
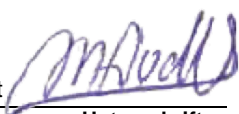



<b>Prüfbericht-Nr.:</b> <i>Test Report No.:</i>	<b>89216086.03br</b>	<b>Auftrags-Nr.:</b> <i>Order No.:</i>	76293	Seite 1 von 14 <i>Page 1 of 14</i>	
<b>Kunden-Referenz-Nr.:</b> <i>Client Reference No.:</i>	4501076805	<b>Auftragsdatum:</b> <i>Order date:</i>	04.11.2019		
<b>Auftraggeber:</b> <i>Client:</i>	Forbo Flooring B.V., PO Box 13, 1560 AA Krommenie, The Netherlands				
<b>Prüfgegenstand:</b> <i>Test item:</i>	Resilient floor covering				
<b>Bezeichnung / Typ-Nr.:</b> <i>Identification / Type No.:</i>	Marmoleum Acoustic				
<b>Auftrags-Inhalt:</b> <i>Order content:</i>	Classification of burning behaviour				
<b>Prüfgrundlage:</b> <i>Test specification:</i>	EN 13501-1:2007+ A1:2009 Classification of burning behaviour <i>Test methods: Ignitability of products subjected to direct impingement of flame (EN ISO 11925-2:2010/C1:2011) and determination of the burning behaviour using a radiant heat source (EN ISO 9239-1:2010)</i>				
<b>Wareneingangsdatum:</b> <i>Date of receipt:</i>	15.11.2019				
<b>Prüfmuster-Nr.:</b> <i>Test sample No.:</i>	MT19-76293.03				
<b>Prüfzeitraum:</b> <i>Testing period:</i>	15.11.2019 - 11.12.2019				
<b>Ort der Prüfung:</b> <i>Place of testing:</i>	Westervoortsedijk 73, 6827 AV Arnhem, Netherlands				
<b>Prüflaboratorium:</b> <i>Testing laboratory:</i>	TÜV Rheinland Nederland B.V				
<b>Prüfergebnis*:</b> <i>Test result*:</i>	Siehe Sonstiges / See Other				
<b>geprüft von / tested by:</b>	<b>kontrolliert von / reviewed by:</b>				
18.12.2019 M.A. van de Vlekkert 	18.12.2019 R. Boerboom 				
<b>Datum</b> <i>Date</i>	<b>Name / Stellung</b> <i>Name / Position</i>	<b>Unterschrift</b> <i>Signature</i>	<b>Datum</b> <i>Date</i>	<b>Name / Stellung</b> <i>Name / Position</i>	<b>Unterschrift</b> <i>Signature</i>
<b>Sonstiges / Other:</b>	Test result: See clause 4 on page 5.				
<b>Zustand des Prüfgegenstandes bei Anlieferung:</b> <i>Condition of the test item at delivery:</i>	Prüfmuster vollständig und unbeschädigt <i>Test item complete and undamaged</i>				
* Legende:	1 = sehr gut P(ass) = entspricht o.g. Prüfgrundlage(n)	2 = gut F(ail) = entspricht nicht o.g. Prüfgrundlage(n)	3 = befriedigend F(ail) = entspricht nicht o.g. Prüfgrundlage(n)	4 = ausreichend N/A = nicht anwendbar	5 = mangelhaft N/T = nicht getestet
Legend:	1 = very good P(ass) = passed a.m. test specification(s)	2 = good F(ail) = failed a.m. test specification(s)	3 = satisfactory F(ail) = failed a.m. test specification(s)	4 = sufficient N/A = not applicable	5 = poor N/T = not tested
<b>Dieser Prüfbericht bezieht sich nur auf das o.g. Prüfmuster und darf ohne Genehmigung der Prüfstelle nicht auszugsweise vervielfältigt werden. Dieser Bericht berechtigt nicht zur Verwendung eines Prüfzeichens.</b> <i>This test report only relates to the a. m. test sample. Without permission of the test center this test report is not permitted to be duplicated in extracts. This test report does not entitle to carry any test mark.</i>					

v04

**Prüfbericht-Nr.: 89216086.03br**  
*Test Report No.:*

Seite 2 von 14  
*Page 2 of 14*

**Liste der verwendeten Prüfmittel**  
*List of used test equipment*

<b>Prüfmittel</b> <i>Test equipment</i>	<b>Prüfmittel-Nr. / ID-Nr.</b> <i>Equipment No. / ID-No.</i>	<b>Nächste Kalibrierung</b> <i>Next calibration</i>
Flooring Radiant Panel	A00929	20.08.2020
Anemometer	A01989	26.09.2020
Scales	A00769	14.09.2020
Thickness gauge	A00904	10.01.2020
Metal ruler 1	A01759	12.12.2020
Metal ruler 2	A01558	13.01.2020
Metal ruler 3	A01567	21.01.2020
Vertical ignitability test cabinet	A01576	N/A
Stopwatch	A01699	11.12.2020
Metal reference plate	A00813	12.12.2020

