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Unilin BVBA - Division Flooring  
Mr Dr. Theo Smet  
Ooigemstraat 3

8710 WIELSBEKE  
BELGIEN

Dresden, 16 February 2011  
70-em/pe

## Test report Order-No. 270380

**Customer:** Unilin BVBA - Division Flooring  
Ooigemstraat 3  
8710 Wielsbeke  
Belgium

**Date of order:** 08.12.2010

**Order:** Performance of tests of laminate floorings according  
to EN 13329

**Institution:** EPH – Laboratory Surface Testing

**Engineer in charge:** Dipl.-Ing. (FH) M. Peter

Dr.-Ing. R. Emmler  
Head of Laboratory Surface Testing

The test report contains 8 pages. Any duplication, even in part, requires written permission of EPH. These test results are exclusively related to the tested material.

## **1 Task**

The Development and Examination Laboratory for Wood Technology Ltd. (EPH) was instructed by Unilin Flooring / Belgium to carry out testing of laminate floor coverings according to EN 13329.

## **2 Test material**

The customer has sent three variants of laminate floor coverings. Receipt at the EPH-laboratory: 17.12.2010. The variants were identified as following:

- Var. 1: Laminate floor covering Quick Step "CLASSIC", LU 32  
dimensions 1200 mm x 190 mm x 7 mm
- Var. 2: Laminate floor covering Quick Step "ELIGNA", LU 32  
dimensions 1380 mm x 156 mm x 8 mm
- Var. 3: Laminate floor covering Quick Step "LARGO", LU 32  
dimensions 2050 mm x 205 mm x 9,5 mm

The test specimens were cut at the EPH-laboratory.

## **3 Test performance**

### **3.1 Determination of the resistance against abrasion**

The test was carried out according to EN 13329 Annex E with a Taber-Abraser-Type 5151. The related test wheels were prepared with sanding paper type S42.

### **3.2 Determination of the impact resistance**

The test was carried out according to EN 13329 Annex F. The test with a small ball was carried out according to EN 438 part 2 with an Erichsen Impact Tester 305. The test with the big ball was carried out according to EN 438 part 2 with equipment according to the standard.

### **3.3 Determination of the residual indentation**

The test was carried out according to EN 433.

### **3.4 Determination of the surface soundness**

The test was carried out according to DIN EN 311.

### **3.5 Resistance against staining**

The test was carried out according to EN 13329 with the indicated test substances of EN 438 part 2.

### **3.6 Determination of the resistance against cigarette burn**

The test was carried out according to EN 438 part 2, 2005, article 30 with the cigarette sort f6.

### **3.7 Thickness swelling**

The test was carried out according to EN 13329 Annex G.

### **3.8 Determination of the light fastness**

The test was carried out according to EN 13329 in a Weather Ometer Ci 3000 (Xenon arc irradiation behind 3 mm thick window glass). The test was carried out until the grade 6 of the blue wool scale according to EN 20105, B02 was reached. The grey scale according ISO 105-A02 was used for the visual inspection.

### **3.9 Determination of geometric properties**

The test was carried out according to EN 13329 Annex A and B.

### **3.10 Determination of the effect of the simulated movement of a furniture leg**

The test was carried out according to EN 424 with equipment according to the standard.

### **3.11 Determination of the resistance against soft chair rolls**

The test was carried out according to EN 425 (25000 cycles) with a machine made by Feingeräte Baumberg.

### **3.12 Determination of the humidity**

The test was carried out according to EN 322.

### **3.13 Assessment of appearance**

The test was carried out according to EN 438.

## 4 Results

### 4.1 Determination of the resistance against abrasion

Variant	Number of revolutions until the IP value according to EN 13329 (n = 3)	Abrasion class according to EN 13329
1	4300	AC4
2	4700	AC4
3	6300	AC5

n = number of test specimens

### 4.2 Resistance against impact

Variant	Impact resistance (small ball) in N according to EN 13329 (n = 5)	Impact resistance (big ball) in mm according to EN 13329 (n = 5)	Impact class according to EN 13329
1	12	1750	IC2
2	14	2000	IC2
3	13	2000	IC2

### 4.3 Determination of the residual indentation

Variant	Mean value for the residual indentation in mm
1	0
2	0
3	0

### 4.4 Surface soundness

Variant	Surface soundness in N/mm <sup>2</sup>		
	$\bar{x}$ (n = 9)	s	v
1	1,76	0,15	8,5
2	1,90	0,19	10,1
3	2,04	0,24	11,7

x = mean value

s = standard deviation

v = variation coefficient

### 4.5 Resistance against staining

Variant	Test result according to EN 438-2 in grade with / without covering				
	Aceton	Coffee	Natriumhydroxide (NaOH, 25 %)	Hydrogensuper-oxo-xyde (H <sub>2</sub> O <sub>2</sub> , 30 %)	Black shoe cream
1	5/5	5/5	5/5	5/5	5/5
2	5/5	5/5	5/5	5/5	5/5
3	5/5	5/5	5/5	5/5	5/5

