
„MEŽA UN KOKSNES PRODUKTU PĒTNIECĪBAS UN ATTĪSTĪBAS INSTITŪTS” SIA

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Test Report No.1076/2014

Forest and Wood Products Research and Development Institute
Testing Laboratory

Customer: Casco Schönox Baltics OÜ

Customer's address: Peterburi tee 101, 13812 Tallin, Estonia
Reg. No. 12543734

Date of the order: 27.11.2013.

Testing was done according contract No. 167-12/13MU.

Test samples received: 03.12.2013.

Description of product (according to customer's information):

Product: Floor finish Synteko Sealmaster, Synteko Nova Best.

Base material used for preparation of the specimens: birch wood floor boards with tongue-groove connection, fixed to the rafter with screw 3.5x45 mm, sanding done with sandpaper P120.

Sealer coat: Synteko Sealmaster one coat, coverage 63 g/m².

Top coat: Synteko Nova Best two coats, total coverage 110 g/m².

Nominal thickness: 23 mm.

Sampling:

Product was sampled on 25.11.2013 by Verner Arro at Kastani 7, Rapla, Estonia. Sampling procedure is not known for test laboratory.

Application of building product (according to customer's information):

Product is intended to use as floor finish.

Product is evaluated as system together with birch wood base flooring boards and it's described by standard EN 14342:2013.

Specimen preparation for testing:

Six specimens with dimensions 1050x230 mm were prepared by Verner Arro on 25.11.2013 at Kastani 7, Rapla, Estonia.

Substrates used:

Cement fibreboard according to EN 13238:2010 were used as substrate.

Test standard: EN ISO 9239-1:2010

Tests performed: 22.01.2014.

Conditioning of specimens:

Temperature: $t = 23 \pm 1$ °C.

Relative humidity: $RH = 50 \pm 5\%$.

Conditioning period: 48 days.

Test results:

Measured specimen parameters:

thickness: 23 mm;

density: 600 kg/m³.

There were 6 specimens prepared, three specimens were laid in longitudinal (↑) direction of product and three - crosswise (→) see Fig.1.

As the test results of product with crosswise direction were worse as in longitudinal direction, last two tests were done of product with crosswise wood grain orientation.

Average values of reaction to fire criteria were calculated from test results of specimens with crosswise grain orientation (1076-1; 1076-3 and 1076-4) and results is shown in tables 1 and 2.

Table 1 Test results

Specimen No.	Orientation	CHF	S _t	S _p	D ₁₀	D ₂₀	D ₃₀	D _{max}	HF-10	HF-20	HF-30
		kW/m ²	% . min	%	mm	mm	mm	mm	kW/m ²	kW/m ²	kW/m ²
1076-1	→	No flameout	16.59	4.7	320	480	610	610	6.94	4.02	2.58
1076-2	↑	No flameout	2.42	0.92	260	430	540	540	8.18	4.83	3.25
1076-3	→	No flameout	20.08	8.38	340	500	600	600	6.53	3.73	2.67
1076-4	→	No flameout	26.79	5.89	330	510	630	630	6.74	3.58	2.42
Average	→	NA	21.2	6.3	330.0	496.7	613.3	613.3	6.7	3.8	2.6
Standard deviation	→	NA	5.2	1.9	10.0	15.3	15.3	15.3	0.2	0.2	0.1

Test parameter explanation:

CHF Critical heat flux

S_t Integrated smoke value

S_p Maximum light attenuation

D₁₀ Flame spread distance at 10 min

D₂₀ Flame spread distance at 20 min

D₃₀ Flame spread distance at 30 min

D_{max} Final maximum flame spread distance

HF-10 Heat flux at 10 min

HF-20 Heat flux at 20 min

HF-30 Heat flux at 30 min

Table 2 Ignition and extinguishing time

Specimen No.	Ignition time, s	Extinguishing time, s	End of test, s
1076-1	132	No flameout	1800
1076-2	132	No flameout	1800
1076-3	134	No flameout	1800
1076-4	135	No flameout	1800

Observations:

There was burn through of specimens observed after 20 min from the beginning of the test. Flameout was not observed due to specimen burn through. Specimens after the test are shown in Figure 2.

