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The Netherlands

Report

Project number : 89202643
Report number : 89202643.03br

Received:

A sample of floor covering, entrance mat, marked as: **“Coral Duo EV”**;
TÜV sample reference: MT12-36545.03.

Request:

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

Test method:

Identification parameters : EN 1307.
Ignitability (direct impingement of flame) : EN ISO 11925-2.
Reaction to fire (radiant panel) : EN ISO 9239-1.

Results:

See page two up to and including three.

Appendix:

See page four up to and including eleven.

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.

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Date

14 December, 2012

Project number
89202643

Report number
89202643.03br

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Article

Coral Duo EV

Appendix

I : Flooring Radiant Panel Single
Specimen Report – 8 pages

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.

TEST RESULTS
Date
 14 December, 2012

Project number
 89202643

Report number
 89202643.03br

Article
 Coral Duo EV

Page
 2/11

 ➤ *Identification parameters EN 1307:2008*

Type of manufacture	: Tufted
Type of pile	: Cut pile
Type of use surface	: Patterned
Type of secondary backing	: Vinyl backing (synthetic)*
Pile Fibre	: 100% PA*
Total mass per unit area g/m ²	: 3145
Effective pile mass, g/m ²	: 508
Total thickness, mm	: 8.9
Thickness of the pile, mm	: 5.4
Pile density, g/cm ³	: 0.095
Gauge (G), inch	: 3/16
Stitches/10 cm	: 25.0
Number of tufts/m ²	: 31,470

* = manufacturer's declaration

 ➤ *Ignitability EN-ISO 11925-2:2010*

Conditioning time, climate	: 6 days, 23 ± 2 °C and 50 ± 5 %
Date of testing	: 29-10-2012
Description of substrate	: 6 mm. Fibre cement board, 1800 kg/m ³ .
Flame application	: Surface.
Application time	: 15 seconds.

Direction:	In production			Across production		
Total burning time ¹ (15 s)	15	15	15	15	15	15
Flame tip reaches 150 mm (s)	no	no	no	no	no	no
Extent of damaged area, length (mm)	94	90	93	97	103	88
Extent of damaged area, width (mm)	15	15	14	16	13	16
Material melts (yes/no)	yes	yes	yes	yes	yes	yes
Shrinks away ² (yes/no)	no	no	no	no	no	no
Glowing ³ (sec)	no	no	no	no	no	no
Flaming debris (yes/no)	no	no	no	no	no	no
Ignition of filter paper (yes/no)	no	no	no	no	no	no

1 Inclusive a flame application time of 15 or 30 seconds with surface or edge impingement

2 Shrinks away from flame without being ignited

3 The time at which it occurs and its duration

TEST RESULTS – follow-up
Date
 14 December, 2012

 ➤ *Radiant Panel test ISO 9239-1:2010*
Project number
 89202643

Date of testing : 29-10-2012 (1+2) and 05-11-2012 (3+4)
 Conditioning time, climate : 4 days, 23 ± 2 °C and 50 ± 5 %
 Description of substrate : Fibre cement board, 8±2 mm ,1800±200 kg/m³
 conforming to EN 13238.
 Sampling procedure : By contractor.
 Description of cleaning used : None.
 Fixing method : Fixed, glued down with Eurocol Eurostar 540 on
 23-10-2012 (1+2) and 30-10-2012 (3+4).

Report number
 89202643.03br

Article
 Coral Duo EV

Page
 3/11

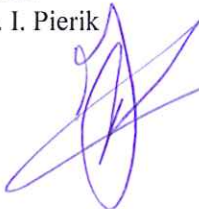
Test specimen, orientation	Flame spread (cm)	CRF (kW/m ²)	Peak light attenuation (%)	Smoke production (%.min)
1, ↑	10.0	10.2	20.0	79
2, ⊥	13.0	9.8	34.0	146
3, ⊥	9.0	10.3	20.5	72
4, ⊥	9.0	10.3	15.1	61
Mean	10.3	10.1	23.2	93

Remarks: No flashing, transitory- or sustained flaming observed.
 All specimen extinguished naturally.

