

# BRE Global Classification Report

Classification of reaction to fire performance in accordance with  
EN 13501-1: 2007 + A1: 2009 on K15

Prepared for: Kingspan Insulation Limited

Date: 01 October 2015

Report Number: P100160-1000-4 Issue 1

BRE Global Ltd  
Watford, Herts  
WD25 9XX

Customer Services [REDACTED]

From outside the UK:

T [REDACTED]  
F [REDACTED]

E [enquiries@bre.co.uk](mailto:enquiries@bre.co.uk)

[www.bre.co.uk](http://www.bre.co.uk)

Prepared for:

Kingspan Insulation Limited  
Pembrige  
Leominster  
Herefordshire  
HR6 9LA  
UK



0578



---

## Prepared by

---

Name C A Rock

Position Senior Consultant

Signature

A handwritten signature in blue ink that reads "C A Rock".

---

## Authorised by

---

Name J Hunter

Position Senior Consultant

Date 01 October 2015

Signature

A handwritten signature in black ink that reads "J Hunter".

This report is made on behalf of BRE Global and may only be distributed in its entirety, without amendment, and with attribution to BRE Global Ltd to the extent permitted by the terms and conditions of the contract. Test results relate only to the specimens tested. BRE Global has no responsibility for the design, materials, workmanship or performance of the product or specimens tested. This report does not constitute an approval, certification or endorsement of the product tested and no such claims should be made on websites, marketing materials, etc. Any reference to the results contained in this report should be accompanied by a copy of the full report, or a link to a copy of the full report.

BRE Global's liability in respect of this report and reliance thereupon shall be as per the terms and conditions of contract with the client and BRE Global shall have no liability to third parties to the extent permitted in law.

Opinions and interpretations expressed herein are outside the scope of UKAS Accreditation.



## Table of Contents

<b>1</b>	<b>Introduction</b>	<b>3</b>
<b>2</b>	<b>Details of classified product</b>	<b>4</b>
2.1	General	4
2.2	Product description	4
2.2.1	Traceability	4
2.2.2	Sample details	4
<b>3</b>	<b>Reports &amp; results in support of this classification</b>	<b>6</b>
3.1	Reports	6
3.2	Results	6
<b>4</b>	<b>Classification and field of application</b>	<b>7</b>
4.1	Reference of classification	7
4.2	Classification	7
4.3	Field of application	7
<b>5</b>	<b>Limitations</b>	<b>8</b>
<b>6</b>	<b>References</b>	<b>8</b>
	<b>Appendix A</b>	<b>10</b>
	Table A.1: Test sponsor's product description	10



---

## 1 Introduction

---

This classification report defines the classification assigned to 'K15' in accordance with the procedures given in EN 13501-1:2007+A1: 2009<sup>1</sup>.

# BRE Global

## CLASSIFICATION OF REACTION TO FIRE IN ACCORDANCE WITH EN 13501-1: 2007+A1: 2009

<b>Sponsor:</b>	Kingspan Insulation Limited, Pembridge, Leominster, Herefordshire, HR6 9LA, UK.
<b>Prepared for:</b>	Kingspan Insulation Limited, Torvale Industrial Estate, Pembridge, Leominster, Herefordshire, HR6 9LA, UK
<b>Place of Manufacture:</b>	Kingspan Insulation Limited, Bree Industrial Estate, Castleblayney, Co. Monaghan, Ireland.
<b>Prepared by:</b>	BRE Global Limited, Bucknalls Lane, Garston, Watford, Hertfordshire, WD25 9XX, UK.
<b>Notified Body No.:</b>	0832
<b>Product name:</b>	K15
<b>Classification report No.:</b>	P100160-1000-4
<b>Issue number:</b>	One
<b>Date of issue:</b>	01 October 2015

This classification report consists of twelve pages and may only be used or reproduced in its entirety.



## 2 Details of classified product

### 2.1 General

The product, K15, is defined by the test sponsor as a factory made phenolic foam (PF) product, in accordance with EN 13166<sup>2</sup>.

### 2.2 Product description

The product, K15, is described in section 2.2.2.