Prüfbericht-Nr.: 89216086.03br  
Test Report No.:

Seite 3 von 14  
Page 3 of 14

**Produktbeschreibung**  
**Product description**

Product identity	Marmoleum Acoustic*	Dessinnumber	33048*
Batchnumber	25924*		

\* applicants declaration

Figure 1, Picture of the received sample (surface)



Figure 2, Picture of the received sample (surface detail)



Prüfbericht-Nr.: 89216086.03br  
Test Report No.:

Seite 4 von 14  
Page 4 of 14

Absatz	<b>EN 13501-1:2007+ A1:2009</b>	Messergebnisse - Bemerkungen	Bewertung
Clause	Anforderungen - Prüfungen / Requirements - Tests	Measuring results - Remarks	Evaluation

1	<b>Construction data (indicative) of the product obtained by the testlaboratory after pre-conditioning</b> 01-4.3-P.02-322-WI01		
	Test condition	23 ± 2°C and 50 ± 4% relative humidity	
	Pre conditioning, duration	≥ 48 h & until constant mass is achieved	
	Total thickness (mm)	22.5	
	Total mass (g/m <sup>2</sup> )	15779	
	Density (kg/m <sup>3</sup> )	701	
	<i>Note: the determined construction data are used for determination of constant mass, the used testmethod is not in accordance with the determination of construction data according the specification standard. Therefore the testresults should be handled as indicative.</i>		

2	<b>Ignitability of products subjected to direct impingement of flame</b> EN ISO 11925-2:2010/C1:2011						
	Date of testing	04.12.2019					
	Pre-conditioning, climate	23 ± 2°C and 50 ± 4% relative humidity					
	Pre-conditioning, duration	≥ 48 h & until constant mass is achieved					
	Description of substrate	Particle board, thickness 20 ± 2 mm, density 680 ± 50 kg/m <sup>3</sup> conforming to EN 13238:2010					
	Flame application	Surface					
	Flame application time (s)	15					
	Requirements according EN 13501-1:2007+A1:2009	See clause 5					
	<b>Test result(s)</b>						
	Orientation	Length			Width		
	Test sample	1	2	3	1	2	3
	Ignition of the sample	Yes	Yes	Yes	Yes	Yes	Yes
	Flame tip reached 150 mm above the application point	No	No	No	No	No	No
	Duration after application when the flame tip reached the 150 mm above the application point (s)	N/A	N/A	N/A	N/A	N/A	N/A
	Extent of damaged area, length (mm)	40	42	41	41	40	39
	Extent of damaged area, width (mm)	11	10	11	11	12	13
	Material melts	No	No	No	No	No	No
Shrinks away from flame without being ignited	No	No	No	No	No	No	
After glowing	No	No	No	No	No	No	
Flaming droplets/particles which caused ignition of filter paper	No	No	No	No	No	No	

<b>Prüfbericht-Nr.: 89216086.03br</b> <i>Test Report No.:</i>		Seite 5 von 14 Page 5 of 14	
Absatz	<b>EN 13501-1:2007+ A1:2009</b>	Messergebnisse - Bemerkungen	Bewertung
Clause	Anforderungen - Prüfungen / <i>Requirements - Tests</i>	<i>Measuring results - Remarks</i>	<i>Evaluation</i>