Deviations from standard:

No.

Photo:



Figure 1 Test specimens before test.



Figure 2 Test specimens after the test.

Annexes:

- Annex 1 (FRP test protocol Nr.1076-1, 3 pp.)
- Annex 2 (FRP test protocol Nr. 1076-2, 3 pp.)
- Annex 3 (FRP test protocol Nr. 1076-3, 3 pp.)
- Annex 4 (FRP test protocol Nr. 1076-4, 3 pp.)

According to EN ISO 9239-1:2010 test results relate to the behavior of 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.

Date of issue: 27.01.2014.



Head of Laboratory

(Handwritten signature)
 (signature and name)

K.Būmanis

Tests carried out by

(Handwritten signature)
 (signature and name)

E.Bukšāns

Test results refer only to these test objects. This test report may not be reproduced other than in full, excepted with the prior written approval of Testing Laboratory of the Forest and Wood Products Research and Development Institute

Flooring Radiant Panel Single Specimen Report

Standard : EN ISO 9239-1:2002
Laboratory : MeKA testing laboratory
Sponsor : Casco Schonox Baltics OU
Date of test : Jan. 22 2014

Specimen description : Floor finish Synteko Nova Best
Test name : 1076
File name : C:\FRPSOFT\DATA\1076\1076-1.CSV
Test number in series : 1

Flux calibration file name : C:\FRPSOFT\CALIB\FLX13003.CSV

Thickness (mm) : 23
Density (kg/m³) : 600

Test duration : 30 minutes (1800 s)
Substrate used? : No
Conditioned? : Yes
Conditioning temp. (°C) : 23
Conditioning RH (%) : 50

