

CERTIFIED TRANSLATION FROM POLISH INTO ENGLISH

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EPH SUCCESS BY QUALITY

Entwicklungs- und Prüflabor Holztechnologie GmbH

[Wood Technology Development and Testing Laboratory]

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KRONOPOL Sp. z o.o.  
Ms. Joanna Konarzewska  
ul. Serbska 56  
68-200 ŻARY  
Poland

Dresden, 04 December 2014  
70-em/pe

### Test Report

Order No. 2714117/2

Customer: KRONOPOL Sp. z o.o.  
ul. Serbska 56  
68-200 ŻARY  
Poland

Order date: 01 October 2014

Order: Testing of selected laminate flooring in accordance with EN 14041: 2004 (CE marking)

Contractor: EPH (Entwicklungs- und Prüflabor Holztechnologie GmbH) – Surface Testing Laboratory

Employee in charge of the test:  
Dipl. Eng. (FH) M. Peter

Dipl. Eng. Rico Emmler [*illegible handwritten signature*]  
Head of Surface Testing Laboratory

The test report consists of five pages. This report or any part thereof must not be reproduced without a prior written consent of EPH. The test results refer to the tested specimens only.

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## 1. Scope of Test

Entwicklungs- und Prüflabor Holztechnologie GmbH (EPH) has been ordered by Kronopol Sp. z o.o. of Żary, Poland, to conduct tests of the selected laminate flooring in accordance with EN 14041:2004 (CE marking).

## 2. Test material

For the purpose of the test, on 23 October 2014, the customer provided the contractor with the following laminate flooring samples:

- Variant 1: Laminate flooring, structure: PR, NK 31  
Dimensions: 1380 mm x 193 x mm x 6 mm
- Variant 2.1: Laminate flooring, structure: WP, NK 31  
Dimensions: 1380 mm x 193 x mm x 7 mm
- Variant 2.2: Laminate flooring, structure: WS, NK 32  
Dimensions: 1380 mm x 193 x mm x 7 mm
- Variant 3.1: Laminate flooring, structure: WG, NK 31  
Dimensions: 1380 mm x 193 x mm x 8 mm
- Variant 3.2: Laminate flooring, structure: SE, NK 32  
Dimensions: 1380 mm x 193 x mm x 8 mm
- Variant 3.3: Laminate flooring, structure: 3D, NK 33  
Dimensions: 1380 mm x 193 x mm x 8 mm
- Variant 4.1: Laminate flooring, structure: CP, NK 32  
Dimensions: 1380 mm x 193 x mm x 10 mm
- Variant 4.2: Laminate flooring, structure: 3D, NK 33  
Dimensions: 1380 mm x 193 x mm x 10 mm
- Variant 5: Laminate flooring, structure: 3D, NK 33  
Dimensions: 1375 mm x 188 x mm x 12 mm

## 3. Test procedure

### 3.1 Slip resistance rating

During the test, a slider made from two leather sliders and one shoe rubber slider is loaded to impose a specified force on to the floor covering in accordance with EN 13893 (dry floor) is pulled parallel to the surface of the floor covering at a constant speed. The force required to pull the slider is determined for the entire measured distance. The coefficient of friction is calculated as the quotient of the determined force and the vertical load. Five samples were tested in the along and across direction of manufacture. The coefficients of friction  $\mu$ , calculated in accordance with EN 13893, were rated in compliance with EN 14041:2008 (harmonised standard – Resilient, textile and laminate floor coverings)



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### 3.2. Determination of formaldehyde release

Determination of formaldehyde release for resilient floor coverings was performed using the DIN EN 717-1 chamber method, in the period from 04 November 2014 to 14 November 2014.

The tested specimens with a total surface area of 0.225 m<sup>2</sup>, arranged back to back, were inserted into the test chamber. The total tested area was 0.225 m<sup>3</sup>.

The formaldehyde release was determined in the following test conditions:

- Test start: 05 November 2014
- Temperature: 23 °C ± 0.5 K
- Relative air humidity: 45 ± 3%
- Air exchange rate: 1 h<sup>-1</sup>
- Load factor: 1 m<sup>2</sup>/m<sup>3</sup>

The detection limit for the method used is 0.01 ppm of formaldehyde.  
(1 ppm = 1.24 mg HCHO/m<sup>3</sup>).

