

„MEŽA UN KOKSNES PRODUKTU PĒTNIECĪBAS UN ATTĪSTĪBAS INSTITŪTS” SIA
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Test Report No.7067-1/2022

Forest and Wood Products Research and Development Institute
Testing Laboratory

Customer: SIA “TopDeck”.

Customer’s address: Cēsu street 3, k4-5A, Riga, LV-1012, Latvia.
Reg. No. 40203119268.

Manufacturer and owner of the test report: SIA “TopDeck”.

Date of the order: 20.06.2022.

Testing was done according contract No. 84-07/22 MU.

Test samples received: 09.06.2022.

Test performed at: SIA “Meža un koksnes produktu pētniecības un attīstības institūts” (Forest and Wood Products Research and Development Institute Ltd), “Pienavas katlu māja”, Pienava, Džūkstes pagasts, Tukuma novads, LV-3147, Latvia (“Pienava heat plant”, Pienava, Džūkste parish, Tukums region, LV-3147, Latvia).

Description of product (According to customer’s information)

- Product name: DeckingTopDex.
- Manufacturer: SIA “TopDeck”.
- Materials used for manufacturing:
 - wood plastic composite (WPC).
- Thickness: 25 mm.
- Profile type: hollow core with rippled edge surface.
- Tested colour: graphite.

Sampling:

Sampling was done by Lauris Požarnovs (SIA TopDeck) at factory of TopDeck in “Lejzemnieks”, Iecavas parish on 06.06.2022. Samples taken from production line.

Application of product (according to customer’s information):

Decking TopDex is intended to use as decking material. Product is identified by product standard EN 15534-1:2014+A1:2017.

Specimen preparation for testing:

Specimens were manufactured by SIA TopDeck. Specimens were prepared and delivered to testing laboratory at 09.06.2022. by SIA TopDeck.

Substrates used:

Substrates were not used, specimens were tested freestanding.

Conditioning of specimens:

Specimens were conditioned according to standard EN 13238:2010.

Conditioning method: constant mass.

Temperature: $t = 23 \pm 2$ °C.

Relative humidity: RH = 50 ± 5 %.

Conditioning period: 14 days.

Test standard: EN ISO 9239-1:2010.

Test date: 04.07.2022.

Test results:

Specimen identification in laboratory: No. 7067-1-1, 7067-1-3...7067-1-4 (longitudinal direction (→)), No. 7067-1-2 (crosswise direction (↑)). First one sample of each direction were tested. As the test results of product with longitudinal direction were worse, last two tests were done with longitudinal orientation. Average values of reaction to fire criteria were calculated from specimens with longitudinal orientation test results No. 7067-1-1, 7067-1-3...7067-1-4. Results are shown in tables 1 and 2. Specimens after the tests are shown in Fig. 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
7067-1-1	→	N/A	38.9	7.3	200.0	210.0	350.0	350.0	9.6	9.5	6.4
7067-1-2	↑	N/A	40.3	8.4	200.0	280.0	280.0	280.0	9.6	7.9	7.9
7067-1-3	→	N/A	67.6	7.9	200.0	300.0	320.0	320.0	9.6	7.4	7.0
7067-1-4	→	N/A	124.8	46.0	280.0	330.0	390.0	390.0	7.9	6.8	5.6
Average	-	-	77.1	20.4	226.7	280.0	353.3	353.3	9.1	7.9	6.3
Standard deviation	-	-	43.7	22.2	46.2	62.4	35.1	35.1	1.0	1.4	0.7

Test parameter explanation:

CHF	Critical heat flux
S_t	Integrated smoke value
S_p	Maximum light attenuation
D_{10}	Flame spread distance at 10 min
D_{20}	Flame spread distance at 20 min
D_{30}	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 times

Specimen No.	Ignition time, s	Extinguishing time, s	End of test, s
7067-1-1	152	No flameout	1800
7067-1-2	182	No flameout	1800
7067-1-3	176	No flameout	1800
7067-1-4	152	No flameout	1800

Observations:

Burn through of specimens was observed.

Deviations from standard:

No.

