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Testing. Advising. Assuring.

Title:

EXTENDED APPLICATION
REPORT IN ACCORDANCE
WITH EN/TS 15117:2005

Notified Body No:

0833

Product Name:

"Excel Foam PVC"

Report No:

WF 360290

Issue No:

1

Prepared for:

Excel Plastics Ltd
Carrickamoss
Co. Monaghan
Ireland

Date:

11th January 2016

1. Introduction

This report extends the field of application of test results obtained for "Excel Foam PVC", a family of foamed PVC sheet products. Extended application enables the prediction of fire performance, on the basis of one or more test results to the same test standards and enables the classification of product ranges and product families.

2. Details of Product Family

A product family is a group of products, which differ only in aspects that do not influence the properties required in the relevant product standard and, if relevant, end-use parameters, for which the reaction to fire performance remains unchanged (i.e. does not get worse).

The product family for which extended application is to be used is "Excel Foam PVC", a family of foamed PVC sheet products. There are two product properties which vary within this product family, thickness and colour. These properties were assessed to determine their influence on the fire performance of the product when tested in accordance with EN 13823 and EN ISO 11925-2, and classified in accordance with EN 13501-1.

2.1 Product description

The product family, "Excel Foam PVC", a family of foamed PVC sheet products, is fully described below and in the test reports provided in support of classification listed in Clause 3.1.

Generic type	Foamed PVC sheet
Product reference	"Excel Foam PVC"
Detailed description / composition details	PVC resin and calcium carbonate
Name of manufacturer	Excel Plastics
Thickness	2mm to 19mm (stated by sponsor)
Density	0.5g/cm ³ (stated by sponsor)
Colour reference	Any colour
Trade name of flame retardant	"Garoflam"
Generic type of flame retardant	Antimony trioxide
Amount of flame retardant	0.3%
Air space details	A 180mm ventilated cavity was situated between the reverse face of each specimen and the calcium silicate backing board
Brief description of manufacturing process	Extruded PVC sheet

3. Test reports / classification reports & test results in support of classification

3.1 Test reports / classification reports

Name of Laboratory	Name of sponsor	Test reports/extended application report Nos.	Test method / extended application rules & date
Exova Warringtonfire	Excel Plastics Ltd	WF 355620 / WF 359328	EN ISO 11925-2
Exova Warringtonfire	Excel Plastics Ltd	WF 353839 / WF 357006 / WF 357007 / WF 358995 / WF 359327 / WF 358993	EN 13823
Exova Warringtonfire	Excel Plastics Ltd	WF 357717 / WF 360291	EN 13501

3.2 Test results

Test method & test number		Parameter	No. tests	Results	
				Continuous parameter - mean (m)	Compliance parameters
EN ISO 11925-2	30s exposure - surface	F _s	6, 6	Nil	Compliant
		Flaming droplets/ particles		None	Compliant
	30s exposure - edge	F _s	6, 6	Nil	Compliant
		Flaming droplets/ particles		None	Compliant
EN 13823	FIGRA _{0.2MJ}	Formal test - 2mm		11.84	Compliant
		Formal test - 10mm		91.22	
		Indicative test - 5mm		4.51	
		Formal test - 19mm Black		80.60	
		Indicative test - 19mm White		66.34	
		Indicative test - 10mm Red		77.58	
	FIGRA _{0.4MJ}	Formal test - 2mm		9.56	Compliant
		Formal test - 10mm		79.72	
		Indicative test - 5mm		4.51	
		Formal test - 19mm Black		68.97	
		Indicative test - 19mm White		50.18	
		Indicative test - 10mm Red		77.58	
	THR _{600s}	Formal test - 2mm		0.95	Compliant
		Formal test - 10mm		2.91	
		Indicative test - 5mm		1.02	
		Formal test - 19mm Black		5.13	
		Indicative test - 19mm White		3.93	
		Indicative test - 10mm Red		5.65	
	LFS	Formal test - 2mm		None	Compliant
		Formal test - 10mm		None	
		Indicative test - 5mm		None	
		Formal test - 19mm Black		None	
		Indicative test - 19mm White		None	
		Indicative test - 10mm Red		None	
	SMOGRA	Formal test - 2mm		39.06	Compliant
		Formal test - 10mm		345.79	
		Indicative test - 5mm		247.76	
		Formal test - 19mm Black		297.00	
		Indicative test - 19mm White		280.54	
		Indicative test - 10mm Red		398.26	
	TSP _{600s}	Formal test - 2mm		46.19	Compliant
		Formal test - 10mm		684.58	
		Indicative test - 5mm		235.50	
		Formal test - 19mm Black		1269.02	
		Indicative test - 19mm White		1275.87	
		Indicative test - 10mm Red		962.36	

