Laboratory for Fire Safety

Test methods for external fire exposure to in accordance with CEN/TS 1187:2012 (t1) of Mobilane MobiRoof ECO

Test report

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Laboratory for Fire Safety

Test methods for external fire exposure to in accordance with CEN/TS 1187:2012 (t1) of Mobilane MobiRoof ECO

Test report

Client	Mobilane B.V. Viola 3 6681 RA BEMMEL The Netherlands
Issued by	Peutz bv Lindenlaan 41 NL-6584 AC MOLENHOEK PO Box 66 NL-6585 ZH MOOK The Netherlands
Notified body no.	NB 2264
Product	**Mobilane MobiRoof ECO**
Report number	Y 3428-2E-RA-001
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TESTING
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Revision history

In the table below, the already issued versions of this document are shown. A brief description of the modifications is made.

Revision number	Date [dd/mm/yyyy]	Document status	Modified sections [chapter/paragraph]	Description of the modifications
N.a.	18/07/2025	Draft	N.a.	N.a.
001	17/09/2025	Final	Whole report	Added information provided by client

1 Introduction

On behalf of Mobilane B.V. an investigation was performed concerning the external fire exposure to roof coverings of Mobilane MobiRoof ECO.

The investigation was performed in the Peutz Laboratory for Fire safety at Haps in accordance with CEN/TS 1187:2012, test 1 ('Method with burning brands'), further referenced as TS 1187(t1).

This report describes the product tested, the method used and the test results.

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2 Product description

2.1 General

The information in this chapter is based on information provided by the client. The measured values stated in this chapter are determined outside the scope of accreditation.

The product investigated is Mobilane MobiRoof Eco, sedum plants in 50 x 50 cm PP containers, hereinafter also called 'the product'. The intended application is to apply the system on already existing roofs with a roofpitch until 15°.

The materials to be tested were delivered on the date specified in Table t 2.1. On arrival the material was verified and marked by Peutz.

2.2 Harmonised product standard

According to the client there was no harmonised European product standard published at the time the tests were conducted and this report was drawn up.

2.3 Product identification

The material investigated is a roof covering intended to be installed over continuous decks.

The most important parameters for identifying the product are summarized in Table t 2.1. Peutz was not involved in the selection of the test specimen (or of its materials). The laboratory cannot make any declaration about the representativeness of the provided specimen and the samples made available. The results apply to the sample as received.

t 2.1 General information of product to be tested

Product		
Date of delivery	28/05/2025	
Commercial name	Mobilane MobiRoof ECO	
Produced by	Name	Mobilane B.V.
	Address	Viola 3 6681 RA BEMMEL The Netherlands
Identification	Batch no	2024July
Sampling	Date	27 May 2025
	Performed by	Mr. D. Lauwerijssen
Photo		

2.4 Test specimens

The test specimens were assembled with the supplied materials in the Laboratory. The construction is shown in Table t 2.2.The test specimens had a width of 1 m and a length of 2 m and did not include roof lights.
The specimens consisted of a multi-layer roof covering system without any waterproofing layers. See chapter 2.5 for the position of the joints in the test specimens. For drawings of the test specimen, see appendix 1.

The supporting deck was constructed according to TS 1187, 4.4.2.

The following Table t 2.2 describes a roof covering systems intended for general application over a various types of continuous decks.

t 2.2 Additional information of the product to be tested (roof coverings over continuous decks)

Description of materials (from top to bottom)	**Nominal value (given by the client)**	**Measured value (by the Laboratory)**
Layer 1: Mobilane MobiRoof ECO Casette		
- Material	Non toxic polypropylene (PP) and sedum species	
- Fire retardant additive	None	
- Thickness casette	3 mm	3 mm
- Dimensions casette	50 cm x 50 cm	50 cm x 50 cm
- Thickness plants and sedum	60 mm	60 mm
- Surface weight plants and sedum	29.6 kg/m^2	29.6 kg/m^2
- Surface weight casette	3.3 kg/m^2	3.3 kg/m^2
- Method of fixing	None	
Layer 2 continuous deck (CEN/TS 1187,4.4.2.2.b: roof covering intended to be installed over a wooden deck		
- Material	Wooden construction of particleboard (680±50 kg/m^3) 250 mm wide x 16 mm thick with gaps (of maximum 0,5 mm) between the particle board panels	
- Fire retardant additive	None	
- Width of particleboard	250 mm	251 mm
- Thickness of particleboard	16 mm	15 mm
- Volumetric mass of particle board	660 kg/m^3	
- Gaps between the boards		0 mm
- Orientation	Gaps running parallel to the eaves	

The values mentioned are the nominal values as given by the client, unless otherwise stated (MV, measured value).