<b>3</b>	<b>Determination of the burning behaviour using a radiant heat source</b> <i>EN ISO 9239-1:2010</i>					
	Date of testing	10.12.2019				
	Pre-conditioning, climate	23 ± 2°C and 50 ± 4% relative humidity				
	Pre-conditioning, duration	≥ 48 h & until constant mass is achieved				
	Description of substrate	Particle board, thickness 20 ± 2 mm, density 680 ± 50 kg/m <sup>3</sup> conforming to EN 13238:2010				
	Fixing method	The samples are glued to the substrate with Eurocol 614.				
	Requirements according EN 13501-1:2007+ A1:2009	See clause 5				
	<b>Test result(s)</b>					
	Test sample	1	2	3	4	Mean
	Orientation (Length: ↑, Width: T)	↑	T	T	T	T
	Flame spread (cm)	25	25	24	24	<b>24</b>
	CHF / HF-30 (kW/m <sup>2</sup> )	8.5	8.5	8.7	8.7	<b>8.6</b>
	Maximum light attenuation (%)	30.1	38.2	30.8	30.8	<b>33.3</b>
	Smoke production (%.min)	171	190	171	155	<b>172</b>
	Observations: Specimen 1, 2, 3 and 4: No flashing, transitory- or sustained flaming are observed. Specimen 1, 2, 3 and 4: Extinguished naturally before the end of the test duration.					

<b>4</b>	<b>Classification of burning behaviour</b> <i>EN 13501-1:2007+A1:2009</i>	
	The product, <b>Marmoleum Acoustic</b> , in relation to its reaction to fire behaviour is classified:	<b>B<sub>fl</sub></b>
	The additional classification in relation to smoke production is:	<b>s1</b>
	<b>Reaction to fire classification : B<sub>fl</sub> – s1</b>	
	Field of application <ul style="list-style-type: none"> <li>- As a floor covering in accordance with the nominal product parameters given on page 3.</li> <li>- On end use substrates of wood and of classes A1 and A2-s1,d0 according to EN 13238:2010.</li> <li>- Glued down with Eurocol 614.</li> </ul>	
	Statements <ul style="list-style-type: none"> <li>- This document does not represent type approval or certification of the product.</li> <li>- The test results only relate to the behaviour of the test specimens of the examined product under the -particular conditions of the test in laboratory conditions; they are not intended to be the sole criterion for assessing the potential fire hazard of the product in use.</li> <li>- The validity of this report will expire directly after alterations or modifications of the examined product (combination)(s) and/or the criteria.</li> </ul>	

Prüfbericht-Nr.: 89216086.03br  
Test Report No.:

Seite 6 von 14  
Page 6 of 14

Absatz	EN 13501-1:2007+ A1:2009	Messergebnisse - Bemerkungen	Bewertung
Clause	Anforderungen - Prüfungen / Requirements - Tests	Measuring results - Remarks	Evaluation

5	<b>Potential classes of reaction to fire performance for floorings</b>			
	EN 13501-1:2007+A1:2009			
	Class	Test method(s)	Classification criteria	Additional classifications
	A1 <sub>fi</sub>	EN ISO 1182 <sup>a</sup> and	$\Delta T \leq 30 \text{ °C}$ ; and $\Delta m \leq 50 \%$ ; and $t_f = 0$ (i.e. no sustained flaming)	-
		EN ISO 1716	$PCS \leq 2.0 \text{ MJ/kg}^a$ and $PCS \leq 2.0 \text{ MJ/m}^2^b$ and $PCS \leq 1.4 \text{ MJ/m}^2^c$ and $PCS \leq 2.0 \text{ MJ/kg}^d$	-
	A2 <sub>fi</sub>	EN ISO 1182 <sup>a</sup> or	$\Delta T \leq 50 \text{ °C}$ and $\Delta m \leq 50 \%$ and $t_f \leq 20 \text{ s}$	-
		EN ISO 1716 and	$PCS \leq 3.0 \text{ MJ/kg}^a$ and $PCS \leq 4.0 \text{ MJ/m}^2^b$ and $PCS \leq 4.0 \text{ MJ/m}^2^c$ and $PCS \leq 3.0 \text{ MJ/kg}^d$	-
		EN ISO 9239-1 <sup>e</sup>	$CHF \geq 8.0 \text{ kW/m}^2$	Smoke production <sup>g</sup>
	B <sub>fi</sub>	EN ISO 9239-1 <sup>e</sup> and	$CHF \geq 8.0 \text{ kW/m}^2$	Smoke production <sup>g</sup>
		EN ISO 11925-2 <sup>h</sup> : Exposure = 15 s	$F_s \leq 150 \text{ mm}$ within 20 s	-
	C <sub>fi</sub>	EN ISO 9239-1 <sup>e</sup> and	$CHF \geq 4.5 \text{ kW/m}^2$	Smoke production <sup>g</sup>
		EN ISO 11925-2 <sup>h</sup> : Exposure = 15 s	$F_s \leq 150 \text{ mm}$ within 20 s	-
	D <sub>fi</sub>	EN ISO 9239-1 <sup>e</sup> and	$CHF \geq 3.0 \text{ kW/m}^2$	Smoke production <sup>g</sup>
EN ISO 11925-2 <sup>h</sup> : Exposure = 15 s		$F_s \leq 150 \text{ mm}$ within 20 s	-	
E <sub>fi</sub>	EN ISO 11925-2 <sup>h</sup> : Exposure = 15 s	$F_s \leq 150 \text{ mm}$ within 20 s	-	
F <sub>fi</sub>	No performance determined			
<sup>a</sup>	For homogeneous products and substantial components of non-homogeneous products.			
<sup>b</sup>	For any external non-substantial component of non-homogeneous products.			
<sup>c</sup>	For any internal non-substantial component of non-homogeneous products.			
<sup>d</sup>	For the product as a whole.			
<sup>e</sup>	Test duration = 30 min.			
<sup>f</sup>	Critical flux is defined as the radiant flux at which the flame extinguishes or the radiant flux after a test period of 30 min, whichever is the lower (i.e. the flux corresponding with the furthest extent of spread of flame).			
<sup>g</sup>	s1 = Smoke $\leq 750 \%$ minutes; s2 = not s1.			
<sup>h</sup>	Under conditions of surface flame attack and, if appropriate to the end use application of the product, edge flame attack.			

