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Report

Project number : 89204965
Report number : 89204965.08br

Date
08-01-2015

Received:

A sample of floorcovering marked as: “Marmoleum Modular”
TÜV-reference MT14-38835.08
The samples have been received on 20-11-2014.

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Product specifications received from the applicant:

Commercial name	: Marmoleum Modular
Product type	: Linoleum
Total thickness (mm)	: 2.5
Total mass per unit area (g/m ²)	: 2900
Tile size (cm)	: 50 x 50
Batch number	: 40409
Used adhesive	: Eurocol Eurostar Lino Plus 614
Date of fixation	: 12-11-2014

Phone number client
+31 (0) 756 477 604

Fax number client
+31 (0) 756 477 771

Sampling procedure:

The samples are selected by the applicant.
The test house has had no influence on the sampling procedure.

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Appendix
I : Flooring Radiant Panel Single
Specimen Report – 6 pages

Order:

Classification of burning behaviour according to EN 13501-1:2007+ A1:2009.

Test method:

Ignitability	: EN ISO 11925-2:2010
Reaction to fire (radiant panel)	: EN ISO 9239-1:2010

Results:

See page two and three.

Appendix:

See page four up to and including nine.

TRN applies General Terms & Conditions
which are filed at the office of the Clerk for
civil affairs at the Court in Zutphen (the
Netherlands) under number 35/2010,
dated November 17th 2010.

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TEST RESULTS

➤ Ignitability EN ISO 11925-2:2010

According EN 14041:2004 table 3, these floor coverings are classified as E_n (classified without further testing).

Product information:

Floor covering type : Plain & decorative Linoleum, product standard EN 548

Total thickness (mm) : 2.5*

Total mass per unit area (g/m²) : 2900*

* information received from the applicant.

➤ Radiant Panel Test EN ISO 9239-1:2010

Date of testing : 1-12-2014 and 9-12-2014

Conditioning time, climate : ≥ 7 days, 23 ± 2 °C and 50 ± 5 % R.H.

Description of substrate : Wooden substrate, received from applicant

Sampling procedure : By applicant

Description of cleaning used : None

Fixing method : Fixed by applicant with Eurocol Eurosafe Cork 530 on 12-11-2014

Note : The tiles are installed in the prescribed installation method therefore there is no orientation.

Test specimen	Flame spread (cm)	CRF (kW/m ²)	Peak light attenuation (%)	Smoke production (%.min)
1,	32.0	6.9	60.3	366
2,	31.0	7.1	58.8	311
3,	33.0	6.7	52.2	336
Mean	32.0	6.9	57.1	338

Remarks: Flashing, transitory- or sustained flaming observed.
All three tested specimen extinguished naturally before the end of the test.

CONCLUSION

According to EN 13501-1:2007+ A1:2009 the tested sample of the aforementioned quality "**Marmoleum Modular**", in relation to its reaction to fire behaviour is classified: **C_n**.

The additional classification in relation to smoke production is: **s1**.

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The aforementioned quality meets the requirement of reaction to fire classification:
C_n – s1

The classification is valid for the following end use applications:

- End use substrates of classes A1 and A2-s1,d0 , for example fibre cement board.
- Any way of fixation.

Statements:

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. The method might not be suitable if the product is exposed to much larger flames or heat radiant sources.

The validity of this report will expire five years after its issue or directly after alterations or modifications of the examined product (combination)(s) and/or the criteria. This report shall not be reproduced, except in full, without the written approval of the testing laboratory.

This document does not represent type approval or certification of the product.

Author:
Mr. J. de Wolff



Review:
Mr. R. Boerboom



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APPENDIX I: Flooring Radiant Panel Single Specimen Report

Report produced with the Fire Testing Technology FRPSoft software

page 1

Flooring Radiant Panel Single Specimen Report

Standard : EN ISO 9239-1:2002
 Laboratory : TÜV Rheinland Nederland B.V.
 Sponsor : Forbo Flooring 89207143
 Date of test : Dec. 01 2014

Specimen description : Marmoleum Modular MT14-38835.08
 Test name : Prod/Cross #1
 File name : D:\FRPFILES\14120008.CSV
 Test number in series : 3

Flux calibration file name : C:\FRPSOFT\CALIB\FLX14018.CSV

Thickness (mm) :
 Density (kg/m³) :

Test duration : 18 minutes 56 seconds (1136 s)
 Substrate used? : Yes
 Substrate : Particle board
 Fixing method : none *flashed glue*
 Conditioned? : Yes
 Conditioning temp. (°C) : 23
 Conditioning RH (%) : 50