The spacing of roof support is larger than the minimum span of the test specimen (0.80 m wide and 1.80 m long). The test specimen is 1 m wide and 2 m long.

The values of moisture content (determined by drying) and volumic mass (determined before drying) of relevant parts of the tested construction, as determined by Peutz, are shown in Table t 2.3.

t 2.3 Determination moisture content and volumic mass of the materials

Material	Surface weight/ Volumic mass (determined before drying)	Moisture content (determined by drying)
PP Cassette	3.3 kg/m^2	0.3%
Plants	442 kg/m^3	10 %

No special measures were taken by the sponsor to protect the edge of the specimen (TS 1187, 4.4.4)

2.5 Position of joints in test specimen

The position of joints in the test specimens is described in NEN-EN 13501-5:2016, 6.5.2.4 and TS 1187, 4.4.3. It is based on the amount of layers roof covering described in Chapter 2.4.

The position of the joint in the four test specimens was based on the mentioned number of layers as shown in Table t 2.4.

t 2.4 Position of joints in test specimen

Number of layers roof covering	Specimen 1	Specimen 2	Specimen 3	Specimen 4
One	Type 1	Type 1	Type 2	Type 1

The position of joints for the five types can be summarised as follows:

- Type 1 a single central joint in the top layer parallel to the roof pitch
- Type 2 a single joint in the top layer at 90^0 to the roof pitch, 100 mm above the lower edge of the basket. A single central joint in the insulation parallel to the roof pitch was provided, where applicable. [The joint extended from 100 mm below the lower edge of the basket to 800 mm above the upper edge of the basket.]

Since the dimensions of the elements of any of the layers are such that it requires more than four pieces to cover the specimen, or if any of the layers are jointless, then the specimens are fabricated in such a way that those layers are representative. In the first instance, at least one joint in the layer(s) concerned was located underneath the basket.

2.6 **Conditioning of test specimen**

Prior to the tests, the material or the specimens were stored according to TS 1187, 4.5.2. The specimens were stored in the Laboratory for at least 12 h before the start of the test, see also Table t 2.1
The Sedum plants went at least 6 weeks without watering so the plants could dry.

Conditioning took place from 02/06/2025 up to the test date.

3 Test results

3.1 Results of measurements

The tests are performed according to TS 1187 on the date as shown in Table t 3.1. The roof pitch was 15 . The test were conducted according to CEN/TS 1187 'Test 1: method with burning brands', Chapter 4.

t 3.1 Environmental conditions immediately before the test

		Specimen 1 Type 1	Specimen 2 Type 1	Specimen 3 Type 2	Specimen 4 Type 1
Start conditioning (date, time)		02/06/2025; 16:00	02/06/2025; 16:00	02/06/2025; 16:00	02/06/2025; 16:00
Test date		04/06/2025	04/06/2025	04/06/2025	04/06/2025
Ambient temperature	[°C]	22	21	21	22
Relative humidity	[%]	53	58	57	55

Table t 3.2 shows the duration of the test. If the test was terminated before 60 minutes, the reason for this is described. According to TS 1187, 4.7.4, a test may be terminated earlier, if:

1. Evidently there is no occurrence of fire (flames, glowing combustion, smoke)
2. The flames reached an edge of the sample
3. Penetration occurs
4. Risk to safety of personnel or impending damage to equipment

t 3.2 Test time

	Specimen 1 Type 1	Specimen 2 Type 1	Specimen 3 Type 2	Specimen 4 Type 1
Start test [uur:min]	10:02	11:39	12:20	13:05
No occurrence of fire [min:sec]	30:00	04:05	09:51	11:15
Reason early termination	n.a.	1	1	1
Surface flames present 30 min after start test	Y	N	N	N
Surface flames extinguished with a fire blanket	Y	N	N	N