#### 2.2.1 Traceability

The test samples were supplied by the test sponsor. BRE Global was not involved in the sampling process and therefore cannot comment upon the relationship between the samples supplied for test and the products supplied to market.

#### 2.2.2 Sample details

Unless otherwise stated all measurements are nominal

Parameter	Details
Test sponsor	Kingspan Insulation Limited Pembrige Leominster Herefordshire HR6 9LA UK
Manufacturer of sample	Kingspan Insulation Limited - Head Quarters Torvale Industrial Estate Pembrige Leominster Herefordshire HR6 9LA UK
Place of manufacture	Kingspan Insulation Limited Bree Industrial Estate Castleblayney Co. Monaghan Ireland
Trade name	K15
Sample reference	8100143237 1002
Sample description (as provided by test sponsor/manufacturer)	Foil faced phenolic insulation board
Description of sample (as received)	140 mm-thick pinkish-orange rigid foam with perforated foil facings. Both facers appeared identical. The interior face was marked with the blue Kingspan logo.
<b>Test sponsor's product data</b>	
Generic type of product	Closed cell phenolic – foil faced.



Parameter	Details
Nominal thickness (mm)	140 mm
Nominal density (kg/m <sup>3</sup> )	35 kg/m <sup>3</sup>
Nominal mass per unit area (kg/m <sup>2</sup> )	Note 2
Colour	Foil: Silver Glass fibre: Light brown/off-white Insulation: Pink/orange
Flame retardant treatment added or organic content limited during production	No
European product standard, if applicable	EN 13166 <sup>2</sup>
<b>Substrate and ventilation conditions</b>	
Substrate	Calcium silicate
Generic type of substrate	Calcium silicate board
Thickness (mm)	12 mm
Nominal density (kg/m <sup>3</sup> )	870 ± 50 kg/m <sup>3</sup>
Fire classification	A2-s1, d0 to EN 13501-1 <sup>1</sup>
Type of air gap	None
Position of air gap	Not applicable
<b>Measured sample data</b>	
Mean sample density	40.73 kg/m <sup>3</sup>
Mean sample thickness	139.89 mm
Mean sample mass per unit area	5.70 kg/m <sup>2</sup>
<b>Test information</b>	
Face to be tested	Foil face
Orientation aspects	Note 1
Test sponsor's sampling identification	Batch No. 8100143237-1002. D.O.M 02.12.2015
Additional information:	None

Note 1: This information was not supplied by the test sponsor.

Note 2: Note 1: This commercially sensitive information has been withdrawn from the test report at the request of the test sponsor. The information is held in confidence in the laboratory file.





### 3 Reports & results in support of this classification

#### 3.1 Reports

Name of Laboratory	Name of test sponsor	Test reports Nos.	Test method/field of application rules
BRE Global	Kingspan Insulation Limited	P100160-1000-3	EN 13823 <sup>3</sup>
BRE Global	Kingspan Insulation Limited	P100160-1000-1	EN ISO 11925-2 <sup>4</sup>

#### 3.2 Results

Test method & test number	Parameter	No. test runs	Results	
			Continuous parameter - mean (m)	Compliance with parameters Criterion / Compliance status C-s1, d0
EN 13823	FIGRA <sub>0.2MJ</sub> FIGRA <sub>0.4MJ</sub> LFS THR <sub>600s</sub>	3	318.3 W/s 220.0 W/s (-) 3.4 MJ	- / - ≤ 250 W/s / Compliant ≤ edge of specimen / Compliant ≤ 15 MJ / Compliant
	SMOGRA TSP <sub>600s</sub>		0.9 m <sup>2</sup> /s <sup>2</sup> 33.9 m <sup>2</sup>	≤ 30 m <sup>2</sup> /s <sup>2</sup> / Compliant ≤ 50 m <sup>2</sup> / Compliant
	Flaming droplets/particles ≤ 10s Flaming droplets/particles > 10s		Not observed Not observed	Flaming ≤ 10s / Compliant Flaming > 10s / Compliant
EN ISO 11925-2 30s, Surface exposure	F <sub>s</sub> Flaming droplets/particles	6	Not observed Not observed	≤ 150 mm within 60s / Compliant No ignition of paper / Compliant
EN ISO 11925-2 30s, Edge exposure	F <sub>s</sub> Flaming droplets/particles	6	Not observed Not observed	≤ 150 mm within 60s / Compliant No ignition of paper / Compliant
EN ISO 11925-2 30s, Edge 90° exposure	F <sub>s</sub> Flaming droplets/particles	8	Not observed Not observed	≤ 150 mm within 60s / Compliant No ignition of paper / Compliant