Prüfbericht-Nr.: 89216086.03br  
Test Report No.:

Seite 7 von 14  
Page 7 of 14

Absatz	EN 13501-1:2007+ A1:2009	Messergebnisse - Bemerkungen	Bewertung
Clause	Anforderungen - Prüfungen / Requirements - Tests	Measuring results - Remarks	Evaluation

Report produced with the Fire Testing Technology FRPSoft software

page 1

## Flooring Radiant Panel Single Specimen Report

Standard : EN ISO 9239-1:2010  
 Laboratory : TÜV Rheinland Nederland B.V.  
 Sponsor : Forbo 89216086  
 Date of test : Dec. 10 2019

Specimen description : Marmoleum Acoustic MT19-76293.03  
 Test name : # prod 1  
 File name : D:\FRPFILES\19120013.CSV  
 Test number in series : 4

Flux calibration file name : C:\FRPSOFT2.9A\CALIB\FLX19003.CSV

Thickness (mm) : 22.5  
 Density (kg/m<sup>3</sup>) : 701

Test duration : 25 minutes 57 seconds (1557 s)  
 Substrate used? : Yes  
 Substrate : Particle board  
 Fixing method : adhesive  
 Conditioned? : Yes  
 Conditioning temp. (°C) : 23  
 Conditioning RH (%) : 50

### Test Results

Time to ignition : 2 minutes 05 seconds (125 s)  
 Time to flameout : 25 minutes 55 seconds (1555 s)  
 Extent of burning (mm) : 250  
 Critical flux at extinguishment (kW/m<sup>2</sup>) : 8.48  
 HF-10 (kW/m<sup>2</sup>) : 9.43  
 HF-20 (kW/m<sup>2</sup>) : 8.48  
 HF-30 (kW/m<sup>2</sup>) : Not calculated (test duration < 30 minutes)  
 Flame spread at 10 minutes (mm) : 200  
 Flame spread at 20 minutes (mm) : 250  
 Flame spread at 30 minutes (mm) : Not measured  
 Peak light attenuation (%) : 30.14  
 Time to peak light attenuation : 8 minutes 02 seconds (482 s)  
 Total integrated smoke (%.min) : 170.78

