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PCA Polskie Centrum Akredytacji BADANIA
AB 029

TEST CERTIFICATE ON THE REACTION TO FIRE TESTS FOR FLOORINGS

No 327 / BP / 20

Test method:

1. PN-EN ISO 9239-1:2010 Reaction to fire tests for floorings.
   Part 1: Determination of the burning behavior 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 d.o.o.
Industrijska Zona 14, 21400 Bačka Palanka, Republic of Serbia

Sieć Badawcza Łukasiewicz-Instytut Włókiennictwa
LABORATORIUM BADAŃ PALNOŚCI WYROBÓW
90-520 Łódź, Gdańska 118
tel. 42 25 34 435, fax 42 25 34 490

Subject of testing*:

Heterogeneous vinyl floor covering named CLOUD, consisting of:
- an overlay made of polyvinyl chloride
- a first intermediate compact layer made of polyvinyl chloride and fillers
- a second intermediate saturant layer made of polyvinyl chloride and filliers reinforced with glass fibers
- a foam made of polyvinyl chloride and fillers

Overall nominal weight: 2,220 kg/m^3
Overall nominal thickness: 2,00 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 glued to the non-flammable substrate (cement-fibre plate) with glue named Uzin KE 418

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

Critical heat flux CHF	**9,1 ± 0,7 [kW/m^2]**
Maximum light beam weakness	**70 ± 7 [%]**
Total smoke emission	**124 ± 11 [%·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 and edge exposure charred and melted in the flame acting area,
- samples tested on surface and edge exposure did not ignited, 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:
Krzysztof Kostanek Ph.D.

Test Certificate authorized by:
Laboratorium Badań Palności Wyrobów
GŁÓWNY SPECJALISTA
KIEROWNIK
mgr inż. Małgorzata Szejna

Sample received on: 02.11.2020
Test performed on: 19-23.11.2020
Test Certificate issued on: 24.11.2020

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.
5. *Data provided by the Customer.

DETAILED TESTING RESULTS

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

Climate conditions: temperature (23 ± 2) °C; humidity (50 ± 5) % ; time: 2 weeks
Testing conditions: temperature 19 °C; humidity 33 %

Samples glueded to the non-flammable substrate - cement-fibre plate: thickness (8±2)mm, density (1800±200) kg/m^3, with glue named Uzin KE 418

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]	306	297	309	345
Flame spread distance after 10min	[mm]	170	220	225	200
Flame spread distance after 20min	[mm]	170	220	225	200
Flame spread distance after 30min	[mm]	-	-	-	-
Maximum flame spread distance	[mm]	170	220	225	200
Melting (charing) range	[mm]	460	470	460	458
Heat Flux after 10min – HF-10	[kW/m^2]	9,9	9,0	8,9	9,4
Heat Flux after 20min – HF-20	[kW/m^2]	9,9	9,0	8,9	9,4
Critical Heat Flux – CHF	[kW/m^2]	9,9	9,0	8,9	9,4
Critical Heat Flux - average value – CHF_{av}	[kW/m^2]	-	9,1		

Remarks:
During the test, blisters formed on samples.

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			
	lengthwise	crosswise		
1	129 s (>11,1 kW/m^2)	127 s (>11,1 kW/m^2)	130 s (>11,1 kW/m^2)	128 s (>11,1 kW/m^2)
2	146 s (>10,9 kW/m^2)	139 s (>10,9 kW/m^2)	134 s (>10,9 kW/m^2)	134 s (>10,9 kW/m^2)
3	191 s (>10,1 kW/m^2)	144 s (>10,1 kW/m^2)	156 s (>10,1 kW/m^2)	184 s (>10,1 kW/m^2)
4	-	187 s (>9,2 kW/m^2)	195 s (>9,2 kW/m^2)	235 s (>9,2 kW/m^2)

