

## Test Report Nr. IWQ MBL 331

**Client:** DACKOR

**Unit:** laminated MDF-sheets  
furnit<sup>®</sup> DOOR "Dekor, article  
(7 samples supplied by the client)

**Commission:** Surface tests with reference to DIN 68 861,  
part 1, 2, 4 and DIN EN 438, part 2, cl. 11,  
DIN 53 387 and resistance to cold temperatures

### Finding:

The laminate with decorative pattern effect intended for furniture surfaces was submitted to comprehensive surface tests with reference to the standards as defined on the following pages.

In summary it may be stated that each sample may be classified to the following parameters according to the standards as follow:

DIN 68 861,	part 1 : 12.1981, behaviour at chemical influence	1B
DIN 68 861,	part 2 : 12.1981, behaviour at abrasion	2A
DIN 68 861,	part 4, 12.1981, behaviour at scratches	4B
DIN EN 438,	part 2, cl. 11, : 02.1992, behaviour at impact resistance	4
DIN 53 387,	04.1989, Xenon ageing test	Stage > 6
Resistance to cold temperature (-30 °C)		+

For details related to test methods and test results see the following pages.

Nuernberg, 12.03.2001  
IWQ / hy/di/hz

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This test report consists of 10 pages.

## Test Results

### Unit

Designation/Type: MDF laminated sheets

Delivery-slip-No.: not relevant

Sample:

Supplied by: Dackor

### Scope of testing

- General tests
- Surface tests with reference to DIN 68 861
  - Chemical resistance, part 1 : 12.1981
  - Abrasion resistance, part 2 : 12.1981
  - Behaviour at scratches, part 4 : 12.1981
- Behaviour at impact resistance with reference to DIN EN 438, part 2, cl. 11 : 02.1992
- Xenon ageing test with reference to DIN 53 387 : 04.1989
- Resistance to low temperatures 4 h at -30 °C

### Scope of application

The test results refer to the samples submitted to the test.

### General tolerances

Unless not otherwise specified the accuracy of the linear dimension is defined according to DIN 7168-g for old drawings respectively to DIN ISO 2768 part 1 "c" for new drawings. All other physical dimensions shall have an accuracy of  $\pm 5\%$  of the nominal force. The tests were carried out at ambient temperature, unless not otherwise stated.

### General tests

#### Short description of the sample

**Sample:** "PVC-Folie furnit<sup>®</sup> DOOR Dekor, article-No.: F 422"

**Dimensions:** 2 pcs. - length: 570 mm, width: 490 mm, thickness: 19 mm

**Dimensions:** 5 pcs. - length: 395 mm, width: 405 mm, thickness: 19 mm

**Front:** MDF-sheets with decorative pattern effect, edges foilated

Backing: plastic coated

For the various tests small pieces were cut out of the supplied samples.

## **Technical tests**

### **Surface testing**

#### **Chemical resistance according to DIN 68 861, part 1 : 12.1981**

#### **Test methods**

The test agent was applied on the surface to be tested and covered by using a Petri culture dish.

Test agent in accordance with DIN 68 861, part 1

Contact time: up to 16 h

Test specimen: 1 piece

#### **Rating:**

- 0 - No visible changes
- 1 - Change of shine or colour - visible
- 2 - Minor change of shine or colour -  
(unchanged structure of the test surface)
- 3 - Intense traces are visible - however, unchanged structure of the surface
- 4 - Intense traces are visible - the structure of the test surface has changed
- 5 - Destroyed test surface or test surface shows intensive changes

Load classes (for level of use determination): 1A to 1F according to  
group 2 (class A shows no aggressive reaction)

## **Requirements**

Furniture surfaces shall be classified according to their  
resistance

For results see the following pages

**Chemical resistance in accordance with DIN 68861,  
part 1**

**Test agent**

	Contact time rating *)	
1 Acetic acid	60 min	
2 Citric acid	60 min	
3 Sodium carbonate	2 min	
4 Ammonia water	2 min	
5 Ethanol	60 min	
6 White wine, red wine, fortified wine	5 min	
7 Beer	-	
8 Cola beverages	16 h	
9 Instant coffee	16 h	
10 Black tea	16 h	
11 Black currant juice	16 h	
12 Condensed milk	16 h	
13 Water	16 h	
14 Petrol	2 min	
15 Acetone	10 s	
16 Ethylene-butylacetate	10 s	
17 Butter	16 h	
18 Olive oil	16 h	
19 Mustard	5 h	
20 Salt	5 h	
21 Onion	5 h	
22 Lip stick	16 h	
23 Disinfectant	10 min	
24 Black ball paint - paste ink	16 h	3
25 Stamping ink	16 h	2
26 Detergent	60 min	
27 Purifier	60 min	

Load class  
1 B

\*) No rating score means that no visible change was to be stated. The test was performed without using test agent No.7.