CONCLUSION

According to EN 13501-1:2007 the tested sample of the aforementioned quality **Coral Duo EV**, glued down with Eurocol Eurostar 540, meets the requirements of **Class B_{fl} - s1**.

Author:
 Mrs. I. Pierik


Review:
 Mr. R. Boerboom


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APPENDIX I: Flooring Radiant Panel Single Specimen Report

Date
14 December, 2012

Project number
89202643

Report produced with the Fire Testing Technology FRPSoft software

page 1

Report number
89202643.03br

Article
Coral Duo EV

Flooring Radiant Panel Single Specimen Report

Page
4/11

Standard : EN ISO 9239-1:2002
 Laboratory : TÜV Rheinland Nederland B.V.
 Sponsor : Forbo - Coral Duo EV - glued Eurocol 540
 Date of test : Oct. 29 2012

Specimen description : MT12-36545.03
 Test name : Prod #1
 File name : D:\FRPFILES\12100038.CSV
 Test number in series : 4

Flux calibration file name : C:\FRPSOFT\CALIB\FLX12012.CSV

Thickness (mm) :
 Density (kg/m³) :

Test duration : 12 minutes 09 seconds (729 s)
 Substrate used? : Yes
 Substrate : Calcium silicate
 Fixing method : adhesive
 Conditioned? : Yes
 Conditioning temp. (°C) : 23
 Conditioning RH (%) : 50

Test Results

Time to ignition : 2 minutes 02 seconds (122 s)
 Time to flameout : 12 minutes 04 seconds (724 s)
 Extent of burning (mm) : 100
 Critical flux at extinguishment (kW/m²) : >= 10,9
 HF-10 (kW/m²) : 10,16
 HF-20 (kW/m²) : >= 10,9
 HF-30 (kW/m²) : >= 10,9
 Flame spread at 10 minutes (mm) : 100
 Flame spread at 20 minutes (mm) : -1
 Flame spread at 30 minutes (mm) : -1
 Peak light attenuation (%) : 19,96
 Time to peak light attenuation : 6 minutes 44 seconds (404 s)
 Total integrated smoke (%.min) : 79,37
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.

APPENDIX I: Flooring Radiant Panel Single Specimen Report

Date
14 December, 2012

Project number
89202643

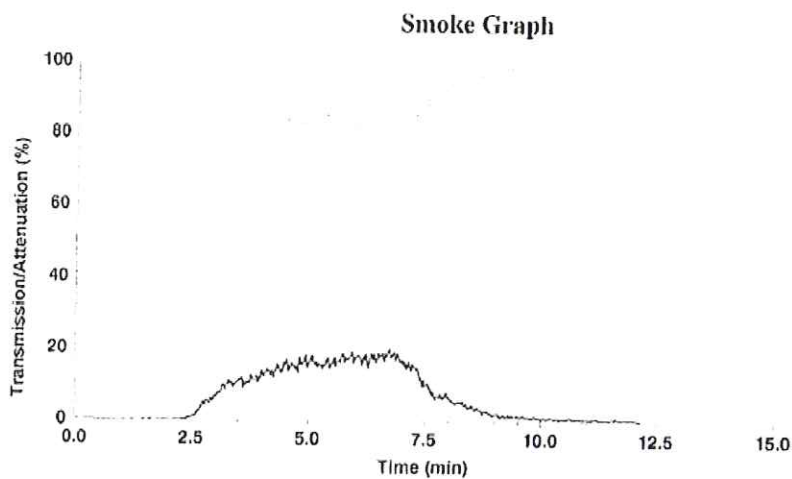
Report number
89202643.03br

Report produced with the Fire Testing Technology FRPSoft software

page 2

Article
Coral Duo EV

Page
5/11



Test name : Prod #1
File name : D:\FRPFILES\12100038.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	322	10.7	3.232	510	-	3.6	-
110	-	10.0	-	560	-	3.0	-
160	-	9.5	-	610	-	2.5	-
210	-	8.9	-	660	-	2.1	-
260	-	7.9	-	710	-	1.8	-
310	-	6.9	-	760	-	1.6	-
360	-	6.0	-	810	-	1.4	-
410	-	5.1	-	860	-	1.3	-
460	-	4.2	-	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.