Photo:

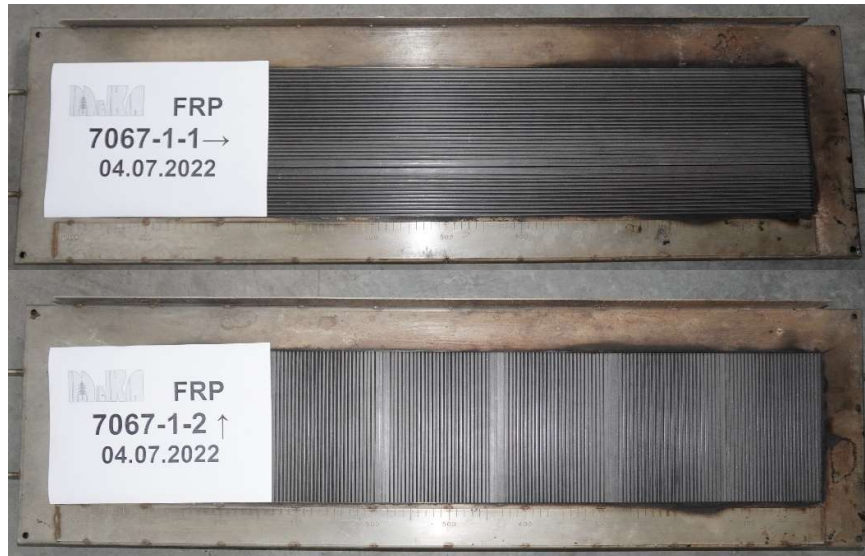


Fig. 1. Test specimens before test.



Fig.2. Test specimens after the test.

Annexes:

Annex 1 (FRP test protocol No. 7067-1-1, 3 pp.)

Annex 2 (FRP test protocol No. 7067-1-2, 3 pp.)

Annex 3 (FRP test protocol No. 7067-1-3, 3 pp.)

Annex 4 (FRP test protocol No. 7067-1-4, 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: 06.07.2022.

Prepared by



E. Bukšāns

(signature and name)

Reviewed by



K. Būmanis

(signature and name)

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Flooring Radiant Panel Single Specimen Report

Standard : EN ISO 9239-1:2010
Laboratory : MeKA Testing laboratory
Sponsor : SIA TopDeck
Date of test : Jul. 04 2022

Specimen description : TopDex terrace board
Test name : 7067-1-1
File name : C:\FRPSOFT\DATA\7067\7067-1-1.CSV
Test number in series : 1

Flux calibration file name : C:\FRPSOFT\CALIB\FLX22001.CSV

Thickness (mm) : 25
Density (kg/m³) :