## 4 Classification and field of application

### 4.1 Reference of classification

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

### 4.2 Classification

The product, K15, in relation to reaction to fire behaviour is classified:

**C**

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 products excluding floorings and linear pipe thermal insulation products is:

Fire Behaviour		Smoke Production			Flaming Droplets	
C	-	s	1	,	d	0

i.e. C-s1, d0

**Reaction to fire classification: C-s1, d0**

### 4.3 Field of application

This classification is valid for the following end -use applications:

- i. Insulation

And the following product and mounting and fixing parameters:

Composition/build up	As tested. No variation in composition or build-up allowed. No variation in ordering of layers.
Colour of components	As tested. No variation in colour allowed.
Overall thickness of product	Nominal 140 mm.
Mass per unit area of product	5.70 kg/m <sup>2</sup> . No variation in mass per unit area allowed.
Insulating element	Phenolic foam. No variation in the type of insulation allowed.
Composition of insulating element	Valid for insulations with the same formulation and the same blowing agent.
Thickness of insulating element	Nominal 140 mm.
Density of insulating element	35 kg/m <sup>3</sup> ± 15%. Valid for the tested type only. No variation in the density of the insulating element allowed.





Facings	Composite perforated foil face bi-directional scrim with a fibreglass mat. Valid for the tested type only.
Thickness of facings	Valid for the tested type only. Note: The test result obtained for facings, with an A1 or A2 classification to EN 13501-1 <sup>1</sup> , is valid for thicker facings of the same type.
Area weight of facing	Note 1. Valid for the tested type only.
Product orientation and geometry	Valid for all orientations. Valid for all product sizes.
Joints and edges	Valid for all edge types.

Note 1: This commercially sensitive information has been withheld from the test report at the request of the test sponsor; the information has been supplied and is retained in confidence on the laboratory file.

This classification is valid for the following end -use applications:

- i. Foil-faced insulation, mechanically fixed, with or without an adhesive, to an A1 or an A2 substrate (excluding paper-faced gypsum plasterboard) with a nominal density greater than or equal to 653 kg/m<sup>2</sup>.
- ii. Valid for assemblies with or without exposed joints and edges.

## 5 Limitations

This classification 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 performance by the manufacturer within the context of system 3 of assessment and verification of constancy of performance and CE marking under the Construction Products Regulation.

The manufacturer has made a declaration, which is held on file. This confirms that the product's 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.

## 6 References

1. EN 13501-1: 2007+A1: 2009. Fire classification of construction products and building elements. Part 1: Classification using data from reaction to fire tests. CEN, Avenue Marnix 17, B-1000 Brussels. 2009.
2. EN 13166: 2012. Thermal insulation products for buildings – Factory made phenolic foam (PF) products – Specification. CEN, Avenue Marnix 17, B-1000 Brussels. 2012.
3. EN 13823: 2010 + A1: 2014. Reaction to fire tests for building products - Building products excluding floorings exposed to the thermal attack by a single burning item. CEN, Avenue Marnix 17, B-1000 Brussels. 2014.



4. EN ISO 11925-2: 2010. Reaction to fire tests - Ignitability of products subjected to direct impingement of flame - Part 2: Single-flame source test. CEN, Avenue Marnix 17, B-1000 Brussels. 2010.



