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Testing. Advising. Assuring.

Title:

EXTENDED APPLICATION
REPORT IN ACCORDANCE
WITH EN/TS 15117

Notified Body No:

0833

Product Name:

"Kooltherm K15"

Report No:

380604

Issue No:

2

Prepared for:

Kingspan Insulation Ltd,
Torvale Industrial Estate,
Pembroke,
Leominster
HR6 9LA

Date:

27th February 2017



1. Introduction

This report extends the field of application of test results obtained for "Kooltherm K15" a reinforced foil faced and backed foam insulation. Extended application is a process which may incorporate calculation procedures which 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 groups and product families.

2. Details of Product Group

A product group is a range of products within defined limits of variability of the product parameters, and, if relevant, end-use parameters, for which the reaction to fire performance remains unchanged (i.e. does not get worse).

The products referenced "Kooltherm K15", are reinforced foil faced and backed foam insulation, defined as closed cell phenolic foam with scrim composite perforated foil front and back facing. The product properties which vary within this product are the following:

- Width of the panel
- Surface structure of the panel
- Surface finish of the panels
- Joining details of the panels
- The composition of the panels is identical with respect to foam formulation, density and thickness.

The products covered in this ranged are referenced Kooltherm K15. The products can be supplied in different lengths, which does not influence the reaction to fire behaviour.

These product variations will be assessed to determine their influence on the fire performance of the product when tested in accordance with EN 13823 and EN ISO 11925-2 in relation to their classification in accordance with EN 13501-1.

2.1 Product description

The tested products "Kooltherm K15", are fully described below and in the test reports provided in support of classification listed in Clause 3.1.

General description	Reinforced foil faced and backed foam insulation product
Product reference	"Kooltherm K15"
Batch No	"8100224619.1000"
Name of manufacturer	Kingspan Insulation Ltd.
Thickness	25 – 150 mm
Weight per unit area	5.68kg/m ² (stated by sponsor) 5.82 kg/m ² (determined by Exova Warringtonfire)

Continued on next page

Foil	Generic type	Aluminium
	Product reference	"Scrim Composite Foil-Perforated"
	Detailed description / composition details	Lamtec 25 micron printed, perforated, composite foil ref: "10131"
	Name of manufacturer	Lamtec
	Thickness	0.38mm
	Weight per unit area	171g/m ²
	Colour reference	"Silver With Kingspan Logo"
	Flame retardant details	See Note 1 below
Scrim reinforcement	Generic type	See Note 2 below
	Product reference	See Note 2 below
	Name of manufacturer	See Note 3 below
	Colour reference	"Silver"
	Thickness	See Note 2 below
	Density / weight per unit area	See Note 2 below
	Type of weave / cell dimensions	Bi directional scrim
	Flame retardant details	See Note 1 below
Bonding details		Auto adhesively bonded during the manufacturing process
Foam insulation	Generic type	Phenolic
	Product reference	"K15"
	Detailed description / composition details	Factory made closed cell phenolic foam
	Name of manufacturer	Kingspan Insulation Ltd.
	Thickness	25 - 150mm
	Density	40kg/m ³
	Colour reference	"Pinkish"
	Flame retardant details	See Note 1 below
Bonding details		Auto adhesively bonded during the manufacturing process
Scrim reinforcement	Generic type	See Note 2 below
	Product reference	See Note 2 below
	Name of manufacturer	See Note 3 below
	Colour reference	"Silver"
	Thickness	See Note 2 below
	Density / weight per unit area	See Note 2 below
	Type of weave / cell dimensions	Bi directional scrim
	Flame retardant details	See Note 1 below
Foil	Generic type	Aluminium
	Product reference	"Scrim Based Composite Foil Perforated"
	Detailed description / composition details	1-1963 Lamtec 25micron foil face. No print. perforated
	Name of manufacturer	Lamtec
	Thickness	0.38mm
	Weight per unit area	171g/m ²
	Colour reference	"Silver Foil"
	Flame retardant details	See Note 1 below
Brief description of manufacturing process		Facing is auto adhesively bonded to foam during the manufacturing process.

Note 1: The sponsor of the test has confirmed that no flame retardant additives were utilised in the production of the component.

Note 2: The sponsor was unable to provide this information.

Note 3: 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.