Grade 5 = no visible change

#### 4.6 Resistance against cigarette burn

Variant	Results of the visual inspection according to EN 438 part 2 in grade with the cigarette type f6
1	5
2	5
3	5

Grade 5 = no visible change

#### 4.7 Thickness swelling

Variant	Statistic values in % in length direction			Statistic values in % in width direction			Mean value in %
	$\bar{x}$ (n = 3)	s	v	$\bar{x}$ (n = 3)	s	v	
1	12,4	0,6	4,6	12,6	0,1	0,5	12,5
2	10,0	0,3	3,2	10,2	0,3	2,6	10,1
3	8,7	0,1	1,3	9,2	0,1	0,7	8,9

x = mean value

s = standard deviation

v = variation coefficient

#### 4.8 Determination of the light fastness

Variant	Change of colour of the sample in grey scale N° by colour change of blue wool scale 6	Light fastness in the level of the blue wool scale according to the criteria of EN 438 part 2
1	5	>6
2	5	>6
3	5	>6

Grey scale N° 5 = no change of colour

#### 4.9 Geometric properties

Variant	Joint opening in mm		High difference in mm	
	Mean value	max. value	Mean value	max. value
1	0	0	0,01	0,03
2	0	0	0,01	0,02
3	0	0	0,01	0,02

Variant	Thickness t		Length l	Width w		Squareness	Straightness in mm/m
	$\Delta t_{\text{mittel}}$	$t_{\text{max}} - t_{\text{min}}$	$\Delta l$	in mm		$q_{\text{max}}$	
				$\Delta w_{\text{mittel}}$	$w_{\text{max}} - w_{\text{min}}$		$s_{\text{max}}$
1	0,06	0,17	0	0	0,1	0	0
2	0,02	0,11	0	0,1	0,1	0	0
3	0,12	0,22	0,2	0,1	0	0	0

Variant	Flatness of width $f_w$		Flatness of length $f_L$	
	$f_w$ concave in %	$f_w$ convex in %	$f_w$ concave in %	$f_w$ convex in %
1	0,03	0,17	0	0,25
2	0,07	0,02	0	0,14
3	0,05	0,16	0,11	0,10

**4.10 Effect of the simulated movement of a furniture leg**

<b>Variant</b>	<b>Description of the damages / changes</b>
1	no visible change / damages
2	no visible change / damages
3	no visible change / damages

**4.11 Resistance against soft chair rolls**

<b>Variant</b>	<b>Description of the damages / changes after 25.000 revolutions</b>
1	no visible change / damages
2	no visible change / damages
3	no visible change / damages

**4.12 Humidity**

<b>Variant</b>	<b>Humidity in %</b>
1	6,8
2	6,5
3	6,5

**4.13 Assessment of the appearance**

<b>Variant</b>	<b>Description of the damages according to EN 438-2</b>
1	no visible damages
2	no visible damages
3	no visible damages

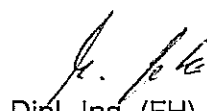
## 5 Evaluation

The tested products of laminate floor coverings can be evaluated for the several properties according to EN 13329 (table 1 and 2) as following (LU = level of use according DIN EN 13329, table 2):

Variant	Property	Result	General requirements / classification requirements according to EN 13329
1 2 3	Resistance against abrasion	Abrasion class AC4 Abrasion class AC4 Abrasion class AC5	LU 21-23 and 31-32 are fulfilled LU 21-23 and 31-32 are fulfilled LU 21-23 and 31-33 are fulfilled
1 2 3	Resistance against impact	Impact class IC2 Impact class IC2 Impact class IC2	LU 21-23 and 31-32 are fulfilled LU 21-23 and 31-32 are fulfilled LU 21-23 and 31-32 are fulfilled
1 2 3	Residual indentation	0 mm 0 mm 0 mm	General requirements according to table 1 are fulfilled.
1 2 3	Surface soundness	1,76 N/mm <sup>2</sup> 1,90 N/mm <sup>2</sup> 2,04 N/mm <sup>2</sup>	General requirements according to table 1 are fulfilled.
1 2 3	Resistance against staining	Grade 5 Grade 5 Grade 5	LU 21-23 and 31-33 are fulfilled LU 21-23 and 31-33 are fulfilled LU 21-23 and 31-33 are fulfilled
1 2 3	Cigarette burns	Grade 5 Grade 5 Grade 5	LU 21-23 and 31-33 are fulfilled LU 21-23 and 31-33 are fulfilled LU 21-23 and 31-33 are fulfilled
1 2 3	Thickness swelling	12,5 % 10,1 % 8,9 %	LU 21-23 and 31-33 are fulfilled LU 21-23 and 31-33 are fulfilled LU 21-23 and 31-33 are fulfilled
1 2 3	Light fastness	Grade > 6 Grade > 6 Grade > 6	General requirements according to table 1 are fulfilled.
1 2 3	Geometric properties	All results are in the permissible tolerance. All results are in the permissible tolerance. All results are in the permissible tolerance.	General requirements according to table 1 are fulfilled.
1 2 3	Simulated movement of a furniture leg	no visible change / damages no visible change / damages no visible change / damages	LU 21-23 and 31-33 are fulfilled LU 21-23 and 31-33 are fulfilled LU 21-23 and 31-33 are fulfilled
1 2 3	Resistance against soft chair rolls	no visible change / damages no visible change / damages no visible change / damages	LU 21-23 and 31-33 are fulfilled LU 21-23 and 31-33 are fulfilled LU 21-23 and 31-33 are fulfilled
1 2 3	Humidity	6,8 % 6,5 % 6,5 %	General requirements according to table 1 are fulfilled.
1 2 3	Assessment appearance	no visible damages no visible damages no visible damages	General requirements according to table 1 are fulfilled.