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

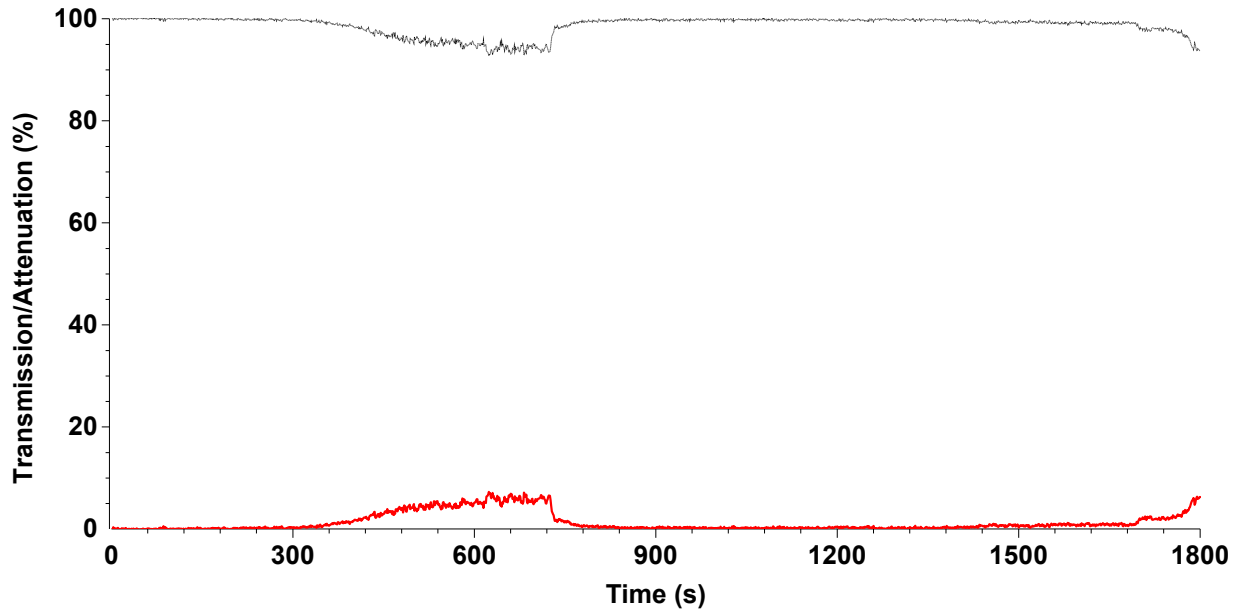
Test Results

Time to ignition : 2 minutes 32 seconds (152 s)
Time to flameout : Not recorded
Extent of burning (mm) : 35
Critical flux at extinguishment (kW/m²) : N/A (no flameout)
HF-10 (kW/m²) : 9.64
HF-20 (kW/m²) : 9.46
HF-30 (kW/m²) : 6.36
Flame spread at 10 minutes (mm) : 200
Flame spread at 20 minutes (mm) : 210
Flame spread at 30 minutes (mm) : 350
Peak light attenuation (%) : 7.26
Time to peak light attenuation : 10 minutes 24 seconds (624 s)
Total integrated smoke (%.min) : 38.88

Potential classification : **C(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 : 7067-1-1

File name : C:\FRPSOFT\DATA\7067\7067-1-1.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	274	12.1	3.306	510	-	3.5	-
110	385	11.2	4.298	560	-	2.9	-
160	489	10.4	5.070	610	-	2.4	-
210	663	9.5	6.269	660	-	2.1	-
260	1488	8.3	12.365	710	-	1.8	-
310	1699	7.2	12.274	760	-	1.5	-
360	-	6.2	-	810	-	1.4	-
410	-	5.2	-	860	-	1.2	-
460	-	4.2	-	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	100.4	-0.425			
30	100.1	-0.123	1230	99.71	0.293
60	99.93	0.073	1260	99.39	0.611
90	99.82	0.183	1290	99.51	0.494
120	100.1	-0.123	1320	99.64	0.362
150	100	-0.043	1350	99.86	0.141
180	99.91	0.093	1380	99.67	0.327
210	99.98	0.024	1410	99.48	0.524
240	99.75	0.251	1440	99.4	0.599
270	99.73	0.266	1470	99.3	0.705
300	99.79	0.207	1500	99.73	0.267
330	99.59	0.409	1530	99.43	0.572
360	99.38	0.617	1560	99	1.004
390	98.72	1.284	1590	99.13	0.869
420	97.82	2.184	1620	99.26	0.742
450	97.07	2.932	1650	99.37	0.631
480	96.28	3.725	1680	99.21	0.786
510	95.39	4.612	1710	97.69	2.307
540	95.25	4.747	1740	98	1.997
570	95.94	4.063	1770	97.3	2.696
600	94.84	5.156	1800	93.73	6.274
630	92.94	7.058			
660	93.12	6.882			
690	94.38	5.619			
720	94.45	5.553			
750	98.46	1.543			
780	99.5	0.497			
810	99.57	0.435			
840	99.71	0.295			
870	99.71	0.289			
900	99.93	0.068			
930	99.57	0.428			
960	99.69	0.314			
990	99.93	0.068			
1020	99.78	0.216			
1050	99.75	0.252			
1080	99.77	0.229			
1110	99.69	0.31			
1140	99.89	0.115			
1170	99.92	0.076			
1200	99.51	0.492			

Test name : 7067-1-1
 File name : C:\FRPSOFT\DATA\7067\7067-1-1.CSV

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Flooring Radiant Panel Single Specimen Report

Standard : EN ISO 9239-1:2010
Laboratory : MeKA Testing laboratory
Sponsor : SIA TopDeck
Date of test : Jul. 04 2022

Specimen description : TopDex terrace board
Test name : 7067-1-2
File name : C:\FRPSOFT\DATA\22070001.CSV
Test number in series : 2

Flux calibration file name : C:\FRPSOFT\CALIB\FLX22001.CSV

Thickness (mm) : 25
Density (kg/m³) :