**Potential classification** : A2(II)/B(II)  
**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.



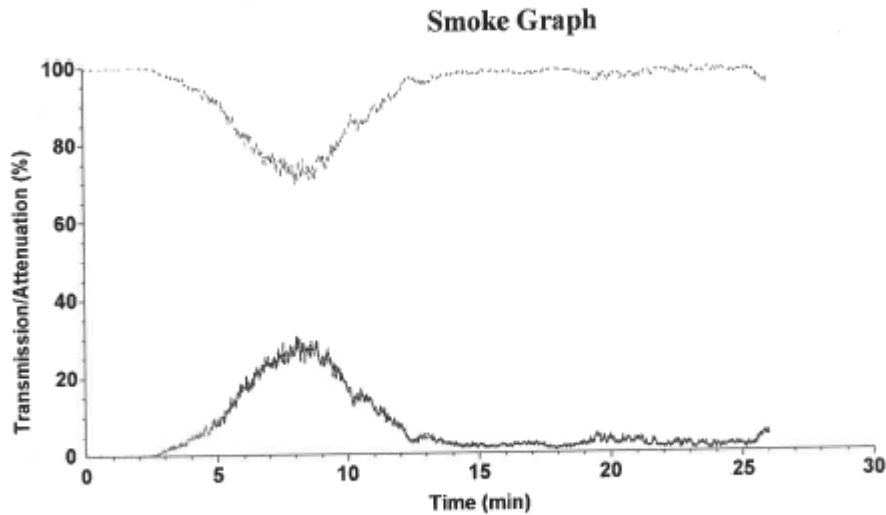
Prüfbericht-Nr.: 89216086.03br  
Test Report No.:

Seite 8 von 14  
Page 8 of 14

Absatz	EN 13501-1:2007+ A1:2009	Messergebnisse - Bemerkungen	Bewertung
Clause	Anforderungen - Prüfungen / Requirements - Tests	Measuring results - Remarks	Evaluation

Report produced with the Fire Testing Technology FRPSoft software

page 2



Test name : # prod 1  
File name : D:\FRPFILES\19120013.CSV

### Rake Results

Position (mm)	Time (s)	Flux (kW/m <sup>2</sup> )	Qsb (MJ/m <sup>2</sup> )	Position (mm)	Time (s)	Flux (kW/m <sup>2</sup> )	Qsb (MJ/m <sup>2</sup> )
60	295	11.1	3.270	510	-	3.7	-
110	392	10.5	4.100	560	-	3.1	-
160	493	9.9	4.902	610	-	2.7	-
210	657	9.3	6.114	660	-	2.3	-
260	-	8.3	-	710	-	2.0	-
310	-	7.3	-	760	-	1.7	-
360	-	6.2	-	810	-	1.5	-
410	-	5.2	-	860	-	1.3	-
460	-	4.4	-	910	-	1.2	-

### Comments

Specimen extinguished naturally.

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.



Prüfbericht-Nr.: 89216086.03br  
Test Report No.:

Seite 9 von 14  
Page 9 of 14

Absatz	EN 13501-1:2007+ A1:2009	Messergebnisse - Bemerkungen	Bewertung
Clause	Anforderungen - Prüfungen / Requirements - Tests	Measuring results - Remarks	Evaluation

Report produced with the Fire Testing Technology FRPSoft software

page 1

## Flooring Radiant Panel Single Specimen Report

Standard : EN ISO 9239-1:2010  
 Laboratory : TÜV Rheinland Nederland B.V.  
 Sponsor : Forbo 89216086  
 Date of test : Dec. 10 2019

Specimen description : Marmoleum Acoustic MT19-76293.03  
 Test name : # cross 2  
 File name : D:\FRPFILES\19120014.CSV  
 Test number in series : 2

Flux calibration file name : C:\FRPSOFT2.9A\CALIB\FLX19003.CSV

Thickness (mm) : 22.5  
 Density (kg/m<sup>3</sup>) : 701

Test duration : 27 minutes 22 seconds (1642 s)  
 Substrate used? : Yes  
 Substrate : none *particle board*  
 Fixing method : adhesive  
 Conditioned? : Yes  
 Conditioning temp. (°C) : 23  
 Conditioning RH (%) : 50

### Test Results

Time to ignition : 2 minutes 05 seconds (125 s)  
 Time to flameout : 27 minutes 20 seconds (1640 s)  
 Extent of burning (mm) : 250  
 Critical flux at extinguishment (kW/m<sup>2</sup>) : 8.48  
 HF-10 (kW/m<sup>2</sup>) : 8.69  
 HF-20 (kW/m<sup>2</sup>) : 8.48  
 HF-30 (kW/m<sup>2</sup>) : Not calculated (test duration < 30 minutes)  
 Flame spread at 10 minutes (mm) : 240  
 Flame spread at 20 minutes (mm) : 250  
 Flame spread at 30 minutes (mm) : Not measured  
 Peak light attenuation (%) : 38.23  
 Time to peak light attenuation : 7 minutes 28 seconds (448 s)  
 Total integrated smoke (%.min) : 190.42

Potential classification : **A2(0)/B(0)**  
 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.

