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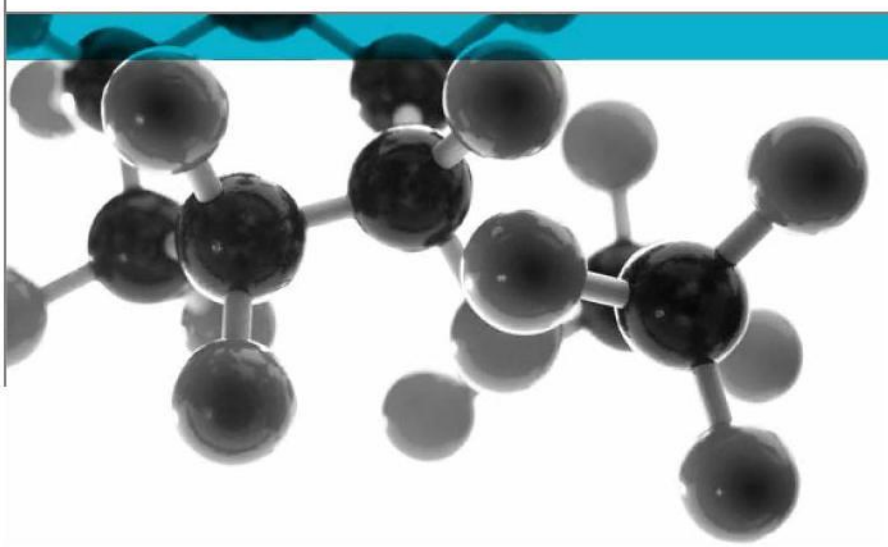
BS EN ISO 11925-2: 2010



Ignitability Of Building Products Subjected To Direct Impingement Of Flame
Part 2: Single Flame Source Test

A Report To: Kingspan Insulation Ltd

Document Reference: 329590

Date: 12th February 2015

Issue No.: 1

Testing
Advising
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Executive Summary

Objective To determine the performance of the following product when tested in accordance with BS EN ISO 11925-2:2010.

Generic Description	Product reference	Thickness	Weight per unit area or density
Foil-faced phenolic insulation board	"Kooltherm K10FM"	100mm (In practice) 60mm (As tested)	3.67kg/m^2
Individual components used to manufacture composite:			
Aluminium foil	Confidential	Confidential	Confidential
Foam	"K10"	100mm	Confidential
Please see page 5 and 6 of this test report for the full description of the product tested			

Test Sponsor Kingspan Insulation Limited, Pembridge, Leominster, Herefordshire, HR6 9LA

Test Results: **On each set of six specimens which were tested, the flame tip did not reach a distance of 150mm before the end of the test.**

Date of Test 4th June 2013

Signatories

Responsible Officer K. Hughes* Technical Officer	Authorised S. Deeming* Operations Manager

* For and on behalf of **Exova Warringtonfire**.

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Test Details

Purpose of test

To determine the performance of specimens of a product when they are subjected to the conditions of the test specified in BS EN ISO 11925-2:2010 "Reaction to Fire tests - Ignitability Of Building Products Subjected to Direct Impingement of Flame – Part 2: Single Flame Source Test".

The test was performed in accordance with the procedure specified in BS EN ISO 11925-2:2010 Reaction to Fire Tests - Ignitability of Building Products subjected to direct impingement of flame – Part 2: Single Flame Source Test, and this report should be read in conjunction with that BS EN ISO Standard.

Scope of test

BS EN ISO 11925-2 specifies a method of test for determining the ignitability of building products by direct small flame impingement under zero impressed irradiance using specimens tested in a vertical orientation.

Fire test study group/EGOLF

Certain aspects of some fire test specifications are open to different interpretations. The Fire Test Study Group and EGOLF have identified a number of such areas and have agreed Resolutions which define common agreement of interpretations between fire test laboratories which are members of the Groups. Where such Resolutions are applicable to this test they have been followed.

Instruction to test

The test was conducted on the 4th June 2013 at the request of Kingspan insulation Ltd the sponsor of the test.

Provision of test specimens

The specimens were supplied by the sponsor of the test. **Exova Warringtonfire** was not involved in any selection or sampling procedure.

Conditioning of specimens

The specimens were received on the 24th May 2013

Prior to test the specimens were stored for 10 days in a standard atmosphere as defined in BS EN 13238:2010 Conditioning Procedures and General Rules for selection of substrates until constant mass was achieved.

Intended application

Thermal insulation.

Substrate

The specimens were tested without a substrate present.

Flame application time

The flame was applied for 30 seconds.

Description of Test Specimens

The description of the specimens given below has been prepared from information provided by the sponsor of the test. All values quoted are nominal, unless tolerances are given.

