

Laboratory of Flammability Testing

90-520 Łódź, 118 Gdanska Str.
phone 48 42 2534435 (436), fax 48 42 2534490
e-mail: mszejna@iw.lodz.pl

TEST CERTIFICATE ON THE REACTION TO FIRE TESTS FOR FLOORCOVERINGS**Test method:**

1. PN-EN ISO 9239-1:2010 Reaction to fire tests for floorings:
Part 1: Determination of the burning behaviour using a radiant heat source.
2. PN-EN ISO 11925-2:2010 Reaction to fire tests. Ignitability of building products subjected to direct impingement of flame.
Part 2: Single-flame source test.

Orderer:

Tarkett Vinisin LLC
Promyshlennaya 10, Kalush, Ukraine

Subject of testing:

Heterogeneous vinyl floor covering named **Omnisports V83**, 8.3 mm consisting of:

- an overlay made of polyvinyl chloride covered with a finishing layer made of polyurethane at the rate of 24 g/m²
- a first intermediate foam layer made of polyvinyl chloride and fillers
- a second intermediate saturant layer made of polyvinyl chloride and fillers reinforced with glass fibres and calender film,
- a colored foam made of polyvinyl chloride and fillers

Overall nominal weight: 5.1 kg/m²
Overall nominal thickness: 8.30 mm
Testing sample with the correct size, in appropriate state for testing, supplied by the Orderer with its characteristic and without the Sampling Protocol.

Results of testing: Samples placed on non-flammable substrate (cement-fibre plate).

1. Flame spread testing and measurement of smoke emission according to PN-EN ISO 9239-1:2010

Critical heat flux CHF	8.6 ± 0.6 (kW/m ²)
Maximum light beam weakness	33 ± 4 (%)
Total smoke emission	180 ± 15 (%·min)

The reported expanded uncertainty is based on a standard uncertainty, multiplied by a coverage factor k=2, providing a confidence level of approximately 95%.

2. Ignitability testing under the direct impingement of flame according to PN-EN ISO 11925-2:2010

During 20 s test (flame acting - 15 s):

- samples tested on surface exposure melted in the flame acting area,
- samples tested on edge exposure charred and melted in the flame acting area
- the top of flame hasn't reached 150 mm above its contact point for each tested samples.

The above results refer to testing conditions specified by the standard; they shouldn't be taken into consideration to real fire conditions.

Tests performed by:

Bartłomiej Paperski, Eng.

Andrzej Kubacki, technician

Sample received on: 15.05.2017
Test performed on: 30÷31.05.2017

Test Certificate authorized by:

Laboratorium Badań Palności WYROBÓW
KIEROWNIK

mgr Inż. Małgorzata Szejna
31.05.2017

NOTES:

1. The Testing results refer only to the tested sample.
2. Test Certificate consists of 7 pages.
3. Test Certificate must not be reproduced in another way, than as a whole without a prior written consent of the Testing Laboratory.
4. The Orderer using this Test Certificate is responsible for the conformity between the product and sample submitted for testing.

The Testing Laboratory accredited by the Polish Centre for Accreditation (PCA), No AB 029.

DETAILED TESTING RESULTS**1. Flame spread testing and measurement of smoke emission according to PN-EN ISO 9239-1:2010**

Climate conditions: temperature $(23 \pm 2) ^\circ\text{C}$; humidity $(50 \pm 5) \%$; time: 2 weeks
 Testing conditions: temperature $21 ^\circ\text{C}$; humidity 57%

Samples placed on non-flammable substrate - cement-fibre plate: thickness $(8 \pm 2)\text{mm}$, density $(1800 \pm 200) \text{kg/m}^3$

a) Results of basic testing

Flame spread testing

Pilot burner flame acting time : 10 min

Tested value	Unit	Number of specimen			
		1	2	3	4
		Direction			
		lengthwise	crosswise		
Extinguish time of specimen	[s]	598	597	598	570
Flame spread distance after 10min	[mm]	210	260	240	240
Flame spread distance after 20min	[mm]	210	260	240	240
Flame spread distance after 30min	[mm]	-	-	-	-
Maximum flame spread distance	[mm]	210	260	240	240
Melting (charring) range	[mm]	470	480	470	490
Heat Flux after 10min – HF-10	[kW/m ²]	9,4	8,3	8,7	8,7
Heat Flux after 20min – HF-20	[kW/m ²]	9,4	8,3	8,7	8,7
Critical Heat Flux – CHF	[kW/m ²]	9,4	8,3	8,7	8,7
Critical Heat Flux - average value – CHF _{av}	[kW/m ²]	-	8,6		

