TÜV Rheinland Nederland B.V.



Return address: P.O. box 337, 7500 AH Enschede, The Netherlands

Forbo-Novilon B.V. Att.: Mr. J. Jeuring P.O. Box 148 7740 AC Coevorden The Netherlands

Report

Project number: T10-30350 Report number: T10.30350.01br

Received:

A PVC floor covering, marked as: Surestep/Safestep;

TÜV reference: MT10.30350.01.

Adhesive: Eurocol 540.

Request:

Classification of burning behaviour according to EN 13501:2007.

Test method:

Ignitability (direct impingement of flame) : EN ISO 11925-2:2010

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

Results:

See page two up to, and including three.

TÜV Rheinland Nederland B.V. Enschede

Postal address: P.O. Box 337 7500 AH Enschede The Netherlands

Parking and delivery: Josink Esweg 10 7545 PN Enschede The Netherlands

www.tuv.com/nl

T +31-88-8887888 F +31-88-8887859

Jan.brinks@ nl.tuv.com Ilse.pierik@nl.tuv.com

Date

December 23, 2010

Project number T10-30350

Report number T10.30350.01br

Phone number client +31-52 459 6868

Fax number client +31-52 459 6888

Your reference

Article

Surestep/Safestep

Appendix

1

TÜV Rheinalnd Nederland B.V. 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
12/2009, dated March 26th 2009.



Test results:

> Sample description

Type of manufacture
Type of secondary backing

Total mass per unit area kg/m² Total thickness, mm

* = manufacturer's declaration

: heterogeneous PVC floor covering* : grey coloured compact layer*

: 2.8

: 2

➤ Ignitability EN-ISO 11925-2

Conditioning time, climate Description of substrate

: min. 3 days, 23 ± 2 °C and 50 ± 5 % : 6 mm. Fibre cement board, 1800 kg/m^3 .

Flame application : Surface.
Application time : 15 seconds.

Direction:	In	producti	on	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)	75	67	67	72	72	78	
Extent of damaged area, width (mm)	11	11	11	11	11	11	
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

Date

December 23, 2010

Project number T10-30350

Report number T10.30350.01br

Article

Surestep/Safestep

Page 2 of 3

² Shrinks away from flame without being ignited

³ The time at which it occurs and its duration



Radiant Panel test EN ISO 9239-1

Date
December 23

December 23, 2010

Project number T10-30350

Report number T10.30350.01br

Article

Surestep/Safestep

Page 3 of 3

Conditioning time, climate

: min. 3 days, 23 ± 2 °C and 50 ± 5 %

Description of substrate

: Fibre cement board, 6±1 mm ,1800±200 kg/m³

conforming to EN 13238

Sampling procedure

: by contractor.

Description of cleaning used Fixing method

: Eurocol 540

: none.

Test	Flame	CRF	peak light	Smoke
specimen	spread		attenuation	production
	(cm)	(kW/m^2)	(%)	(%.min)
1	21,0	9,0	65,8	153
2	21,0	9,0	68,1	179
3	22,0	8,8	67,6	174
4	21,0	9,0	67,3	162
Mean	21,3	8,9	67,7	172

Remarks: no flashing, transitory- or sustained flaming,

Conclusion:

According to EN 13501 the tested sample of the aforementioned quality Surestep/Safestep meets the requirements of Class B_{FL} - s1.

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.

Author:

Mrs. I. Pierik

Visa

Mr. J. Bi

All rights reserved.

No part of this report may be reproduced, provided to and/or examined by third parties, and/or published by print, photoprint, microfilm, in electronic form or any other means without the explicit previous written consent of TÜV Rheinland Nederland B.V.

In case this report was drafted within the context of an assignment to TÜV Rheinland Nederland B.V., the rights and obligations of contracting parties are subject to the General Terms & Conditions for Advisory, Research and Certification assignments to TÜV Rheinland Nederland B.V. and/or the relevant agreement concluded between the contracting parties. © 2009 TÜV Rheinland Nederland B.V.

