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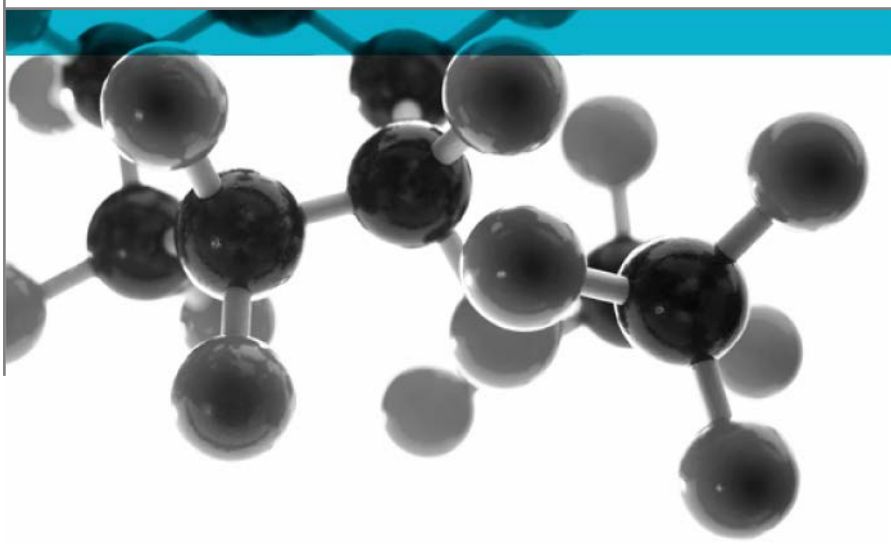
BS 476: Part 7: 1997



Method For Classification Of The Surface Spread Of Flame Of Products

A Report To: Profile Vox Sp. z o.o. Sp. k.

Document Reference: 409461

Date: 9th April 2019

Issue No.: 2

0249

Executive Summary

Objective To determine the surface spread of flame classification of the following product when tested in accordance with BS 476: Part 7: 1997.

Generic Description	Product reference	Thickness	Weight per unit area or density
Polyvinyl chloride faced polyvinyl chloride foam panel	"FB-300"	9mm	0.58-0.68g/cm^3
Individual components used to manufacture composite:			
Facing (test face)	"FB-300"	0.9 ± 0.1mm	Unwilling to provide
Foamed PVC	"FB-300"	8.6 – ± 0.1mm	Unwilling to provide
Please see pages 5 & 6 of this test report for the full description of the product tested			

Test Sponsor Profile Vox Sp. z o.o. Sp. k., ul. Gdyńska 143, 62-004 Czerwonak, Poland.

Test Results: **Class 1Y**

An uncertainty of measurement estimation has been conducted in relation to the distance travelled by the flame front and the findings are as detailed in Appendix 2.

Date of Test 12th February 2019

Reason for revision This document replaces issue 2 (dated 21st February 2019) of the same number which has been withdrawn. The incorrect product reference was added to the description table this has now been amended in this test report.

Signatories

Responsible Officer C. Jacques * Senior Technical Officer	Authorised T. Mort * Senior Technical Officer

* For and on behalf of Warringtonfire.

Report Issued: 9th April 2019

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Test Details

Purpose of test	To determine the performance of a product when it is subjected to the conditions of the test specified in BS 476: Part 7: 1997, "Fire tests on building materials and structures, method for classification of the surface spread of flame of products". This test was therefore performed in accordance with the procedure specified in BS 476: Part 7: 1997 and this report should be read in conjunction with that British Standard.
Scope of test	BS 476: Part 7: 1997 specifies a method of test for measuring the lateral spread of flame along the surface of a specimen of a product orientated in the vertical position, and a classification system based on the rate and extent of flame spread. It provides data suitable for comparing the performances of essentially flat materials, composites, or assemblies, which are used primarily as the exposed surfaces of walls or ceilings.
Fire test study group/EGOLF	Certain aspects of some fire test specifications are open to different interpretations. The Fire Test Study Group and EGOLF have identified a number of such areas and have agreed Resolutions which define common agreement of interpretations between fire test laboratories which are members of the Groups. Where such Resolutions are applicable to this test they have been followed.
Instruction to test	The test was conducted on the 12th February 2019 at the request of Profile Vox Sp. z o.o. Sp. k, the sponsor of the test.
Provision of test specimens	The specimens were supplied by the sponsor of the test. Warringtonfire was not involved in any selection or sampling procedure.
Conditioning of specimens	The specimens were received on the 24th January 2019 and were conditioned to constant mass at a temperature of 23 ± 2°C and a relative humidity of 50 ± 5% prior to testing.
Form in which the specimens were tested	Composite - Combination of materials which are generally recognised in building constructions as discrete entities e.g. coated or laminated materials. Each specimen was tested in direct contact with a nominally 12mm thick non-combustible backing board.
Exposed face	The coated face of the specimens was exposed to the heating conditions of the test.

Description of Test Specimens

The description of the specimens given below has been prepared from information provided by the sponsor of the test. This information has not been independently verified by Warringtonfire**.** All values quoted are nominal, unless tolerances are given.