APPENDIX I: Flooring Radiant Panel Single Specimen Report

Date
14 December, 2012

Project number
89202643

Report number
89202643.03br

Article
Coral Duo EV

Page
6/11

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 - Coral Duo EV - glued Eurocol 540
Date of test : Oct. 29 2012

Specimen description : MT12-36545.03
Test name : Across #1
File name : D:\FRPFILES\12100039.CSV
Test number in series : 4

Flux calibration file name : C:\FRPSOFT\CALIB\FLX12012.CSV

Thickness (mm) :
Density (kg/m³) :

Test duration : 13 minutes 13 seconds (793 s)
Substrate used? : Yes
Substrate : Calcium silicate
Fixing method : adhesive
Conditioned? : Yes
Conditioning temp. (°C) : 23
Conditioning RH (%) : 50

Test Results

Time to ignition : 2 minutes 02 seconds (122 s)
Time to flameout : 13 minutes 11 seconds (791 s)
Extent of burning (mm) : 130
Critical flux at extinguishment (kW/m²) : 9.83
HF-10 (kW/m²) : 9.83
HF-20 (kW/m²) : >= 10.9
HF-30 (kW/m²) : >= 10.9
Flame spread at 10 minutes (mm) : 130
Flame spread at 20 minutes (mm) : -1
Flame spread at 30 minutes (mm) : -1
Peak light attenuation (%) : 33.96
Time to peak light attenuation : 6 minutes 02 seconds (362 s)
Total integrated smoke (%.min) : 146.47
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.

APPENDIX I: Flooring Radiant Panel Single Specimen Report

Date
14 December, 2012

Project number
89202643

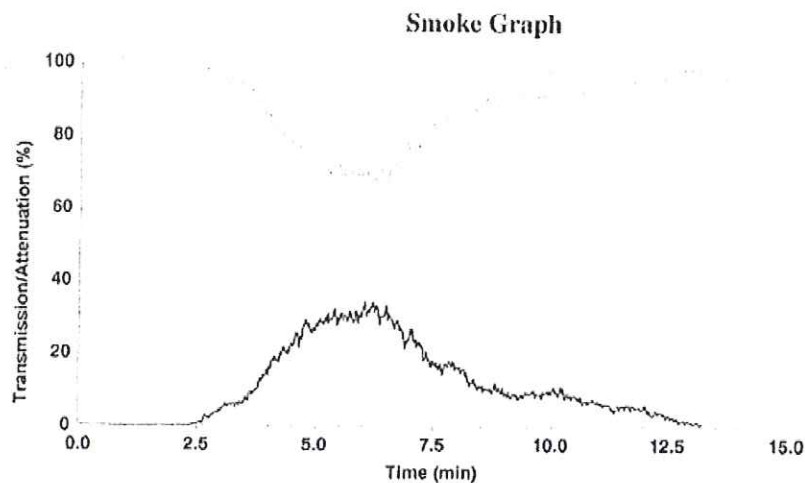
Report number
89202643.03br

Article
Coral Duo EV

Page
7/11

Report produced with the Fire Testing Technology FRFSOft software

page 2



Test name : Across #1
File name : D:\FRPFILES\12100039.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	301	10.7	3.021	510	-	3.6	-
110	412	10.0	3.925	560	-	3.0	-
160	-	9.5	-	610	-	2.5	-
210	-	8.9	-	660	-	2.1	-
260	-	7.9	-	710	-	1.8	-
310	-	6.9	-	760	-	1.6	-
360	-	6.0	-	810	-	1.4	-
410	-	5.1	-	860	-	1.3	-
460	-	4.2	-	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.

