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Report

Project number : 89201754
Report number : 89201754.02br

Date
14th of May, 2012

Received:

A sample, entrance flooring system, marked as: “Nuway Connect – Rubber inserts”
TÜV sample reference: MT12-35542.02.

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Request:

Classification of burning behaviour according to EN 13501-1:2007.
Without performing the follow test: ignitability (direct impingement of flame)
according to EN ISO 11925-2, minimum class is Efl.

Phone number client
+31 75 627 3273

Fax number client
+31 75 627 3274

Test method:

Reaction to fire (radiant panel) : EN ISO 9239-1:2010.

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Nuway Connect – Rubber insert

Results:

See page two.

Appendix
I : Flooring Radiant Panel Single
Specimen Report – 8 pages

Appendix:

See page four up to and including ten.

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
14th of May, 2012

➤ *Radiant Panel test ISO 9239-1:2010*

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Date of testing : 8th of May 2012
 Conditioning time, climate : 7 days, 23 ± 2 °C and 50 ± 5 %
 Description of substrate : Fibre cement board, 8±2 mm , 1800±200 kg/m³
 conforming to EN 13238.

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Sampling procedure : By contractor.
 Description of cleaning used : None.
 Fixing method : Loose laid.

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Sample ID of client	Test specimen, orientation	Flame spread (cm)	C/RF HF-30 (kW/m ²)	Peak light attenuation (%)	Smoke production (%.min)
Rubber insert_CMD-D	*1, ⊥	3.0	≥10.9	2.4	8
Rubber insert_MD_A	2, ↑	34.0	6.6	2.6	31
Rubber insert_MD_B	3, ↑	35.0	6.4	4.6	40
Rubber insert_MD_C	4, ↑	35.0	6.4	1.6	15
	Mean	34.7	6.5	2.9	29

Remarks: no flashing, transitory- or sustained flaming,
 * specimen extinguished naturally

CONCLUSION

According to EN 13501-1:2007 the tested sample of the aforementioned quality, entrance flooring system, **Nuway Connect with rubber insert** meets the requirements of **Class C_{fl}- s1**.

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.

Author:
Mrs. I. Pierik

Review:
Mr. H. Fokkenrood

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APPENDIX I: Flooring Radiant Panel Single Specimen Report

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Report produced with the Fire Testing Technology FRPSoft software

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Flooring Radiant Panel Single Specimen Report

Article
Nuway Connect – Rubber insert

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Standard : EN ISO 9239-1:2002
Laboratory : TÜV Rheinland Nederland B.V.
Sponsor : Forbo CORAI - Nuway + RUBBER insert - 89201754 - ipk
Date of test : May 08 2012

Specimen description : MT12-35542.0K 2
Test name : Across #1
File name : D:\FRPFILES\12050019.CSV
Test number in series : 4

Flux calibration file name : C:\FRPSOFT\CALIB\FLX12006.CSV

Thickness (mm) :
Density (kg/m³) :

Test duration : 13 minutes 30 seconds (810 s)
Substrate used? : Yes
Substrate : Calcium silicate
Fixing method : none
Conditioned? : Yes
Conditioning temp. (°C) : 23
Conditioning RH (%) : 50

Test Results

Time to ignition : 2 minutes (120 s)
Time to flameout : 12 minutes 08 seconds (728 s)
Extent of burning (mm) : 30
Critical flux at extinguishment (kW/m²) : >= 10.9
HF-10 (kW/m²) : >= 10.9
HF-20 (kW/m²) : >= 10.9
HF-30 (kW/m²) : >= 10.9
Flame spread at 10 minutes (mm) : 30
Flame spread at 20 minutes (mm) : -1
Flame spread at 30 minutes (mm) : -1
Peak light attenuation (%) : 2.44
Time to peak light attenuation : 13 minutes 09 seconds (789 s)
Total integrated smoke (%.min) : 7.9
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.

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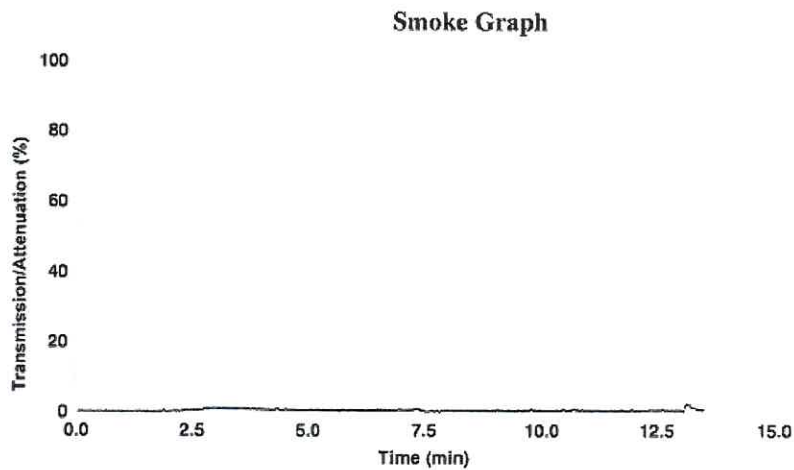
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Test name : Across #1
 File name : D:\FRPFILES\12050019.CSV