General description		Polyvinyl chloride faced polyvinyl chloride foam panel
Product reference		"FB-300"
Name of manufacturer		Profile Vox Sp. z o.o. Sp. k.
Thickness		9 ± 0.1mm (stated by sponsor) 9.00mm (determined by Warringtonfire)
Density		0.58- 0.68g/cm^3 (stated by sponsor) 0.65g/cm^3 (determined by Warringtonfire)
Facing (Test face)	Generic type	Polyvinyl chloride (PVC)
	Product reference	"FB-300"
	Name of manufacturer	Profile Vox Sp. z o.o. Sp. k.
	Colour reference	"White"
	Number of coats	One
	Application thickness	0.9 ± 0.1mm
	Density	**See Note 1 Below**
	Application method	Co-extrusion
	Curing process	**See Note 1 Below**
	Flame retardant details	**See Note 1 Below**
Foamed PVC	Generic type	PVC
	Product reference	"FB-300"
	Name of manufacturer	Profile Vox Sp. z o.o. Sp. k.
	Thickness	8.6 ± 0.1mm
	Density	**See Note 1 Below**
	Colour reference	"Grey"
	Flame retardant details	**See Note 1 Below**
Brief description of manufacturing process		**See Note 1 Below**

Note 1: The sponsor was unwilling to provide this or further information.

Test Results

Results and observations

The test results for the individual specimens, together with observations made during the test and comments on any difficulties encountered during the test are given in Appendix 1.

Classification

In accordance with the class definitions given in BS 476: Part 7: 1997; the specimens tested are classified as Class 1Y.

An uncertainty of measurement estimation has been conducted in relation to the distance travelled by the flame front and the findings are as detailed in Appendix 2.

Criteria for classification

If the prefix 'D' or suffix 'R' or 'Y' is included in the classification, this indicates that the results should be treated with caution. An explanation of the reason for the prefix and suffixes is given in Appendix 3, together with the classification limits specified in the Standard.

Applicability of test result

The test results relate only to the behaviour of the test specimens of the product under the particular conditions of test; they are not intended to be the sole criterion for assessing the potential fire hazard of the product in use.

The test results relate only to the specimens of the product in the form in which they were tested. Small differences in the composition or thickness of the product may significantly affect the performance during the test and may therefore invalidate the test results. Care should be taken to ensure that any product which is supplied or used is fully represented by the specimens which were tested.

Validity

The specification and interpretation of fire test methods are the subject of ongoing development and refinement. Changes in associated legislation may also occur. For these reasons it is recommended that the relevance of test reports over five years old should be considered by the user. The laboratory that issued the report will be able to offer, on behalf of the legal owner, a review of the procedures adopted for a particular test to ensure that they are consistent with current practices, and if required may endorse the test report.

Appendix 1 – Test Results

SPECIMEN No.	1	2	3	4	5	6
Maximum distance travelled at 1.5 minutes (mm)	70	70	70	70	70	70

Distance (mm)	Time to travel to indicated distance (minutes : seconds)					
75						
165						
190						
215						
240						
265						
290						
375						
455						
500						
525						
600						
675						
710						
750						
785						
825						
Time to reach maximum distance travelled	1:00	1:00	1:00	1:00	1:00	1:00
Maximum distance travelled in 10 minutes (mm)	70	70	70	70	70	70

Note: Six specimens are usually tested. If the test on any specimen is deemed to be invalid, as defined in the Standard, it is permissible for up to a maximum of nine specimens to be tested in order to obtain the six valid test results.

Observations made during test and comments on any difficulties encountered during the test:

In the case of specimen No. 6, flash flaming was observed rom 4:50, extending up to a maximum distance of 70mm.

In the case of specimen No's 4 and 6 the material began to soften and melt during the sixth minute of the test, progressively slumping away from the test position as the test continued, resulting in a final slump-back of 825mm at the end of the test. The molten material collected on the bottom facing plate of the specimen holder.

It is considered that the above behaviour could have affected the surface spread of flame characteristics of the product; therefore the Suffix 'Y' has been added to the classification.

Appendix 2 – Uncertainty of Measurement

Specimen No.	1	2	3	4	5	6
Maximum distance travelled at 1.5 minutes (mm)	± 4	± 4	± 4	± 4	± 4	± 4
Maximum distance travelled in 10 minutes (mm)	± 4	± 4	± 4	± 4	± 4	± 4

The reported expanded uncertainty is based on a standard uncertainty multiplied by a coverage factor k=2, providing a coverage probability of approximately 95%. The uncertainty evaluation has been carried out in accordance with UKAS requirements.

Appendix 3 – Classification Criteria

Classification of spread of flame

Classification	Spread of Flame at 1.5 min		Final Spread of Flame	
	Limit (mm)	Limit for one specimen (mm)	Limit (mm)	Limit for one specimen (mm)
Class 1	165	165 + 25	165	165 + 25
Class 2	215	215 + 25	455	455 + 45
Class 3	265	265 + 25	710	710 + 75
Class 4	Exceeding the limits for class 3			

Explanation of prefix and suffixes which may be added to the classification

1. A suffix R is added to the classification if more than six specimens are required in order to obtain six valid test results (e.g. class 2R).

2. A prefix D is added to the classification of any product which does not comply with the surface characteristics specified in the Standard and has therefore been tested in a modified form (e.g. class D3).

3. A suffix Y is added to the classification if any softening and/or other behaviour that may affect the flame spread occurs (e.g. class 3Y).

For example, a classification of D3RY could be achieved indicating (a) a modified surface has been used; (b) a class 3 result has been obtained; (c) additional specimens have been used to obtain 6 valid results and; (d) softening and/or other behaviour has occurred which is considered to have affected the test result.

Revision History

Issue No : 2	Re-issue Date: 9th April 2019
Revised By: C Jacques	Approved By: T Mort
Reason for Revision: This document replaces issue 1 (dated 21st February 2019) of the same number which has been withdrawn. The incorrect product reference was added to the description table this has now been amended in this test report.	

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