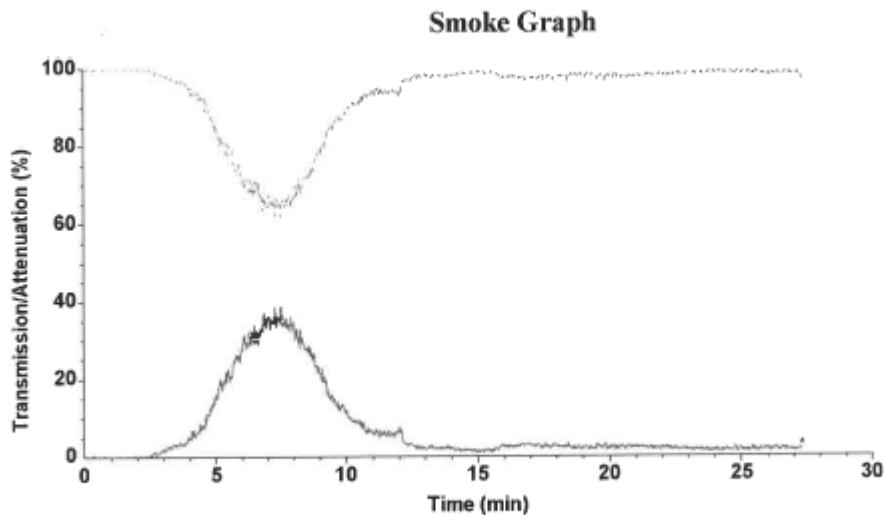
Prüfbericht-Nr.: 89216086.03br  
Test Report No.:

Seite 10 von 14  
Page 10 of 14

Absatz	EN 13501-1:2007+ A1:2009	Messergebnisse - Bemerkungen	Bewertung
Clause	Anforderungen - Prüfungen / Requirements - Tests	Measuring results - Remarks	Evaluation

Report produced with the Fire Testing Technology FRPSoft software

page 2



Test name : # cross 2  
File name : D:\FRPFILES\19120014.CSV

### Rake Results

Position (mm)	Time (s)	Flux (kW/m <sup>2</sup> )	Qsb (MJ/m <sup>2</sup> )	Position (mm)	Time (s)	Flux (kW/m <sup>2</sup> )	Qsb (MJ/m <sup>2</sup> )
60	256	11.1	2.838	510	-	3.7	-
110	322	10.5	3.368	560	-	3.1	-
160	417	9.9	4.146	610	-	2.7	-
210	522	9.3	4.858	660	-	2.3	-
260	-	8.3	-	710	-	2.0	-
310	-	7.3	-	760	-	1.7	-
360	-	6.2	-	810	-	1.5	-
410	-	5.2	-	860	-	1.3	-
460	-	4.4	-	910	-	1.2	-

### Comments

Specimen extinguished naturally.

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.

Prüfbericht-Nr.: 89216086.03br  
Test Report No.:

Absatz	EN 13501-1:2007+ A1:2009	Messergebnisse - Bemerkungen	Bewertung
Clause	Anforderungen - Prüfungen / Requirements - Tests	Measuring results - Remarks	Evaluation

Report produced with the Fire Testing Technology FRPSoft software

page 1

## Flooring Radiant Panel Single Specimen Report

Standard : EN ISO 9239-1:2010  
 Laboratory : TÜV Rheinland Nederland B.V.  
 Sponsor : Forbo 89216086  
 Date of test : Dec. 11 2019

Specimen description : Marmoleum Acoustic MT19-76293.03  
 Test name : # cross 3  
 File name : D:\FRPFILES\19120015.CSV  
 Test number in series : 4

Flux calibration file name : C:\FRPSOFT2.9A\CALIB\FLX19003.CSV

Thickness (mm) : 22.5  
 Density (kg/m<sup>3</sup>) : 701

Test duration : 25 minutes 12 seconds (1512 s)  
 Substrate used? : Yes  
 Substrate : Particle board  
 Fixing method : adhesive  
 Conditioned? : Yes  
 Conditioning temp. (°C) : 23  
 Conditioning RH (%) : 50