4. Classification and field of application

4.1 Definition of Limits of Extended Application

At the request of the sponsor, an initial assessment was conducted to determine what influence thickness had on the fire performance of the product family and this assessment was covered by Extended Application report WF 357716 and Classification report WF 357717.

During this assessment, three tests were conducted in accordance with EN 13823 and one in accordance with EN ISO 11925-2. This initial assessment of this product family was conducted, and the data generated was used to determine which product specifications gave the worst performance. Formal EN 13823 tests were completed on the thinnest (2mm) and thickest product (10mm) and an indicative test was performed on a 5mm intermediate product. The specification with the worst set of results (10mm product) was tested formally in accordance with EN 13823 and EN ISO 11925-2.

Following this assessment, the sponsor requested an additional assessment to extend the product family assessment to cover all colours and up to 19mm in thickness. This assessment is covered by this extended application report and classification report number WF 360291. An additional three EN 13823 tests and one EN ISO 11925-2 test were conducted on specimens having the following characteristics:

- EN 13823 indicative test on 19mm thick black coloured product
- EN 13823 indicative test on 19mm thick white coloured product
- EN 13823 indicative test on 10mm thick red coloured product

The results of all three specifications were very similar, however, the 19mm thick black coloured product performed the worst and therefore this test was formally completed along with a formal EN ISO 11925-2 test on the same specification. This assessment is covered by this extended application report and classification report number WF 360291.

4.2 EN ISO 11925-2

From the data generated during the indicative EN 13823 testing it was apparent which product specifications gave the worst fire performance. These product specifications were formally tested in accordance with EN ISO 11925-2 using surface and edge flame application, no flame spread from the point of flame application travelled further than 70mm. The average flame fronts were 60% below the maximum value allowed for Class B, (EN 13501-1).

4.3 EN 13823

The SBI test measures the following fire parameters, Fire Growth Rate (FIGRA), Total Heat Release (THR600s), Smoke Growth Rate (SMOGRA) and Total Smoke Production (TSP600s).

These parameters were evaluated to assess what influence product colour/pattern has on the fire performance of "Excel Foam PVC", a family of foamed PVC sheet products. This evidence is shown in Figures 1 and 2. The highest FIGRA value was at least 23% below the maximum value allowed for Class B, (EN 13501-1). The highest THR600s value was at least 25% below the maximum value allowed for Class B, (EN 13501-1). Although some of the measured results relating to smoke parameters, SMOGRA and TSP600s, fall within the s2 criteria, the majority fall within the s3 performance range. In no instance were flaming droplets/particles in evidence during the fire tests.

4.4 Reference of classification

This classification has been carried out in accordance with EN 13501-1:2007+A1: 2009 and EN/TS 15117.

