materialised

flame retardancy test methods

I've been fielding questions on the various Flame Retardancy test methods and I thought some clarification might help.

You will be aware that the textile test numbers that are used, **AS1530 part 2 & 3** refers to the method of the test and reports outcomes of the various indices.

It doesn't give a pass or fail. They simply nominate how the test is to be conducted.

AS3837 does issue a ***Product Group*** Classification.

AS1530-2. This is commonly referred to as the 'Vertical Burn' test and as that description suggests, a vertical strip of the subject material is exposed to a flame for a prescribed period and the speed of extinguishing and the smoke development etc. is measured to give a ***Flammability Index***.

The score is a range from 0 to 100 and a satisfactory result in most cases in Australia is 10. Recently the New Zealand Health Department have introduced a requirement of no greater than a ***Flammability Index*** of '6'.

This test is usually required for drapery for obvious reasons, as they are usually vertically installed.

AS 1530-3 is known as the "Radiant Heat" test and it is most often called for in upholstery situations.

The test method calls for the subject material to be placed in the chamber where a radiator generates intense heat and the time the subject takes to ignite, spreads, extinguish and the amount of smoke developed is measured, and given a score.

The two indices that seem to be most important are Spread of Flame and Smoke developed.

A 'pass' is usually considered - Spread of Flame '0' and Smoke Developed '5'

AS3837 is known as the ***Cone Calorimeter*** test and this is usually called for when the material (in our case textile or PVC/PU etc.) is adhered as Wall Covering as it considered to form part of the building and therefore falls under the Building Code of Australia.

(Removable furnishing items are not covered by the BCA.)

As the name suggests it measures the calories generated by combustion.

I believe it was developed for floor coverings. The 'suite' of ingredients are supposed to be tested, meaning the actual walling material, adhesive and covering as a complete package.

There seems to have been a relaxation on that impractical requirement, and the testing of the fabric alone is accepted.

As mentioned earlier the result nominates the classification. #1 means all buildings, #2 satisfies guest rooms and most buildings excluding stairwells, fire escapes etc.

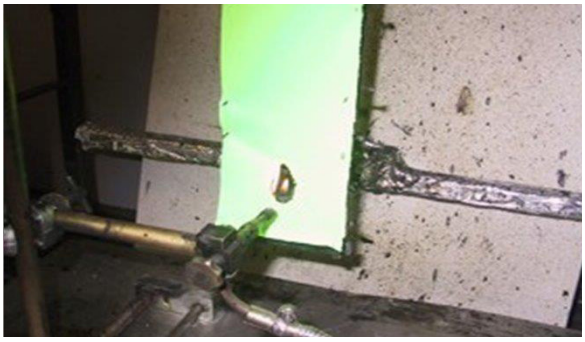
I notice that even when Flame Retardancy of furnishing items is not mandatory, very often local authorities will demand the test results.

IMO certification refers to a rigorous test required fo products for ships at sea. This will also be necessary for off-shore Oil and Gas Rigs.

I have little understanding of this process.

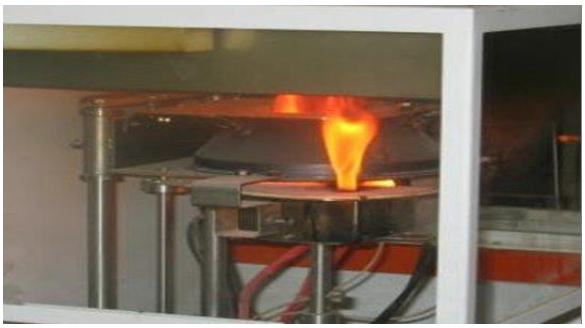
We use a test lab in England. As you can imagine it is a difficult test to meet, as it should be. We have several products certified.

See relevant test reports on following pages and images of the test apparatus' below.



1) AS/NZ1530-2 Vertical Burn Test

2)AS/NZ1530-3 Radiant Heat Test



3) AS/NZ3837. Cone Calorimeter Test

SYDNEY 19 Heath Rd Blakehurst, NSW Australia 2221 **P** +61 02 8558 3500 **F** +61 02 9546 5402 **E** sales@materialised.com **ABN** 33 001 987 211 **materialised.com**

ADELAIDE +61 8 8271 9185 | **BRISBANE** +61 7 3393 2188 | **HOBART** +61 3 9815 3033 | **MELBOURNE** +61 3 9815 3033 | **PERTH** +61 8 9381 2802 | **NEW ZEALAND** +64 9 302 7733 | **MALAYSIA** +61 2 8558 3500 | **SINGAPORE** +61 2 8558 3500

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 : Materialised Pty Ltd
19 Heath Road
Blakehurst NSW 2221

Test Number : 17-006961
Issue Date : 18/12/2017
Print Date : 18/12/2017

Sample Description

Clients Ref : "Belfast"
Textured Drapery Fabric
Colour : White
End Use : Drapery
Nominal Composition : 100% Polyester
Nominal Mass per Unit Area/Density : 200g/m2

AS 1530.2-1993 **Methods for Fire Tests on Building Materials, Components and Structures. Part 2: Test for Flammability of Materials**

	Length	Width	
Date Tested		15/12/2017	
Flammability Index		1	
Spread Factor	0	0	
Heat Factor	1	1	
Maximum height (d)			
Mean	2.0	2.3	
Coefficient of Variation	0.0	11.1	%
Heat (a)			
Mean	1.5	1.5	°C.min
Coefficient of Variation	0.0	0.0	%
Number of Specimens Tested	6	6	
Observation	Melting,Visible Smoke.		

