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Testing. Advising. Assuring.

Title:

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

Notified Body No:

0833

Product Name:

"VIVA-7 STAR-Class B1"

Report No:

WF 397640

Issue No:

1

Prepared for:

Viva Composite Panel
PVT Ltd
Unit No 7, New Tejpal
Industrial Estate
Andheri Kurla Road Sakinaka
Andheri (East)
Mumbai
India 400072

Date:

18th April 2018

1. Introduction

This report extends the field of application of test results obtained for "VIVA-7 STAR-Class B1", a family of PVDF coated mineral filled aluminium composite panels. 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 "VIVA-7 STAR-Class B1", a family of PVDF coated mineral filled aluminium composite panels. There is one product property which varies within this product family, colour. This property was assessed to determine its 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, "VIVA-7 STAR-Class B1", a family of PVDF coated mineral filled aluminium composite panels, is fully described below and in the test reports provided in support of classification listed in Clause 3.1.

General description	Polyvinylidene fluoride (PVDF) coated mineral filled flame retardant Aluminium Composite Panel
Product reference of overall composite	"VIVA-7 STAR-Class B1"
Name of manufacturer of overall composite	Viva Composite Panel Pvt Ltd, Mumbai, India
Thickness of overall composite	4 mm (stated by sponsor) 4.2mm(determined by Exova Warringtonfire)
Weight per unit area of overall composite	7.50 -7.60 Kg/m ² (stated by sponsor) 7.55 Kg/m ² (determined by Exova Warringtonfire)
Product Configuration	<ul style="list-style-type: none"> • Top Coat (Test face) • Primer • Top Aluminium Coil • Adhesive • Mineral Core • Adhesive • Bottom Aluminium Coil • Service Coat (Reverse face)

Continued on next page

Top Coat (test face)	Generic type	Polyvinylidene fluoride(PVDF)
	Product reference	"PVDF Top Coat"
	Name of manufacturer	Becker/PPG
	Colour reference	"VA 307" (Red as observed by Exova Warringtonfire)
	Number of coats	Two
	Thickness per coat	25 ± 3 Microns
	Specific gravity	1.21-1.25
	Application method	Thermo cured coil coating
	Curing process per coat	Conventional CNG/LNG/LPG Gas fired oven
	Flame retardant details	See Note 1 below
Primer	Generic Type	PVDF
	Product reference	"PVDF Primer"
	Name of manufacturer	Becker/PPG/Nippon
	Colour reference	"Yellow"
	Number of Coat	One
	Thickness	7-8 microns
	Application rate per coat	5.7 – 6.2 g/m ²
	Specific gravity	1.14-1.24
	Application method	Coil coating
	Curing process per coat	Conventional CNG/LNG/LPG Gas fired Oven
Flame retardant details	See Note 1 below	
Aluminium- Front Coil	Generic type	Mill finish Aluminium coil
	Product reference	"AA 3105" or "AA 5005"
	Name of manufacturer	Litong Aluminium Industry Co Ltd,Guangdong,China
	Thickness	0.50 ±0.02 mm
	Density	2.70-2.72 Kg/m ²
	Colour reference	"Mill Finish"
	Flame retardant details	This component is inherently flame retardant
Adhesive	Generic type	Low density polyethylene and ethylene acrylate polymer mix
	Product reference	"FR Adhesive Film"
	Name of manufacturer	Ecoplast Ltd, India
	Colour reference	'Semi-Translucent"
	Thickness	50 microns ± 3
	Application rate	65 g/m ²
	Application method	Hot Roll Lamination
	Flame retardant details	See Note 1 below
Curing process	At normal temperature for 24 hours	

