Entwicklungs- und Prueflabor Holztechnologie GmbH · Zellescher Weg 24 · 01217 Dresden · Germany

STYLAM INDUSTRIES LTD
HEAD OFFICE: SCO 14, SECTOR – 7C, MADHYA MARG, CHANDIGARH
WORKS: 192-193, INDUSTRIAL AREA, PHASE – 1, PANCHKULA (HARYANA)
INDIEN

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Dresden, 04 July 2016
70-em/pe

Test Report
Order No. 2716175

Client:	STYLAM INDUSTRIES LTD HEAD OFFICE: SCO 14, SECTOR – 7C, MADHYA MARG, CHANDIGARH WORKS: 192-193, INDUSTRIAL AREA, PHASE – 1, PANCHKULA (HARYANA) INDIA
Date of order:	10 June 2016
Order:	Determination of the resistance to staining according to SEFA 3-2010, Sect. 2.1 (24 h Exposure) with 49 test agents
Contractor:	EPH – Laboratory Surface Testing
Engineer in charge:	Dipl.-Ing. (FH) M. Peter

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

The test report contains 5 pages. Any duplication, even in part, requires written permission of EPH. These test results are exclusively related to the tested material.

1 Task

The accredited laboratory Entwicklungs- und Prüflabor für Holztechnologie GmbH (EPH) was commissioned by STYLAM INDUSTRIES LTD in PANCHKULA (HARYANA) / India to carry out the determination of the stain resistance of a laminate according to SEFA 3-2010, Section 2.1.

2 Test material

For the test, the client has sent the following variant of laminate (entrance at the EPH laboratory 16 June 2016):

Laminate "Stylam – Grey"
Thickness: 1.0 mm

3 Determination of stain resistance according to SEFA 3-2010, Section 2.1

Test Procedure:

Test Method: SEFA 3-2010, Sect. 2.1
The panel was placed on flat surface, cleaned with soap (Liqui-Nox at 5% concentration) and water and blotted dry. The panel was conditioned for 48-hours at 73±3 °F (23±2 °C) and 50 ± 5 % relative humidity. The chemical resistance was tested by forty-nine (49) different chemical reagents by the following methods.

Method A: For volatile chemicals – a cotton ball, saturated with the test chemical, was placed in a one ounce bottle (10 mm x 7 mm test tube or similar container). The container was inverted on the test material surface for a period of 24 hours.
Temperature of test: 23 °C +/- 2 °C (73 °F +/- 4 °F). This method was used for the organic solvents.

Method B: For non-volatile chemicals – Five drops (1/4 cc) of the test chemical were placed on the test material surface. The chemical was covered with a watch glass (25 mm), convex side down for a period of 24 hours. Temperature of test: 23 °C +/- 2 °C (73 °F +/- 4 °F). This method was used for all chemicals listed below other than solvents.

After 24-hours exposure, exposed areas were washed with water, then a detergent solution (Liqui-Nox at 5 % concentration) and finally with isopropyl alcohol. Materials were then rinsed with distilled water and dried with a cloth.

4 Results - Stain resistance to chemical reagents according to SEFA 3-2010, Section 2.1

	Chemical Reagent	Test Method	Rating
1.	Acetate, Amyl	A	0
2.	Acetate, Ethyl	A	0
3.	Acetic Acid, 98 %	B	0
4.	Acetone	A	0
5.	Acid Dichromate, 5 %	B	1
6.	Alcohol, Butyl	A	1
7.	Alcohol, Ethyl	A	0
8.	Alcohol, Methyl	A	1
9.	Ammonium Hydroxide, 28 %	B	1
10.	Benzene	A	2
11.	Carbon Tetrachloride	A	0
12.	Chloroform	A	1
13.	Chromic Acid, 60 %	B	1
14.	Cresol	A	1
15.	Dichloracetic Acid	A	2
16.	Dimethylformamide	A	1
17.	Dioxane	A	1
18.	Ethyl Ether	A	0
19.	Formaldehyde, 37 %	A	1
20.	Formic Acid, 90 %	B	2
21.	Furfural	A	0
22.	Gasoline	A	0
23.	Hydrofluoric Acid, 37 %	B	2
24.	Hydrofluoric Acid, 48 %	B	2
25.	Hydrogen Peroxide, 30 %	B	1
26.	Iodine, Tincture of	B	2
27.	Methyl Ethyl Ketone	A	1
28.	Methylene Chloride	A	2

	Chemical Reagent	Test Method	Rating
29.	Monochlorobenzene	A	0
30.	Naphthalene	A	1
31.	Nitric Acid, 20 %	B	2
32.	Nitric Acid, 30 %	B	2
33.	Nitric Acid, 70 %	B	3
34.	Phenol, 90 %	A	1
35.	Phosphoric Acid, 85 %	B	1
36.	Silver Nitrate, Saturated	B	3
37.	Sodium Hydroxide, 10 %	B	1
38.	Sodium Hydroxide, 20 %	B	1
39.	Sodium Hydroxide, 40 %	B	0
40.	Sodium Hydroxide Flake	B	1
41.	Sodium Sulfide Saturated	B	1
42.	Sulfuric Acid, 33 %	B	0
43.	Sulfuric Acid, 77 %	B	1
44.	Sulfuric Acid 96 %	B	2
45.	Sulfuric Acid, 77 % & Nitric Acid, 70 % equal parts	B	3
46.	Toluene	A	0
47.	Trichloroethylene	A	0
48.	Xylene	A	0
49.	Zinc Chloride, Saturated	B	0

Rating according to SEFA 3-2010, Section 2.1

0 **No Effect** – No detectable change in the material surface.
1 **Excellent** – Slight detectable change in color or gloss but no change in function or life of the surface.
2 **Good** – A clearly discernible change in color or gloss but no significant impairment of surface life or function.
3 **Fair** – Objectionable change in appearance due to discoloration or etch, possibly resulting in deterioration of function over an extended period of time.

Acceptance Criteria: No more than four ratings 3.

5 Evaluation

Items	Number of chemical reagents with rating 3	Assessment as related to requirement according to SEFA 3-2010, Section 2.1*
Volatile Subtotal (Method A)	0	fulfilled
Non-volatile Subtotal (Method B)	3	
Total	**3**	

* No more than four ratings 3

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