Determination of external fire exposure to roofing of FATRAFOL 810/V (1,2 mm) according to CEN TS 1187:2012, Test 2

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Products

The customer gave the following information about the products:

Top layer

- Product name: FATRAFOL 810/V (1,2 mm)
- Product description: roofing membrane on the basis of PVC-P reinforced with a polyester grid
- Nominal mass per unit area: 1430 g/m^2
- Thickness: 1,2 mm
- Manufacturer: Fatra, a.s., třída Tomáše Bati 1541, 763 61 Napajedla, Česká republika

Glass fleece

- Product name: microlith® - glass fiber mat
- Nominal mass per unit area: 120 g/m^2
- Manufacturer: Alpax s.r.o. , Terronská 19/580 ,160 00 Praha 6, Česká republika

Poyuethylene foil (PE foil), vapour control barrier

- Product name: fatrapar 200
- Nominal thickness: 0,2 mm
- Manufacturer: PYTLÍK, a.s., IČ: 26459990, Beĉovská1326/9, 104 00 Praha 10 – Uhříněves, Česká republika

Mineral wool insulation board

- Product name: PAROC ROS 50
- Thickness: 50 mm
- Manufacturer: Paroc Group, Energiakuja 3, FI-00180 Helsinki, Finland

Wood particle board substrate

- Product name: OSB 3, non-fire retarded, fire class D-s1,d0
- Thickness: 18 mm
- Manufacturer: KRONOSPAN OSB, spol.s r. o. Na Hranici 6, CZ -587 04 Jihlava, Chech Republic

Samples

The sample of the products was chosen by the customer.

Date of delivery: 20.1.2023

Top layer
Sample: Sample of the product
Size: 301 x 235 x 1,2 mm
Nominal mass per unit area: 1495 kg/m^2

Glass fleece
Sample: Sample of the product
Size: 386 x 227 x 0,6 mm
Nominal mass per unit area: 124 g/m^2

PE-foil
Sample: Sample of the product
Size: 410 x 195 x 50 mm
Nominal density: 149 g/m^2 (were measured by EES)

Mineral wool
Sample: Sample of the product
Size: 410 x 195 x 50 mm
Nominal density: 122 kg/m^3 (were measured by EES)

Standard wood particle board substrate
Size: 400 x 247 x 18
Nominal density: 581 kg/m^3 (were measured by EES)

Samples were controlled by Eurofins Expert Service

Test specimens

Six test specimens were made by the customer with dimensions of 400 mm x 1000 mm

Structure of the specimens from substrate to top layer:

- wooden particle board, mechanically attached
- mineral wool
- PE foil
- glass fleece
- FATRAFOL 810/V (1,2mm)

Date of test 1 February 2023

Test method CEN TS 1187:2012, Test methods for external 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 13501-5:2016 and concerning Test 2 are presented in Appendix 1

Test results Test results are presented in Appendix 2

Note The results relate to the behaviour of the test specimen 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.

Eurofins Expert Services Oy is a notified body 0809 concerning the Construction Products Regulation (CPR).

Espoo, 20 January 2023

Taru Huokuniemi
Senior Expert

Appendices Appendix 1, Description of the test method and the classification criteria of $B_{ROOF}(t2)$
Appendix 2, Test results

Distribution Customer Electronically approved

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 ± 50) kg/m^3, thickness (19 ± 2) mm
expanded polystyrene (EPS) (not fire retarded treated), density (20 ± 5) kg/m^3, (50 ± 10) mm
The standard non-combustible substrates are:
fibre reinforced calcium silicate board, density (680 ± 50) kg/m^3, (10 ± 2) mm
mineral wool, density (150 ± 20) kg/m^3, thickness (50 ± 10) mm

The test specimens are conditioned prior the tests to constant mass in a room with a temperature of 23 ± 2 °C and relative humidity of 50 ± 5 % 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_{ROOF}(t2)

The classification criteria are given in the classification standard EN 13501-5:2016 "*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_{ROOF}(t2) 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 ≤ 0,550 m
- maximum length of damage in the roof covering and the substrate ≤ 0,800 m

VALIDITY OF CLASSIFICATION

Depending on quality and density of the substrate used in tests the classification is valid for

- non-combustible substrates with density of at least 0,75 times the density of the substrate used in tests
- combustible and non-combustible substrate with density of at least 0,75 times the density of the substrate used in tests

6.9.2018

Appendix 2

TEST RESULTS

Test method: CEN TS 1187:2012, Test 2

Product: FATRAFOL 810/V (1,2 mm)

Substrate: Wood particle board

Table 1. Test results *FATRAFOL 810/V(1,2 mm) + glass fleece + PE-foil + mineral wool + wood particle board*

Wind velocity	**2 m/s**				**4 m/s**			
Test No.	1	2	3	**Mean**	1	2	3	**Mean**
Covering ignited, min:s	00:13	00:14	00:13	**00:13**	00:13	00:14	00:13	**00:13**
Flames extinguished, min:s	03:40	02:34	03:12	**03:09**	02:49	02:28	03:20	**02:52**
Glowing ended, min:s	10:46	11:14	10:34	**10:51**	08:19	08:26	08:43	**08:29**
Length of damage in membrane, mm*	436	397	452	**428**	468	463	493	**475**
Length of damage in substrate, mm*	247	253	300	**267**	340	335	368	**348**

*) Measured from the middle of the ignition source

**) Extinguished with water