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Hemel
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Dresden, 22 August 2017
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Test Report Order No. 2717345

Client: Hemel
İstanbul Deri Organize Sanayi Bölgesi; Vakum Cad. No:25;B-1 Özel
Parsel, Aydınli-Orhanlı Mevkii, Tuzla
34957 Istanbul
Turkey

Date of order: 31 July 2017

Order: Performance of different tests on furniture surfaces

Contractor: EPH - Laboratory Surface Testing

Engineer in charge: Dipl.-Ing. S. Wenk



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

The Test Report contains 4 pages. Any duplication, even in part, requires written permission of EPH. These test results are exclusively related to the tested material.

1 Task

The authorized laboratory Entwicklungs- und Prüflabor für Holztechnologie GmbH (EPH) was instructed by Hemel to carry out different tests on furniture surfaces.

2 Test material

For the test, the client sent the following test material (receipt at EPH-laboratory on 03 August 2017):

Oak Wood with Wood oil 2C "natural"

3 Test performance

3.1 Determination of the resistance to chemical agents according to CEN/TS 16209:2011

We have determined the resistance to chemical agents according to CEN/TS 16209:2011 for the class C and with red wine. The test was carried out according to EN 12720:2014.

3.2 Determination of the resistance to dry heat according to DIN 68861-7:2001

The test of the resistance to dry heat was done according to EN 12722:2014.

The classification was done according to DIN 68861-7:2001 and CEN/TS 16209:2011

4 Results

4.1 Resistance to chemical agents according to CEN/TS 16209:2011

Test agent		Results for level of use class C		
		Duration of exposure	Requirement (Grade)	Tested variant
1	Acetic acid 10 %	2 min	4	5
2	Acetone	-	-	-
3	Ammonia 10 %	2 min	4	3
4	Citric acid 10 %	2 min	4	5
5	Cleansing agent	1 h	4	5
6	Coffee	1 h	4	5
7	Ethanol 48 %	10 min	4	4
8	Paraffin oil	6 h	4	5
9	Water	6 h	4	4
10	Sudor, basic medium	1 h	4	5
Add.	Red wine	10 min	5	5

Test agent		Results for level of use class D		
		Duration of exposure	Requirement (Grade)	Tested variant
1	Acetic acid 10 %	-	-	-
2	Acetone	-	-	-
3	Ammonia 10 %	-	-	-
4	Citric acid 10 %	-	-	-
5	Cleansing agent	10 min	4	5
6	Coffee	10 min	4	5
7	Ethanol 48 %	10 min	4	4
8	Paraffin oil	1 h	4	5
9	Water	1 h	4	5
10	Sudor, basic medium	1 h	4	5

Grading code according to EN 12720:2014

Grade 5 *No change*

A difference between the test area and the adjoining area cannot be detected.

Grade 4 *Slight change*

The test area can only be differentiated from the adjoining area if the light source is reflected from

the test area back to the inspector's eye, e.g. discolouration, changes in gloss or colour.

No changes in the structure of the surface, e.g. swelling, fibres rising, cracking, blistering

Grade 3 *Moderate change*

The test area can be differentiated from the adjoining area, visible from various perspectives, e.g. discolouration, changes in gloss or colour.

No changes in the structure of the surface, e.g. swelling, fibres rising, cracking, blistering

Grade 2 *Considerable change*

The test area can be clearly differentiated from the adjoining area, visible from all perspectives, e.g. discolouration, changes in gloss or colour, and/or the surface structure has slightly modified, e.g. by swelling, fibres rising, cracking, blistering

Grade 1 *Strong change*

The surface structure has clearly changed
and/or discolouring, changes in gloss or colour
and/or the surface material has loosened partially or completely
and/or the filter paper keeps sticking to the surface.

4.2 Resistance to dry heat according to EN 12722:2014

Evaluation according to EN 12722:2014 in increments at the following temperatures in °C					Max. test temperature in °C with no visible changes of the surface	Stress group according to DIN 68861-7:2001 (Requirement: Grade = 5)	Stress group according to CEN/TS 16209:2011 (Requirement: Grade ≥ 4)
55 °C	70 °C	100 °C	140 °C	180 °C			
-	-	5	5	2	140 °C	7 B	B

<u>Stress group according to DIN 68861-7:2001</u> <i>(Requirement: Grade =5)</i>		<u>Stress group according to CEN/TS 16209:2011</u> <i>(Requirement: Grade ≥4)</i>	
7 A	180 °C	A	180 °C
7 B	140 °C	B	140 °C
7 C	100 °C	C	100 °C
7 D	70 °C	D	70 °C
7 E	55 °C	E	55 °C

Grading code according to EN 12722:2014Grade 5 *No change*

A difference between the test area and the adjoining area cannot be detected.

Grade 4 *Slight change*

The test area can only be differentiated from the adjoining area if the light source is reflected from the test area back to the inspector's eye. e.g. discolouration. changes in gloss or colour. No changes in the structure of the surface. e.g. swelling. fibres rising. cracking. blistering

Grade 3 *Moderate change*

The test area can be differentiated from the adjoining area. visible from various perspectives. e.g. discolouration. changes in gloss or colour.

No changes in the structure of the surface. e.g. swelling. fibres rising. cracking. blistering

Grade 2 *Considerable change*

The test area can be clearly differentiated from the adjoining area. visible from all perspectives. e.g. discolouration. changes in gloss or colour. and/or the surface structure has slightly modified. e.g. by swelling. fibres rising. cracking. blistering

Grade 1 *Strong change*

The surface structure has clearly changed and/or discolouring. changes in gloss or colour and/or the surface material has loosened partially or completely

5 Evaluation

The tested variants can be assessed for the tested properties as follows:

Property	Classification in classes according to DIN 68861	Classification in classes according to CEN/TS 16209:2011
Resistance to chemical agents according to EN 12720:2014	-	D
Resistance against dry heat according to EN 12722:2014/ DIN 68861-7:2001	7 B	B



Dipl.-Ing. S. Wenk
Engineer in charge