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

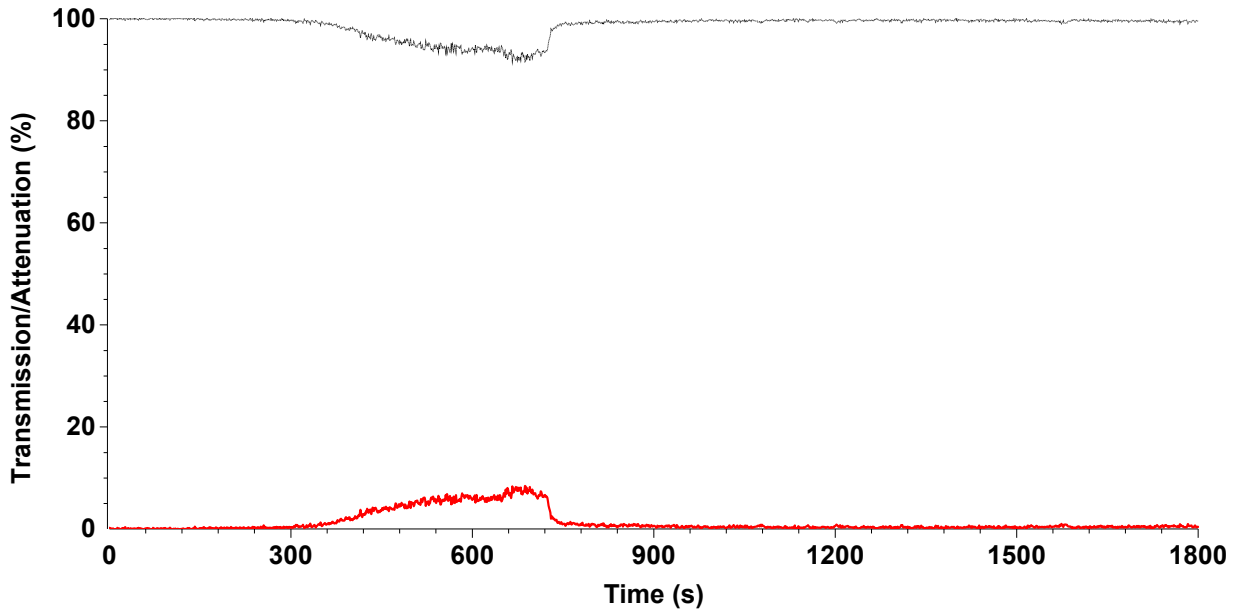
Test Results

Time to ignition : 3 minutes 02 seconds (182 s)
Time to flameout : Not recorded
Extent of burning (mm) : 280
Critical flux at extinguishment (kW/m²) : N/A (no flameout)
HF-10 (kW/m²) : 9.64
HF-20 (kW/m²) : 7.88
HF-30 (kW/m²) : 7.88
Flame spread at 10 minutes (mm) : 200
Flame spread at 20 minutes (mm) : 280
Flame spread at 30 minutes (mm) : 280
Peak light attenuation (%) : 8.43
Time to peak light attenuation : 11 minutes 27 seconds (687 s)
Total integrated smoke (%.min) : 40.26

Potential classification : **C(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 : 7067-1-2
 File name : C:\FRPSOFT\DATA\22070001.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	265	12.1	3.198	510	-	3.5	-
110	381	11.2	4.253	560	-	2.9	-
160	487	10.4	5.050	610	-	2.4	-
210	679	9.5	6.420	660	-	2.1	-
260	841	8.3	6.989	710	-	1.8	-
310	-	7.2	-	760	-	1.5	-
360	-	6.2	-	810	-	1.4	-
410	-	5.2	-	860	-	1.2	-
460	-	4.2	-	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	99.77	0.228			
30	99.87	0.132	1230	99.81	0.189
60	99.9	0.102	1260	99.75	0.25
90	99.82	0.181	1290	99.43	0.568
120	99.97	0.028	1320	99.53	0.468
150	99.82	0.18	1350	99.8	0.197
180	99.91	0.089	1380	99.87	0.132
210	99.71	0.287	1410	99.8	0.205
240	99.64	0.36	1440	99.88	0.121
270	99.72	0.279	1470	99.73	0.27
300	99.62	0.376	1500	99.75	0.247
330	99.27	0.727	1530	99.6	0.402
360	99.02	0.983	1560	99.54	0.456
390	97.86	2.144	1590	99.64	0.361
420	97.05	2.948	1620	99.58	0.419
450	96.27	3.729	1650	99.38	0.625
480	95.64	4.36	1680	99.59	0.413
510	94.94	5.065	1710	99.43	0.566
540	94.92	5.077	1740	99.36	0.638
570	94.13	5.875	1770	99.07	0.928
600	94.34	5.656	1800	99.6	0.397
630	93.86	6.141			
660	92.89	7.109			
690	91.93	8.075			
720	93.34	6.659			
750	98.99	1.008			
780	99.24	0.761			
810	99.39	0.606			
840	99.7	0.296			
870	99.11	0.894			
900	99.39	0.614			
930	99.38	0.622			
960	99.52	0.481			
990	99.68	0.32			
1020	99.77	0.23			
1050	99.7	0.297			
1080	99.41	0.588			
1110	99.63	0.368			
1140	99.71	0.286			
1170	99.71	0.293			
1200	99.42	0.583			