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Core (mineral base)	Generic type	Halogen free flame retardant PE core material
	Product reference	"FR Grade Core material"
	Detailed description / composition details	70-72% Inorganic content(Aluminium Hydroxide and Magnesium Hydroxide),28-30% Organic content(Recycled LDPE)
	Name of manufacturer	Viva Composite Panel Pvt Ltd
	Thickness	3 ± 0.2 mm
	Weight per unit area	1.60 Kg/m ²
	Colour reference	"Off White"
	Trade name of flame retardant	"Halogen free flame retardant Mineral Core"
	Generic type of flame retardant	70-72% Inorganic content(Aluminium Hydroxide and Magnesium Hydroxide)
Amount of flame retardant	70-72%	
Adhesive	Generic type	Low density polyethylene and ethylene acrylate polymer mix
	Product reference	"FR Adhesive Film"
	Name of manufacturer	Ecoplast Ltd, India
	Colour reference	'Semi-Translucent"
	Thickness	50 microns ± 3
	Application rate	65 g/m ²
	Application method	Hot Roll Lamination
	Flame retardant details	See Note 1 below
Curing process	At normal temperature for 24 hours	
Aluminium-Back Coil	Generic type	Mill finish Aluminium coil
	Product reference	"AA 3105" or "AA 5005"
	Name of manufacturer	Litong Aluminum Industry Co Ltd,Guangdong,China
	Thickness	0.50 ± 0.02 mm
	Density	2.70-2.72 Kg/m ²
	Colour reference	"Mill Finish"
	Flame retardant details	This component is inherently flame retardant
Service Coat (reverse face)	Generic type	Polyester
	Product reference	"Polyester Service Coat"
	Name of manufacturer	Becher/PPG
	Colour reference	"Grey"
	Number of coats	One
	Thickness per coat	7-8 ± 3 microns
	Specific gravity	1.19-1.26 Kg/l
	Application method	Thermo cured coil coating
	Curing process per coat	Conventional CNG/LNG/LPG Gas fired oven
Flame retardant details	See Note 1 below	
Mounting and fixing details	The specimens were tested with an 80 mm air space between them and the calcium silicate board substrate.	

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Brief description of manufacturing process	There are three processes are involved in the production of ACP-Aluminium Composite Panel – Pre Treatment of Aluminium coil for Pre coat of PVDF Primer Aluminium Coil Colour Coating-PVDF Primer Coat and 2 coat of PVDF Paint Extrusion & Lamination of FR rated Core with Adhesive Film wrt Colour Coated Aluminium Coil
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Note 1: The sponsor was unable to provide this information.

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	Viva Composite Panel PVT Ltd	WF 395247	EN ISO 11925-2
		WF 395243, 395245, 395246	EN 13823
		WF 397641	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	Nil	Compliant
		Flaming droplets/ particles		None	Compliant
	30s exposure - edge	F _s	6	Nil	Compliant
		Flaming droplets/ particles		None	Compliant
EN 13823	FIGRA _{0.2MJ}	Formal test – Red	1.14	Compliant	
		Indicative 1 – Silver	0.00		
		Indicative 2 - Black	0.00		
	FIGRA _{0.4MJ}	Formal test – Red	1.14	Compliant	
		Indicative 1 – Silver	0.00		
		Indicative 2 - Black	0.00		
	THR _{600s}	Formal test – Red	0.40	Compliant	
		Indicative 1 – Silver	0.16		
		Indicative 2 - Black	0.25		
	LFS	Formal test – Red	None	Compliant	
		Indicative 1 – Silver	None		
		Indicative 2 - Black	None		
	SMOGRA	Formal test – Red	0.00	Compliant	
		Indicative 1 – Silver	0.00		
		Indicative 2 - Black	0.00		
	TSP _{600s}	Formal test – Red	7.12	Compliant	
		Indicative 1 – Silver	7.87		
		Indicative 2 - Black	7.06		

4. Classification and field of application

4.1 Definition of Limits of Extended Application

One formal and two indicative tests were conducted in accordance with EN 13823 and one formal test in accordance with EN ISO 11925-2. The initial assessment of this product family was conducted, and the data generated has been used to determine which product specifications gave the worst performance. Initially, indicative EN 13823 testing was conducted on three colour variations; a light silver, a black and a red. The specification with the worst set of results was tested formally in accordance with EN 13823 and EN ISO 11925-2.

4.2 EN ISO 11925-2

From the data generated during the indicative EN 13823 testing it was apparent which product specification gave the worst fire performance. This product was tested formally in accordance with EN ISO 11925-2 using surface and edge flame application. There was no ignition and no flame spread from the point of flame application. The average flame front was 100% 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 "VIVA-7 STAR-Class B1", a family of PVDF coated mineral filled aluminium composite panels. This evidence is shown in Figures 1 and 2.

