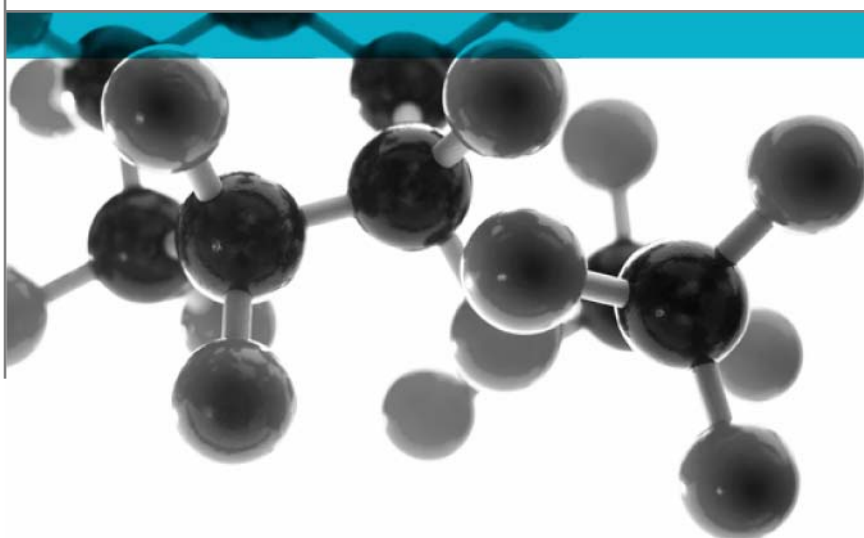


# Class 0 Summary Report



**Including Opinion Of Compliance With The Requirements For A Class 0 Surface As Defined In Paragraph A13(b) Of Approved Document B (Volumes 1 & 2), (2006 Edition) 'Fire Safety' To The Building Regulations 2000**

**Date:** 6<sup>th</sup> November 2012

**Issue No.:** 2

Page 1

A Report To: AFS Boru Sanayi A.S.

Document Reference: 321545 & 321546

**Testing  
Advising  
Assuring**

## Executive Summary

**Objective** To assess the results of tests to BS 476:Part 6:1989+A1: 2009 and BS 476:Part 7:1997, obtained on specimens of the following product and to provide an opinion of compliance with the requirements for a Class 0 surface, as defined in Approved Document B to the Building Regulations 2000.

Generic Description	Product reference	Thickness	Weight per unit area or density
An insulated flexible air duct comprising inner duct, glass wool and insulation jacket	"ISOAFS-ALU SHINE" "SONOAFS-ALU SHINE"	25.09mm	490g/m <sup>2</sup>
<b>Individual components used to manufacture composite:</b>			
Aluminium foil (2 layers total)	Confidential	9 microns	24.5g/m <sup>2</sup>
Polyester film (4 layers total)	Confidential	12 microns	1.40g/cm <sup>3</sup>
Glass wool insulation	Glass wool insulation	25mm	14kg/m <sup>3</sup>
<b>Please see pages 5 &amp; 6 of this test report for the full description of the product tested</b>			


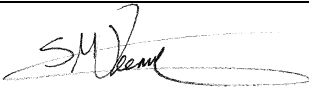
**Test Sponsor** AFS Boru Sanayi A.S., Kuskondu Sk. 1, Çankaya, Ankara, Turkey

**Opinion:** We consider the results of the tests to BS 476:Part 6:1989+A1: 2009 and BS 476:Part 7: 1997, demonstrate that the product, as tested, complies with the requirements for Class 0, as defined in paragraph A13(b) of Approved Document B, 'Fire Safety', to the Building Regulations 2000.

**Date of Test** 27<sup>th</sup> September 2012

**Reason for revision** This document replaces issue 1 (dated 16<sup>th</sup> October 2012) of the same number which has been withdrawn. The weight per unit area detailed in the issue 1 report was incorrect and the correct value has been inserted in this issue 2 report.

## Signatories

	
Responsible Officer I White * Testing Officer	Authorised S Deeming * Operations Manager

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

Report Issued: 6<sup>th</sup> November 2012

This version of the report has been produced from a .pdf format electronic file that has been provided by **Exova Warringtonfire** to the sponsor of the report and must only be reproduced in full. Extracts or abridgements of reports must not be published without permission of **Exova Warringtonfire**.

<b>CONTENTS</b>	<b>PAGE NO.</b>
<b>EXECUTIVE SUMMARY .....</b>	<b>2</b>
<b>SIGNATORIES.....</b>	<b>2</b>
<b>TEST DETAILS.....</b>	<b>4</b>
<b>DESCRIPTION OF TEST SPECIMENS.....</b>	<b>5</b>
<b>CLASSIFICATION .....</b>	<b>7</b>
<b>REVISION HISTORY .....</b>	<b>8</b>

## Test Details

**Terms Reference** **Of** To assess the results of tests to BS 476:Part 6:1989+A1: 2009 and BS 476:Part 7:1997, obtained on specimens of a product and to provide an opinion of compliance with the requirements for a Class 0 surface, as defined in Approved Document B to the Building Regulations 2000.