Test name : 7067-1-2
 File name : C:\FRPSOFT\DATA\22070001.CSV

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 9239-1:2010
Laboratory : MeKA Testing laboratory
Sponsor : SIA TopDeck
Date of test : Jul. 04 2022

Specimen description : TopDex terrace board
Test name : 7067-1-3
File name : C:\FRPSOFT\DATA\7067\7067-1-3.CSV
Test number in series : 3

Flux calibration file name : C:\FRPSOFT\CALIB\FLX22001.CSV

Thickness (mm) : 25
Density (kg/m³) :

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

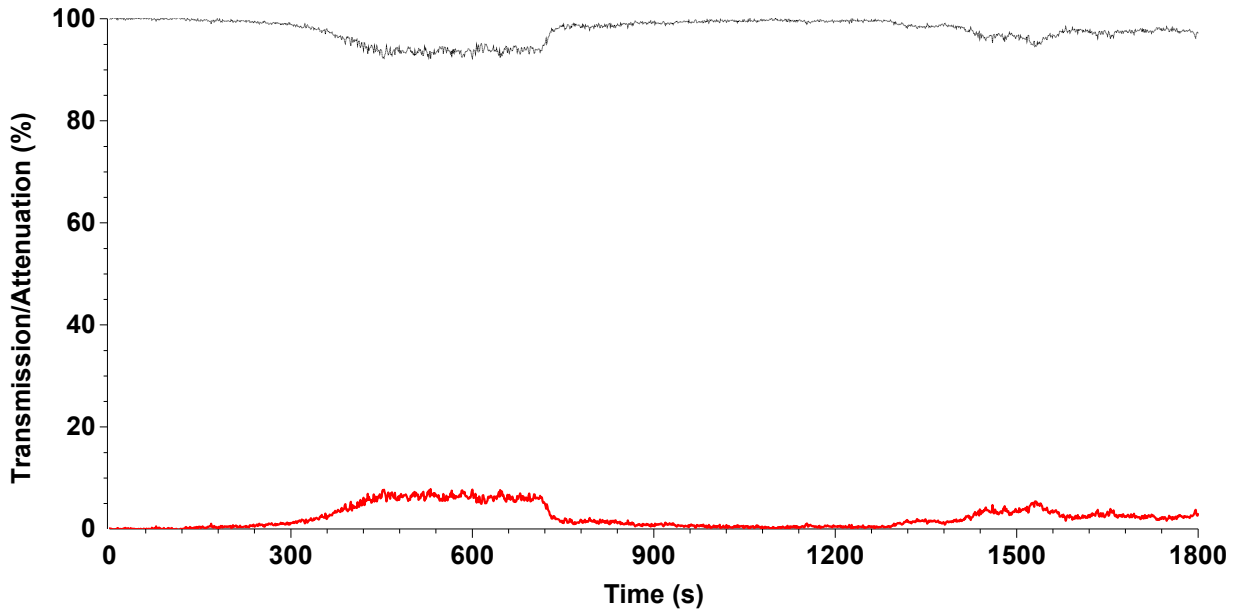
Test Results

Time to ignition : 2 minutes 56 seconds (176 s)
Time to flameout : Not recorded
Extent of burning (mm) : 320
Critical flux at extinguishment (kW/m²) : N/A (no flameout)
HF-10 (kW/m²) : 9.64
HF-20 (kW/m²) : 7.44
HF-30 (kW/m²) : 7.01
Flame spread at 10 minutes (mm) : 200
Flame spread at 20 minutes (mm) : 300
Flame spread at 30 minutes (mm) : 320
Peak light attenuation (%) : 7.85
Time to peak light attenuation : 8 minutes 51 seconds (531 s)
Total integrated smoke (%.min) : 67.55

