rate <sup>b</sup>	g/m <sup>2</sup> .s	6.5	8.8	8.5
Heat release rate				
peak, $\dot{q}_{max}''$	kW/m <sup>2</sup>	122.5	119.3	125.5
average, $\dot{q}_{avg}''$				
Over 60 s from ignition	kW/m <sup>2</sup>	69.7	70.9	72.1
Over 180 s from ignition	kW/m <sup>2</sup>	34.8	34.2	34.8
Over 300 s from ignition	kW/m <sup>2</sup>	23.1*	23.0	22.6
Total heat release <sup>c</sup>	MJ/m <sup>2</sup>	6.8	6.9	6.8
Average Specific Extinction Area <sup>c</sup>	m <sup>2</sup> /kg	107.1	76.8	119.1
Effective heat of combustion <sup>c</sup> , $\Delta h_{c,eff}$	MJ/kg	6.5	4.8	4.9

Notes :

<sup>a</sup> determined by average mass loss over 1 minute dropped below 150 g/m<sup>2</sup>

<sup>b</sup> from ignition to end of test;

<sup>c</sup> from the start of the test

i no significant observations were recorded

\* these values were calculated using data beyond the official end of test time according to the test standard.

  
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## 5. SUMMARY

AS/NZS 3837 requires that the mean heat release rate (HRR) readings over the first 180 s from ignition for the three specimens should differ by no more than 10% of the arithmetic mean of the three readings. In the event of this criterion not being met, a further three specimens are required to be tested.

Specimen ID	Average HRR over 180s from ignition	Arithmetic mean	% difference from the arithmetic mean
FH4518-50-1	34.8	34.6	0.4
FH4518-50-2	34.2		-1.0
FH4518-50-3	34.8		0.6

The above table identifies all specimens exposed to 50 kW/m<sup>2</sup> irradiance were within the acceptance criteria.

The report summary for Vescom vinyl wallcovering as described in Section 2, exposed to an irradiance of 50 kW/m<sup>2</sup> is:

Mean Specimen thickness (mm)	Irradiance (kW/m <sup>2</sup> )	Mean Time to Ignition (s)	Mean Peak Heat Release Rate (kW/m <sup>2</sup> )	Mean Total Heat Released (MJ/m <sup>2</sup> )
10.2	50	12	122.4	6.9

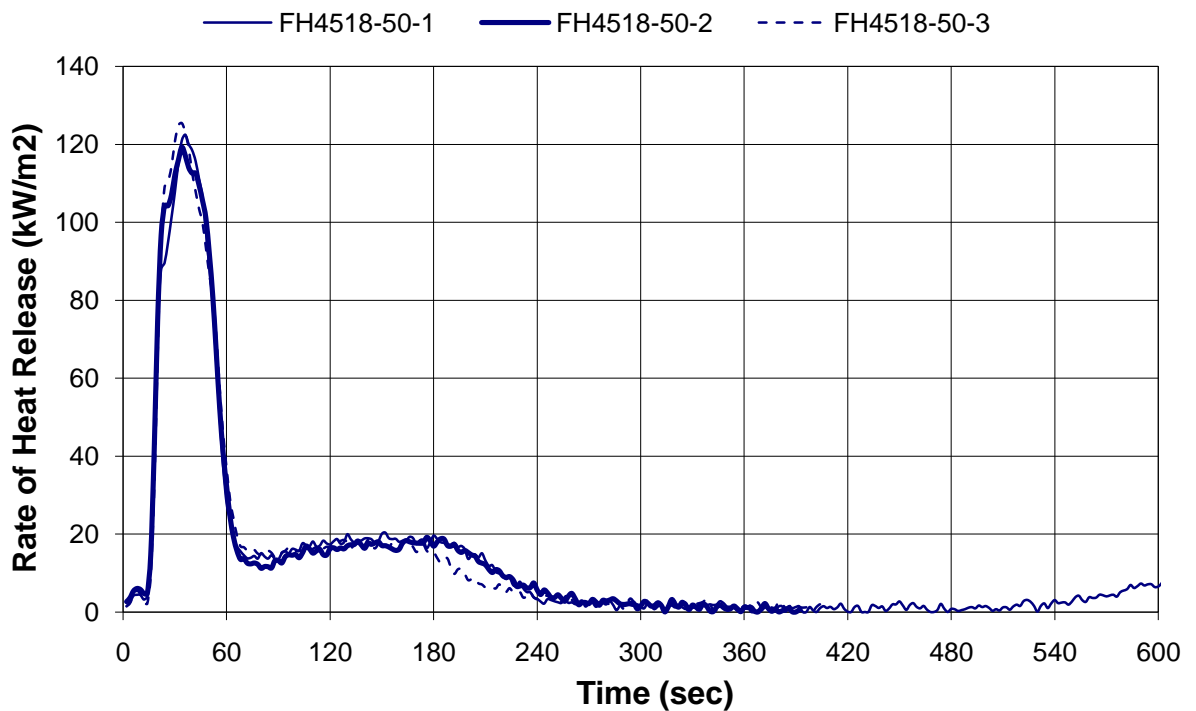


Figure 2. Rate of heat release versus time

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## 6. CLASSIFICATION IN ACCORDANCE WITH SPECIFICATION C1.10A OF THE BUILDING CODE OF AUSTRALIA (BCA) 2010

Calculations were carried out according to BCA 2010 Specification A2.4. The classification for Vescom vinyl wallcovering with a total nominal weight of 350 g/m<sup>2</sup> are as follows:

	Sample 1	Sample 2	Sample 3	Classification
Classification	Group 2	Group 2	Group 2	Group 2

The average specific extinction area for the sample of 101.0 m<sup>2</sup>/kg is less than the 250 m<sup>2</sup>/kg limit and therefore Vescom vinyl wallcovering with a total nominal weight 350 g/m<sup>2</sup> may be used in buildings without a sprinkler system complying with Specification E1.5 in accordance with Specification C1.10a Table 2.

## 7. CONCLUSION

The cone calorimeter testing was carried out on Vescom vinyl wallcovering with a total nominal weight of 350 g/m<sup>2</sup>. For the purposes of compliance with the BCA 2010 Specification C1.10a for the Classification of Fire Performance of Wall and Ceiling Lining Materials, the following classification is considered applicable to the material as described below, and others in the same product range with the same fabrication, weight and thickness as the product tested.

### Product

Vescom vinyl wallcovering with a total nominal weight of 350 g/m<sup>2</sup>.

### Classification

Group 2

The average specific extinction area was less than the 250 m<sup>2</sup>/kg limit. Vescom vinyl wallcovering with a total nominal weight of 350 g/m<sup>2</sup> recorded 101.0 m<sup>2</sup>/kg.

## 8. LIMITATION

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

  
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