## Appendix A

**Table A.1: Test sponsor's product description**

<b>Company: Kingspan Insulation Ltd</b>	
<b>Parameter</b>	<b>Details (if applicable)</b>
Trade name	K15
General description	Foil faced Phenolic Insulation board
Name and address of manufacturer of product	Kingspan Insulation Ltd HQ Torvale In est
Place of manufacture	1002 – Kingspan Ireland-Castleblayney Ireland.
Product reference/number	8100143237 1002
Thickness	140 mm
Density	35 kg/m <sup>3</sup> specified by Kingspan
Mass per unit area	Note 1
Generic type of product	Closed cell Phenolic
Flame retardant treatment added or organic content limited during production (yes/no), if yes give details	NO
European product standard, if applicable	BS EN 13166
Industry/in-house product standard, if applicable	ThIB
Attestation of conformity systems, if applicable	Note 2
Interior facing 1 (test face) <ul style="list-style-type: none"> <li>- Generic type</li> <li>- Product reference</li> <li>- Manufacturer</li> <li>- Thickness</li> <li>- Mass per unit area/ density</li> <li>- Colour reference</li> <li>- Trade name flame retardant</li> <li>- Generic type flame retardant</li> <li>- Amount flame retardant</li> </ul>	Composite perforated foil face bi-directional scrim with a fibreglass mat Note 1 Note 1 Note 1 Note 1 Silver Foil No flame retardant N/A N/A
Interior facing 2 <ul style="list-style-type: none"> <li>- Generic type</li> <li>- Product reference</li> <li>- Manufacturer</li> <li>- Thickness</li> <li>- Mass per unit area/ density</li> <li>- Colour reference</li> <li>- Trade name flame retardant</li> <li>- Generic type flame retardant</li> <li>- Amount flame retardant</li> </ul>	N/A



Company: Kingspan Insulation Ltd	
Parameter	Details (if applicable)
Core material <ul style="list-style-type: none"> <li>- Generic type</li> <li>- Product reference</li> <li>- Manufacturer</li> <li>- Thickness</li> <li>- Mass per unit area/density</li> <li>- Colour reference</li> <li>- Trade name flame retardant</li> <li>- Generic type flame retardant</li> <li>- Amount flame retardant</li> </ul>	Closed cell Phenolic Kooltherm Kingspan Insulation Ltd 140 mm, total-facing 139.95 mm 35 kg/m <sup>3</sup> Pinkish/salmon No flame retardant N/A N/A
Exterior facing 2 <ul style="list-style-type: none"> <li>- Generic type</li> <li>- Product reference</li> <li>- Manufacturer</li> <li>- Thickness</li> <li>- Mass per unit area/density</li> <li>- Colour reference</li> <li>- Trade name flame retardant</li> <li>- Generic type flame retardant</li> <li>- Amount flame retardant</li> </ul>	Same as above (Interior Facing 2)
Exterior facing 1 <ul style="list-style-type: none"> <li>- Generic type</li> <li>- Product reference</li> <li>- Manufacturer</li> <li>- Thickness</li> <li>- Mass per unit area/density</li> <li>- Colour reference</li> <li>- Trade name flame retardant</li> <li>- Generic type flame retardant</li> <li>- Amount flame retardant</li> </ul>	Same as above (Interior facing 1)-product has the same facing on either side.
Adhesive (if applicable) <ul style="list-style-type: none"> <li>- Generic type</li> <li>- Product reference</li> <li>- Manufacturer</li> <li>- Application rate</li> <li>- Application method</li> <li>- Specific gravity</li> <li>- Colour reference</li> <li>- Trade name flame retardant</li> <li>- Generic type flame retardant</li> <li>- Amount flame retardant</li> </ul>	Note 2
Substrate (if applicable) <ul style="list-style-type: none"> <li>- Generic type</li> <li>- Product standard</li> <li>- Product name/reference</li> <li>- Manufacturer</li> <li>- Thickness</li> <li>- Density or mass per unit area</li> <li>- Class (EN 13501-1)</li> </ul>	Note 2
Face to be tested	Note 2
Orientation aspects	Note 2



<b>Company: Kingspan Insulation Ltd</b>	
<b>Parameter</b>	<b>Details (if applicable)</b>
Sampling Identification Reference	Batch number 8100143237-1002 date of manufacture 02.012.2014
Additional information:	Note 1

Note 1: This commercially sensitive information has been withdrawn from the test report at the request of the test sponsor. The information is held in confidence in the laboratory file.

Note 2: This information was not supplied by the test sponsor.

N/A: Not applicable.