### Test Results

Time to ignition : 2 minutes 05 seconds (125 s)  
 Time to flameout : 25 minutes 10 seconds (1510 s)  
 Extent of burning (mm) : 240  
 Critical flux at extinguishment (kW/m<sup>2</sup>) : 8.69  
 HF-10 (kW/m<sup>2</sup>) : 9.31  
 HF-20 (kW/m<sup>2</sup>) : 8.69  
 HF-30 (kW/m<sup>2</sup>) : Not calculated (test duration < 30 minutes)  
 Flame spread at 10 minutes (mm) : 210  
 Flame spread at 20 minutes (mm) : 240  
 Flame spread at 30 minutes (mm) : Not measured  
 Peak light attenuation (%) : 30.79  
 Time to peak light attenuation : 8 minutes (480 s)  
 Total integrated smoke (%.min) : 170.82

**Potential classification** : A2(f)/B(f)  
**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.

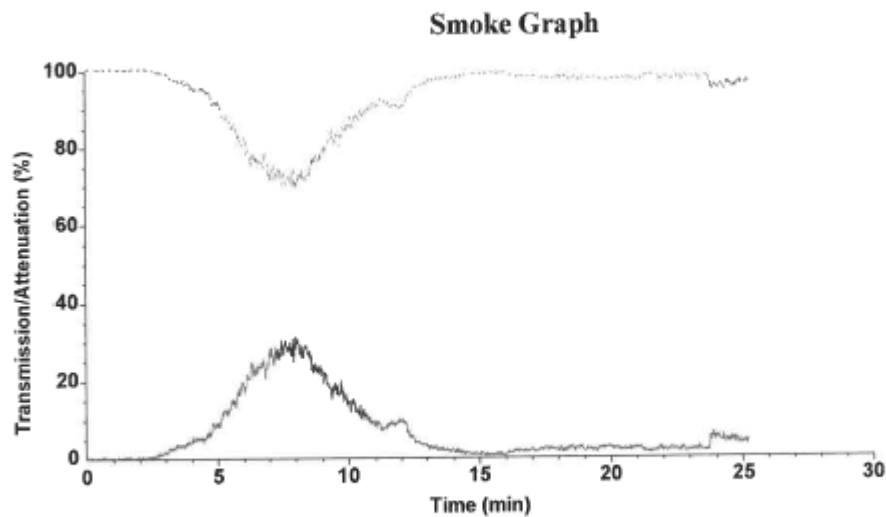
Prüfbericht-Nr.: 89216086.03br  
Test Report No.:

Seite 12 von 14  
Page 12 of 14

Absatz	EN 13501-1:2007+ A1:2009	Messergebnisse - Bemerkungen	Bewertung
Clause	Anforderungen - Prüfungen / Requirements - Tests	Measuring results - Remarks	Evaluation

Report produced with the Fire Testing Technology FRPSoft software

page 2



Test name : # cross 3  
File name : D:\FRPFILES\19120015.CSV

### Rake Results

Position (mm)	Time (s)	Flux (kW/m <sup>2</sup> )	Qsb (MJ/m <sup>2</sup> )	Position (mm)	Time (s)	Flux (kW/m <sup>2</sup> )	Qsb (MJ/m <sup>2</sup> )
60	264	11.1	2.926	510	-	3.7	-
110	340	10.5	3.556	560	-	3.1	-
160	465	9.9	4.623	610	-	2.7	-
210	597	9.3	5.556	660	-	2.3	-
260	-	8.3	-	710	-	2.0	-
310	-	7.3	-	760	-	1.7	-
360	-	6.2	-	810	-	1.5	-
410	-	5.2	-	860	-	1.3	-
460	-	4.4	-	910	-	1.2	-

### Comments

Specimen extinguished naturally.

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.

Prüfbericht-Nr.: 89216086.03br  
Test Report No.:

Seite 13 von 14  
Page 13 of 14

Absatz	EN 13501-1:2007+ A1:2009	Messergebnisse - Bemerkungen	Bewertung
Clause	Anforderungen - Prüfungen / Requirements - Tests	Measuring results - Remarks	Evaluation

Report produced with the Fire Testing Technology FRPSoft software

page 1

## Flooring Radiant Panel Single Specimen Report

Standard : EN ISO 9239-1:2010  
 Laboratory : TÜV Rheinland Nederland B.V.  
 Sponsor : Forbo 89216086  
 Date of test : Dec. 11 2019