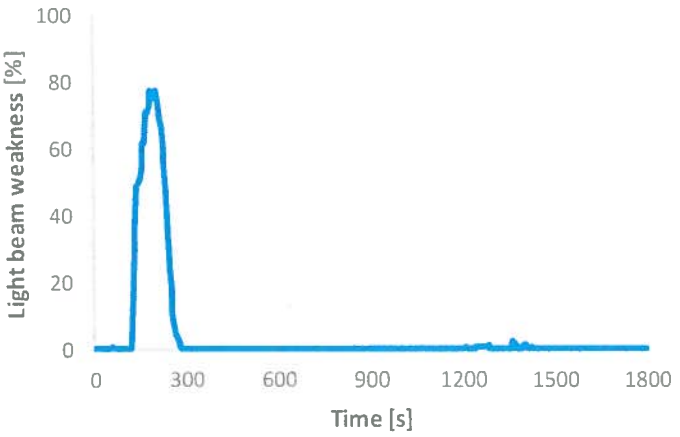
b) Results of additional testing

Measurement of smoke emission

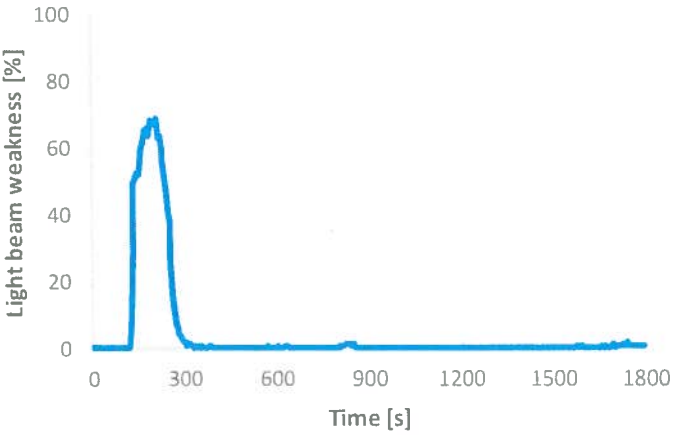
Tested parameters	Unit	Number of specimen			
		1	2	3	4
		Direction			
		lengthwise	crosswise		
Maximum light beam weakness	[%]	58,2	77,9	68,9	63,6
Maximum light beam weakness - average value	[%]	-	70,1		
Total smoke emission	[%·min]	132,1	126,0	134,0	110,7
Total smoke emission - average value	[%·min]	-	123,6		

Graph: relationship between light beam weakness and time

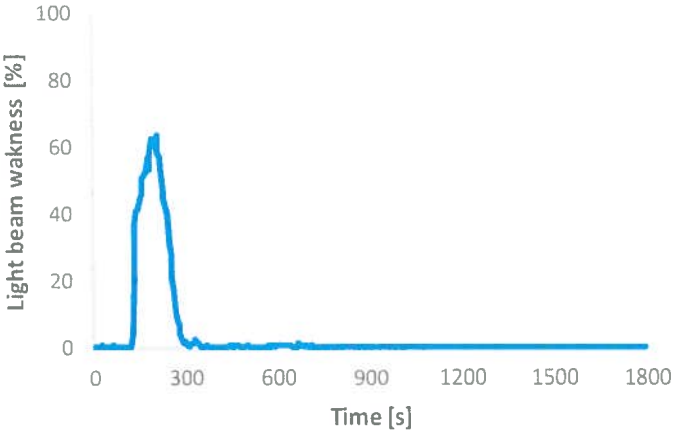
Sample no. 2



Sample no. 3



Sample no. 4



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

Climate conditions: temperature (23 ± 2) °C; humidity (50 ± 5) %; time: 2 weeks
Testing conditions: temperature 19 °C; humidity 33 %

Samples glueded to the non-flammable substrate - cement-fibre plate: thickness (8±2)mm, density (1800±200) kg/m^3, with glue named Uzin KE 418

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 charred and 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 surface of samples charred and melted in the flame acting area.

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 charred and 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 surface of samples charred and melted in the flame acting area.

THE STATEMENT OF COMPLIANCE[1)]

Based on results of the tests performed according to:

1. PN-EN ISO 9239-1:2010
   - critical heat flux CHF = (9,1 ± 0,7) kW/m^2
   - total smoke emission = (124 ± 11) %·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 **CLOUD** meet[1)] requirements of PN - EN 13501-1:2019-02 *Fire classification of construction products and building elements – Part 1: Classification using data from reaction to fire tests* [*)] for **B_{fl} s1** class.

Laboratorium Badań Palności Wyrobów
GŁÓWNY SPECJALISTA
KIEROWNIK
mgr inż. Małgorzata Szejna

[*)] *Table 2. Classes of reaction to fire performance for floorings* – requirements for B_{fl} s1 class:

1. PN-EN ISO 9239-1:2010
   - critical heat flux ≥ 8,0 kW/m^2
   - s1 = total smoke emission ≤ 750 %·min
2. PN-EN ISO 11925-2:2010
   - Fs ≤ 150 mm within 20 s

[1)]The principle of decision making when compliance is demonstrated:
- in accordance with the Simple acceptance principle described in Procedure PSZ/05:

Acceptance (compatible) - the results obtained are within tolerance. The risk of incorrect acceptance is up to 50% for results close to the tolerance limit,
Rejection (incompatible) - the results obtained are outside the tolerance limit. The risk of incorrect rejection is 50% for results close to the tolerance limit.

Łódź, 24.11.2020

END OF THE TEST CERTIFICATE