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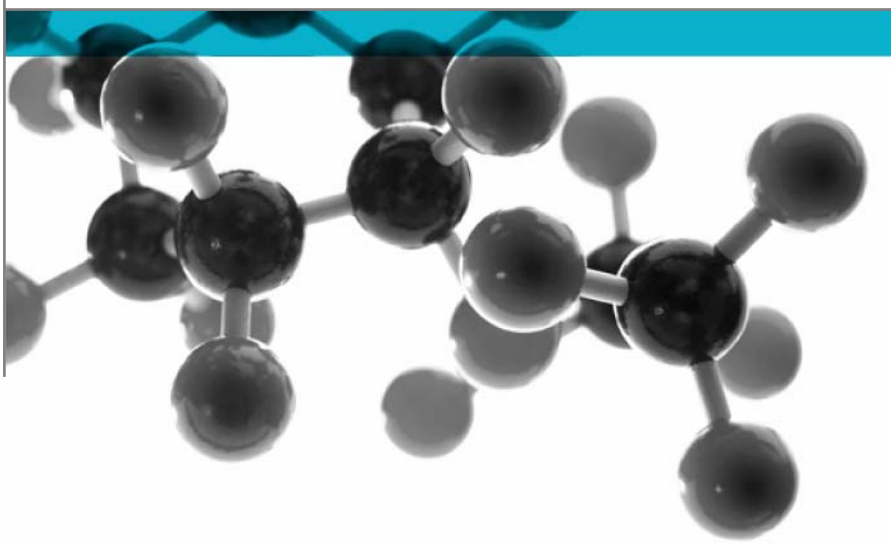
BS 476: Part 6: 1989+A1:2009



Method Of Test For
Fire Propagation For Products

A Report To: Anavid Insulation Products

Document Reference: 305544

Date: 3rd May 2011

Issue No.: 1

Testing
Advising
Assuring

UKAS TESTING
0249

Executive Summary

Objective To determine the performance of the following product when tested in accordance with BS 476: Part 6: 1989+A1: 2009.

Generic Description	Product reference	Thickness	Weight per unit area or density
Foam adhered to steel	"Vidoflex"	30mm*	17.93kg/m^2*
Individual components used to manufacture composite:			
Foam	"Vidoflex"	25mm	55 – 85kg/m^3
Adhesive	"S1358"	Not applicable	0.88g/cm^3
Steel	"2mm thick steel"	2mm	14.80kg/m^2
*** Determined by Exova Warringtonfire**			
Please see page 5 of this test report for the full description of the product tested			

Test Sponsor Anavid Insulation Products, Kibbutz Kiryat Anavim, Jerusalem, 90833, Israel

Test Results:

Fire propagation index, I = 11.1

Sub index, i_1 = 3.5

Sub index, i_2 = 5.7

Sub index, i_3 = 1.9

Date of Test 13th April 2011

Signatories

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

Report Issued: 3rd May 2011

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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 6: 1989+A1: 2009, "Fire tests on building materials and structures, method for fire propagation for products".

The test was performed in accordance with the procedure specified in BS 476: Part 6: 1989+A1: 2009, and this report should be read in conjunction with that British Standard.

Scope of test

BS 476: Part 6: 1989+A1: 2009 specifies a method of test, the result being expressed as a fire propagation index, that provides a comparative measure of the contribution to the growth of fire made by an essentially flat material, composite or assembly. It is primarily intended for the assessment of the performance of internal wall and ceiling linings.

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 13th April 2011 at the request of Anavid Insulation Products, the sponsor of the test.

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. **Exova Warringtonfire** supplied the substrate & adhesive and bonded the composite together.

Conditioning of specimens

The specimens for testing to BS 476: Part 6: 1989+A1: 2009 together with the specimens for testing to BS 476: Part 7: 1997 were received on the 15th March 2011.

Prior to the tests, all of the specimens were conditioned to constant mass at a temperature of 23 ± 2°C and a relative humidity of 50 ± 5%. One specimen from the total sample submitted for test was selected for constant mass verification.

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.

Exposed face

The foam 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		Foam adhered to steel
Product reference		"Vidoflex"
Overall weight per unit area of composite		17.93kg/m^2 (determined by **Exova Warringtonfire**)
Overall thickness of composite		30mm (determined by **Exova Warringtonfire**)
Foam	Generic type	Nitrile Butadiene Rubber (NBR) / Polyvinyl Chloride (PVC) (50:50)
	Product reference	"Vidoflex"
	Name of manufacturer	Anavid Insulation Products
	Thickness	25mm (stated by sponsor) 27mm (determined by **Exova Warringtonfire**)
	Colour	"Black"
	Density	55 – 85kg/m^3
	Flame retardant details	**See Note 1 below**
Adhesive	Product reference	"S1358"
	Generic type	Neoprene
	Name of supplier	RS Components
	Application rate	3-4m^2/l
	Application method	Brush
	Specific gravity	0.88g/cm^3
	Flame retardant details	**See Note 2 below**
Steel backing	General description	Steel
	Product reference	"2mm thick steel"
	Name of supplier	Westfront Limited
	Thickness	2mm
	Density	14.80kg/m^2
	Flame retardant details	The component is inherently flame retardant
Brief description of manufacturing process of foam insulation		The foam is produced in a continuous manner in a hot air oven

Note 1: The sponsor of the test has provided this information but at the specific request of the sponsor, these details have been omitted from the report and are instead held on the confidential file relating to this investigation.