^{*} specimen extinguished naturally

Standard : EN ISO 9239-1:2002

Laboratory : TÜV Rheinland Nederland B.V. Sponsor : Forbo Novilon - Surestep

Date of test : Dec. 20 2010

Specimen description : MT10-30350.01

Test name : 1 (I)

File name : D:\FRPFILES\10120022.CSV

Test number in series : 4

Flux calibration file name : C:\FRPSOFT\CALIB\FLX10004.CSV

Thickness (mm) : Density (kg/m³) :

Test duration : 12 minutes 02 seconds (722 s)

Substrate used? : Yes

Substrate : Calcium silicate

Fixing method : adhesive
Conditioned? : Yes
Conditioning temp. (°C) : 23
Conditioning RH (%) : 50

Test Results

Extent of burning (mm)

Time to ignition : 2 minutes 02 seconds (122 s)

: 210

Time to flameout : 12 minutes (720 s)

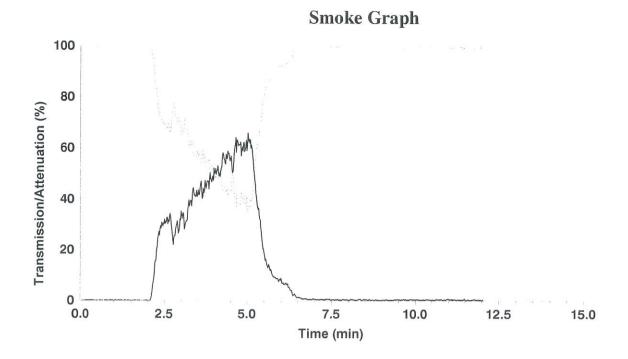
Critical flux at extinguishment (kW/m²) : 9.01 HF-10 (kW/m²) : 9.01 :>=10.9 $HF-20 (kW/m^2)$:>= 10.9 $HF-30 (kW/m^2)$ Flame spread at 10 minutes (mm) : 210 Flame spread at 20 minutes (mm) : -1 Flame spread at 30 minutes (mm) : -1 Peak light attenuation (%) : 65.79

Time to peak light attenuation : 5 minutes 01 seconds (301 s)

Total integrated smoke (%.min) : 153.24

Potential classification : A2(fl)/B(fl)

Smoke production classification : s1



Test name : 1 (I)

File name : D:\FRPFILES\10120022.CSV

Rake Results

Position (mm)	Time (s)	Flux (kW/m ²)	Qsb (MJ/m²)	Position (mm)	Time (s)	Flux (kW/m ²)	Qsb (MJ/m²)
60	196	10.7	1.978	510	-	3.7	-
110	233	10.1	2.240	560	-	3.1	-
160	280	9.6	2.524	610	-	2.6	20
210	366	9.0	2.953	660	_	2.2	-
260	-	8.1	_	710	-	1.9	-
310	-	7.2	-	760	=	1.6	21
360	-	6.1	-	810	-	1.4	21
410	-	5.2	-	860	-	1.3	-
460	-	4.4	-	910	-	1.2	-

Comments

Specimen extinguished naturally.

Standard : EN ISO 9239-1:2002

Laboratory : TÜV Rheinland Nederland B.V. Sponsor : Forbo Novilon - Surestep

Date of test : Dec. 20 2010

Specimen description : MT10-30350.01

Test name : 2(J)

File name : D:\FRPFILES\10120023.CSV

Test number in series : 4

Flux calibration file name : C:\FRPSOFT\CALIB\FLX10004.CSV

Thickness (mm) : Density (kg/m³) :

Test duration : 8 minutes 15 seconds (495 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 : 8 minutes 13 seconds (493 s)

