

**CHEMICAL SPOT TEST PROCEDURE:**

Date Received: 03/18/14  
Dates Tested: 03/27/14 - 04/01/14

**Description of Samples:**

Part Description: Stainless Steel Panels  
Material Submitted: Five (5) of 4" x 12" Metal Panels  
Material Specification: SEFA-8-M-2010: 8.1 Chemical Spot Test and 8.2 Hot Water Test  
Condition of Test Sample: Production

**Test Procedure:**

Test Method: SEFA-8-M-2010: 8.1 Chemical Spot Test  
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: Test volatile chemicals by placing a cotton ball saturated with reagent from a 1-oz. (29.574cc) bottle and inverting the bottle on the surface of the panel. The cotton ball shall remain in contact with the sample for duration of the test.

Method B: Test non-volatile chemicals by placing five drops of the reagent on the surface of the panel and covering with a 24 mm watch glass, convex side down.

Leave the reagents on the panel for a period of one hour. Wash off the panel with water, clean with detergent (Liqui-Nox at 5% concentration) and naphtha, and rinse with deionized water. Dry with a towel and evaluate after 24 hours at 73±3°F (23±2°C) and 50 ± 5% relative humidity using the following rating system.

Rating Scale: Level 0 - No detectable change  
Level 1- Slight change in color or gloss  
Level 2- Slight surface etching or severe staining  
Level 3- Pitting, cratering, swelling, or erosion of coating. Obvious and significant deterioration.

Test Side: Side with the white protective film. The film was removed just prior to testing. - Asking  
Number of Samples Tested: Four (4) Panels

Acceptance Criteria:

The Range of Results is provided to establish the acceptable range for Laboratory Grade Finish. Results will vary from manufacturer to manufacturer. Laboratory grade finishes should result in no more than four Level 3 conditions. Suitability for a given application is dependent upon the chemicals used in a given laboratory.

Results:

<b>Volatile Chemicals</b>					
<b>Test No.</b>	<b>Chemical</b>	<b>Method</b>	<b>Range</b>	<b>Rating</b>	<b>Comments</b>
1	Acetate, Amyl	A	0-1	1	Stain
2	Acetate, Ethyl	A	0-2	1	Stain
4	Acetone	A	0-1	1	Stain
6	Alcohol, Butyl	A	0-1	0	
7	Alcohol, Ethyl	A	0-1	0	
8	Alcohol, Methyl	A	0-1	0	
10	Benzene	A	0-2	0	
11	Carbon Tetrachloride	A	0-1	0	
12	Chloroform	A	0-2	1	Stain
14	Cresol	A	0-2	0	
15	Dichloroacetic Acid	A	0-3	1	Stain
16	Dimethylformamide	A	0-2	0	
17	Dioxane	A	0-2	0	
18	Ethyl Ether	A	0-1	0	
19	Formaldehyde, 37%	A	0-1	0	
21	Furfural	A	0-3	1	Stain
22	Gasoline	A	0	1	Stain
27	Methyl Ethyl Ketone	A	0-2	1	Stain
28	Methylene Chloride	A	0-2	1	Stain
29	Mono Chlorobenzene	A	0-2	1	Stain
30	Naphthalene	A	0-1	0	
34	Phenol, 90%	A	0-2	0	
46	Toluene	A	0-1	0	
47	Trichloroethylene	A	0-1	1	Stain
48	Xylene	A	0-1	0	

<b>Non-volatile Chemicals</b>					
<b>Test No.</b>	<b>Chemical</b>	<b>Method</b>	<b>Range</b>	<b>Rating</b>	<b>Comments</b>
3	Acetic Acid, 98%	B	0-3	0	
5	Acid Dichromate, 5%	B	0-1	0	
9	Ammonium Hydroxide, 28%	B	0	0	
13	Chromic Acid, 60%	B	0-2	1	Stain
20	Formic Acid, 90%	B	0-3	1	Stain
23	Hydrochloric Acid, 37%	B	0-2	2	Stain
24	Hydrofluoric Acid, 48%	B	0-3	2	Stain
25	Hydrogen Peroxide, 30%	B	0-1	1	Stain
26	Iodine, Tincture of	B	0-2	1	Stain
31	Nitric Acid, 20%	B	0-1	0	
32	Nitric Acid, 30%	B	0-1	0	
33	Nitric Acid, 70%	B	0-3	0	
35	Phosphoric Acid, 85%	B	0-1	0	
36	Silver Nitrate, Saturated	B	0	0	
37	Sodium Hydroxide, 10%	B	0	0	
38	Sodium Hydroxide, 20%	B	0	1	Stain
39	Sodium Hydroxide, 40%	B	0-1	0	
40	Sodium Hydroxide, Flake	B	0	0	
41	Sodium Sulfide, Saturated	B	0	1	Stain
42	Sulfuric Acid, 33%	B	0	0	
43	Sulfuric Acid 77%	B	0	0	
44	Sulfuric Acid, 96%	B	2-3	0	
45	Sulfuric Acid, (77%) and Nitric Acid (70%), equal parts	B	1-3	0	
49	Zinc Chloride, Saturated	B	0	1	Gloss decrease

<b>Totals</b>			
<b>Items</b>	<b>Requirement</b>	<b>No. Reagent with 3 Ratings</b>	<b>Disposition</b>
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 given laboratory.