General description		Foil-faced phenolic insulation board
Name of manufacturer		Kingspan Insulation Ltd.
Trade name		"Kooltherm K10FM"
Batch reference		"8*86918.1002"
Overall product thickness		100mm (In practice) 60mm (As tested) In accordance with the standard, the maximum thickness of specimen that can be tested is 60mm. If the normal thickness of a specimen exceeds 60mm, it is necessary to reduce the thickness of the specimen to a maximum of 60mm by cutting away material from the unexposed surface.
Weight per unit area		3.67kg/m^2
Product configuration		• Foil facer • Phenolic foam • Foil facer
Aluminium foil	Product reference	**See Note 1 below**
	Generic type	Composite foil
	Name of manufacturer	**See Note 1 below**
	Weight per unit area	**See Note 1 below**
	Thickness	**See Note 1 below**
	Colour	"Silver Foil"
	Flame retardant details	**See Note 2 below**
Foam	Product references	"K10"
	Generic type	Phenolic foam
	Name of manufacturer	Kingspan Insulation Ltd.
	Thickness	100mm
	Density	**See Note 1 below**
	Colour reference	"Pink"
	Flame retardant details	**See Note 2 below**
Brief description of manufacturing process		Facings auto adhesively bonded to phenolic foam during the manufacturing process. Foam boards are made at 70°C under pressure

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 of the test has confirmed that no flame retardant additives were utilised in the production of the component.

Test Results

Number of specimens tested

Six specimens were tested, each of which were subjected to surface exposure to flame with the foil face exposed.

Six specimens were tested, each of which were subjected to edge exposure to flame with the foil face exposed.

Six specimens were tested, each of which were subjected to edge exposure to flame with the specimen turned at 90° round its vertical axis and the foam face exposed.

Applicability of test results

The test results relate to the behaviour of the test specimens of a product under the particular conditions of the test, they are not intended to be the sole criterion for assessing the potential fire hazard of the product in use.

The test results relate only to the specimens of the product in the form in which they were tested. Small differences in the composition or thickness of the product may significantly affect the performance during the test and may therefore invalidate the test results. Care should be taken to ensure that any product which is supplied or used is fully represented by the specimens which were tested.

The test results for the individual specimens, together with observations made during the test and comments on any difficulties encountered during the test are given in Tables 1, 2 and 3.

On each set of six specimens which were tested, the flame tip did not reach a distance of 150mm before the end of the test.

Validity

The specification and interpretation of fire test methods are the subject of ongoing development and refinement. Changes in associated legislation may also occur. For these reasons it is recommended that the relevance of test reports over five years old should be considered by the user. The laboratory that issued the report will be able to offer, on behalf of the legal owner, a review of the procedures adopted for a particular test to ensure that they are consistent with current practices, and if required may endorse the test report.

Table 1

Test Flame Application Position - Surface of foil face

Specimen No.	Ignition Yes/No	Time from start of test for flame tip to reach 150mm (seconds)	Extent of Flame Spread (mm)	Flaming Debris	Glowing	Extent of Damaged Area (mm)	
						Height	Width
1	Yes	Did not reach	50	None	None	70	15
2	Yes	Did not reach	50	None	None	150	15
3	Yes	Did not reach	60	None	None	85	15
4	Yes	Did not reach	50	None	None	90	15
5	Yes	Did not reach	20	None	None	80	15
6	Yes	Did not reach	50	None	None	110	17

Table 2

Test Flame Application Position - Edge of foil face

Specimen No.	Ignition Yes/No	Time from start of test for flame tip to reach 150mm (seconds)	Extent of Flame Spread (mm)	Flaming Debris	Glowing	Extent of Damaged Area (mm)	
						Height	Width
1	Yes	Did not reach	30	None	None	60	40
2	Yes	Did not reach	30	None	None	50	30
3	Yes	Did not reach	20	None	None	60	30
4	Yes	Did not reach	30	None	None	40	40
5	Yes	Did not reach	30	None	None	35	45
6	Yes	Did not reach	30	None	None	40	35

Table 3

Test Flame Application Position - Edge of the specimen turned at 90° round its vertical axis and the insulation face exposed

Specimen No.	Ignition Yes/No	Time from start of test for flame tip to reach 150mm (seconds)	Extent of Flame Spread (mm)	Flaming Debris	Glowing	Extent of Damaged Area (mm)	
						Height	Width
1	Yes	Did not reach	10	None	None	145	23
2	Yes	Did not reach	10	None	None	140	25
3	Yes	Did not reach	10	None	None	120	20
4	Yes	Did not reach	20	None	None	130	25
5	Yes	Did not reach	10	None	None	110	50
6	Yes	Did not reach	10	None	None	115	25

Revision History

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Revised By:	Approved By:
Reason for Revision:	

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