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SHENZHEN RISEWELL INDUSTRY CO.
Date: April 12, 2013
P.O. No.: MC

Report No.: 101122577GRR-001
Reference No.: 13-0325-500441451

Test Report For:

SHENZHEN RISEWELL INDUSTRY CO.

DEBO Chem-Top *PLUS* #1909 Black

SEFA 3-2010, 2.1 Chemical / Stain Resistances

Gary Liu
Project Manager

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Reviewer

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DATE RECEIVED: 03/25/13
DATES TESTED: 04/09/13 - 04/10/13

DESCRIPTION OF SAMPLES:

Part Description:	DEBO Chem-Top *PLUS* #1909 Black
Material Submitted:	23 of approximately 4" x 4" x 7/8" black laminate sections
Material Specification:	SEFA 3-2010
Condition of Test Sample:	Production

WORK REQUESTED / APPLICABLE DOCUMENTS:
2.1 Chemical / Stain Resistances: SEFA 3-2010, Section 2.1

CONCLUSIONS:
2.1 Chemical / Stain Resistances: Conforming *

* Suitability for a given application is dependent upon the chemicals used in a give laboratory.

Disposition of Test Specimens/Samples:
Test samples were properly disposed after testing per Shenzhen Risewell Industry instructions.

2.1 CHEMICAL/STAIN RESISTANCES:

Date Received: 03/25/13
Dates Tested: 04/09/13 - 04/10/13

Description of Samples:

Part Description: DEBO Chem-Top *PLUS* #1909 Black
Material Submitted: 23 of approximately 4" x 4" x 7/8" black laminate sections
Material Specification: SEFA 3-2010
Condition of Test Sample: Production

Test Procedure:

Test Method: SEFA 3-2010, Sec 2.1
The received sample to be tested for chemical resistance as described herein: Place panel on flat surface, clean with soap (Liqui-Nox at 5% concentration) and water and blot dry. Condition the panel for 48-hours at 73±3°F (23±2°C) and 50 ± 5% relative humidity. Test the panel for chemical resistance using 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 (10mm x 7mm test tube or similar container). The container was inverted on the test material surface for a period of 24 hours. Temperature of test: 23° +/- 2°C (73° +/- 4°F). This method was used for the organic solvents.

Method B: For non-volatile chemicals – Five drops (1/4cc) of the test chemical were placed on the test material surface. The chemical was covered with a watch glass (25mm), convex side down for a period of 24 hours. Temperature of test: 23° +/- 2°C (73° +/- 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 detergent (Liqui-Nox at 5% concentration) and finally with isopropyl alcohol. Materials were then rinsed with distilled water and dried with a cloth.

Test Side: Labeled by client as DEBO Chem-Top #1909 Black (Side color is thicker than the other.)

Samples are numerically rated as follows:

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.

Number of Samples Tested: 23 panels

Acceptance Criteria:
Results will vary from manufacturer to manufacturer due to differences in composition and finish formulations and applications processes. Laboratory Grade work surface finishes shall result in no more than 4 Level 3 conditions. Individual test results for the specified 49 reagents will be verified with an established third party independent SEFA 3 test submittal form. Suitability for a given application is dependent upon the chemicals used in a given laboratory.

Results:

2.1 CHEMICAL/STAIN RESISTANCES				
Volatile Chemicals				
Test No.	**Chemical**	**Method**	**Rating**	**Comments**
1	Acetate, Amyl	A	0	---
2	Acetate, Ethyl	A	1	Slight stain
4	Acetone	A	1	Slight stain
6	Alcohol, Butyl	A	0	---
7	Alcohol, Ethyl	A	0	---
8	Alcohol, Methyl	A	0	---
10	Benzene	A	0	---
11	Carbon Tetrachloride	A	0	---
12	Chloroform	A	0	---
14	Cresol	A	0	---
15	Dichloroacetic Acid	A	0	---
16	Dimethylformanide	A	0	---
17	Dioxane	A	0	---
18	Ethyl Ether	A	0	---
19	Formaldehyde, 37%	A	0	---
21	Furfural	A	0	---
22	Gasoline	A	0	---
27	Methyl Ethyl Ketone	A	0	---
28	Methylene Chloride	A	0	---
29	Monochlorobenzene	A	0	---
30	Naphthalene	A	0	---
34	Phenol, 90%	A	0	---
46	Toluene	A	0	---
47	Trichloroethylene	A	0	---
48	Xylene	A	0	---

2.1 CHEMICAL/STAIN RESISTANCES

Non-volatile Chemicals

Test No.	Chemical	Method	Rating	Comments
3	Acetic Acid, 98%	B	1	Slight stain
5	Acid Dichromate, 5%	B	0	---
9	Ammonium Hydroxide, 28%	B	1	Slight gloss decrease
13	Chromic Acid, 60%	B	1	Slight stain
20	Formic Acid, 90%	B	0	---
23	Hydrochloric Acid, 37%	B	0	---
24	Hydrofluoric Acid, 48%	B	0	---
25	Hydrogen Peroxide, 30%	B	0	---
26	Iodine, Tincture of	B	0	---
31	Nitric Acid, 20%	B	1	Slight gloss decrease
32	Nitric Acid, 30%	B	1	Slight gloss decrease
33	Nitric Acid, 70%	B	1	Slight gloss decrease
35	Phosphoric Acid, 85%	B	0	---
36	Silver Nitrate, Saturated	B	1	Slight gloss decrease
37	Sodium Hydroxide, 10%	B	0	---
38	Sodium Hydroxide, 20%	B	0	---
39	Sodium Hydroxide, 40%	B	0	---
40	Sodium Hydroxide, Flake	B	0	---
41	Sodium Sulfide, Saturated	B	0	---
42	Sulfuric Acid, 33%	B	0	---
43	Sulfuric Acid 77%	B	0	---
44	Sulfuric Acid, 96%	B	1	Slight gloss decrease
45	Sulfuric Acid, (77%) and Nitric Acid (70%), equal parts	B	1	Slight gloss decrease
49	Zinc Chloride, Saturated	B	0	---

2.1 CHEMICAL/STAIN RESISTANCES

Totals

Items	Requirement	No. Reagents with 3 Rating	Disposition
Volatile Subtotal:	---	0	---
Non-volatile Subtotal:	---	0	---
Grand Totals:	No More than Four Level 3 Conditions	0	Conforming *

* Suitability for a given application is dependent upon the chemicals used in a give laboratory.

Disposition of Test Specimens/Samples:
Test samples were properly disposed after testing per Shenzhen Risewell Industry instructions.

2.1 Chemical/Stain Resistances Photograph

Typical As Receive Samples