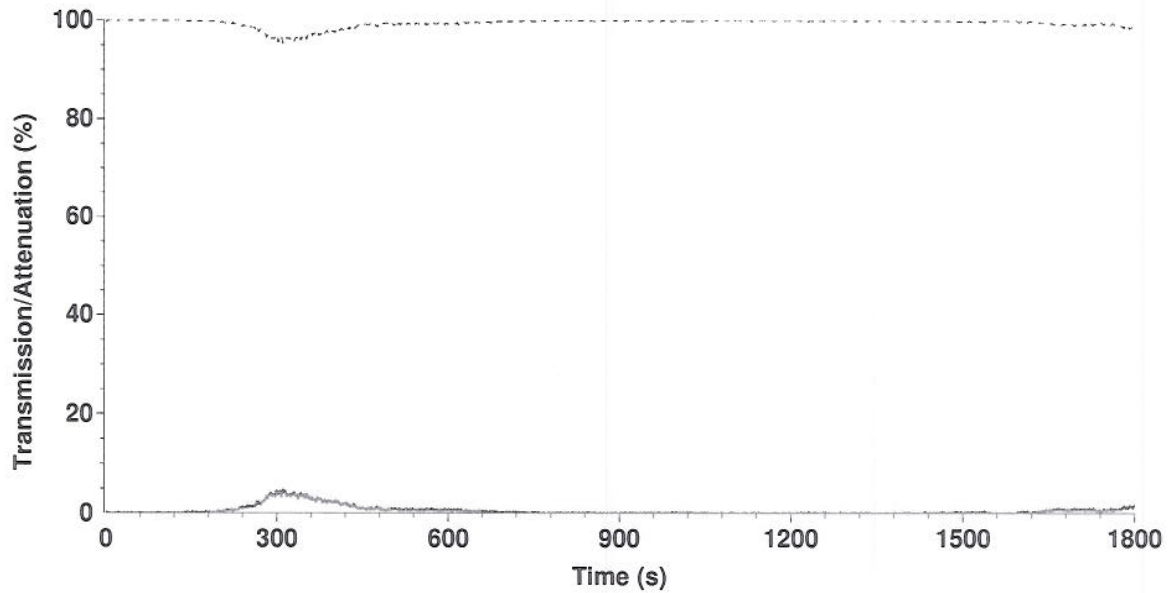
Test Results

Time to ignition : 2 minutes 12 seconds (132 s)
Time to flameout : Not recorded
Extent of burning (mm) : 610
Critical flux at extinguishment (kW/m²) : N/A (no flameout)
HF-10 (kW/m²) : 6.94
HF-20 (kW/m²) : 4.02
HF-30 (kW/m²) : 2.58
Flame spread at 10 minutes (mm) : 320
Flame spread at 20 minutes (mm) : 480
Flame spread at 30 minutes (mm) : 610
Peak light attenuation (%) : 4.7
Time to peak light attenuation : 5 minutes 10 seconds (310 s)
Total integrated smoke (%.min) : 16.59

Potential classification : E(fl)
Smoke production classification : s1

These results relate only to the behaviour of the specimens of the 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.

Smoke Graph



Test name : 1076
 File name : C:\FRPSOFT\DATA\1076\1076-1.CSV

Rake Results

Position (mm)	Time (s)	Flux (kW/m ²)	Qsb (MJ/m ²)	Position (mm)	Time (s)	Flux (kW/m ²)	Qsb (MJ/m ²)
60	169	11.8	1.841	510	1329	3.6	4.018
110	234	10.9	2.373	560	1560	3.0	4.029
160	301	10.1	2.789	610	1790	2.6	3.886
210	387	9.3	3.164	660	-	2.2	-
260	499	8.2	3.566	710	-	1.8	-
310	588	7.1	3.600	760	-	1.6	-
360	729	6.1	3.775	810	-	1.4	-
410	940	5.2	4.051	860	-	1.2	-
460	1100	4.3	3.940	910	-	1.1	-

Comments

Specimen was extinguished manually after end of test.

These results relate only to the behaviour of the specimens of the 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.

Tabulated Results

Time (s)	T (%)	Attenuation (%)	Time (s)	T (%)	Attenuation (%)
0	99.57	0.433			
30	99.98	0.019	1230	99.82	0.179
60	99.94	0.062	1260	99.68	0.322
90	99.93	0.074	1290	100	-0.042
120	99.99	0.011	1320	99.87	0.128
150	99.85	0.148	1350	99.99	0.008
180	99.88	0.116	1380	99.92	0.076
210	99.37	0.633	1410	100	-0.047
240	98.91	1.088	1440	99.91	0.094
270	98.04	1.964	1470	99.79	0.21
300	95.4	4.598	1500	99.88	0.124
330	95.77	4.235	1530	99.81	0.191
360	97.26	2.742	1560	99.96	0.045
390	97.47	2.531	1590	100.1	-0.059
420	98.12	1.878	1620	99.8	0.202
450	98.92	1.084	1650	99.41	0.589
480	99.27	0.729	1680	99.25	0.753
510	99.09	0.911	1710	99.05	0.952
540	99.23	0.767	1740	99.46	0.538
570	99.2	0.805	1770	99.11	0.892
600	99.17	0.831	1800	98.39	1.614
630	99.43	0.574			
660	99.5	0.497			
690	99.7	0.297			
720	99.69	0.312			
750	99.83	0.169			
780	100.1	-0.076			
810	99.87	0.131			
840	99.86	0.143			
870	100	-0.035			
900	100.1	-0.063			
930	99.95	0.052			
960	99.91	0.095			
990	99.89	0.109			
1020	99.84	0.165			
1050	99.89	0.113			
1080	99.98	0.016			
1110	100	-0.047			
1140	99.95	0.053			
1170	99.99	0.01			
1200	100	-0.005			

These results relate only to the behaviour of the specimens of the 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.