4.5 Classification

The products, "Excel Foam PVC", a family of foamed PVC sheet products, in relation to their reaction to fire behaviour are classified:

B

The additional classification in relation to smoke production is:

s3

The additional classification in relation to flaming droplets / particles is:

d0

The format of the reaction to fire classification for construction applications, excluding flooring and linear pipe thermal insulation is:

Fire Behaviour		Smoke Production			Flaming Droplets	
B	-	s	3	,	d	0

i.e. **B – s3 , d0**

Reaction to fire classification: B – s3, d0

4.6 Extended Field of application

This classification is valid for the following end use applications:

- i) Construction applications used over any substrate with a density equal to or greater than 870kg/m^3 , having a minimum thickness of 12mm and a fire performance of A2 or better.
- ii) Construction applications, mechanically installed with a minimum air gap of 180mm.

This classification is also valid for the following product parameters:

Product thickness	2mm to 19mm
Product density	No variation allowed
Product colour	Any variation allowed
Product composition	No variation allowed
Product construction	No variation allowed

5. Limitations

This document does not represent type approval or certification of the product

"The classification assigned to the product in this report is appropriate to a declaration of conformity by the manufacturer within the context of system 3 attestation of conformity and CE marking under the Construction Products Directive. The manufacturer has made a declaration, which is held on file. This confirms that the products design requires no specific processes, procedures or stages (e.g. no addition of flame-retardants, limitation of organic content, or addition of fillers) that are aimed at enhancing the fire performance in order to obtain the classification achieved. As a consequence the manufacturer has concluded that system 3 attestation is appropriate. The test laboratory has, therefore, played no part in sampling the product for the test, although it holds appropriate references, supplied by the manufacturer, to provide for traceability of the samples tested."

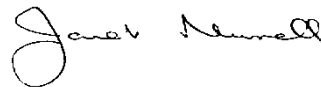
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Figure 1 - Effect of varying the product specification on FIGRA and TSP600s

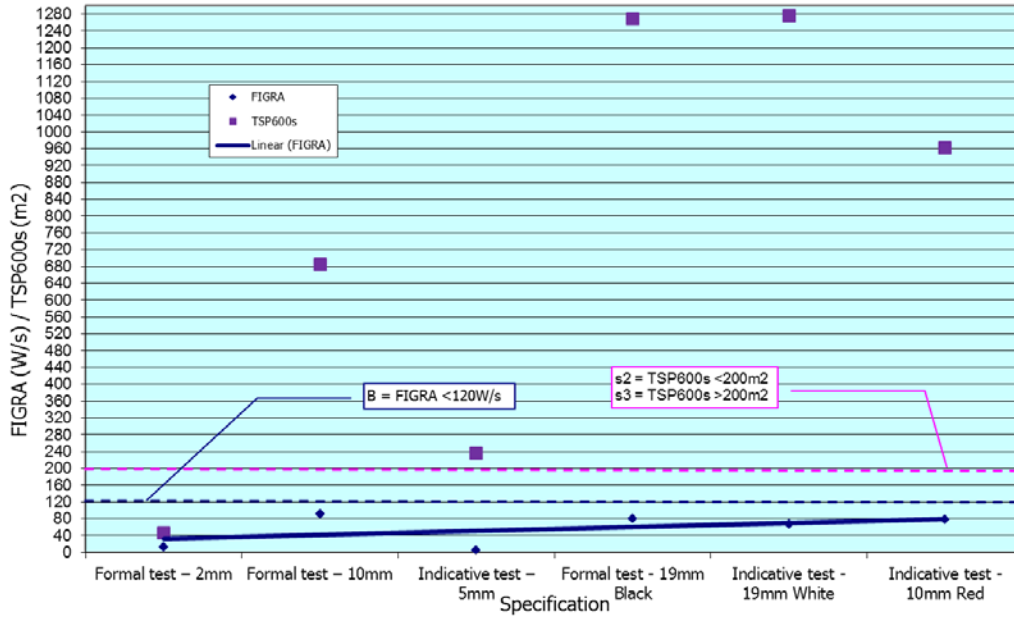


Figure 2 - Effect of varying the product specification on THR600s and SMOGRA