Test Results

Time to ignition : 2 minutes 02 seconds (122 s)
 Time to flameout : 18 minutes 56 seconds (1136 s)
 Extent of burning (mm) : 320
 Critical flux at extinguishment (kW/m²) : 6.93
 HF-10 (kW/m²) : 7.13
 HF-20 (kW/m²) : >= 10.9
 HF-30 (kW/m²) : >= 10.9
 Flame spread at 10 minutes (mm) : 310
 Flame spread at 20 minutes (mm) : -1
 Flame spread at 30 minutes (mm) : -1
 Peak light attenuation (%) : 60.31
 Time to peak light attenuation : 7 minutes 39 seconds (459 s)
 Total integrated smoke (% min) : 366.2
 Potential classification : C(n)
 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

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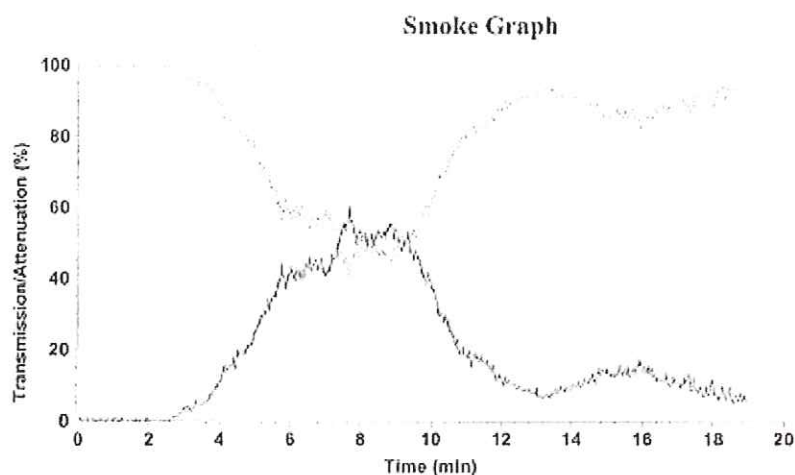
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Test name : Prod/Cross #1
File name : D:\FRPFILES\14120008.CSV

Rake Results

Position (mm)	Time (s)	Flux (kW/m²)	Qsb (MJ/m²)	Position (mm)	Time (s)	Flux (kW/m²)	Qsb (MJ/m²)
60	239	11.3	2.513	510	-	3.6	-
110	299	10.5	2.950	560	-	3.0	-
160	345	9.9	3.139	610	-	2.5	-
210	435	9.1	3.517	660	-	2.1	-
260	499	8.1	3.560	710	-	1.8	-
310	569	7.1	3.486	760	-	1.5	-
360	-	6.1	-	810	-	1.3	-
410	-	5.2	-	860	-	1.2	-
460	-	4.3	-	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.

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Standard	: EN ISO 9239-1:2002
Laboratory	: TÜV Rheinland Nederland B.V.
Sponsor	: Forbo Flooring 89207143
Date of test	: Dec. 01 2014
Specimen description	: Marmoleum Modular MF14-38835.08
Test name	: Prod/Cross #2
File name	: D:\FRPFILES\14120009.CSV
Test number in series	: 3
Flux calibration file name	: CAFRPSOFT\CALIB\FLX14018.CSV
Thickness (mm)	:
Density (kg/m³)	:
Test duration	: 18 minutes 28 seconds (1108 s)
Substrate used?	: Yes
Substrate	: Particle board
Fixing method	: none <i>Adhesive</i>
Conditioned?	: Yes
Conditioning temp. (°C)	: 23
Conditioning RH (%)	: 50

Test Results

Time to ignition	: 2 minutes 01 seconds (121 s)
Time to flameout	: 18 minutes 26 seconds (1106 s)
Extent of burning (mm)	: 310
Critical flux at extinguishment (kW/m²)	: 7.13
HF-10 (kW/m²)	: 7.13
HF-20 (kW/m²)	: >= 10.9
HF-30 (kW/m²)	: >= 10.9
Flame spread at 10 minutes (mm)	: 310
Flame spread at 20 minutes (mm)	: -1
Flame spread at 30 minutes (mm)	: -1
Peak light attenuation (%)	: 58.77
Time to peak light attenuation	: 7 minutes 22 seconds (442 s)
Total integrated smoke (%.min)	: 310.92
Potential classification	: C(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

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Report produced with the Fire Testing Technology FRPSoft software

Date
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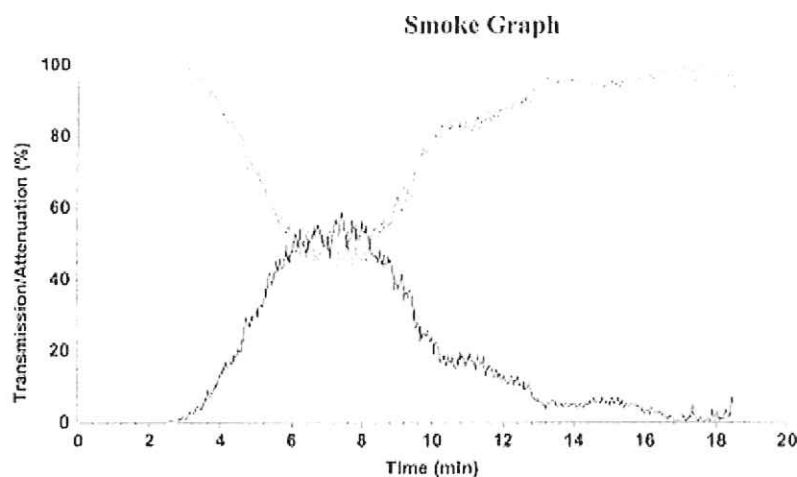
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Test name : Prod/Cross #2
File name : D:\FRPFILES\14120009.CSV

