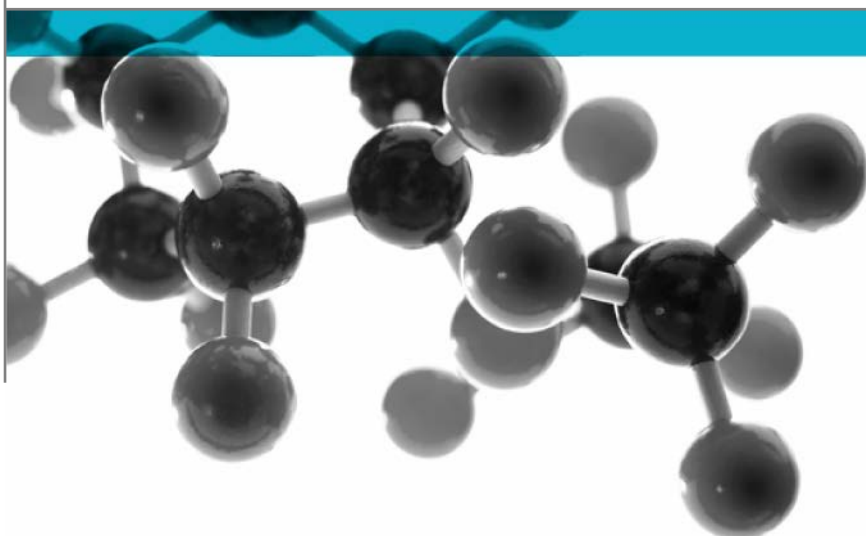


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# DD CEN/TS 1187: 2012 Test 4



**Incorporating Amendment No.1 – Test 4 – Two stage test method incorporating burning brands, wind and supplementary radiant heat**

**Date:** 05<sup>th</sup> April 2016

**Issue No.:** 1

Page 1

A Report To: Eagle Insulations Ltd

Document Reference: 362710

Testing  
Advising  
Assuring



## Executive Summary

**Objective** To determine the fire performance of the following product when tested in accordance with DD CEN/TS 1187 Test 4.

Generic Description	Product reference	Thickness	Weight per unit area or density
Coating system applied to a calcium silicate substrate	"TECNOCOAT P-2049"	15mm*	15.38kg/m <sup>2</sup> *
<b>Individual components used to manufacture composite:</b>			
Top coat (Test face)	"TECNOCOAT P-2049"	2 x 1mm	1320 -1420kg/m <sup>3</sup>
Substrate	Not stated	12mm	870kg/m <sup>3</sup>
*determined by <b>Exova Warringtonfire</b>			
<b>Please see page 5 of this test report for the full description of the product tested</b>			

**Test Sponsor** Eagle Insulations Ltd, 39 Alma Road, St Albans, AL1 3AT


### Test Results


	Specimen number	Time to fire penetration (min:sec)	Duration of flaming after withdrawal of test flame (min:sec)	Maximum flame spread distance (mm)
Stage 1	1	Did not penetrate	Nil	Zero
Stage 2	2	Did not penetrate	N/A	N/A
	3	Did not penetrate	N/A	N/A
	4	Did not penetrate	N/A	N/A

**Date of Test:** 24<sup>th</sup> March 2016

## Signatories

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Responsible Officer K. Hughes * Technical Officer


Authorised S Deeming* Business Unit Head

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

Report Issued: 05 <sup>th</sup> April 2016
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Document No.: 362710

Page No.: 3 of 10

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0249

CONTENTS	PAGE NO.
EXECUTIVE SUMMARY .....	2
SIGNATORIES .....	3
TEST DETAILS .....	5
DESCRIPTION OF TEST SPECIMENS .....	6
TEST RESULTS .....	7
TABLE 1 .....	8
REVISION HISTORY .....	10

## Test Details

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### Purpose of test

To determine the performance of specimens of a roof construction when they are subjected to the conditions of the test specified in DD CEN/TS 1187:2012 Incorporating Amendment No.1 - Test 4 – Two stage test method incorporating burning brands, wind and supplementary radiant heat. This report should be read in conjunction with that European Standard.

### Scope of test

A two stage test method incorporating burning brands, wind and supplementary radiant heat which is designed to assess:

- a) the capacity of the roof construction to withstand fire penetration
- b) the capacity of the roof construction to produce flaming droplets or debris which fall from the underside or from the exposed surface

The test specimens are tested at an angle of 45° to the horizontal (sloping position) unless the roof construction is used at an angle of 10° or less to the horizontal, in which case the specimens are tested horizontally (flat position).

### Fire test study group

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 24<sup>th</sup> March 2016 at the request of Eagle Insulations 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 11<sup>th</sup> February 2016. Prior to testing the specimens were conditioned to equilibrium in an atmosphere having a temperature of 23 ±2°C and a relative humidity of 45 to 55%.

### Orientation of specimens

The specimens were tested in the flat position.