3. Test reports & test results in support of classification

3.1 Test reports

Name of Laboratory	Name of sponsor	Test reports/extended application report Nos.	Test method / extended application rules & date
Exova Warringtonfire	Kingspan Limited	WF 379563 and WF 379564	EN ISO 11925-2
Exova Warringtonfire	Kingspan Limited	WF 379561 and WF 379562	EN 13823

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	60mm, 50mm	Compliant
	Flaming droplets/ particles		None, None	Compliant
EN ISO 11925-2 (30s exposure - edge)	F _s	6, 6	40mm, 30mm	Compliant
	Flaming droplets/ particles		None, None	Compliant
EN ISO 11925-2 (30s exposure - edge turned at 90 degrees)	F _s	6, 6	50mm, 45mm	Compliant
	Flaming droplets/ particles		None, None	Compliant
EN 13823	FIGRA _{0.2MJ}	3, 3	279.38, 256.91	Compliant
	FIGRA _{0.4MJ}		119.55, 137.32	Compliant
	THR _{600s}		2.26, 3.56	Compliant
	LFS		None, None	Compliant
	SMOGRA		27.1, 18.5	Compliant
	TSP _{600s}		39.88, 45.68	Compliant

4. Classification and field of application

4.1 Definition of Limits of Extended Application

The products referenced "Kooltherm K15", are reinforced foil faced and backed foam insulation, defined as closed cell phenolic foam with scrim composite perforated foil front and back facing.

4.2 EN ISO 11925-2

The results were well within the limits for a classification B - D. It can therefore be considered that the results will allow a classification B - D for the product variations considered.

4.3 EN 13823

The SBI test measures the following fire parameters, Fire Growth Rate (FIGRA), Total Heat Release (THR_{600s}), Smoke Growth Rate (SMOGRA) and Total Smoke Production (TSP_{600s}). These parameters were evaluated to assess what influence the various product parameters could have on the test results. The available test evidence is graphically represented in the graphs given in the annex.

The FIGRA values were well within the limit for a C-classification. The results for the tested product types were not significantly different, indicating that the different product properties have not influenced the test results negatively.

The results for the THR are not relevant for a C-classification, but comparison of the values shows that the different product properties have not influenced the test results negatively.

Comparison of the Kooltherm K15 products shows that the orientation of the boards (horizontal or vertical) does not influence the test results.

The measured results relating to smoke parameters, SMOGRA and TSP_{600s}, are within the limit value for s1, and differences are not relevant for the classification. Comparison of the values shows that the different product properties have not influenced the test results negatively.

In all instances were flaming droplets/particles, which kept burning > 10 s, evident during the fire tests.

These results clearly indicate that the product variations show consistent behaviour in this test.

4.4 Field of application

The tests results are valid for the following end use applications:

- i) Wall, ceiling and facade applications
- ii) Used over any substrate of class A2 or better with density of 870 kg/m³ or higher, with an air gap, mechanically fixed onto a timber (or metal) support frame.

This classification is also valid for the following product parameters:

Overall product thickness	25 – 150 mm
Insulation thickness	25 – 150 mm
Thickness of metal facing	0.38mm
Density of insulation	No variation allowed
Product weight per unit area	No variation allowed
Product colour/pattern	Any colour
Product composition	No variation allowed
Product construction	No variation allowed

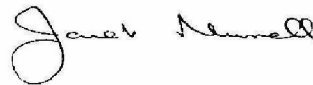
SIGNED



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Katie Williams

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APPROVED



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Technical Department
on behalf of **Exova Warringtonfire**

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Issue 2: 6th March 2017, corrections to descriptions table

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

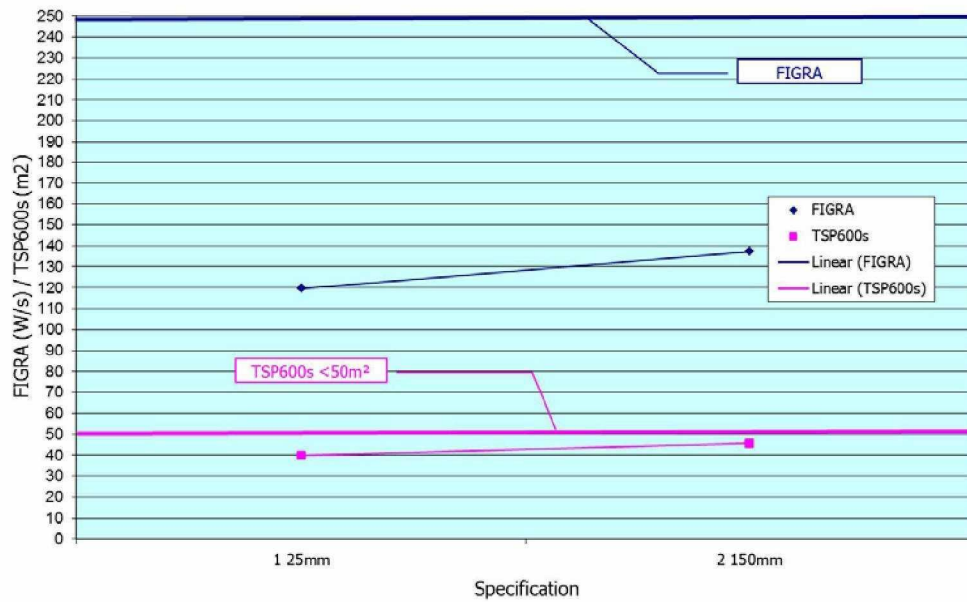


Figure 2 - Effect of varying the product specification on THR600s and SMOGRA

