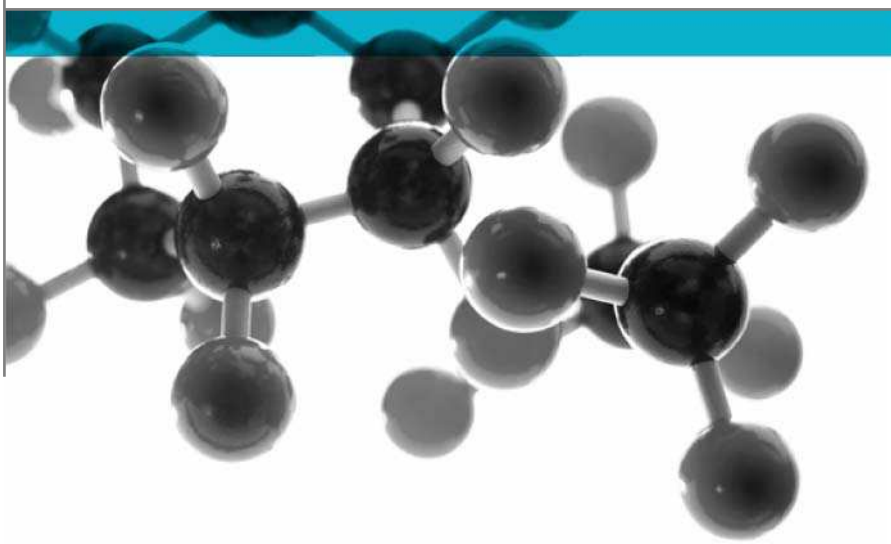
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BS 476: Part 7: 1997



Method For Classification Of The Surface Spread Of Flame Of Products

Document Reference: 183739

Date: 13th April 2010

Issue No.: 1

Testing
Advising
Assuring

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UKAS TESTING
0249

Executive Summary

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

Generic Description	Product reference	Thickness	Weight per unit area, density or weight per unit length
Hollow uPVC interlocking walling profile with mineral wool insulation inserted at the ends.	"uPVC"	40mm (overall)	Not stated
Individual components used to manufacture composite:			
Hollow Unplasticised PVC interlocking walling profile	"uPVC"	2.2mm (Wall)	2.2kg/metre
Mineral wool insulation	"Rockwool"	Not stated	Approx 30kg/m^3
Please see page 5 of this test report for the full description of the product tested			

Test Results: **Class 1**

Date of Test 4th June 2009

Signatories

Responsible Officer
T. Benyon *
Technical Officer

Approved
D. J. Owen *
Senior Technical Officer

Authorised
C. Dean *
Operations Manager

* For and on behalf of **Exova Warringtonfire**.

Report Issued: 13th April 2010

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CONTENTS **PAGE NO.**

EXECUTIVE SUMMARY **2**

SIGNATORIES **2**

TEST DETAILS **4**

DESCRIPTION OF TEST SPECIMENS **5**

TEST RESULTS **6**

APPENDIX 1 – TEST RESULTS **7**

APPENDIX 2 – CLASSIFICATION CRITERIA **8**

REVISION HISTORY **9**

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 4th June 2009

Provision of test specimens

The specimens were supplied by the sponsor of the test. **Exova Warringtonfire** was not involved in any selection or sampling procedure.

Conditioning of specimens

The specimens were received on the 2nd June 2009 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

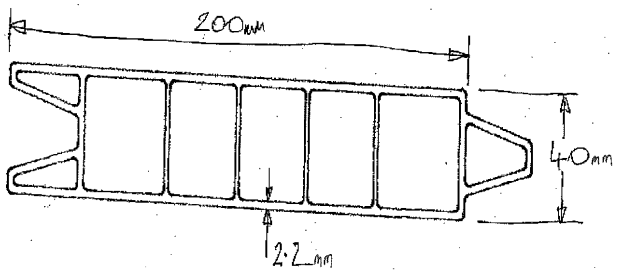
Assembly - Fabrication of materials and/or composites that can contain air gaps. Each specimen was placed over 25mm thick by 20mm wide calcium silicate based spacers positioned around its perimeter and mounted onto a backing board so that a 25mm enclosed air gap was provided between the unexposed face of the specimen and the backing board.

Exposed face

One of two identical faces of the specimens was exposed to the heating conditions of the test.

Description of Test Specimens

No information regarding the composition of the specimens was received at the time of the test and the sponsor did not require a formal report at that time. The sponsor has subsequently provided the following description of the specimens and has requested that a report be issued. All values quoted are nominal, unless tolerances are given.

General description		Hollow uPVC interlocking walling profile with mineral wool insulation inserted at the ends.
Overall weight per unit area		11.51kg/m^2 (determined by **Exova Warringtonfire**)
Overall thickness		40mm (stated by sponsor)
Technical drawing of hollow uPVC interlocking wall profile		
Hollow uPVC interlocking wall profile	Product reference	
	Generic type	Unplasticised PVC
	Name of manufacturer	Merritt Plastics Ltd
	Weight per unit length	2.2kg/metre
	Wall thickness	2.2mm
	Flame retardant details	**See Note 1 below**
Insulation	Product reference	"Rockwool"
	Generic type	Mineral wool insulation
	Name of manufacturer	Rockwool
	Density	30kg/m^3
	Flame retardant details	**See Note 1 below**
Brief description of manufacturing process		Plastics extrusion. "uPVC" profiles fit into a metal framework which partially seals the ends of the hollow profiles. The mineral wool insulation used in the test forms no part of the product specification but was located in the profile end to replicate the effect of the framing profiles.

Note 1: The sponsor of the test has confirmed that no flame retardant additives were utilised in the production of this component.

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 1.

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 2, 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.

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Appendix 1 – Test Results

SPECIMEN No.	1	2	3	4	5	6
Maximum distance travelled at 1.5 minutes (mm)	<50	65	65	65	65	65

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)	<50	65	65	65	65	65

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 each specimen tested, flash flaming occurred from the second minute of the test and continued until the end of the test.

Appendix 2 – Classification criteria

Classification of spread of flame

	Spread of Flame at 1.5 min		Final Spread of Flame	
Classification	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 :	Issue Date:
Revised By:	Approved By:
Reason for Revision:	

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Revised By:	Approved By:
Reason for Revision:	