Flooring Radiant Panel Single Specimen Report

Standard : EN ISO 9239-1:2002
Laboratory : MeKA testing laboratory
Sponsor : Casco Schonox Baltics OU
Date of test : Jan. 22 2014

Specimen description : Floor finish Synteko Nova Best
Test name : 1076-2
File name : C:\FRPSOFT\DATA\1076\1076-2.CSV
Test number in series : 2

Flux calibration file name : C:\FRPSOFT\CALIB\FLX13003.CSV

Thickness (mm) : 23
Density (kg/m³) : 600

Test duration : 30 minutes (1800 s)
Substrate used? : No
Conditioned? : Yes
Conditioning temp. (°C) : 23
Conditioning RH (%) : 50

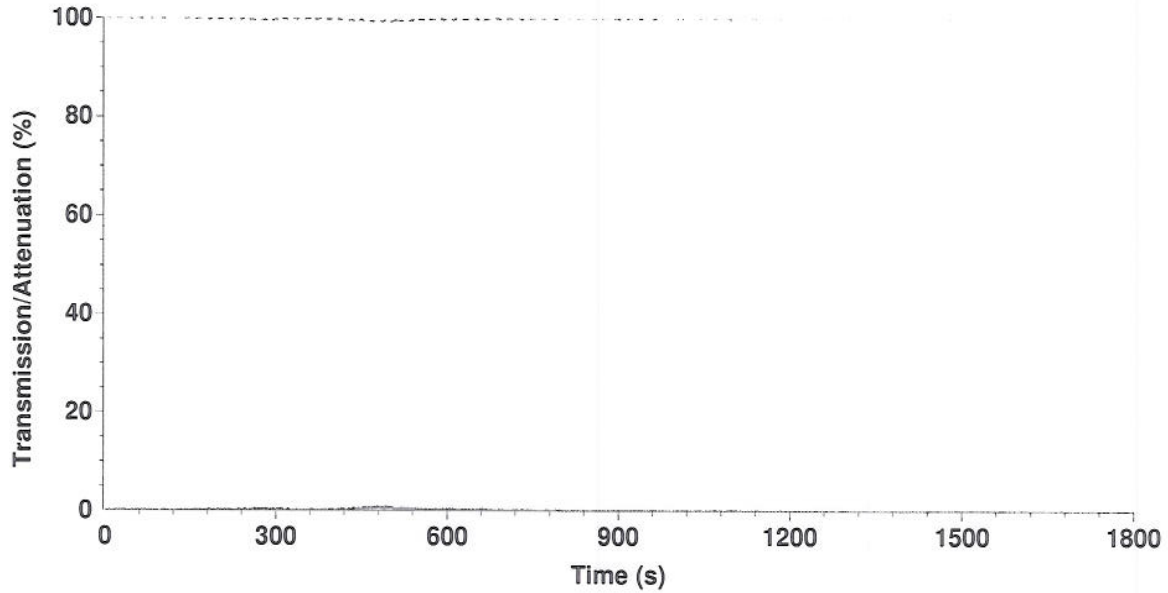
Test Results

Time to ignition : 2 minutes 12 seconds (132 s)
Time to flameout : Not recorded
Extent of burning (mm) : 540
Critical flux at extinguishment (kW/m²) : N/A (no flameout)
HF-10 (kW/m²) : 8.18
HF-20 (kW/m²) : 4.83
HF-30 (kW/m²) : 3.25
Flame spread at 10 minutes (mm) : 260
Flame spread at 20 minutes (mm) : 430
Flame spread at 30 minutes (mm) : 540
Peak light attenuation (%) : 0.92
Time to peak light attenuation : 8 minutes 13 seconds (493 s)
Total integrated smoke (%.min) : 2.42

Potential classification : D(fl)
Smoke production classification : s1

These results relate only to the behaviour of the specimens of the 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.