The investigated variants of laminate floor coverings meet the requirements according to EN 13329 as following:

Variant	Product / Dimension	Level of use	
		declared	fulfilled
1	Laminate floor covering Quick Step "CLASSIC" dimensions 1200 mm x 190 mm x 7 mm	32	32
2	Laminate floor covering Quick Step "ELIGNA" dimensions 1380 mm x 156 mm x 8 mm	32	32
3	Laminate floor covering Quick Step "LARGO" dimensions 2050 mm x 205 mm x 9,5 mm	32	32

  
Dipl.-Ing. (FH) M. Peter  
Engineer in charge



# AWTA TEXTILE TESTING

Australian Wool Testing Authority Ltd – trading as AWTA Textile Testing

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## TEST REPORT

CLIENT : PREMIUM FLOORS  
PO BOX 1336  
DEE WHY NSW 2099

TEST NUMBER : 7-547042-CN  
DATE : 10/08/2006

SAMPLE DESCRIPTION Clients Ref: Laminate Flooring – Quick Step 800 Uniclic  
Laminate flooring boards  
Colour: Timber

Nominal composition: Clear paper cellulose wear layer impregnated with aluminium oxide and melamine/photographic decor layer, impregnated with melamine/high density fibreboard core impregnated with moisture resistant additive/recycled paper base impregnated with melamine

AS ISO 9239.1-2003 Reaction to Fire Tests For Floorings  
PART 1 Determination of the Burning Behaviour using a radiant  
(MODIFIED) heat source

Date of sample arrival 09/06/2006  
Date tested 07/08/2006

CHF (Critical Heat Flux/Critical Radiant Flux)				
	1	2	3	Mean
Length	6.7	6.9	6.3	6.3 kW/m <sup>2</sup>
		Smoke Value		
Length	4	4	4	4 %min

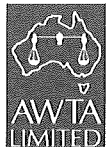
Observations: glowing, smouldering, penetration of flame through to substrate

Note: Sample was conditioned in accordance with BSEN 13238-2001 at a temperature of 23+/-2degC and Relative Humidity of 50+/-5% for a minimum of 48 hours prior to testing

Modification: Three specimens tested in the one direction only as supplied by client

Each specimen was clamped as supplied by client prior to testing

The test results relate to the behaviour of the test specimens of a 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  
153855 1

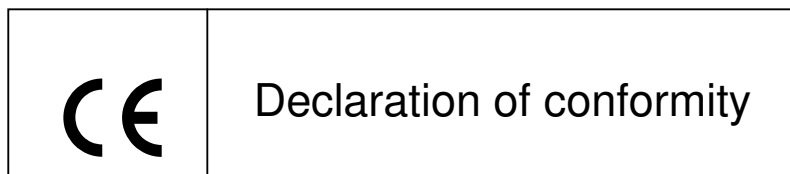


Dr. REG HAMILTON  
TECHNICAL SERVICES MANAGER

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# UNILIN FLOORING

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I, undersigned Dr. Theo Smet, technical services manager of Unilin Flooring, Ooigemstraat 3, B-8710 Belgium, declare hereby that the laminate flooring products Quick-Step Majestic Pro, Arte, Perspective, Country, Vogue, Eligna, Elite, Largo, Rustic, Quadra, Linesse, Lagune, Classic Plus, Classic, Go made in Belgium (Wielsbeke), of the current sales program comply with:

- EU Construction Products Directive CPD 89/106, in accordance with CEN/TC134/EN 14041, type 3 – notified body: 0380-1161.
- CEN/TC134/EN 13329

Compliance with EN 14041 can be specified as

Symbol	Requirement	Laboratory	Report	issued	Classification
	Reaction to fire	CTBA	04/RC027 07/RC10 08/RC 24	08/2004 05/2007 09/2008	C <sub>fl</sub> -s1
	PCP	TCHN	5186/4	04/2006	< detect. limit
	Formaldehyde	TCHN WKI	4232/1,2,3 E 2008/2967- 2968	08/2004 08/2008	E1
	Water-tightness				Not relevant
	Slip resistance	TCHN	5186/2 7330/2	09/2005 01/2008	DS
	Static electricity	RUG			Anti-static
	Thermal conductivity R (m <sup>2</sup> °K/W)	TCHN	5186/1	09/2005	Laminate: 0.051 – 0.061 Linesse: 0.10

Wielsbeke, 19-1-11

Dr. Theo Smet