Potential classification : **C(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 : 7067-1-3

File name : C:\FRPSOFT\DATA\7067\7067-1-3.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	237	12.1	2.860	510	-	3.5	-
110	315	11.2	3.516	560	-	2.9	-
160	426	10.4	4.417	610	-	2.4	-
210	602	9.5	5.692	660	-	2.1	-
260	690	8.3	5.734	710	-	1.8	-
310	1663	7.2	12.014	760	-	1.5	-
360	-	6.2	-	810	-	1.4	-
410	-	5.2	-	860	-	1.2	-
460	-	4.2	-	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	99.88	0.122			
30	99.94	0.063	1230	99.63	0.366
60	100.2	-0.181	1260	99.75	0.25
90	99.8	0.197	1290	99.45	0.546
120	100.1	-0.141	1320	98.61	1.389
150	99.56	0.438	1350	98.52	1.485
180	99.6	0.402	1380	98.84	1.161
210	99.41	0.586	1410	98.28	1.725
240	99.57	0.433	1440	96.95	3.053
270	99.2	0.798	1470	97.16	2.843
300	98.8	1.197	1500	96.71	3.291
330	98.31	1.691	1530	94.61	5.395
360	97.95	2.052	1560	96.8	3.199
390	95.14	4.864	1590	97.65	2.354
420	93.87	6.131	1620	97.33	2.668
450	93.75	6.255	1650	96.61	3.394
480	93.49	6.514	1680	97.54	2.46
510	93.25	6.751	1710	97.99	2.012
540	93.33	6.672	1740	97.99	2.013
570	93.38	6.623	1770	97.26	2.742
600	92.27	7.728	1800	97.09	2.906
630	93.49	6.507			
660	93.88	6.116			
690	94.25	5.755			
720	95.09	4.908			
750	98.42	1.578			
780	98.46	1.539			
810	98.74	1.262			
840	98.91	1.094			
870	99.4	0.605			
900	99.41	0.589			
930	98.94	1.059			
960	99.37	0.63			
990	99.67	0.333			
1020	99.24	0.762			
1050	99.73	0.271			
1080	99.83	0.171			
1110	99.85	0.154			
1140	99.74	0.265			
1170	99.69	0.309			
1200	99.5	0.502			

Test name : 7067-1-3
 File name : C:\FRPSOFT\DATA\7067\7067-1-3.CSV

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 9239-1:2010
Laboratory : MeKA Testing laboratory
Sponsor : SIA TopDeck
Date of test : Jul. 04 2022

Specimen description : TopDex terrace board
Test name : 7067-1-4
File name : C:\FRPSOFT\DATA\7067\7067-1-4.CSV
Test number in series : 4

Flux calibration file name : C:\FRPSOFT\CALIB\FLX22001.CSV

Thickness (mm) : 25
Density (kg/m³) :

