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**Title:**

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

**Notified Body No:**

0833

**Product Name:**

"RS5000 Series - Line 1"

**Report No:**

WF 383671

**Issue No:**

1

**Prepared for:**

Celotex  
Lady Lane Industrial Estate  
Lady Lane  
Hadleigh  
Suffolk  
IP7 6BA

**Date:**

17<sup>th</sup> August 2017

1. Introduction

This report extends the field of application of test results obtained for “RS5000 Series - Line 1”, a foil faced PIR insulation family. 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 “RS5000 Series - Line 1”, a foil faced PIR insulation family. There is one product property which varies within this product family, thickness of insulation. 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, “RS5000 Series - Line 1”, a foil faced PIR insulation family, is fully described below and in the test reports provided in support of classification listed in Clause 3.1.

General description		Foil faced PIR insulation
Name of manufacturer		Saint-Gobain Construction Products UK Limited – Trading as Celotex
Trade names		“RS5000 Series - Line 1” (last 3 digits of product reference denotes foam thickness in mm eg. “RS5025 – Line 1” denotes foam thickness of 25mm)
Thickness of composite		25mm to 100mm
Weight per unit area of composite		1.03 kg/m <sup>2</sup> to 3.33kg/m <sup>2</sup>
Aluminium foil	Product reference	“FSS 38-172”
	Generic type	Aluminium foil (embossed)
	Name of manufacturer	See Note 1 below
	Weight per unit area	See Note 1 below
	Thickness	See Note 1 below
	Colour	“Silver”
	Flame retardant details	This component is inherently flame retardant
Foam	Product reference	“CP400E 28–028”
	Generic type	PIR insulation foam core
	Name of manufacturer	Saint-Gobain Construction Products UK Limited – trading as Celotex
	Thickness	25mm to 100mm
	Density	32 kg/m <sup>3</sup>
	Flame retardant details	See Note 2 below

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Aluminium foil	Product reference	"FSS 38-172"
	Generic type	Aluminium foil (embossed)
	Name of manufacturer	See Note 1 below
	Weight per unit area	See Note 1 below
	Thickness	See Note 1 below
	Colour	"Silver"
	Flame retardant details	This component is inherently flame retardant
Joint Details		Long wing: one horizontal at 500mm of specimen height, vertical 200mm in from corner line - Short wing one horizontal joint at 500mm height. As per EN 13823 5.2.2
Substrate	Product reference	"Promat – Brandschultzbauplatten; Promatect-H"
	Generic type	Calcium Silicate based board
	Name of manufacturer	Promat
	Thickness	12mm
	Density	870kg/m³
	Flame retardant details	The substrate is inherently flame retardant
Brief description of manufacturing process		Facing is auto adhesively bonded to foam during the manufacturing process.

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 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	Celotex	WF 381750	EN ISO 11925-2
Exova warringtonfire	Celotex	WF 381749, 381751	EN 13823
Exova warringtonfire	Celotex	WF 383672	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 <sub>s</sub>	6	50	Compliant
	Flaming droplets/ particles		None	Compliant
EN ISO 11925-2 (30s exposure – edge)	F <sub>s</sub>	6	36.7	Compliant
	Flaming droplets/ particles		None	Compliant
EN ISO 11925-2 (30s exposure – edge turned at 90 degrees)	F <sub>s</sub>	6	95	Compliant
	Flaming droplets/ particles		None	Compliant
EN 13823	FIGRA <sub>0.2MJ</sub>	25mm product	302.89	Compliant
		100mm product	249.41	
	FIGRA <sub>0.4MJ</sub>	25mm product	285.76	Compliant
		100mm product	224.66	
	THR <sub>600s</sub>	25mm product	3.27	Compliant
		100mm product	5.26	
	LFS	25mm product	None	Compliant
		100mm product	None	
	SMOGRA	25mm product	42.82	Compliant
		100mm product	51.35	
	TSP <sub>600s</sub>	25mm product	42.50	Compliant
		100mm product	71.64	

4. Classification and field of application

4.1 Definition of Limits of Extended Application

Two tests were conducted in accordance with EN 13823 and one 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. To determine the effect on the fire performance of the product family, formal EN 13823 tests were conducted on the thinnest (25mm) and thickest (100mm) products within the family. The specification with the worst set of results (25mm) was tested formally in accordance with EN ISO 11925-2.