**Introduction** Specimens of a product have been tested in accordance with the test methods specified in BS 476: Part 6: 1989+A1: 2009 'Method of test for fire propagation for products' and BS 476: Part 7: 1997 'Method of test to determine the classification of the surface spread of flame of products'. The results of the tests are fully reported in the **Exova Warringtonfire** test reports No's. 321545 and 321546.

This summary test report has been prepared at the request of the sponsor and relates the results of the tests to the requirements for a Class 0 surface of a material or composite product, as defined in paragraph A13(b) of Approved Document B, 'Fire Safety', to the Building Regulations 2000.

This summary should be read in conjunction with, and not accepted as a substitute for, the **Exova Warringtonfire** test reports No's. 321545 and 321546. Those test reports may include additional information which may be relevant to the assessment of the potential fire hazard of the product.

**Face subjected to tests** The specimens were mounted in the test positions such that the outer aluminium face was exposed to the heating conditions of the tests.

**Results of test** The following results were obtained for the specimens, which were tested.

<b>BS 476: Part 6: 1989</b>	Fire propagation index, I	=	5.4
	subindex, $i_1$	=	4.1
	subindex, $i_2$	=	1.1
	subindex, $i_3$	=	0.2

**BS 476: Part 7: 1997** Class D1 surface spread of flame

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

## 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 insulated flexible air duct comprising inner duct, glass wool and insulation jacket In practice, the product tested is used to form a cylindrical duct that incorporates a reinforcing steel wire helix
Product reference of composite		"ISOAFS-ALU SHINE SONOAFS-ALU SHINE"
Name of manufacturer of composite		AFS Boru Sanayi A.S.
Thickness of composite		25.09mm (stated by sponsor) 24.95mm (determined by <b>Exova Warringtonfire</b> )
Weight per unit area of composite		490g/m <sup>2</sup> (stated by sponsor) 476.15g/m <sup>2</sup> (determined by <b>Exova Warringtonfire</b> )
Product configuration		<ul style="list-style-type: none"> <li>• Aluminium foil</li> <li>• Polyester film</li> <li>• Polyester film</li> <li>• Glass wool insulation</li> <li>• Polyester film</li> <li>• Polyester film</li> <li>• Aluminium foil</li> </ul>
Aluminium foil	Generic type	Aluminium foil
	Product reference	<b>See Note 1 Below</b>
	Name of manufacturer	<b>See Note 2 Below</b>
	Colour reference	"Aluminium (Silver)"
	Thickness	9 microns
	Weight per unit area	24.5g/m <sup>2</sup>
	Density	2.72g/cm <sup>3</sup>
Flame retardant details		<b>See Note 3 Below</b>
Polyester film	Generic type	Polyester film
	Product reference	<b>See Note 1 Below</b>
	Name of manufacturer	<b>See Note 2 Below</b>
	Colour reference	"Transparent"
	Density	1.40g/cm <sup>3</sup>
	Thickness	12 microns
	Flame retardant details	
Glass wool insulation	Generic type	Glass wool insulation
	Product reference	<b>See Note 1 Below</b>
	Name of manufacturer	<b>See Note 1 Below</b>
	Thickness	25mm
	Weight per unit area	350g/m <sup>2</sup>
	Density	14kg/m <sup>3</sup>
	Colour reference	"Yellow"
Flame retardant details		<b>See Note 3 Below</b>

Continued on next page

Specimen construction details	'ISOAFS-ALU SHINE / SONOAFS-ALU SHINE' ducting in practice would encapsulate a high tensile steel wire helix to form the wall of the air ducting. It is not practicable to include the wire helix within the specimens and for this reason; the laminate only was tested with a 25mm airspace at the back of the product. It is considered that the inclusion of the wire helix would not have any detrimental effect on the flame-spread characteristics of the actual product. Since the specimens consist of a modified version of the actual product, a prefix 'D' is added to the BS 476 Part 7 classification
Brief description of manufacturing process	<b>See Note 2 Below</b>

**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: The sponsor was unwilling to provide this information.**

**Note 3: The sponsor of the test has confirmed that no flame retardant additives were utilised in the production of the product / component.**

## Classification

---

### Opinion

We consider the results of the tests detailed above demonstrate that the product, as tested, complies with the requirements for Class 0, as defined in paragraph A13(b) of Approved Document B, 'Fire Safety', to the Building Regulations 2000.

### Validity of opinion

This opinion is based on the requirements of the Building Regulations at the date of this report. If the Building Regulations are revised or amended in any way subsequent to that date, care must be taken to ensure that this opinion is not invalidated by those revisions or amendments.

The opinion has been formulated on the assumption that the specimens are representative of the product in practice. **Exova Warringtonfire** was not involved in any sampling or selection procedures which would confirm this or in any audit testing which would provide confidence in the consistency of the product in the tests.

This report may only be reproduced in full. Extracts or abridgements shall not be published without permission of **Exova Warringtonfire**.

## Revision History

Issue No : 2	Re-issue Date: 6 <sup>th</sup> November 2012
Revised By: I. White	Approved By: S Deeming
Reason for Revision: This document replaces issue 1 (dated 16 <sup>th</sup> October 2012) of the same number which has been withdrawn. The weight per unit area detailed in the issue 1 report was incorrect and the correct value has been inserted in this issue 2 report.	

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