Extent of burning (mm) : 210

Critical flux at extinguishment (kW/m²) : 9.01

HF-10 (kW/m²) :>= 10.9

HF-20 (kW/m²) :>= 10.9

HF-30 (kW/m²) :>= 10.9

Flame spread at 10 minutes (mm) :-1

Flame spread at 20 minutes (mm) :-1

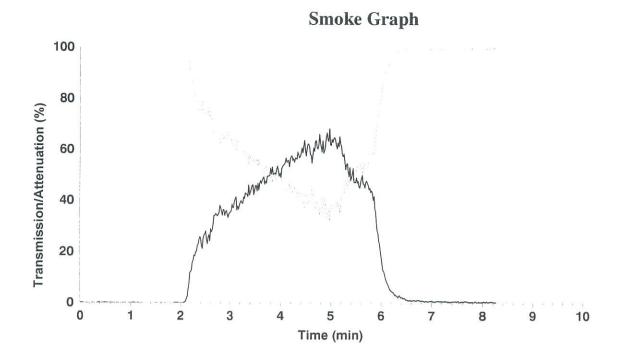
Flame spread at 20 minutes (mm) : -1
Flame spread at 30 minutes (mm) : -1
Peak light attenuation (%) : 68.13

Time to peak light attenuation : 4 minutes 58 seconds (298 s)

Total integrated smoke (%.min) : 179.03

Potential classification A2(fl)/B(fl)

Smoke production classification : s1



Test name : 2(J)

File name : D:\FRPFILES\10120023.CSV

Rake Results

Position (mm)	Time (s)	Flux (kW/m ²)	$Qsb \; \big(MJ/m^2\big)$	Position (mm)	Time (s)	Flux (kW/m ²)	Qsb (MJ/m²)
60	195	10.7	1.968	510	2	3.7	_
110	255	10.1	2.451	560	_	3.1	_
160	275	9.6	2.479	610	-	2.6	_
210	343	9.0	2.768	660	-	2.2	-
260	-	8.1	-	710	-	1.9	-
310	-	7.2	-	760	-	1.6	-
360	-	6.1	-	810		1.4	-
410	-	5.2	=	860	-	1.3	-
460	_	44	_	910		1.2	

Comments

Specimen extinguished naturally.

Standard : EN ISO 9239-1:2002

Laboratory : TÜV Rheinland Nederland B.V.

Sponsor : Forbo Novilon - Surestep

Date of test : Dec. 20 2010

Specimen description : MT10-30350.01

Test name : 3(I)

File name : D:\FRPFILES\10120024.CSV

Test number in series : 4

Flux calibration file name : C:\FRPSOFT\CALIB\FLX10004.CSV

Thickness (mm) : Density (kg/m³) :

Test duration : 7 minutes 17 seconds (437 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 : 7 minutes 16 seconds (436 s)

Extent of burning (mm) : 220

Critical flux at extinguishment (kW/m²) : 8.82

HF-10 (kW/m²) :>= 10.9

HF-20 (kW/m²) :>= 10.9

HF-30 (kW/m²) :>= 10.9

Flame spread at 10 minutes (mm) :-1

Flame spread at 20 minutes (mm) :-1

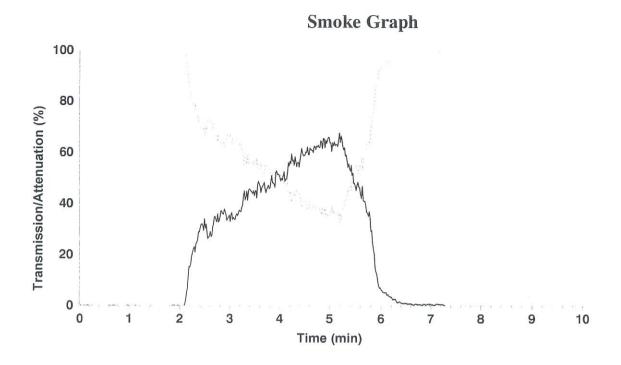
Flame spread at 20 minutes (mm) : -1
Flame spread at 30 minutes (mm) : -1
Peak light attenuation (%) : 67.61