### 3.3. Determination of pentachlorophenol (PCP) content

The sample was ground and homogenized to a particle size <1 mm. Approximately 2 g of 30 ml of toluene was extracted for 2 hours in an ultrasonic bath at 40 °C, and thereafter at a room temperature overnight in a laboratory shaker. After decanting and filtering through 0.2 µm syringe filters, PCP was determined in accordance with CEN/TR 14823 in conjunction with the Institute's standard IHD-W-409 after derivatization with acetic anhydride followed by gas chromatography with ECD detection. The quantification was carried out according to external standards.

The limit of quantification for this analytical method is 0.05 mg/kg with a 2 g weight loss.

### 3.4. Determination of thermal resistance

The thermal conductivity and thermal resistance were determined in accordance with DIN EN 12667.

The floor was classified as a material placed vertically in relation to the heat flow. Thermal resistance was determined in accordance with this classification.

In order to determine the thermal resistance, a double hot-plate instrument TLP 900-H was used, whereas the tested specimens were arranged in each case in three layers, one on top of the other, due to their minimum thickness during the test.

The specimens were stored in normal conditions at the temperature of 23 °C and relative air humidity of 50%, until mass stability was achieved. After the storage period, they were immediately put in the testing device and tested.



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#### 4. Test results

##### 4.1 Slip resistance according to EN 13893

| Variant | Dynamic Coefficient of Friction $\mu$<br>according to EN 13893 | Technical class according to EN<br>14041* |
|---------|--|---|
| 1       | 0.52   | DS  |
| 2.1     | 0.59   | DS  |
| 2.2     | 0.49   | DS  |
| 3.1     | 0.60   | DS  |
| 3.2     | 0.53   | DS  |
| 3.3     | 0.61   | DS  |
| 4.1     | 0.56   | DS  |

\* technical class corresponds to the slip resistance  $> 0.30$  (minimum requirements according to EN 14041).

##### 4.2. Formaldehyde release according to EN717-1

| Variant | Formaldehyde release |      |
|---------|----------------------|------|
|         | mg/m <sup>3</sup>    | ppm  |
| 5       | 0.02 (240 h)         | 0.02 |

##### 4.3. Content of pentachlorophenol (PCP) according to CEN/TR 14823

| Variant | Number of determinations | PCP content in mg/kg |
|---------|--------------------------|----------------------|
| 1       | 2                        | undetectable         |
| 5       | 2                        | undetectable         |

##### 4.4. Thermal resistance according to EN 12667

| Variant | Thermal conductivity W/(mk) | Thermal resistance w (m <sup>2</sup> K)/W * |
|---------|-----------------------------|---|
| 5       | 0.117                       | 0.103                                       |

\* The value required to confirm suitability for underfloor heating  $R < 0.15$  (m<sup>2</sup>K)/K, in accordance with the standard on the use of floor coverings for underfloor heating of the German Association of Underfloor Heating, is maintained for the tested variant of the flooring.



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## 5. Evaluation

In accordance with the criteria for CE marking as per EN 14041:2008, the individual properties of the tested products have been evaluated as follows:

| Variant | Property  | Determined value           | Declaration according to EN 14041:2008 |
|---------|---|----------------------------|--|
| 1       | Slip resistance   | $\mu = 0.52$               | DS class                               |
| 2.1     | in accordance with  | $\mu = 0.59$               | DS class                               |
| 2.2     | 13893   | $\mu = 0.49$               | DS class                               |
| 3.1     |   | $\mu = 0.60$               | DS class                               |
| 3.2     |   | $\mu = 0.53$               | DS class                               |
| 3.3     |   | $\mu = 0.61$               | DS class                               |
| 4.1     |   | $\mu = 0.56$               | DS class                               |
| 5       | Formaldehyde release according to EN717-1                 | 0.02 ppm                   | E1 class                               |
| 1       | Pentachlorophenol content in accordance with CEN/TR 14823 | undetectable               | pentachlorophenol-free                 |
| 5       |   | undetectable               | pentachlorophenol-free                 |
| 5       | Thermal resistance according to EN 12667                  | 0.103 (m <sup>2</sup> K)/W | 0.1 (m <sup>2</sup> K)/W               |

Employee in charge of the test:

Dipl. Eng. (FH) M. Peter [*illegible handwritten signature*]

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[Translator's notes are placed in italics in square brackets]

Official Translation No. 1570/2018

I, Marek Niedźwiecki, the Certified Polish-English translator entered in the Register of Certified Translators maintained by the Ministry of Justice of the Republic of Poland under the number TP/36/09, hereby certify that the foregoing is a true English translation of the document translated from German into Polish by a certified translator, Aleksandra Kułak (Official Translation No. 0535/15, dated 05 March 2015).

Chełm, 15<sup>th</sup> October 2018

*Marek Niedźwiecki*