**Resistance to abrasion in accordance with DIN 68 861,  
part 2 : 12.1981**

**Test methods**

Test in accordance with DIN 68 861, part 2 : 12.81  
 Sample dimension: 100 x 100 mm  
 Number of test specimen: 3 pcs.  
 Test instrument: abrasion test machine, trademark "Frank"  
 Sample pre-treatment: 72 h  
 Storage at ambient climate according to DIN 50 014  
 Temperature in test room: 23 °C

**Load classes - for the determination of the classification, level of use**

Furniture surfaces shall be classified according to their resistance in class 2A to 2F.

Movements /revolutions Test according to Clause 4	Load class
more than 650	2A
more than 350 to 650	2B
more than 150 to 350	2C
more than 50 to 150	2D
more than 25 to 50	2E
up to 25	2F

**Requirements**

The test shall be ended when the colour disappears  
 /(applies for one coloured types and/or when  
 the base becomes visible. Or when the decorative pattern  
 is damaged up to 50% (applies as well to wood).

**Sample 2**

Number of re- volutions	load class for level of use
> 650	2 A

## Behaviour at scratches in accordance with DIN 68 861, part 4 : 12.1981

### Test methods

Test in accordance with DIN EN 438, part 2,  
cl. 14 : 02.1992

Test specimen: 100 x 100 mm

Number of the samples: 3 pieces

Test machine: standardized, to perform scratches - trademark "Erichsen"

Samples pre-treatment: 7 days

Storage at normal climate in accordance with DIN 50 014

Temperature in the test room: 23 °C

### Load class - to determine classification requirement, level of use

Furniture surfaces shall be classified according to their resistance to scratches in class 4A to 4F.

Minimum force N, to provide a compact mark	Load class
more than 4,0	4A
more than 2,0 up to 4,0	4B
more than 1,5 up to 2,0	4C
more than 1,0 up to 1,5	4D
more than 0,5 up to 1,0	4E
up to 0,5	4F

### Requirements

Minimum force, still  
providing a compact mark.

Force in Newton

3.5 N

Classification for the relevant-  
load class.

Load class

4 B

**Impact resistance according to  
DIN EN 438 part 2, clause 11, 02.1992**

**Test method**

**Test with impact test machine with reference to  
DIN EN 438, part 2, clause 11 : 02.1992**

Test specimen: 1 piece

Proof load: gradually in steps, 1 N each, until the force is reached  
where a (permanent) indentation has become visible.

**Parameter for impact resistance according to DIN EN 438, part 1**

Resilient force | parameter  
N |

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≥ 12		1
≥ 15		2
≥ 20		3
≥ 25		4

**Requirements**

No damage shall be visible after impact test  
(damages according to the standard: crazes,  
deep cracks, flaking of the decorated layer,  
indentations without crazes were not assessed

Proof load > 25N  
more than 30N  
Parameter: 4



## Xenon ageing test

### Test methods

Test with reference to DIN EN 105-B02 : 07.2002

Test instrument: Rapid exposure camera  
Model SUNTEST 7011

Filter: window glass

Exposure test, resistance to fading, light fastness: 6 - 7

Black body temperature /sample level: 45 °C

Laboratory temperature: 23 °C

Rating: according to the blue wool scale (DIN 54 004,  
.: 08.1983)

### Requirements

Furniture surfaces - plastic coated -  
not worse than 6 / blue wool scale test

> 6 +

**Low temperature test (frost resistance)**

The test specimen were stored in a chill cabinet  
at -30 °C for a period of 4 h..

1 whole sheet

**Requirements**

After the test cycle and after 8 h of storage  
in constant normal climate the test specimen shall  
not have any visible changes.

no visible changes- +

