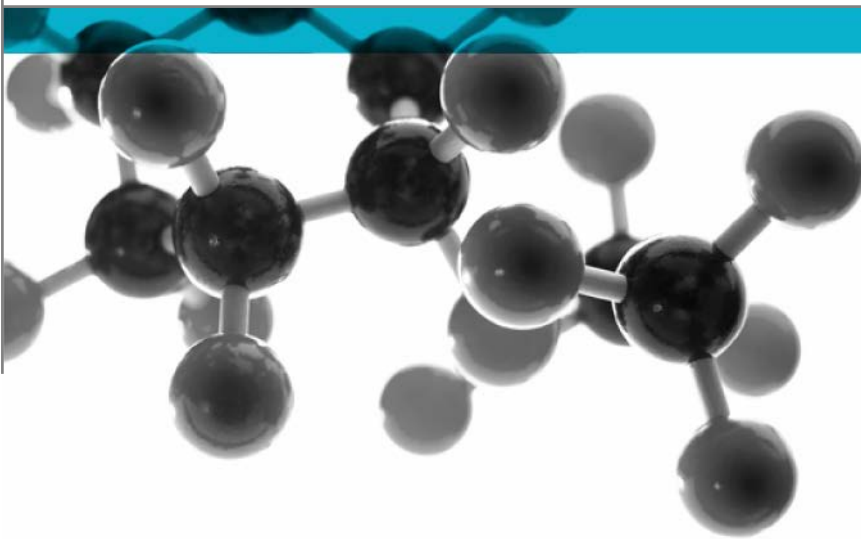


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# BS 476: Part 7: 1997



## Method For Classification Of The Surface Spread Of Flame Of Products

A Report To: BioClad Ltd.

Document Reference: Additional Test Report No. 361373

Date: 2<sup>nd</sup> February 2016

Issue No.: 1

Page 1

Testing  
Advising  
Assuring



## 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
An un-plasticised polyvinyl chloride panel adhered to a cement board substrate	"BioClad PVC Hygienic Cladding Ranges"	8.42mm*	14.59kg/m <sup>2</sup> *
<b>Individual components used to manufacture composite:</b>			
Plastic (Test face)	"BioClad PVC Hygienic Cladding Ranges"	1.5mm	1.44g/cm <sup>3</sup>
Adhesive	"Cosmopur 805" & "Cosmopur 859"	0.2mm	1.51g/cm <sup>3</sup>
Substrate	"Eterplan N"	6mm	1.65g/cm <sup>3</sup>
* Determined by Exova Warringtonfire			
Please see page 5 of this test report for the full description of the product tested			

**Test Sponsor** BioClad Ltd., Unit 1A, Greengate, Cardale Park, Harrogate, HG3 1GY, United Kingdom



**Test Results:** Class 1

**Date of Test** 26<sup>th</sup> September 2012

This test report is additional to that issued as 322170 dated the 28<sup>th</sup> September 2012 and has been issued at the request of the sponsor. The original test report remains valid and is not replaced by this additional test report. The product referred to in the original report and this additional test report has not been re-tested since the original test and neither has a technical review of the original test report resulting in any technical changes been carried out.

The original product reference has been removed and the reference "BioClad PVC Hygienic Cladding Ranges" has been inserted. The original sponsor's name has also been removed and "BioClad Ltd." has been inserted. The sponsor of the test has stated that the material described in this additional report is identical to the material which was tested. Both the original and the alternative trade names and of the product and the original and alternative names and addresses of the sponsor have been documented and the documentation is maintained in the confidential file covering this investigation.

## Signatories

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

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

Report Issued: 2<sup>nd</sup> February 2016

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Author: C. Meachin

Issue Date: 2<sup>nd</sup> February 2016

Client: BioClad Ltd.

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## Test Details

<b>Purpose of test</b>	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.
<b>Scope of test</b>	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.
<b>Fire test study group/EGOLF</b>	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.
<b>Instruction to test</b>	The test was conducted on the 26 <sup>th</sup> September 2012 at the request of the original sponsor of the test.
<b>Provision of test specimens</b>	The specimens were supplied by the original sponsor of the test. <b>Exova Warringtonfire</b> was not involved in any selection or sampling procedure.
<b>Conditioning of specimens</b>	<p>The specimens were received on the 24<sup>th</sup> September 2012 and were conditioned to constant mass at a temperature of <math>23 \pm 2^{\circ}\text{C}</math> and a relative humidity of <math>50 \pm 5\%</math> prior to testing.</p> <p>Prior to the tests, all of the specimens were conditioned to constant mass at a temperature of <math>23 \pm 2^{\circ}\text{C}</math> and a relative humidity of <math>50 \pm 5\%</math>. One specimen from the total sample submitted for test was selected for constant mass verification.</p>
<b>Form in which the specimens were tested</b>	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.
<b>Exposed face</b>	The plastic 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. All values quoted are nominal, unless tolerances are given.

General description		An un-plasticised polyvinyl chloride panel adhered to a cement board substrate
Overall product reference		"BioClad PVC Hygienic Cladding Ranges"
Overall thickness		8.42mm (determined by <b>Exova Warringtonfire</b> )
Overall weight per unit area		14.59kg/m <sup>2</sup> (determined by <b>Exova Warringtonfire</b> )
Product Configuration		<ul style="list-style-type: none"> <li>• Plastic (Test face)</li> <li>• Adhesive</li> <li>• Substrate</li> </ul>
Plastic (Test face)	Product reference	"BioClad PVC Hygienic Cladding Ranges"
	Generic type	Un-plasticised polyvinyl chloride (u-PVC)
	Name of manufacturer	Confidential
	Density	1.44g/cm <sup>3</sup>
	Thickness	1.5mm
	Colour	"White"
	Flame retardant details	Confidential
Adhesive	Product reference	"Cosmopur 805" & "Cosmopur 859"
	Generic type	2-pack polyurethane
	Name of manufacturer	Weiss-Chemie
	Density	1.51g/cm <sup>3</sup>
	Application thickness	0.2mm
	Flame retardant details	<b>See Note 1 below</b>
Substrate	Product reference	"Eterplan N"
	Generic type	Cement panel
	Name of manufacturer	Eternit AG
	Thickness	6mm
	Density	1.65g/cm <sup>3</sup>
Flame retardant details		The component is inherently flame retardant
Brief description of manufacturing process of the plastic		Extrusion

**Note 1: The original sponsor of the test was unable to provide this 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 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)	55	55	55	55	55	55

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

01:00

01:00

01:00

01:00

01:00

01:00

Maximum distance travelled in 10 minutes (mm)

55

55

55

55

55

55

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:

None

## 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 :	Re-issue Date:
Revised By:	Approved By:
Reason for Revision:	

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