Rake Results

Position (mm)	Time (s)	Flux (kW/m²)	Qsb (MJ/m²)	Position (mm)	Time (s)	Flux (kW/m²)	Qsb (MJ/m²)
60	237	11.3	2.492	510	-	3.6	-
110	281	10.5	2.772	560	-	3.0	-
160	321	9.9	2.920	610	-	2.5	-
210	388	9.1	3.137	660	-	2.1	-
260	440	8.1	3.139	710	-	1.8	-
310	499	7.1	3.057	760	-	1.5	-
360	-	6.1	-	810	-	1.3	-
410	-	5.2	-	860	-	1.2	-
460	-	4.3	-	910	-	1.1	-

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.

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Flooring Radiant Panel Single Specimen Report

Standard	: EN ISO 9239-1:2002
Laboratory	: TÜV Rheinland Nederland B.V.
Sponsor	: Forbo Flooring 89207143
Date of test	: Dec. 01 2014
Specimen description	: Marmoleum Modular MT14-38835.08
Test name	: Cross/Prod #3
File name	: D:\FRFILES\4120010.CSV
Test number in series	: 3
Flux calibration file name	: C:\FRPSOFT\CALIB\FLX14018.CSV
Thickness (mm)	:
Density (kg/m³)	:
Test duration	: 20 minutes 38 seconds (1238 s)
Substrate used?	: Yes
Substrate	: Particle board
Fixing method	: none <i>Fullhesive</i>
Conditioned?	: Yes
Conditioning temp. (°C)	: 23
Conditioning RH (%)	: 50

Test Results

Time to ignition	: 2 minutes 01 seconds (121 s)
Time to flameout	: 20 minutes 35 seconds (1235 s)
Extent of burning (mm)	: 330
Critical flux at extinguishment (kW/m²)	: 6.73
HF-10 (kW/m²)	: 6.73
HF-20 (kW/m²)	: 6.73
HF-30 (kW/m²)	: >= 10.9
Flame spread at 10 minutes (mm)	: 330
Flame spread at 20 minutes (mm)	: 330
Flame spread at 30 minutes (mm)	: -1
Peak light attenuation (%)	: 52.19
Time to peak light attenuation	: 5 minutes 17 seconds (317 s)
Total integrated smoke (%.min)	: 336.08
Potential classification	: C(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.

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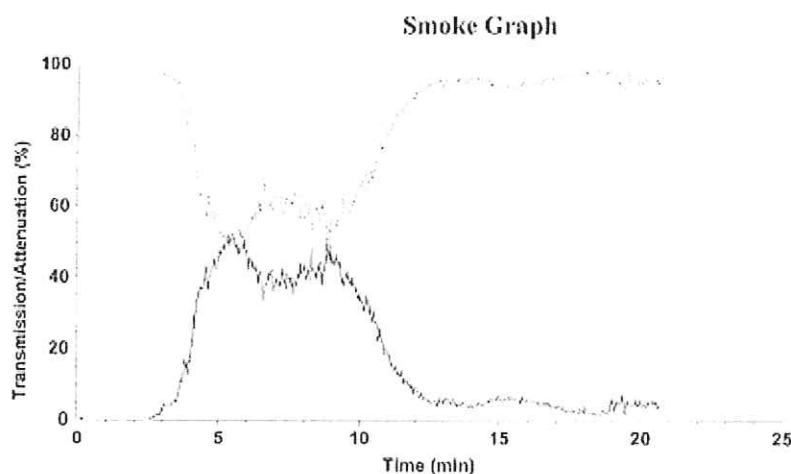
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Test name : Cross/Prod #3
File name : D:\FRPFILES\14120010.CSV

Rake Results

Position (mm)	Time (s)	Flux (kW/m²)	Qsb (MJ/m²)	Position (mm)	Time (s)	Flux (kW/m²)	Qsb (MJ/m²)
60	231	11.3	2.429	510	-	3.6	-
110	267	10.5	2.634	560	-	3.0	-
160	310	9.9	2.820	610	-	2.5	-
210	353	9.1	2.854	660	-	2.1	-
260	459	8.1	3.275	710	-	1.8	-
310	564	7.1	3.455	760	-	1.5	-
360	-	6.1	-	810	-	1.3	-
410	-	5.2	-	860	-	1.2	-
460	-	4.3	-	910	-	1.1	-

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.