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

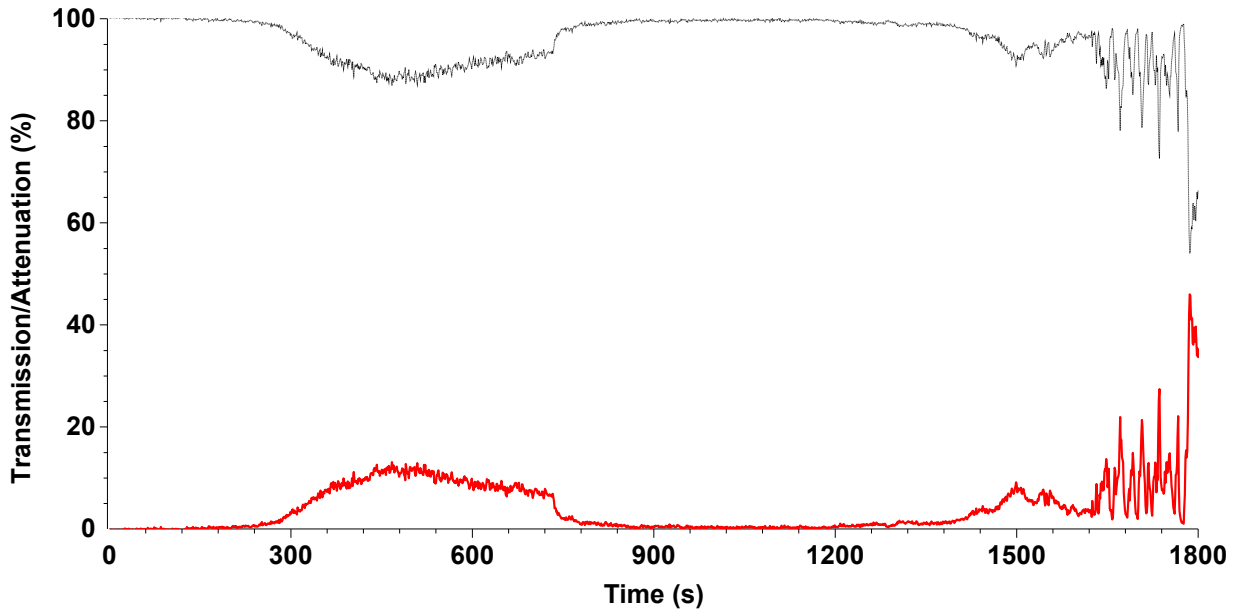
Test Results

Time to ignition : 2 minutes 32 seconds (152 s)
Time to flameout : Not recorded
Extent of burning (mm) : 390
Critical flux at extinguishment (kW/m²) : N/A (no flameout)
HF-10 (kW/m²) : 7.88
HF-20 (kW/m²) : 6.79
HF-30 (kW/m²) : 5.55
Flame spread at 10 minutes (mm) : 280
Flame spread at 20 minutes (mm) : 330
Flame spread at 30 minutes (mm) : 390
Peak light attenuation (%) : 45.98
Time to peak light attenuation : 29 minutes 46 seconds (1786 s)
Total integrated smoke (%.min) : 124.8

Potential classification : **C(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 : 7067-1-4
 File name : C:\FRPSOFT\DATA\7067\7067-1-4.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	208	12.1	2.510	510	-	3.5	-
110	283	11.2	3.159	560	-	2.9	-
160	325	10.4	3.370	610	-	2.4	-
210	384	9.5	3.631	660	-	2.1	-
260	497	8.3	4.130	710	-	1.8	-
310	772	7.2	5.577	760	-	1.5	-
360	1537	6.2	9.453	810	-	1.4	-
410	-	5.2	-	860	-	1.2	-
460	-	4.2	-	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	100.1	-0.134			
30	100.1	-0.1	1230	99.32	0.676
60	100.2	-0.164	1260	99.17	0.835
90	99.93	0.07	1290	99.39	0.607
120	100.3	-0.316	1320	98.51	1.487
150	100.1	-0.061	1350	99.02	0.98
180	99.72	0.278	1380	98.67	1.328
210	99.52	0.484	1410	97.97	2.034
240	99.55	0.446	1440	96.32	3.68
270	98.8	1.197	1470	95.57	4.429
300	97.03	2.967	1500	91.37	8.627
330	94.51	5.487	1530	94.7	5.304
360	92.76	7.241	1560	93.64	6.356
390	91.04	8.962	1590	95.73	4.271
420	90.58	9.419	1620	96.79	3.214
450	88.39	11.609	1650	91.83	8.167
480	89.12	10.88	1680	97.13	2.869
510	88.36	11.643	1710	87.25	12.755
540	90.71	9.288	1740	92.41	7.589
570	90.9	9.105	1770	97.21	2.791
600	91.52	8.479	1800	66.34	33.662
630	92.16	7.839			
660	92.88	7.117			
690	92.52	7.483			
720	92.15	7.855			
750	97.9	2.1			
780	98.93	1.068			
810	99.1	0.898			
840	99.54	0.461			
870	99.67	0.334			
900	99.49	0.513			
930	99.46	0.537			
960	99.47	0.533			
990	99.6	0.401			
1020	99.62	0.383			
1050	99.68	0.316			
1080	99.6	0.396			
1110	99.68	0.322			
1140	99.66	0.341			
1170	99.81	0.187			
1200	99.65	0.35			

Test name : 7067-1-4
 File name : C:\FRPSOFT\DATA\7067\7067-1-4.CSV

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.