Note 2: No flame retardant additives were utilised in the production of this component.

Test Results

Results

A total of three specimens were tested. The laboratory record sheet relating to each of the test specimens is appended to this report (refer to Tables 1, 2 and 3).

Throughout the test on each specimen careful observation was made of the product's behaviour within the apparatus and special note was taken of any of the phenomena listed in clause 9.2 of the Standard. None of the listed phenomena was observed and the test results on all three specimens tested were valid.

The following test results were obtained for the product.

Fire propagation index, I	**= 11.1**
Sub index, i_1	**= 3.5**
Sub index, i_2	**= 5.7**
Sub index, i_3	**= 1.9**

NOTE: If a suffix 'R' is included in the above fire propagation index, I, then this indicates that the results should be treated with caution.

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.

Table 1

Laboratory Record Sheet

FIRE PROPAGATION TEST - BS476:PART 6:1989+A1:2009

Specimen No. : 1 **Date : 13-Apr-11**

Time mins t	Specimen Temperature Deg C Ts	Calibration Temperature Deg C Tc	Ts-Tc/10t	Sub Index Of Performance
0.50	19	14	1.00	
1.00	27	20	0.70	
1.50	35	25	0.67	
2.00	41	28	0.65	
2.50	47	32	0.60	
3.00	53	36	0.57	4.18
4.00	87	64	0.58	
5.00	149	98	1.02	
6.00	192	126	1.10	
7.00	218	148	1.00	
8.00	241	167	0.93	
9.00	258	181	0.86	
10.00	263	193	0.70	6.18
12.00	272	211	0.51	
14.00	263	221	0.30	
16.00	282	231	0.32	
18.00	291	239	0.29	
20.00	297	246	0.26	1.67
Total Index of Performance S			**=**	**12.03**

SubIndex s1 **4.18**

SubIndex s2 **6.18**

SubIndex s3 **1.67**

Index of Performance S **12.03**

Table 2

Laboratory Record Sheet

FIRE PROPAGATION TEST - BS 476:PART 6:1989+A1:2009

Specimen No. : 2 **Date : 13-Apr-11**

Time mins t	Specimen Temperature Deg C Ts	Calibration Temperature Deg C Tc	Ts-Tc/10t	Sub Index Of Performance
0.50	19	13	1.20	
1.00	24	19	0.50	
1.50	30	24	0.40	
2.00	36	28	0.40	
2.50	41	31	0.40	
3.00	48	36	0.40	3.30
4.00	84	63	0.53	
5.00	147	100	0.94	
6.00	190	129	1.02	
7.00	222	150	1.03	
8.00	251	167	1.05	
9.00	264	182	0.91	
10.00	269	193	0.76	6.23
12.00	278	212	0.55	
14.00	297	221	0.54	
16.00	294	232	0.39	
18.00	294	238	0.31	
20.00	291	243	0.24	2.03
Total Index of Performance S			**=**	**11.56**

SubIndex s1 **3.30**

SubIndex s2 **6.23**

SubIndex s3 **2.03**

Index of Performance S **11.56**

Table 3

Laboratory Record Sheet

FIRE PROPAGATION TEST - BS 476:PART 6:1989+A1:2009

Specimen No. : 3 **Date : 13-Apr-11**

Time mins t	Specimen Temperature Deg C Ts	Calibration Temperature Deg C Tc	Ts-Tc/10t	Sub Index Of Performance
0.50	**20**	**14**	**1.20**	
1.00	**28**	**20**	**0.80**	
1.50	**32**	**26**	**0.40**	
2.00	**37**	**31**	**0.30**	
2.50	**41**	**35**	**0.24**	
3.00	**45**	**39**	**0.20**	**3.14**
4.00	**80**	**68**	**0.30**	
5.00	**135**	**104**	**0.62**	
6.00	**177**	**133**	**0.73**	
7.00	**212**	**153**	**0.84**	
8.00	**236**	**170**	**0.83**	
9.00	**254**	**185**	**0.77**	
10.00	**262**	**196**	**0.66**	**4.75**
12.00	**272**	**212**	**0.50**	
14.00	**282**	**222**	**0.43**	
16.00	**296**	**230**	**0.41**	
18.00	**300**	**238**	**0.34**	
20.00	**292**	**244**	**0.24**	**1.93**
Total Index of Performance S			**=**	**9.81**

SubIndex s1 **3.14**

SubIndex s2 **4.75**

SubIndex s3 **1.93**

Index of Performance S **9.81**

Revision History

Issue No :	Re-issue Date:
Revised By:	Approved By:
Reason for Revision:	

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