

H190 is a fiberglass reinforced thermoset polyester sheet having good corrosion resistance to numerous acids and alkalis. This material also exhibits a high level of flame retardancy and low smoke generation. Typical applications for H190 are fume hood liners, weir panels for waste water treatment, and elsewhere when a cost effective general-purpose corrosion resistant material is required. Standard color is white. Sheet sizes are 36" x 72", 48" x 60", and 48" x 96". Typical thickness is 3/16".

<b><u>Property</u></b>	<b><u>Test Method</u></b>	
Specific Gravity	D-792	1.78
Water Absorption %	D-792	0.28%
Flammability UL 94 V	UL 94	V-0
Calculated Flame Spread	E-84	12.4
Flame Spread Index	E-84	10
Calculated Smoke Emission		184.5
Smoke Developed Index		185
Tensile Strength, PSI		9,000
Flexural Strength, PSI		18,300
Compressive Strength Flatwise, PSI	D-695	30,500
Impact Strength Edgewise, Ft/Lbs		16.3
Shear Strength, PSI	D-229	10923
Arc Resistance, Seconds	D-495	189
Dielectric Perp. In Air, VPM	D-149	331
Dielectric Strength, Parallel, KV	D-149	48.62

Unless otherwise indicated, all properties published are based on test performed on standard ASTM test samples and according to ASTM test methods. Values shown are for test samples made from production materials and they are believed to be conservative. No warranty is to be construed, however, in fabricated or molded form, parts may vary considerably from this standard test data. Where specific or unusual applications arise, test should be made on actual parts, and test procedures agreed upon between Haysite Reinforced Plastics and the customer.



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Report Title: Chemical Spot Tests on Two Panels

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## 1. INTRODUCTION

The purpose of the chemical spot test is to evaluate the resistance of the surface finish to chemical spills. The appropriateness of the surface finish for a specific use is dependent on the conditions and chemicals to which the surface is exposed.

## 2. SAMPLE IDENTIFICATION

The two 12" by 24" sections of reinforced plastic panel were submitted for analysis.

<u>Customer Identification</u>	<u>CCEM No.</u>
H190-PULT	07-9-1a
H190-COMP	07-9-1b

## 3. ANALYSIS

The panels were tested using the chemical spot test method detailed in the Scientific Equipment & Furniture Association's Document, "LABORATORY FURNITURE CASEWORK, SHELVING AND TABLES RECOMMENDED PRACTICES, SEFA 8 -1999", Section 8.0 Cabinet Surface Finish Tests, pages 10-12. Each panel was cleaned with soap and water and blotted dry prior to conditioning. Conditioning was carried out for approximately 48-hours at 73 plus/minus 3°F (23 plus/minus 2°C) at 50 plus/minus 5% relative humidity. The panels were tested for chemical resistance using the forty-nine different chemical reagents listed in Section 8.0. Test Method A uses volatile chemicals. A cotton ball saturated with the reagent is placed in the mouth of a one ounce (30cc) glass bottle and inverted on the panel surface. Test Method B uses non-volatile chemicals, mainly acids and bases. Five drops of the reagent are placed on the panel surface and covered with a 25 mm watch glass, convex side down. Test methods A and B were performed separately on each panel. For both of the test methods, the reagents were left on the panel for approximately one hour. The panels were then washed with reverse osmosis water, cleaned with detergent and naphtha followed by a rinse in deionized reverse osmosis water. After drying with a towel, the panels were conditioned for another 24-hours at 73 plus/minus 3°F (23 plus/minus 2°C) at 50 plus/minus 5% relative humidity. The individual spots were then evaluated using the following criteria:

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.

#### **4. RESULTS**

The results of the chemical spot test are attached in the Appendix. The test results on both panels resulted in less than four level 3 conditions, which meets the SEFA 8-1999 recommendation for a laboratory grade finish.

Please do not hesitate to contact us if we can be of further assistance.

Reported by:



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The following terms and conditions apply to this report:

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**APPENDIX**

**Chemical Spot Test Results**

**(Pages 5-9)**

# SEFA 8 (1999) - Chemical Spot Test

Date: 2007-04-18

Sample: 07-9-1a

Notes: Age and composition of Panel: Unknown

## SEFA 8 - 1999

Test No	Chemical Reagent	Test Method	Level
1	Amyl Acetate	A	1
2	Ethyl Acetate	A	1
4	Acetone	A	1
6	Butyl Alcohol	A	0
7	Ethyl Alcohol	A	0
8	Methyl Alcohol	A	0
10	Benzene	A	1
11	Carbon Tetrachloride	A	1
12	Chloroform	A	1
14	m-Cresol	A	1
15	Dichloroacetic Acid	A	1
16	N-N Dimethylformamide	A	0
17	1,4-Dioxane	A	0
18	Ethyl Ether	A	1
19	Formaldehyde, 37%	A	0
21	Furfural	A	2
22	Gasoline	A	1
27	Methyl Ethyl Ketone	A	1
28	Methylene Chloride	A	2
29	Monochlorobenzene	A	1
30	Naphthalene, Solid Flake	A	0
34	Phenol, 90%	A	1
46	Toluene	A	1
47	Trichloroethylene	A	1
48	Xylene	A	1

Level 0 No detectable change.