APPENDIX I: Flooring Radiant Panel Single Specimen Report

Date
14 December, 2012

Project number
89202643

Report produced with the Fire Testing Technology FHTSoft software

page 1

Report number
89202643.03br

Flooring Radiant Panel Single Specimen Report

Article
Coral Duo EV

Page
8/11

Standard : EN ISO 9239-1:2002
 Laboratory : TÜV Rheinland Nederland B.V.
 Sponsor : Forbo - 89202643 - Coral DUO EV - glued Eurocol 540 - IPK
 Date of test : Nov. 05 2012

Specimen description : MT12-36545.03
 Test name : Across #2
 File name : D:\FRPFILES\12110003.CSV
 Test number in series : 4

Flux calibration file name : C:\FRPSOFT\CALIB\FLX12012.CSV

Thickness (mm) :
 Density (kg/m³) :

Test duration : 12 minutes 10 seconds (730 s)
 Substrate used? : Yes
 Substrate : Calcium silicate
 Fixing method : adhesive
 Conditioned? : Yes
 Conditioning temp. (°C) : 23
 Conditioning RH (%) : 50

Test Results

Time to ignition : 2 minutes 03 seconds (123 s)
 Time to flameout : 12 minutes 07 seconds (727 s)
 Extent of burning (mm) : 90
 Critical flux at extinguishment (kW/m²) : >= 10.9
 HF-10 (kW/m²) : 10.29
 HF-20 (kW/m²) : >= 10.9
 HF-30 (kW/m²) : >= 10.9
 Flame spread at 10 minutes (mm) : 90
 Flame spread at 20 minutes (mm) : -1
 Flame spread at 30 minutes (mm) : -1
 Peak light attenuation (%) : 20.46
 Time to peak light attenuation : 5 minutes 46 seconds (346 s)
 Total integrated smoke (%.min) : 71.5
Potential classification : A2(B)/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.

APPENDIX I: Flooring Radiant Panel Single Specimen Report

Date
14 December, 2012

Project number
89202643

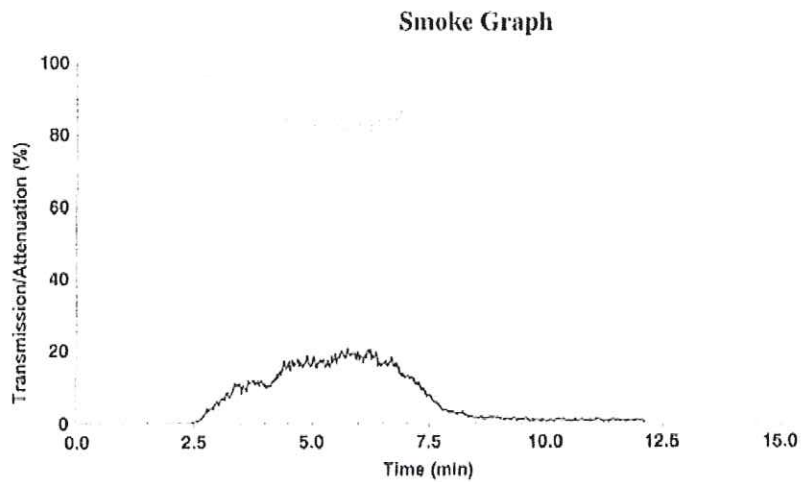
Report number
89202643.03br

Article
Coral Duo EV

Page
9/11

Report produced with the Fire Testing Technology FRPSoft software

page 2



Test name : Across #2
File name : D:\FRPFILES\12110003.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	278	10.7	2.791	510	-	3.6	-
110	-	10.0	-	560	-	3.0	-
160	-	9.5	-	610	-	2.5	-
210	-	8.9	-	660	-	2.1	-
260	-	7.9	-	710	-	1.8	-
310	-	6.9	-	760	-	1.6	-
360	-	6.0	-	810	-	1.4	-
410	-	5.1	-	860	-	1.3	-
460	-	4.2	-	910	-	1.2	-

Comments

Specimen extinguished naturally.