## **4.2 EN ISO 11925-2**

From the data generated during the 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, edge flame application and edge turned at 90 degrees flame application. No flame spread from the point of flame application travelled further than 100mm. The highest average flame front was 35% below the maximum value allowed for Class D, (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 thickness has on the fire performance of "RS5000 Series - Line 1", a foil faced PIR insulation family. This evidence is shown in Figures 1 and 2.

The highest FIGRA value (25mm product) fell within Class D (EN 13501-1).

The measured results relating to smoke parameters, SMOGRA and TSP600s, also fall within the s2 criteria, with the highest smoke value being approximately 64% below the maximum allowed or s2, (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, "RS5000 Series - Line 1", a foil faced PIR insulation family, in relation to its reaction to fire behaviour is classified:

**D**

The additional classification in relation to smoke production is:

**s2**

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	
D	-	s	2	,	d	0

i.e. D – s2 , d0

Reaction to fire classification: D – s2, 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<sup>3</sup>, having a minimum thickness of 12mm and a fire performance of A2 or better (excluding paper faced gypsum plasterboard).

This classification is also valid for the following product parameters:

Product thickness	25mm to 100mm
Insulation thickness	25mm to 100mm
Product weight per unit area	1.03 kg/m <sup>2</sup> to 3.33kg/m <sup>2</sup>
Insulation density	Tested density ± 15%
Thickness and weight per unit area of facings	For the tested thickness only. The test result obtained for Euroclass A1 and A2 facings will also be valid for thicker facings of the same type.
Product composition	No variation allowed
Product construction	No variation allowed

5. Limitations

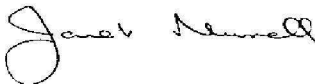
This document does not represent type approval or certification of the product

SIGNED



Jennifer Lucas-Cox  
Certification Engineer  
Technical Department

APPROVED



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

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

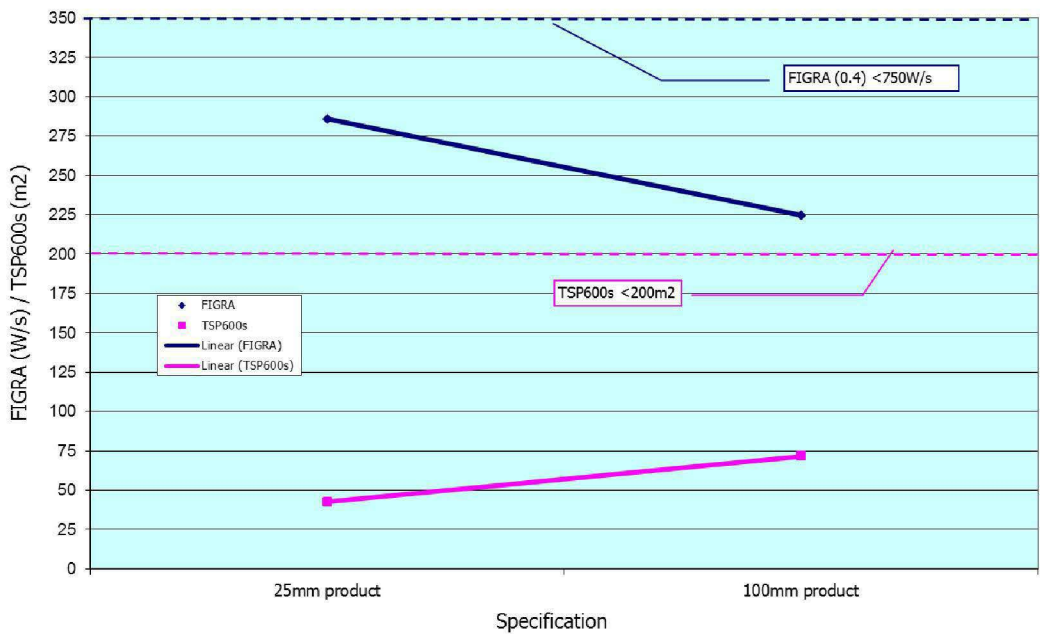


Figure 2 - Effect of varying the product specification on SMOGRA