Smoke Graph



Test name : 1076-2

File name : C:\FRPSOFT\DATA\1076\1076-2.CSV

Rake Results

Position (mm)	Time (s)	Flux (kW/m ²)	Qsb (MJ/m ²)	Position (mm)	Time (s)	Flux (kW/m ²)	Qsb (MJ/m ²)
60	190	11.8	2.070	510	1599	3.6	4.834
110	280	10.9	2.839	560	-	3.0	-
160	388	10.1	3.596	610	-	2.6	-
210	476	9.3	3.892	660	-	2.2	-
260	601	8.2	4.295	710	-	1.8	-
310	735	7.1	4.500	760	-	1.6	-
360	941	6.1	4.872	810	-	1.4	-
410	1123	5.2	4.840	860	-	1.2	-
460	1325	4.3	4.746	910	-	1.1	-

Comments

Specimen was extinguished manually after end of test.

These results relate only to the behaviour of the specimens of the 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.

Tabulated Results

Time (s)	T (%)	Attenuation (%)	Time (s)	T (%)	Attenuation (%)
0	100.5	-0.5			
30	99.89	0.1	1230	100.2	-0.2
60	99.94	0.1	1260	100.1	-0.1
90	100	0	1290	100	0
120	100.3	-0.3	1320	100.2	-0.2
150	99.99	0	1350	100.3	-0.3
180	99.87	0.1	1380	100.1	-0.1
210	99.85	0.2	1410	100	0
240	99.96	0	1440	100.2	-0.2
270	99.68	0.3	1470	100.1	-0.1
300	99.84	0.2	1500	100.2	-0.2
330	99.9	0.1	1530	100	0
360	100	0	1560	100.3	-0.3
390	99.87	0.1	1590	100.1	-0.1
420	99.83	0.2	1620	100.2	-0.2
450	99.61	0.4	1650	100.1	-0.1
480	99.31	0.7	1680	100.2	-0.2
510	99.67	0.3	1710	100.3	-0.3
540	99.8	0.2	1740	100.3	-0.2
570	99.87	0.1	1770	100.2	-0.2
600	99.8	0.2	1800	100.3	-0.2
630	99.89	0.1			
660	99.96	0			
690	99.95	0			
720	100	0			
750	100	0			
780	100.1	-0.1			
810	100.1	-0.1			
840	100	0			
870	100	0			
900	99.98	0			
930	99.96	0			
960	99.93	0.1			
990	100.1	-0.1			
1020	99.97	0			
1050	100.3	-0.3			
1080	100.1	-0.1			
1110	100.1	-0.1			
1140	99.96	0			
1170	100.1	-0.1			
1200	100.2	-0.2			

These results relate only to the behaviour of the specimens of the 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.

Flooring Radiant Panel Single Specimen Report

Standard : EN ISO 9239-1:2002
Laboratory : MeKA testing laboratory
Sponsor : Casco Schonox Baltics OU
Date of test : Jan. 22 2014

Specimen description : Floor finish Synteko Nova Best
Test name : 1076-3
File name : C:\FRPSOFT\DATA\1076\1076-3.CSV
Test number in series : 3

Flux calibration file name : C:\FRPSOFT\CALIB\FLX13003.CSV

Thickness (mm) : 23
Density (kg/m³) : 600

Test duration : 30 minutes (1800 s)
Substrate used? : No
Conditioned? : Yes
Conditioning temp. (°C) : 23
Conditioning RH (%) : 50