The fire spread during the test is shown in Table t 3.3.

t 3.3 External fire spread during the tests ('sustained flaming')

Observations	Specimen 1 Type 1	Specimen 2 Type 1	Specimen 3 Type 2	Specimen 4 Type 1
Fire spread upwards (from the brand) [min:sec]				
- 100 mm	Not reached	Not reached	Not reached	Not reached
- 300 mm	Not reached	Not reached	Not reached	Not reached
- 500 mm	Not reached	Not reached	Not reached	Not reached
- 700 mm	Not reached	Not reached	Not reached	Not reached
- rand	Not reached	Not reached	Not reached	Not reached
Fire spread downwards (from the brand) [min:sec]				
100 mm	22:36	Not reached	Not reached	Not reached
300 mm	Not reached	Not reached	Not reached	Not reached
500 mm	Not reached	Not reached	Not reached	Not reached
rand	Not reached	Not reached	Not reached	Not reached
Lateral flame spread of the edge of the measurement zone	N	N	N	N
Falling flaming materials or burning (> 5 s) droplets [min:sec]	n.a.	n.a.	n.a.	n.a.
Burnt length (from the brand) [mm]				
- upwards	0	50	0	40
- downwards	265	20	20	30
- left	195	30	30	20
- right	150	0	10	0

The observations regarding fire penetration, glowing or falling flaming materials are summarized in Tablet 3.4.

t 3.4 Observations regarding fire penetration

Observation	Specimen 1 Type 1	Specimen 2 Type 1	Specimen 3 Type 2	Specimen 4 Type 1
Time of fire penetration [min:sec]	n.a.	n.a.	n.a.	n.a.
Falling glowing or burning (> 5 s) materials, observed from the underside [min:sec]	n.a.	n.a.	n.a.	n.a.
Occurrence of openings (> 25 mm) or cracks (> 2 mm) penetration completely through the specimen [min:sec], [mm]	n.a.	n.a.	n.a.	n.a.

After the test, the specimens were opened to evaluate internal fire spread and damage. No glowing combustion and/or smouldering was observed. See also Table t 3.5.

t 3.5 Internal burnt material and damage

	Specimen 1 Type 1	Specimen 2 Type 1	Specimen 3 Type 2	Specimen 4 Type 1
Opening test specimen [hh:mm]	01:01	01:02	01:07	01:03
Burnt length in [mm] and extent internal damage (TS 1187, 4.8.4.1), per layer, from the edge of the brand	layer 1: burnt 125 mm ↑ 265 mm ↓ Layer 2: burnt 0 mm ↑ 300mm ↓	layer 1: burnt 50 mm ↑ 20 mm ↓ Layer 2: burnt 0 mm ↑ 0mm ↓	layer 1: burnt 0 mm ↑ 20 mm ↓ Layer 2: burnt 0 mm ↑ 0mm ↓	layer 1: burnt 40 mm ↑ 30 mm ↓ Layer 2: burnt 0 mm ↑ 0mm ↓
Max. length burnt material from the edge of the brand (TS 1187, 4.8.4.2), per layer	layer 1: 390 mm	layer 1: 70 mm	layer 1: 20 mm Layer 1: 0.035 m^2	layer 1: 70 mm
Extent of internal damages (TS 1187, 4.8.4.3), per layer, total value	Layer 1: 0.14 m^2 Layer 2: 0.19 m^2	Layer 1: 0.04 m^2 Layer 2: 0.00 m^2	Layer 2: 0.000 m^2	Layer 1: 0.05 m^2 Layer 2: 0.00 m^2

3.2 Summary observations

During the tests, no fire penetration of any of the test specimens was observed. After the test, internal damage or flaming was observed. See also Table t 3.5.

3.3 Direct field of application of test results

The results are valid for the construction as tested. Furthermore, the following extensions are allowed.
Because the roof pitch during the tests was 15^0, the results are valid for pitches from 0^0 (horizontal) to 20^0.