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	-	11.5	-	510	-	3.7	-
110	-	10.8	-	560	-	3.0	-
160	-	10.1	-	610	-	2.5	-
210	-	9.4	-	660	-	2.2	-
260	-	8.3	-	710	-	1.8	-
310	-	7.2	-	760	-	1.6	-
360	-	6.2	-	810	-	1.4	-
410	-	5.3	-	860	-	1.2	-
460	-	4.4	-	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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Standard : EN ISO 9239-1:2002
Laboratory : TÜV Rheinland Nederland B.V.
Sponsor : Forbo CORAL - Nuway + RUBBER insert - 89201754 - ipk
Date of test : May 08 2012

Specimen description : MT12-35542.02
Test name : Prod #1
File name : D:\FRPFILES\12050020.CSV
Test number in series : 4

Flux calibration file name : C:\FRPSOFT\CALIB\FLX12006.CSV

Thickness (mm) :
Density (kg/m³) :

Test duration : 30 minutes (1800 s)
Substrate used? : Yes
Substrate : Calcium silicate
Fixing method : none
Conditioned? : Yes
Conditioning temp. (°C) : 23
Conditioning RH (%) : 50

Test Results

Time to ignition : 2 minutes 05 seconds (125 s)
Time to flameout : Not recorded
Extent of burning (mm) : 340
Critical flux at extinguishment (kW/m²) : N/A (no flameout)
HF-10 (kW/m²) : 10.63
HF-20 (kW/m²) : 9.15
HF-30 (kW/m²) : 6.63
Flame spread at 10 minutes (mm) : 120
Flame spread at 20 minutes (mm) : 220
Flame spread at 30 minutes (mm) : 340
Peak light attenuation (%) : 2.58
Time to peak light attenuation : 16 minutes 52 seconds (1012 s)
Total integrated smoke (%.min) : 30.53
Potential classification : C(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.

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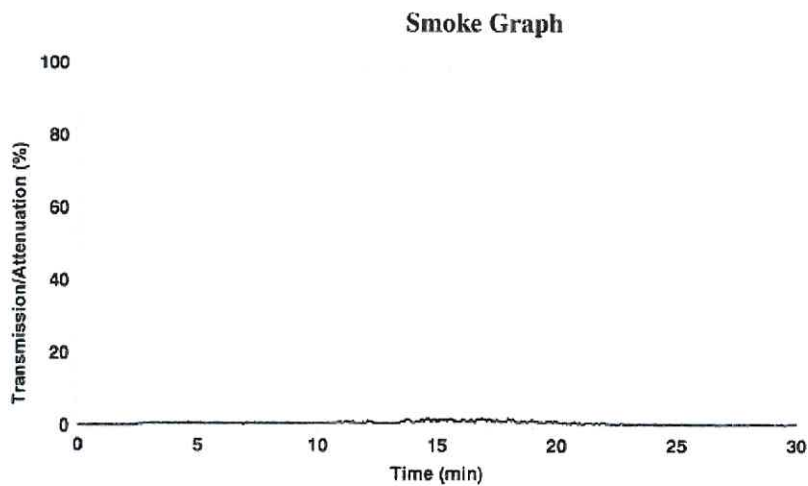
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Test name : Prod #1
File name : D:\FRPFILES\12050020.CSV

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	381	11.5	4.097	510	-	3.7	-
110	542	10.8	5.486	560	-	3.0	-
160	744	10.1	6.971	610	-	2.5	-
210	959	9.4	7.940	660	-	2.2	-
260	1184	8.3	8.582	710	-	1.8	-
310	1505	7.2	9.370	760	-	1.6	-
360	-	6.2	-	810	-	1.4	-
410	-	5.3	-	860	-	1.2	-
460	-	4.4	-	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 CORAL - Nuway + RUBBER insert - 89201754 - ipk
Date of test : May 08 2012

Specimen description : MT12-35542.02
Test name : Prod #2
File name : D:\FRPFILES\12050021.CSV
Test number in series : 4

Flux calibration file name : C:\FRPSOFT\CALIB\FLX12006.CSV

Thickness (mm) :
Density (kg/m³) :

Test duration : 30 minutes (1800 s)
Substrate used? : Yes
Substrate : Calcium silicate
Fixing method : none
Conditioned? : Yes
Conditioning temp. (°C) : 23
Conditioning RH (%) : 50