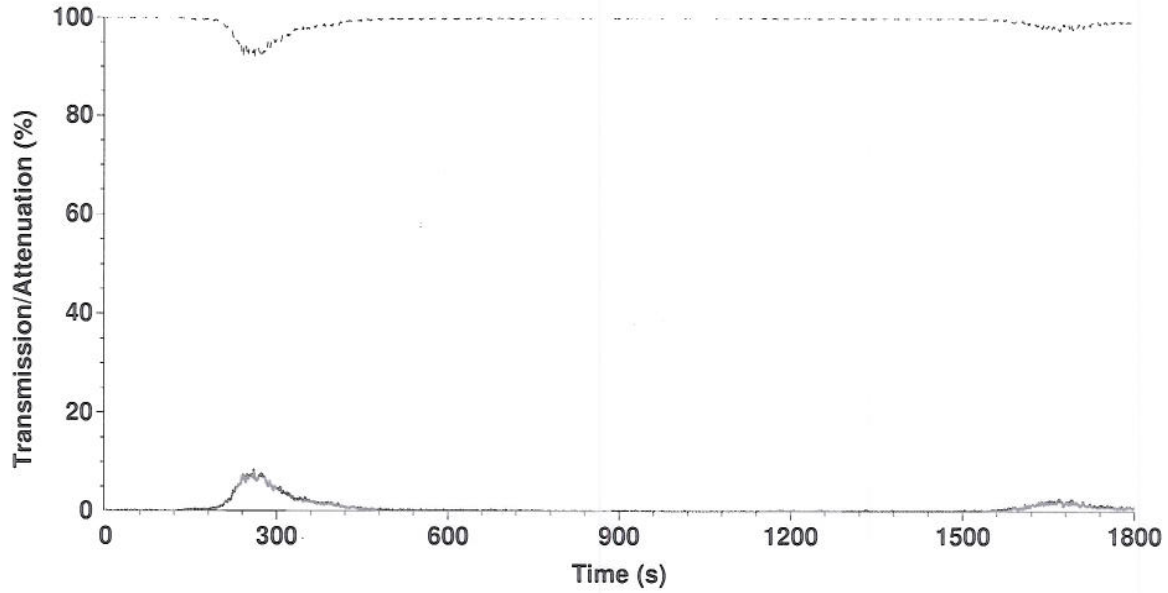
Test Results

Time to ignition : 2 minutes 14 seconds (134 s)
Time to flameout : Not recorded
Extent of burning (mm) : 600
Critical flux at extinguishment (kW/m²) : N/A (no flameout)
HF-10 (kW/m²) : 6.53
HF-20 (kW/m²) : 3.73
HF-30 (kW/m²) : 2.67
Flame spread at 10 minutes (mm) : 340
Flame spread at 20 minutes (mm) : 500
Flame spread at 30 minutes (mm) : 600
Peak light attenuation (%) : 8.38
Time to peak light attenuation : 4 minutes 20 seconds (260 s)
Total integrated smoke (%.min) : 20.08

Potential classification : E(fl)
Smoke production classification : s1

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Smoke Graph



Test name : 1076-3

File name : C:\FRPSOFT\DATA\1076\1076-3.CSV

Rake Results

Position (mm)	Time (s)	Flux (kW/m ²)	Qsb (MJ/m ²)	Position (mm)	Time (s)	Flux (kW/m ²)	Qsb (MJ/m ²)
60	166	11.8	1.809	510	1262	3.6	3.815
110	210	10.9	2.130	560	1508	3.0	3.895
160	261	10.1	2.419	610	-	2.6	-
210	313	9.3	2.559	660	-	2.2	-
260	390	8.2	2.787	710	-	1.8	-
310	523	7.1	3.202	760	-	1.6	-
360	645	6.1	3.340	810	-	1.4	-
410	847	5.2	3.651	860	-	1.2	-
460	992	4.3	3.553	910	-	1.1	-

Comments

Specimen was extinguished manually after end of test.

These results relate only to the behaviour of the specimens of the 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.