Time to peak light attenuation : 5 minutes 11 seconds (311 s)

Total integrated smoke (%.min) : 174.29

Potential classification : A2(f1)/B(f1)

Smoke production classification : s1



Test name : 3(I)

File name : D:\FRPFILES\10120024.CSV

Rake Results

Position (mm)	Time (s)	$Flux \; (kW/m^2)$	$Qsb \left(MJ/m^2\right)$	Position (mm)	Time (s)	Flux (kW/m^2)	$Qsb \; \big(MJ/m^2\big)$
60	176	10.7	1.776	510	-	3.7	17
110	243	10.1	2.336	560	-	3.1	-
160	274	9.6	2.470	610	2	2.6	-
210	341	9.0	2.752	660	-	2.2	12
260	-	8.1	-	710	-	1.9	82
310	-	7.2	-	760	-	1.6	: <u>-</u>
360	-	6.1	-	810	-	1.4	-
410	-	5.2	-	860	-	1.3	-
460	-	4.4	-	910	-	1.2	-

Comments

Specimen extinguished naturally.

Standard : EN ISO 9239-1:2002

Laboratory : TÜV Rheinland Nederland B.V. Sponsor : Forbo Novilon - Surestep

Date of test : Dec. 20 2010

Specimen description : MT10-30350.01

Test name : 4(J)

File name : D:\FRPFILES\10120025.CSV

Test number in series : 4

Flux calibration file name : C:\FRPSOFT\CALIB\FLX10004.CSV

Thickness (mm) : Density (kg/m³) :

Test duration : 9 minutes 37 seconds (577 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 : 9 minutes 36 seconds (576 s)

Extent of burning (mm) : 210

Critical flux at extinguishment (kW/m²) : 9.01

HF-10 (kW/m²) :>= 10.9

HF-20 (kW/m²) :>= 10.9

HF-30 (kW/m²) :>= 10.9

Flame spread at 10 minutes (mm) :-1

Flame spread at 20 minutes (mm) :-1

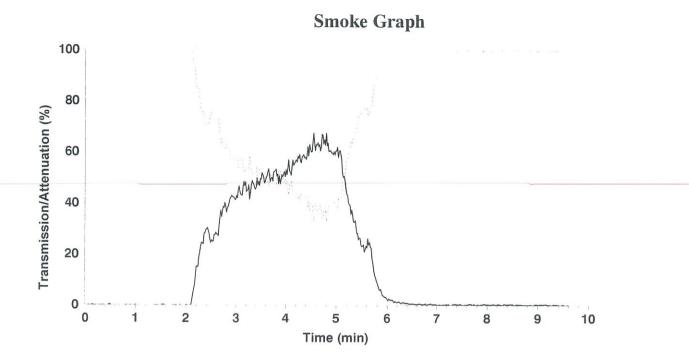
Flame spread at 20 minutes (mm) : -1
Flame spread at 30 minutes (mm) : -1
Peak light attenuation (%) : 67.29

Time to peak light attenuation : 4 minutes 33 seconds (273 s)

Total integrated smoke (%.min) : 162.3

Potential classification : A2(fl)/B(fl)

Smoke production classification : s1



Test name : 4(J)

File name : D:\FRPFILES\10120025.CSV

Rake Results

Position (mm)	Time (s)	$Flux \left(kW/m^2\right)$	Qsb (MJ/m^2)	Position (mm)	Time (s)	Flux (kW/m^2)	Qsb (MJ/m^2)
60	188	10.7	1.897	510	-	3.7	.=
110	219	10.1	2.105	560	-	3.1	-
160	280	9.6	2.524	610	25	2.6	-
210	340	9.0	2.743	660	_	2.2	12
260	-	8.1	-	710	-	1.9	i e
310	-	7.2	5 -	760	-	1.6	-
360	-	6.1		810	-	1.4	1-1
410	-	5.2		860	-	1.3	-
460	-	4.4	-	910	-	1.2	1-

Comments

Specimen extinguished naturally.