

Determination of external fire exposure  
to roofing product according to  
CEN TS 1187:2012, Test 2

LOGICROOF V-RP  
TechnoNICOL



| Requested by: LLC Zavod LOGICROOF

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**Requested by** LLC Zavod LOGICROOF  
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**Order** 29 May 2013 / Alexey Bugrov

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**Assignment** **Determination of external fire exposure to roofing material**

**Product** The customer gave following information about the product:

Product: LOGICROOF V-RP + TechnoNICOL

Product description: Roof covering materials

LOGICROOF V-RP:

Material: PVC-P based membrane reinforced with polyester grid.

Thickness: 1,5 mm (controlled by VTT)

Mass per unit area: 1,8 kg/m<sup>2</sup> (controlled by VTT)

TechnoNICOL:

Material: fiberglass separating layer.

Separating layer - fiberglass matt

Mass per unit area: 100 g/m<sup>2</sup>

**Samples**

Samples of membrane:

Date of delivery: 1 August 2013

Size: 1000 mm x 400 mm

Sample of separating layer:

Date of delivery: 20 August 2013

Size: 1000 mm x 5000 mm

The samples were chosen by the customer.

**Specimens**

Six test specimens were made with dimensions of 400 mm x 1000 mm.

Construction of the specimens was as follows:

- LOGICROOF V-RP, attached mechanically
- TechnoNICOL, attached mechanically
- expanded polystyrene (EPS) (not fire retardant treated), board substrate from VTT (thickness 50 mm and nominal density 20 kg/m<sup>3</sup>)

The specimens were conditioned to constant mass at a temperature of 23 ± 2 °C and the relative humidity of 50 ± 5 %.

**Date of test** 30 August 2013

**Tests method** CEN TS 1187:2012, *Test methods for external fire exposure to roofs - Test 2: Method with burning brands and wind.*

A description of the test method and the classification criteria of  $B_{ROOF}(t_2)$  given in the classification standard EN 13501-5 + A1:2010 and concerning test 2 are presented in Appendix 1.

The tests has been carried out according to CEN TS 1187 (t2) and fully comply with ENV 1187 (t2).

**Test results** The test results are given in Appendix 2.

**Note** The results relate only 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.

VTT Expert Services Ltd is notified body No. 0809 under the Construction Products Regulation (CPR).

Espoo, 5 September 2013



Tiia Rynänen  
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Jyri Pekkanen  
Expert

**APPENDICES** Appendix 1, description of the method and classification criteria of  $B_{ROOF}(t_2)$   
Appendix 2, test results

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The test results relate only to the sample tested.

## DESCRIPTION OF THE METHOD

**CEN TS 1187:2012** *Test methods for external fire exposure to roofs*

**Test 2:** *Method with burning brands and wind*

### Test specimens

The size of test specimens are 400 mm x 1000 mm and number of specimens is six.

Test specimens are normally prepared by attaching the product to a standard substrate. The specimen may also be tested on a non-standard substrate, in which case the test results are valid for that substrate only.

The standard combustible substrates are:

wood particle board, density  $(680 \pm 50) \text{ kg/m}^3$ , thickness  $(19 \pm 2) \text{ mm}$

expanded polystyrene (EPS) (not fire retardant treated), density  $(20 \pm 5) \text{ kg/m}^3$ ,  $(50 \pm 10) \text{ mm}$

The standard non-combustible substrates are:

fibre reinforced calcium silicate board, density  $(680 \pm 50) \text{ kg/m}^3$ ,  $(10 \pm 2) \text{ mm}$

mineral wool, density  $(150 \pm 20) \text{ kg/m}^3$ , thickness  $(50 \pm 10) \text{ mm}$

The test specimens are conditioned prior the tests to constant mass in a room with a temperature of  $23 \pm 2 \text{ }^\circ\text{C}$  and relative humidity of  $50 \pm 5 \text{ \% RH}$ .

### Test procedure

The test specimen is mounted in the test apparatus at an angle of  $30^\circ$  to the horizontal plane. A burning wooden crib (100 mm x 100 mm, 40 g) is placed on the test specimen with its centre 100 mm from the bottom edge of the specimen. Three tests are performed with air velocities along the specimen of 2 m/s and 4 m/s respectively.

During the tests the time at which the test specimen ignites, the time at which the flames die out, the time at which the glow dies out and the behaviour of the test specimen are observed and recorded.

The test is terminated by extinguishing of the fire on the specimen 15 min after the start of the test or when the flame front has reached the upper end of the specimen. After the test the test specimen is examined and the extent of damages done to both the roof covering and the substrate are measured.

### CLASSIFICATION CRITERIA – $B_{\text{ROOF}}(t_2)$

The classification criteria are given in the classification standard EN 13501-5 + A1:2010 "*Fire classification of construction products and building elements - Part 5: Classification using test data from external fire exposure to roof tests*".

Classification parameters of Test 2 are mean damaged length and maximum damaged length of the roof covering and the substrate. Classification criteria of  $B_{\text{ROOF}}(t_2)$  for both test series at 2 m/s and 4 m/s wind speed are

- mean length of damage in the roof covering and substrate  $\leq 0,550 \text{ m}$
- maximum length of damage in the roof covering and the substrate  $\leq 0,800 \text{ m}$

19.6.2013

## TEST RESULTS

**Test method:** CEN TS 1187:2012, Test 2

**Product:** LOGICROOF V-RP membrane  
TechnoNICOL fiberglass matt

**Substrate:** expanded polystyrene (EPS) board

Wind velocity	2 m/s				4 m/s			
	Test No.	1	2	3	Mean	1	2	3
Covering ignited, min s	0:14	0:08	0:09	<b>0:10</b>	0:10	0:12	0:10	<b>0:11</b>
Flames extinguished, min s	3:50	2:38	2:39	<b>3:02</b>	2:21	2:23	2:08	<b>2:17</b>
Glowing ended, min s	11:10	9:51	10:15	<b>10:25</b>	7:20	6:55	8:19	<b>7:31</b>
Length of damage in product, mm*)	368	363	357	<b>363</b>	403	390	410	<b>401</b>
Length of damage in substrate, mm *)	355	359	360	<b>358</b>	423	385	411	<b>406</b>

\*) Measured from the middle of the ignition source