Tabulated Results

Time (s)	T (%)	Attenuation (%)	Time (s)	T (%)	Attenuation (%)
0	100	-0.046			
30	100.1	-0.081	1230	100.1	-0.067
60	100.1	-0.05	1260	99.84	0.163
90	99.94	0.061	1290	100	-0.011
120	100.1	-0.1	1320	99.94	0.063
150	99.68	0.322	1350	99.86	0.145
180	99.68	0.324	1380	100	-0.005
210	98.13	1.874	1410	99.84	0.162
240	93.06	6.937	1440	99.97	0.027
270	92.79	7.215	1470	99.91	0.09
300	95.42	4.584	1500	99.91	0.086
330	97.59	2.408	1530	99.9	0.105
360	98.07	1.927	1560	99.83	0.174
390	98.45	1.554	1590	99.02	0.982
420	99.34	0.658	1620	98.62	1.383
450	99.41	0.59	1650	98.55	1.454
480	99.84	0.16	1680	98.23	1.771
510	99.9	0.096	1710	97.87	2.126
540	99.78	0.219	1740	98.62	1.385
570	99.87	0.132	1770	99.47	0.531
600	99.8	0.202	1800	99.16	0.843
630	99.78	0.216			
660	99.83	0.171			
690	100	-0.006			
720	99.82	0.184			
750	100	0.005			
780	99.94	0.059			
810	100	-0.003			
840	100.1	-0.073			
870	100.1	-0.13			
900	99.92	0.078			
930	99.77	0.231			
960	100.1	-0.145			
990	100.1	-0.125			
1020	100.2	-0.163			
1050	100.1	-0.083			
1080	99.97	0.034			
1110	99.96	0.039			
1140	99.84	0.161			
1170	99.97	0.034			
1200	99.91	0.086			

These results relate only to the behaviour of the specimens of the 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.

Flooring Radiant Panel Single Specimen Report

Standard : EN ISO 9239-1:2002
Laboratory : MeKA testing laboratory
Sponsor : Casco Schonox Baltics OU
Date of test : Jan. 22 2014

Specimen description : Floor finish Synteko Nova Best
Test name : 1076
File name : C:\FRPSOFT\DATA\1076\1076-4.CSV
Test number in series : 4

Flux calibration file name : C:\FRPSOFT\CALIB\FLX13003.CSV

Thickness (mm) : 23
Density (kg/m³) : 600

Test duration : 30 minutes (1800 s)
Substrate used? : No
Conditioned? : Yes
Conditioning temp. (°C) : 23
Conditioning RH (%) : 50