Specimen description : Marmoleum Acoustic MT19-76293.03  
 Test name : # cross 4  
 File name : D:\FRPFILES\19120016.CSV  
 Test number in series : 4

Flux calibration file name : C:\FRPSOFT2.9A\CALIB\FLX19003.CSV

Thickness (mm) : 22.5  
 Density (kg/m<sup>3</sup>) : 701

Test duration : 25 minutes 34 seconds (1534 s)  
 Substrate used? : Yes  
 Substrate : Particle board  
 Fixing method : adhesive  
 Conditioned? : Yes  
 Conditioning temp. (°C) : 23  
 Conditioning RH (%) : 50

### Test Results

Time to ignition : 2 minutes 05 seconds (125 s)  
 Time to flameout : 25 minutes 31 seconds (1531 s)  
 Extent of burning (mm) : 240  
 Critical flux at extinguishment (kW/m<sup>2</sup>) : 8.69  
 HF-10 (kW/m<sup>2</sup>) : 9.43  
 HF-20 (kW/m<sup>2</sup>) : 8.69  
 HF-30 (kW/m<sup>2</sup>) : Not calculated (test duration < 30 minutes)  
 Flame spread at 10 minutes (mm) : 200  
 Flame spread at 20 minutes (mm) : 240  
 Flame spread at 30 minutes (mm) : Not measured  
 Peak light attenuation (%) : 30.76  
 Time to peak light attenuation : 8 minutes 05 seconds (485 s)  
 Total integrated smoke (%.min) : 155.41

**Potential classification** : A2(0)/B(0)  
**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.

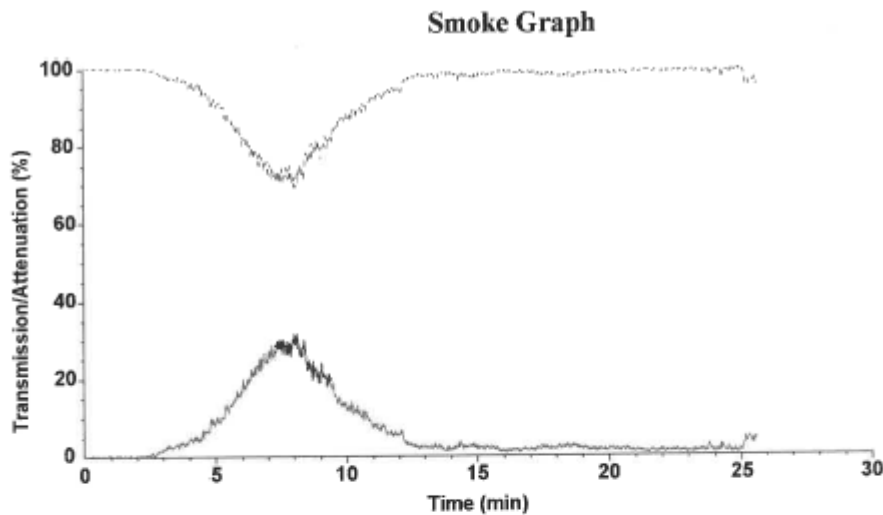
Prüfbericht-Nr.: 89216086.03br  
Test Report No.:

Seite 14 von 14  
Page 14 of 14

Absatz	<b>EN 13501-1:2007+ A1:2009</b>	Messergebnisse - Bemerkungen	Bewertung
Clause	Anforderungen - Prüfungen / Requirements - Tests	Measuring results - Remarks	Evaluation

Report produced with the Fire Testing Technology FRPSoft software

page 2



Test name : # cross 4  
File name : D:\FRPFILES\19120016.CSV

### Rake Results

Position (mm)	Time (s)	Flux (kW/m <sup>2</sup> )	Qsb (MJ/m <sup>2</sup> )	Position (mm)	Time (s)	Flux (kW/m <sup>2</sup> )	Qsb (MJ/m <sup>2</sup> )
60	285	11.1	3.159	510	-	3.7	-
110	381	10.5	3.985	560	-	3.1	-
160	475	9.9	4.723	610	-	2.7	-
210	676	9.3	6.291	660	-	2.3	-
260	-	8.3	-	710	-	2.0	-
310	-	7.3	-	760	-	1.7	-
360	-	6.2	-	810	-	1.5	-
410	-	5.2	-	860	-	1.3	-
460	-	4.4	-	910	-	1.2	-

### Comments

Specimen extinguished naturally.

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.