The highest FIGRA value was at least 99% below the maximum value allowed for Class B, (EN 13501-1). The highest THR600s value was at least 94% below the maximum value allowed for Class B, (EN 13501-1).

The measured results relating to smoke parameters, SMOGRA and TSP600s, also fall within the s1 criteria, with the highest smoke value being approximately 84% below the maximum allowed for s1, (EN 13501-1).

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, "VIVA-7 STAR-Class B1", a family of PVDF coated mineral filled aluminium composite panels, in relation to their reaction to fire behaviour are classified:

B

The additional classification in relation to smoke production is:

s1

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	1	,	d	0

i.e. **B – s1 , d0**

Reaction to fire classification: B – s1 , d0

4.6 Extended Field of application

This classification is valid for the following end use applications:

- i) Construction applications mechanically installed without the presence of a substrate with an air gap.

This classification is also valid for the following product parameters:

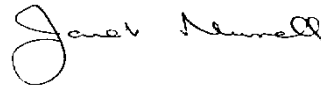
Product thickness	No variation allowed
Product weight per unit area	No variation allowed
Product colour	Any variation allowed utilising coatings of the same generic grade and application rate.
Product composition	No variation allowed
Product construction	No variation allowed

5. Limitations

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

SIGNED

APPROVED



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Matthew Dale

Senior Certification Engineer
Technical Department

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Janet Murrell

Technical Manager
Technical Department
on behalf of **Exova warringtonfire**

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

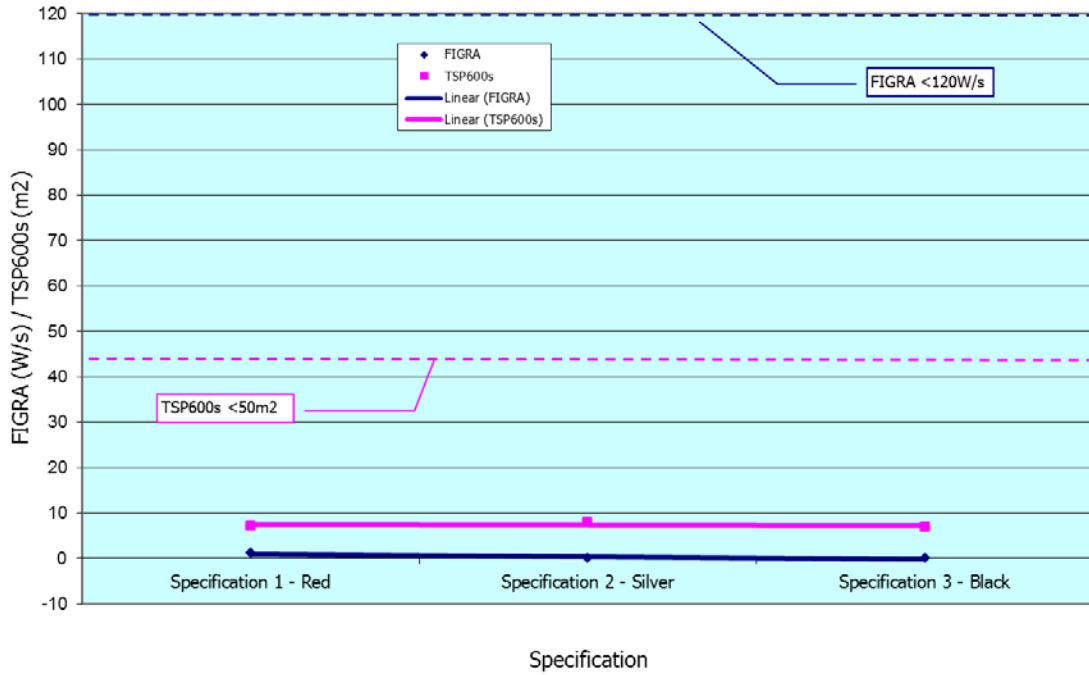


Figure 2 - Effect of varying the product specification on THR600s and SMOGRA