Test Results

Time to ignition : 2 minutes 01 seconds (121 s)
Time to flameout : Not recorded
Extent of burning (mm) : 350
Critical flux at extinguishment (kW/m²) : N/A (no flameout)
HF-10 (kW/m²) : 10.63
HF-20 (kW/m²) : 8.5
HF-30 (kW/m²) : 6.43
Flame spread at 10 minutes (mm) : 120
Flame spread at 20 minutes (mm) : 250
Flame spread at 30 minutes (mm) : 350
Peak light attenuation (%) : 4.57
Time to peak light attenuation : 19 minutes 10 seconds (1150 s)
Total integrated smoke (%.min) : 39.56
Potential classification : C(f)
Smoke production classification : s1

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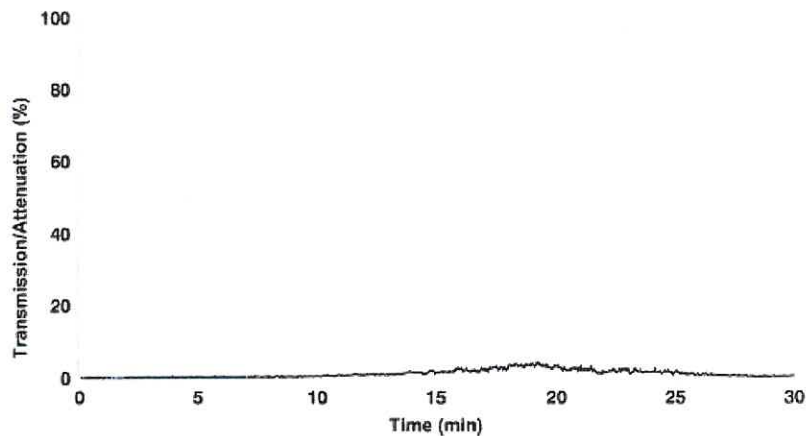
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Smoke Graph



Test name : Prod #2
File name : D:\FRPFILES\12050021.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	363	11.5	3.903	510	-	3.7	-
110	582	10.8	5.890	560	-	3.0	-
160	765	10.1	7.168	610	-	2.5	-
210	976	9.4	8.080	660	-	2.2	-
260	1279	8.3	9.270	710	-	1.8	-
310	1575	7.2	9.806	760	-	1.6	-
360	-	6.2	-	810	-	1.4	-
410	-	5.3	-	860	-	1.2	-
460	-	4.4	-	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 CORAL - Nuway + RUBBER insert - 89201754 - ipk
Date of test : May 08 2012

Specimen description : MT12-35542.02
Test name : Prod #3
File name : D:\FRPFILES\12050022.CSV
Test number in series : 4

Flux calibration file name : C:\FRPSOFT\CALIB\FLEX12006.CSV

Thickness (mm) :
Density (kg/m³) :

Test duration : 30 minutes (1800 s)
Substrate used? : Yes
Substrate : Calcium silicate
Fixing method : none
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) : 350
Critical flux at extinguishment (kW/m²) : N/A (no flameout)
HF-10 (kW/m²) : 10.63
HF-20 (kW/m²) : 8.28
HF-30 (kW/m²) : 6.43
Flame spread at 10 minutes (mm) : 120
Flame spread at 20 minutes (mm) : 260
Flame spread at 30 minutes (mm) : 350
Peak light attenuation (%) : 1.59
Time to peak light attenuation : 16 minutes 35 seconds (995 s)
Total integrated smoke (%.min) : 15.49
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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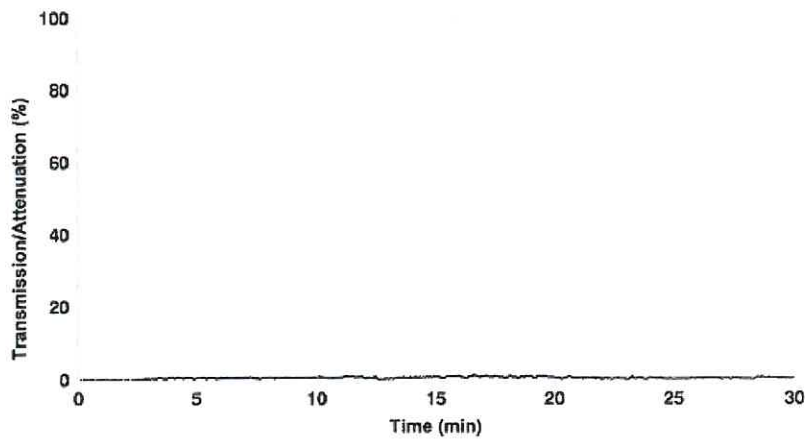
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Smoke Graph



Test name : Prod #3
File name : D:\FRPFILES\J2050022.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	350	11.5	3.763	510	-	3.7	-
110	591	10.8	5.982	560	-	3.0	-
160	745	10.1	6.981	610	-	2.5	-
210	919	9.4	7.608	660	-	2.2	-
260	1175	8.3	8.516	710	-	1.8	-
310	1382	7.2	8.604	760	-	1.6	-
360	-	6.2	-	810	-	1.4	-
410	-	5.3	-	860	-	1.2	-
460	-	4.4	-	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.