

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

Requested by LLC Zavod LOGICROOF
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Order 10 September 2013 / Ildus Nagaev

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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: 1,2 mm (controlled by VTT)

Mass per unit area: 1,44 kg/m² (controlled by VTT)

TechnoNICOL:

Material: fiberglass separating layer.

Separating layer - fiberglass matt

Mass per unit area: 100 g/m²

Samples

Samples of membrane:

Date of delivery: 25 September 2013

Size: 1000 mm x 400 mm

Sample of separating layer:

Date of delivery: 25 September 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/m³)

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

Date of test 3 October 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(t2)} 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, 4 October 2013


Tiia Ryyänen
Product Manager


Jyri Pekkanen
Expert

APPENDICES Appendix 1, description of the method and classification criteria of B_{ROOF(t2)}
Appendix 2, test results

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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° 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	0:15	0:14	0:13	0:14	0:13	0:12	0:14	0:13
Flames extinquished, min s	3:32	3:27	4:11	3:43	2:32	2:11	2:00	2:04
Glowing ended, min s	8:47	11:47	10:26	10:20	6:22	5:48	6:10	6:08
Length of damage in product, mm*)	454	389	418	420	408	453	379	413
Length of damage in substrate, mm *)	471	420	439	443	452	448	410	437

*) Measured from the middle of the ignition source