Level 1 Slight change in colour or gloss.

Level 2 Slight surface etching or severe staining.

Level 3 Pitting, cratering, swelling or erosion of coating. Oblivious and significant deterioration.

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.

# SEFA 8 (1999) - Chemical Spot Test

Date: 2007-04-18  
 Sample: 07-9-1a  
 Notes: Age and composition of Panel: Unknown

## SEFA 8 - 1999

Test No	Chemical Reagent	Test Method	Level
3	Acetic Acid, 98%	B	1
5	Acid Dichromate, 5%	B	0
9	Ammonium Hydroxide, 28%	B	1
13	Chromic Acid, 60%	B	2
20	Formic Acid, 90%	B	1
23	Hydrochloric Acid, 37%	B	0
24	Hydrofluoric Acid, 48%	B	3
25	Hydrogen Peroxide, 3%	B	0
26	Iodine, Tincture, 5%	B	2
31	Nitric Acid, 20%	B	0
32	Nitric Acid, 30%	B	1
33	Nitric Acid, 70%	B	1
35	Phosphoric Acid, 85%	B	0
36	Silver Nitrate, Saturated	B	1
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 Sulphide, Saturated	B	0
42	Sulphuric Acid, 33%	B	0
43	Sulphuric Acid, 77%	B	1
44	Sulphuric Acid, 96%	B	3
45	Sulphuric Acid, 77% and Nitric Acid, 70%, equal parts	B	1
49	Zinc Chloride, Saturated	B	0

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

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.

# SEFA 8 (1999) - Chemical Spot Test

Date: 2007-04-18  
 Sample: 07-9-1b  
 Notes: Age and composition of Panel: Unknown

## SEFA 8 - 1999

Test No	Chemical Reagent	Test Method	Level
1	Amyl Acetate	A	1
2	Ethyl Acetate	A	1
4	Acetone	A	1
6	Butyl Alcohol	A	0
7	Ethyl Alcohol	A	0
8	Methyl Alcohol	A	0
10	Benzene	A	1
11	Carbon Tetrachloride	A	1
12	Chloroform	A	1
14	m-Cresol	A	0
15	Dichloroacetic Acid	A	1
16	N-N Dimethylformamide	A	0
17	1,4-Dioxane	A	0
18	Ethyl Ether	A	1
19	Formaldehyde, 37%	A	0
21	Furfural	A	2
22	Gasoline	A	1
27	Methyl Ethyl Ketone	A	1
28	Methylene Chloride	A	2
29	Monochlorobenzene	A	1
30	Naphthalene, Solid Flake	A	0
34	Phenol, 90%	A	1
46	Toluene	A	1
47	Trichloroethylene	A	1
48	Xylene	A	1

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

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.

# SEFA 8 (1999) - Chemical Spot Test

Date: 2007-04-18

Sample: 07-9-1b

Notes: Age and composition of Panel: Unknown

## SEFA 8 - 1999

Test No	Chemical Reagent	Test Method	Level
3	Acetic Acid, 98%	B	1
5	Acid Dichromate, 5%	B	0
9	Ammonium Hydroxide, 28%	B	1
13	Chromic Acid, 60%	B	2
20	Formic Acid, 90%	B	1
23	Hydrochloric Acid, 37%	B	0
24	Hydrofluoric Acid, 48%	B	3
25	Hydrogen Peroxide, 3%	B	0
26	Iodine, Tincture, 5%	B	2
31	Nitric Acid, 20%	B	0
32	Nitric Acid, 30%	B	1
33	Nitric Acid, 70%	B	2
35	Phosphoric Acid, 85%	B	0
36	Silver Nitrate, Saturated	B	2
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 Sulphide, Saturated	B	0
42	Sulphuric Acid, 33%	B	0
43	Sulphuric Acid, 77%	B	1
44	Sulphuric Acid, 96%	B	3
45	Sulphuric Acid, 77% and Nitric Acid, 70%, equal parts	B	2
49	Zinc Chloride, Saturated	B	0

- Level 0 No detectable change.
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