## Description of Test Specimens

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

General description		Coating system applied to a calcium silicate substrate
Product reference		"TECNOCOAT P-2049"
Name of manufacturer		TECNOPOL SISTEMAS S.L.
Thickness		15mm (determined by <b>Exova Warringtonfire</b> )
Weight per unit area		15.38kg/m <sup>2</sup> (determined by <b>Exova Warringtonfire</b> )
Top coat (Test face)	Generic type	Pure polyurea
	Product reference	"TECNOCOAT P-2049"
	Name of manufacturer	TECNOPOL SISTEMAS S.L.
	Colour reference	"Light Grey"
	Number of coats	Two
	Application thickness per coat	1mm
	Density	1320 and 1420kg/m <sup>3</sup>
	Application method	Hot spray
	Flame retardant details	<b>See Note 1 Below</b>
Curing process per coat		5 seconds
Substrate	Generic type	Calcium silicate
	Product reference	<b>See Note 2 Below</b>
	Name of manufacturer	<b>See Note 2 Below</b>
	Thickness	12mm
	Density	870kg/m <sup>3</sup>
	Colour reference	"Light Grey"
Flame retardant details		<b>See Note 1 Below</b>
Brief description of manufacturing process		<b>See Note 2 Below</b>

**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 unwilling to provide this information.**

## Test Results

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### Results of test

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

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

**The results of the tests on each of the specimens are given in Table 1.**

### Validity

The specification and interpretation of fire test methods is 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.

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Table 1

<b>PRELIMINARY IGNITION TEST WITH BURNING BRANDS (STAGE 1)</b>	Specimen No:
Room temperature at start of test (°C)	18
Time to fire penetration (if applicable) (min:sec)	Did not penetrate
Duration of flaming after withdrawal of the test flame (if applicable) (min:sec)	0:40
Maximum flame spread distance (if applicable) (mm)	Nil

<b>PENETRATION TEST WITH BURNING BRANDS, WIND AND SUPPLEMENTARY RADIANT HEAT (STAGE 2)</b>	Specimen No:		
	2	3	4
Room temperature at start of test (°C)	28	29	29
Time to fire penetration (if applicable) (min:sec)	Did not penetrate	Did not penetrate	Did not penetrate
Additional observations:			
In the case of all three specimens flaming penetration did not occur			



**Table 2 Classes of External Fire Performance for Roofs/Roof Coverings In Accordance With 13501-5: 2005**

Test Method	Class	Classification criteria
DD CENTS 1187: 2012, Test 1	B <sub>Roof</sub> (t1)	All of the following conditions shall be satisfied for any one test: <ul style="list-style-type: none"> <li>- external and internal fire spread upwards &lt;0.700m;</li> <li>- external and internal fire spread downwards &lt;0.600m;</li> <li>- maximum burned length external and internal &lt;0.800m;</li> <li>- no burning material (droplets or debris) falling from exposed side;</li> <li>- no burning/glowing particles penetrating the roof construction;</li> <li>- no single through opening &gt;25mm<sup>2</sup></li> <li>- sum of all through openings, 4500mm<sup>2</sup></li> <li>- lateral fire spread does not reach the edges of the measuring zone;</li> <li>- no internal glowing combustion;</li> <li>- maximum radius of fire spread on 'horizontal' roofs, external and internal &lt;0.200m</li> </ul>
	F <sub>Roof</sub> (t1)	No performance determined
DD CENTS 1187: 2012, Test 2	B <sub>Roof</sub> (t2)	For both test series at 2m/s and 4m/s wind speed: <ul style="list-style-type: none"> <li>- mean damaged length of the roof covering and substrate ≤ 0.550m;</li> <li>- max damaged length of the roof covering and substrate ≤ 0.800m.</li> </ul>
	F <sub>Roof</sub> (t2)	No performance determined
DD CENTS 1187: 2012, Test 3	B <sub>Roof</sub> (t3)	T <sub>E</sub> ≥ 30 min and T <sub>p</sub> ≥ 30 min
	C <sub>Roof</sub> (t3)	T <sub>E</sub> ≥ 10 min and T <sub>p</sub> ≥ 15 min
	D <sub>Roof</sub> (t3)	T <sub>p</sub> > 5 min
	F <sub>Roof</sub> (t3)	No performance determined
DD CENTS 1187: 2012, Test 4	B <sub>Roof</sub> (t4)	<ul style="list-style-type: none"> <li>- No penetration of roof system within 1 h</li> <li>- In preliminary test after withdrawal of the test flame, specimens burn for &lt;5 min</li> <li>- In preliminary test, flame spread &lt;0.38m across region of burning.</li> </ul>
	C <sub>Roof</sub> (t4)	<ul style="list-style-type: none"> <li>- No penetration of roof system within 30 min</li> <li>- In preliminary test after withdrawal of the test flame, specimens burn for &lt;5 min</li> <li>- In preliminary test, flame spread &lt;0.38m across region of burning.</li> </ul>
	D <sub>Roof</sub> (t4)	<ul style="list-style-type: none"> <li>- Roof system is penetrated within 30 min but is not penetrated in the preliminary test.</li> <li>- In preliminary test after withdrawal of the test flame, specimens burn for &lt;5 min</li> <li>- In preliminary test, flame spread &lt;0.38m across region of burning.</li> </ul>
	E <sub>Roof</sub> (t4)	<ul style="list-style-type: none"> <li>- Roof system is penetrated within 30 min but is not penetrated in the preliminary test.</li> <li>- Flame spread is not controlled</li> </ul>
	F <sub>Roof</sub> (t4)	No performance determined

## Revision History

Issue No :	Issue Date:
Revised By:	Approved By:
Reason for Revision:	