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Time of flame front crossing reaching zones and the corresponding intensity of the heat flux

Zone No	Number of specimen			
	1	2	3	4
	Direction			
	Lenghtwise	Crosswise		
1	130 s (>11 kW/m ²)	122 s (>11 kW/m ²)	130 s (>11 kW/m ²)	122 s (>11 kW/m ²)
2	162 s (10,9 kW/m ²)	133 s (10,9 kW/m ²)	217 s (10,9 kW/m ²)	139 s (10,9 kW/m ²)
3	340 s (10,1 kW/m ²)	257 s (10,1 kW/m ²)	256 s (10,1 kW/m ²)	283 s (10,1 kW/m ²)
4	427 s (9,3 kW/m ²)	343 s (9,3 kW/m ²)	294 s (9,3 kW/m ²)	352 s (9,3 kW/m ²)
5	-	419 s (8,2 kW/m ²)	-	-
6	-	-	-	-
7	-	-	-	-
8	-	-	-	-
9	-	-	-	-

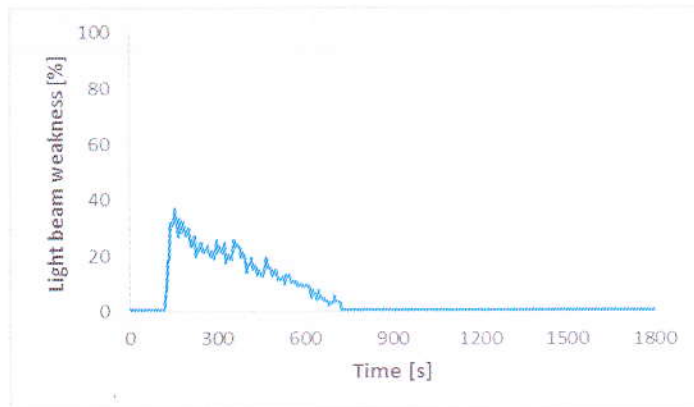
b) Results of additional testing

Measurement of smoke emission

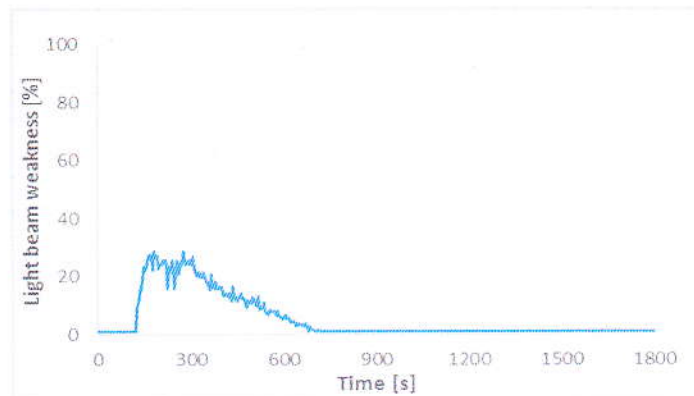
Tested parameters	Unit	Number of specimen			
		1	2	3	4
		Direction			
		lengthwise	crosswise		
Maximum light beam weakness	[%]	22,6	36,9	28,8	32,1
Maximum light beam weakness - average value	[%]	-	32,6		
Total smoke emission	[%-min]	137,0	185,6	161,8	192,6
Total smoke emission - average value	[%-min]	-	180,0		