These test results relate only to the behaviour of the test specimens of the material under the particular conditions of the test, and they are not intended to be the sole criterion for assessing the potential fire hazard of the material in use.

114726 24434 Page 1 of 1

Accredited for compliance with ISO/IEC 17025
- Chemical Testing : Accreditation No. 983
- Mechanical Testing : Accreditation No. 985
- Performance & Approvals Testing : Accreditation No. 1356

APPROVED SIGNATORY

MICHAEL A. JACKSON B.Sc.(Hons)
MANAGING DIRECTOR

0204/11/06

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

Group Number Assessment

(In accordance with AS 5637.1-2015)

This is to confirm that the product as described below has been tested by AWTA Product Testing .

Testing was performed in accordance with AS/NZS 3837-1998 Method of test for heat and smoke release rates for materials and products using an oxygen consumption calorimeter.

Test Sponsor : Materialised Pty Ltd
19 Heath Road
Blakehurst NSW 2221

Test Number : 17-003309
Issue Date : 20/07/2017
Print Date : 20/07/2017

Sponsor Product

Clients Ref : "Main Sail, Silk Road & Sandy Bank - Vinyl Wall Covering"
Coated fabric
Colour : White
End Use : Wallcovering

Product Group Number Classification :	1	
Average Specific Extinction Area :	87.1	m²/kg

Chris Campbell
Client Relations Manager

20416

AWTA TEXTILE TESTING

Australian Wool Testing Authority Ltd – trading as AWTA Textile Testing
A.B.N. 43 006 014 106
26 Robertson Street, Kensington, Victoria 3031
P.O. Box 240, North Melbourne, Victoria 3051
Phone (03) 9371 2126 Fax (03) 9371 2102

TEST REPORT

CLIENT : MATERIALISED PTY LTD
19 HEATH ROAD
BLAKEHURST NSW 2221

TEST NUMBER : 7-517248-BN
DATE : 06/03/2003
ORDER NUMBER : N7408

SAMPLE DESCRIPTION CLIENTS REF: LINEN LOOK WATERPROOF UPHOLSTERY FABRIC
COLOUR: WHITE ENDUSE: UPHOLSTERY
APPROX THICKNESS: 1mm

THESE RESULTS MUST BE CONSIDERED IN CONJUNCTION WITH THE COMMENTS ON THE FOLLOWING PAGE(S)

MATERIAL SPECIFICATION PROVIDED BY CLIENT:
NOMINAL COMPOSITION: FR POLYESTER/POLYESTER
NOMINAL MASS: 297g/m2

AS/NZS 1530.3 - 1999 SIMULTANEOUS DETERMINATION OF IGNITABILITY, FLAME PROPAGATION, HEAT RELEASE AND SMOKE RELEASE.

RESULTS:

	MEAN		STANDARD ERROR
IGNITION TIME	8.91	min	0.33
FLAME PROPAGATION TIME	NIL	s	NIL
HEAT RELEASE INTEGRAL	23.4	kJ/m2	1.8
SMOKE RELEASE, LOG D	-0.6185		0.0356
OPTICAL DENSITY, D	0.2447	/m	

NUMBER OF SPECIMENS IGNITED: 6
NUMBER OF SPECIMENS TESTED: 6

REGULATORY INDICES:		
IGNITABILITY INDEX	11	RANGE 0-20
SPREAD OF FLAME INDEX	0	RANGE 0-10
HEAT EVOLVED INDEX	0	RANGE 0-10
SMOKE DEVELOPED INDEX	5	RANGE 0-10

COMMENTS:

THESE RESULTS ONLY APPLY TO THE SPECIMEN MOUNTED, AS DESCRIBED IN THIS REPORT.

THE RESULTS OF THIS FIRE TEST MAY BE USED TO DIRECTLY ASSESS FIRE HAZARD, BUT IT SHOULD BE RECOGNIZED THAT A SINGLE TEST METHOD WILL NOT PROVIDE A FULL ASSESSMENT OF FIRE HAZARD UNDER ALL FIRE CONDITIONS.

124566E 1 (CONTINUED NEXT PAGE)

This Laboratory is accredited by the National Association of Testing Authorities, Australia, for:
- Chemical Testing of Textiles & Related Products : Accreditation No. 983
- Mechanical Testing of Textiles & Related Products : Accreditation No. 985
- Heat & Temperature Measurement : Accreditation No. 1356

The tests reported herein have been performed in accordance with its terms of accreditation. 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. This document shall not be reproduced except in full and shall be rendered void if amended or altered. This document, the names AWTA Textile 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 LIMITED

0204/8/01

APPROVED SIGNATORY

MICHAEL A. JACKSON B.Sc.(Hons)
MANAGING DIRECTOR

Note: page 1 of 2 shown.