Because the tests have been performed with a standard supporting deck, the results are valid for all systems constructed with the same elements (including thicknesses) and installed in the same way, with the following extensions:
because the test results were obtained with a wood particle board deck as defined in TS 1187 4.4.2.2.b with gaps between planks not exceeding 0,5 mm, the results are valid for:

- Any wooden continuous deck with a minimum thickness of 16 mm and with gaps not exceeding 0,5 mm
- Any non-combustible continuous deck with a minimum thickness of 10 mm

The sedum plants and cassettes had a surface weight of 32.9 kg/m^2, this is a dry state of the sedum plants which means the worst case scenario is tested. This means that the test

results are also valid for sedum plants with a higher surface weight due to more water content.

3.4 **Remarks**

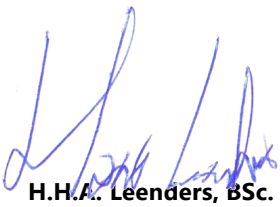
During the test the following deviation from the test standard occurred. Since there is one layer of roofcovering, the following types of specimen need to be tested: type 1, type 2 and type 3 two times.
Type 3 has no joints in the roofcovering, only in the insulation material. Since there was no insulation material, the sample was made with a joint in the middle of the roof covering, this is the same as a type 1 specimen. Therefore type 1 is tested 3 times and type 2 is tested once.

4 Finally

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.

Information regarding the accuracy of the method can be found in Annex 1 in this report.

J.G. Nienhuis, MSc.
Senior project manager



H.H.A. Leenders, BSc.
Head of Laboratory for Fire Safety

This report contains 20 pages including 2 appendices:
Appendix 1 Photographs (4 pages)
Appendix 2 Accuracy of the method (1 page).

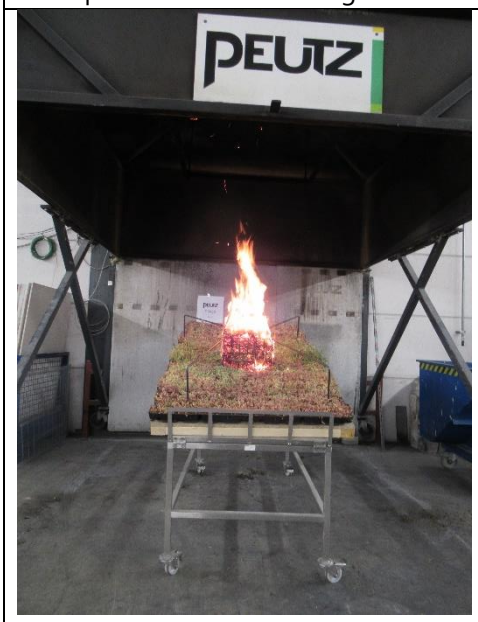
Appendix 1
Photographs

Test specimen 1 – type 1	
	
Test specimen before testing	Test specimen before testing
	
Test specimen during testing	Test specimen after testing

Appendix 1
Photographs

Test specimen 2 – type 3	
	
Test specimen before testing	Test specimen before testing
	
Test specimen during testing	Test specimen after testing

Appendix 1
Photographs

Test specimen 3 – type 2	
	
Test specimen before testing	Test specimen before testing
	
Test specimen during testing	Test specimen after testing

Appendix 1
Photographs

Test specimen 4 – type 3	
	
Test specimen before testing	Test specimen before testing
	
Test specimen during testing	Test specimen after testing

Appendix 2 Accuracy

Accuracy measurements of tests according to CEN/TS 1187, test 1 and related to NEN 6063.

Measurement tool	ID number	Accuracy of measurement
Tape measure	3362	(1000 +/- 1) mm
		(5 +/- 0.1) mm
Caliper	1492	(100 +/- 0.3) mm
Thickness gauge	3214	(450 +/- 15) µm
		(2 +/- 0.001) g
Scale 1	2729	(50 +/- 0.003) g
		(250 +/- 0.01) g
Scale 2	2045	(600 +/- 0.05) g
Scale 3	3421	(1 +/- 0.005) kg
Anemometer	2034	(0.3 +/- 0.05) m/s
Time measurement (stopwatch or smartphone)	2397	(+/- 2) s.(24h)-1 *
Thermohygrometer (temperature)	3505	(21 +/- 1) °C
Thermohygrometer (relative humidity))	3505	(70 +/-6) % RV

* measured differences in reaction time measuring time