Graph: relationship between light beam weakness and time

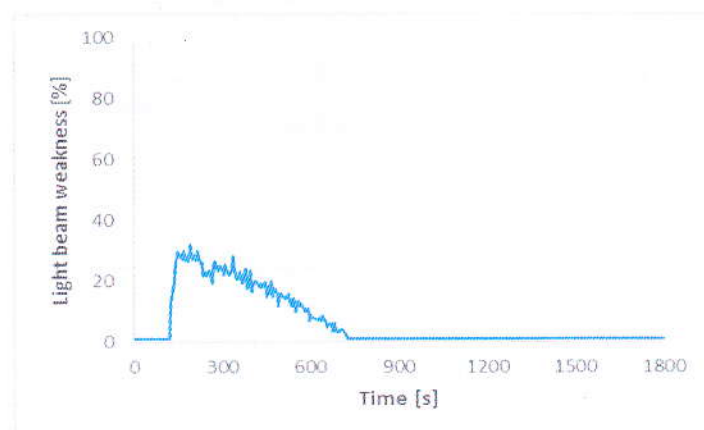
Sample No 2



Sample No 3



Sample No 4



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2. Ignitability testing under the direct impingement of flame according to PN-EN ISO 11925-2:2010

Climate conditions: temperature $(23 \pm 2) ^\circ\text{C}$; humidity $(50 \pm 5) \%$; time: 2 weeks
 Testing conditions: temperature $20 ^\circ\text{C}$; humidity 68 %

Samples placed on non-flammable substrate - cement-fibre plate: thickness $(8 \pm 2)\text{mm}$, density $(1800 \pm 200) \text{kg/m}^3$

Flame acting time: 15 s
 Test time: 20 s

a) Lengthwise direction

Surface exposure

Sample no	Did sample ignition appear?	Did the top of flame reach 150 mm above its contact point within 20 s of testing?	The time of reaching 150 mm above its contact point within 20 s by flame top [s]	Did filter paper ignition appear?
1	NO	NO	-	NO
2	NO	NO	-	NO
3	NO	NO	-	NO

Remarks:

Under the flame acting surface of samples melted in the flame acting area.

Edge exposure

Sample no	Did sample ignition appear?	Did the top of flame reach 150 mm above its contact point within 20 s of testing?	The time of reaching 150 mm above its contact point within 20 s by flame top [s]	Did filter paper ignition appear?
1	NO	NO	-	NO
2	NO	NO	-	NO
3	NO	NO	-	NO

Remarks:

Under the flame acting edge of samples charred and melted in the flame acting area.

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b) Crosswise direction

Surface exposure

Sample no	Did sample ignition appear?	Did the top of flame reach 150 mm above its contact point within 20 s of testing?	The time of reaching 150 mm above its contact point within 20 s by flame top [s]	Did filter paper ignition appear?
1	NO	NO	-	NO
2	NO	NO	-	NO
3	NO	NO	-	NO

Remarks:

Under the flame acting surface of samples melted in the flame acting area.

Edge exposure

Sample no	Did sample ignition appear?	Did the top of flame reach 150 mm above its contact point within 20 s of testing?	The time of reaching 150 mm above its contact point within 20 s by flame top [s]	Did filter paper ignition appear?
1	NO	NO	-	NO
2	NO	NO	-	NO
3	NO	NO	-	NO

Remarks:

Under the flame acting edge of samples charred and melted in the flame acting area.

TESTS RESULTS COMMENT

Based on results of the tests performed according to:


1. PN-EN ISO 9239-1:2010

- critical heat flux CHF = $(8,6 \pm 0,6)$ kW/m²
- total smoke emission = (180 ± 15) %·min

2. PN-EN ISO 11925-2:2010

- the top of flame hasn't reached 150 mm above its contact point for each tested samples within 20 s,
samples of tested heterogeneous vinyl floor covering named **Omnisports V83**, 8.30 mm, meet requirements of
PN-EN 13501-1+A1:2010 *Fire classification of construction products and building elements – Part 1:*
Classification using data from reaction to fire tests *) for **B_f s1** class.

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*) Table 2. Classes of reaction to fire performance for floorings – requirements for B_f s1 class:

1. PN-EN ISO 9239-1:2010

- critical heat flux $\geq 8,0$ kW/m²
- s1 = total smoke emission ≤ 750 %·min

2. PN-EN ISO 11925-2:2010

- F_s ≤ 150 mm within 20 s

Łódź, 31.05.2017r.

END OF THE TEST CERTIFICATE