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APPENDIX I: Flooring Radiant Panel Single Specimen Report

Date
14 December, 2012

Project number
89202643

Report number
89202643.03br

Article
Coral Duo EV

Page
10/11

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 - 89202643 - Coral DUO EV - glued Eurcol 540 - IPK
Date of test : Nov. 05 2012

Specimen description : MT12-36545.03
Test name : Across #3
File name : D:\FRPFILES\12110004.CSV
Test number in series : 4

Flux calibration file name : C:\FRPSOFT\CALIB\FLX12012.CSV

Thickness (mm) :
Density (kg/m³) :

Test duration : 12 minutes 06 seconds (726 s)
Substrate used? : Yes
Substrate : Calcium silicate
Fixing method : adhesive
Conditioned? : Yes
Conditioning temp. (°C) : 23
Conditioning RH (%) : 50

Test Results

Time to ignition : 2 minutes 01 seconds (121 s)
Time to flameout : 12 minutes 03 seconds (723 s)
Extent of burning (mm) : 90
Critical flux at extinguishment (kW/m²) : >= 10.9
HF-10 (kW/m²) : 10.29
HF-20 (kW/m²) : >= 10.9
HF-30 (kW/m²) : >= 10.9
Flame spread at 10 minutes (mm) : 90
Flame spread at 20 minutes (mm) : -1
Flame spread at 30 minutes (mm) : -1
Peak light attenuation (%) : 15.07
Time to peak light attenuation : 4 minutes 37 seconds (277 s)
Total integrated smoke (%.min) : 60.88
Potential classification : A2(0)/B(0)
Smoke production classification : s1

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APPENDIX I: Flooring Radiant Panel Single Specimen Report

Date
14 December, 2012

Report produced with the Fire Testing Technology FRPSoft software

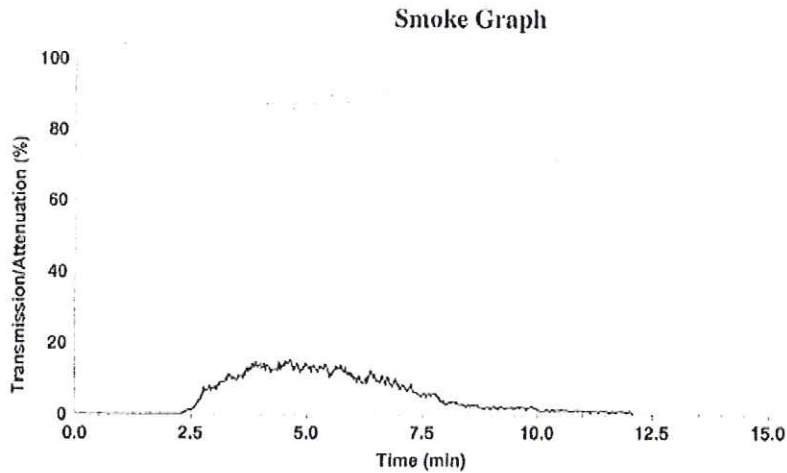
page 2

Project number
89202643

Report number
89202643.03br

Article
Coral Duo EV

Page
11/11



Test name : Across #3
File name : D:\FRPFILES\12110004.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	336	10.7	3.373	510	-	3.6	-
110	-	10.0	-	560	-	3.0	-
160	-	9.5	-	610	-	2.5	-
210	-	8.9	-	660	-	2.1	-
260	-	7.9	-	710	-	1.8	-
310	-	6.9	-	760	-	1.6	-
360	-	6.0	-	810	-	1.4	-
410	-	5.1	-	860	-	1.3	-
460	-	4.2	-	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.