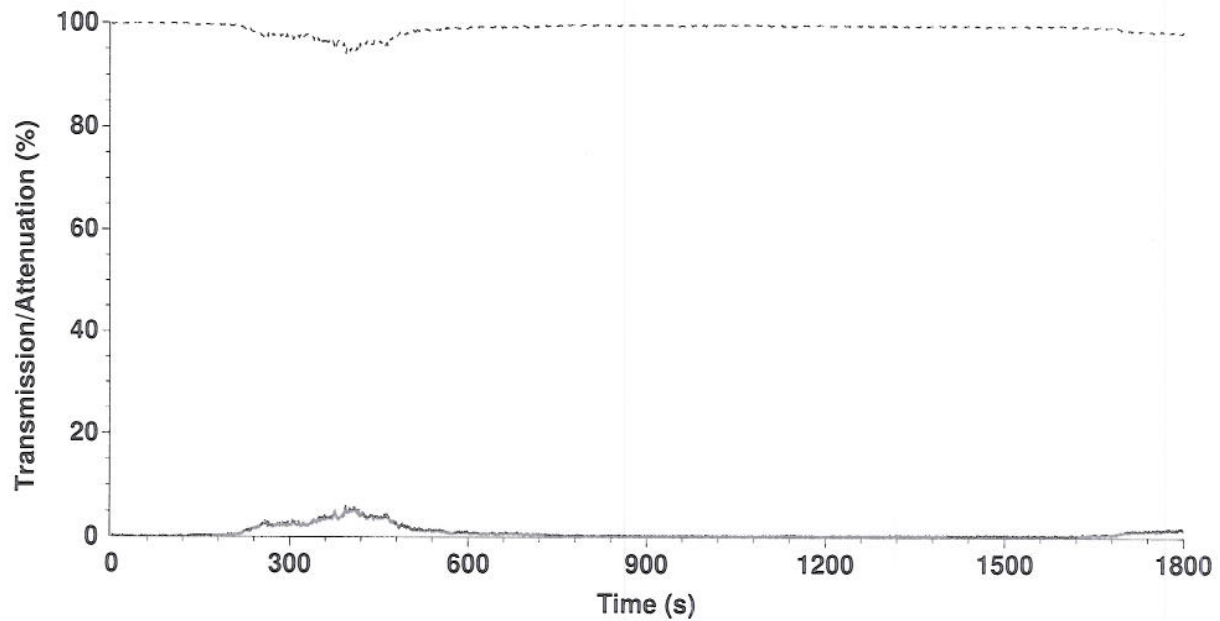
Test Results

Time to ignition : 2 minutes 15 seconds (135 s)
Time to flameout : Not recorded
Extent of burning (mm) : 630
Critical flux at extinguishment (kW/m²) : N/A (no flameout)
HF-10 (kW/m²) : 6.74
HF-20 (kW/m²) : 3.58
HF-30 (kW/m²) : 2.42
Flame spread at 10 minutes (mm) : 330
Flame spread at 20 minutes (mm) : 510
Flame spread at 30 minutes (mm) : 630
Peak light attenuation (%) : 5.89
Time to peak light attenuation : 6 minutes 34 seconds (394 s)
Total integrated smoke (%.min) : 26.79

Potential classification : **E(fl)**
Smoke production classification : **s1**

These results relate only to the behaviour of the specimens of the 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.

Smoke Graph



Test name : 1076

File name : C:\FRPSOFT\DATA\1076\1076-4.CSV

Rake Results

Position (mm)	Time (s)	Flux (kW/m ²)	Qsb (MJ/m ²)	Position (mm)	Time (s)	Flux (kW/m ²)	Qsb (MJ/m ²)
60	182	11.8	1.983	510	1179	3.6	3.564
110	234	10.9	2.373	560	1437	3.0	3.712
160	335	10.1	3.104	610	1714	2.6	3.721
210	436	9.3	3.565	660	-	2.2	-
260	473	8.2	3.381	710	-	1.8	-
310	570	7.1	3.490	760	-	1.6	-
360	712	6.1	3.687	810	-	1.4	-
410	810	5.2	3.491	860	-	1.2	-
460	1001	4.3	3.586	910	-	1.1	-

Comments

Specimen was extinguished manually after end of test.

These results relate only to the behaviour of the specimens of the 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.

Tabulated Results

Time (s)	T (%)	Attenuation (%)	Time (s)	T (%)	Attenuation (%)
0	100	-0.036			
30	99.91	0.09	1230	99.77	0.232
60	99.87	0.13	1260	99.69	0.31
90	99.83	0.166	1290	99.63	0.372
120	99.91	0.091	1320	99.58	0.419
150	99.69	0.314	1350	99.6	0.405
180	99.73	0.271	1380	99.61	0.393
210	99.39	0.607	1410	99.58	0.418
240	98.32	1.676	1440	99.58	0.422
270	97.65	2.349	1470	99.53	0.469
300	97.74	2.265	1500	99.55	0.454
330	97.84	2.164	1530	99.56	0.44
360	96.7	3.302	1560	99.65	0.351
390	96.19	3.808	1590	99.73	0.269
420	95.92	4.081	1620	99.62	0.377
450	96.27	3.73	1650	99.28	0.72
480	97.59	2.411	1680	99.4	0.6
510	98.22	1.777	1710	98.89	1.113
540	98.9	1.1	1740	98.63	1.37
570	99.28	0.719	1770	98.47	1.527
600	99.08	0.923	1800	98.3	1.697
630	99.45	0.55			
660	99.34	0.661			
690	99.28	0.72			
720	99.43	0.571			
750	99.49	0.513			
780	99.61	0.395			
810	99.63	0.369			
840	99.6	0.397			
870	99.75	0.254			
900	99.63	0.366			
930	99.73	0.272			
960	99.62	0.38			
990	99.66	0.343			
1020	99.7	0.298			
1050	99.75	0.253			
1080	99.8	0.199			
1110	99.6	0.4			
1140	99.67	0.33			
1170	99.76	0.243			
1200	99.7	0.301			

These results relate only to the behaviour of the specimens of the 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.