

# FUNDERMAX GMBH TEST REPORT

**SCOPE OF WORK**

SEFA 3-2010, 2.1 Analysis of Max Compact Interior Plus White and Black Plaques

**REPORT NUMBER**

103600635GRR-001a

**ISSUE DATE**

25-September-2018

**PAGES**

22

**DOCUMENT CONTROL NUMBER**

Per GFT-OP-10 (6-March-2018)

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## TEST REPORT FOR FUNDERMAX GMBH

Report No.: 103600635GRR-001a

Date: 25-September-2018

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### SECTION 1

#### CLIENT INFORMATION

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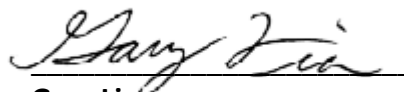
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**SECTION 2**

**SUMMARY AND CONCLUSION**

Date Received: 28-August-2018  
Dates Tested: 12-September-2018 to 20-September-2018

**DESCRIPTION OF SAMPLES**

Part Description: Max Compact Interior Plus Plaques  
Material Submitted: Four (4) Black Plaques & Four (4) White Plaques  
Material Specification: SEFA 3-2010 Section 2.1  
Condition of Samples: Production

**WORK REQUESTED/APPLICABLE DOCUMENTS**

SEFA 3-2010 Section 2.1

Intertek quote Qu-00893211

**CONCLUSION**

| TEST                     | DISPOSITION |
|--------------------------|-------------|
| 2.1 Chemical Resistance: |             |
| Black Sample             | *CONFORMING |
| White Sample             | *CONFORMING |

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

**SAMPLE DISPOSITION**

After testing completed, samples were rendered unusable and then disposed of.

### SECTION 3

#### 2.1 CHEMICAL/STAIN RESISTANCES:

Date Received: 28-August-2018  
Dates Tested: 12-September-2018 to 20-September-2018  
Location: Intertek

#### DESCRIPTION OF SAMPLES:

Part Description: Max Compact Interior Plus Plaques  
Material Submitted: Four (4) Black Plaques & Four (4) White Plaques  
Material Specification: SEFA 3-2010 Section 2.1  
Condition of Samples: Production

#### TEST PROCEDURE:

Test Method: Per SEFA 3-2010 Section 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.

|                    |                     |  |
|--------------------|---------------------|--|
| Rating Scale:      | Level 0             | <b>No effect</b> -No detectable change in the material surface.  |
|                    | Level 1             | <b>Excellent</b> -Slight detectable change in color or gloss but no change in function or life of the surface.   |
|                    | Level 2             | <b>Good</b> -A clearly discernible change in color or gloss but no significant impairment of surface life or function.   |
|                    | Level 3             | <b>Fair</b> -Objectionable change in appearance due to discoloration or etch, possibly resulting in deterioration of function over an extended period of time. |
| Number of Samples: | Two (2) Panel Types |  |

**ACCEPTANCE CRITERIA:**

Per SEFA 3-2010 Section 2.1

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:**

**Table 3: Max Compact Interior Plus Black Sample Chemical Spot Test Results**

| TEST NO. | CHEMICAL (% BY VOL.)    | METHOD | RATING | COMMENTS            |
|----------|-------------------------|--------|--------|---------------------|
| 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      | 0      |                     |
| 6        | Alcohol, Butyl          | A      | 0      |                     |
| 7        | Alcohol, Ethyl          | A      | 0      |                     |
| 8        | Alcohol, Methyl         | A      | 0      |                     |
| 9        | Ammonium Hydroxide, 28% | B      | 0      |                     |
| 10       | Benzene                 | A      | 0      |                     |
| 11       | Carbon Tetrachloride    | A      | 0      |                     |
| 12       | Chloroform              | A      | 1      | Slight gloss change |
| 13       | Chromic Acid, 60%       | B      | 1      | Slight gloss change |
| 14       | Cresol                  | A      | 0      |                     |
| 15       | Dichloroacetic Acid     | A      | 0      |                     |
| 16       | Dimethylformamide       | A      | 0      |                     |

| TEST NO. | CHEMICAL (% BY VOL.)  | METHOD | RATING | COMMENTS                   |
|----------|---|--------|--------|----------------------------|
| 17       | Dioxane   | A      | 0      |                            |
| 18       | Ethyl Ether   | A      | 0      |                            |
| 19       | Formaldehyde, 37%   | A      | 0      |                            |
| 20       | Formic Acid, 90%  | B      | 2      | Gloss change               |
| 21       | Furfural  | A      | 0      |                            |
| 22       | Gasoline  | A      | 0      |                            |
| 23       | Hydrochloric Acid, 37%  | B      | 1      | Slight gloss change        |
| 24       | Hydrofluoric Acid, 48%  | B      | 2      | Gloss change               |
| 25       | Hydrogen Peroxide,<br>30%                                     | B      | 0      |                            |
| 26       | Iodine, Tincture of   | B      | 1      | Slight gloss change        |
| 27       | Methyl Ethyl Ketone   | A      | 1      | Slight gloss change        |
| 28       | Methylene Chloride  | A      | 0      |                            |
| 29       | Monochlorobenzene   | A      | 0      |                            |
| 30       | Naphthalene   | A      | 0      |                            |
| 31       | Nitric Acid, 20%  | B      | 3      | Surface swelling           |
| 32       | Nitric Acid, 30%  | B      | 3      | Surface swelling           |
| 33       | Nitric Acid, 70%  | B      | 3      | Surface swelling           |
| 34       | Phenol, 90%   | A      | 1      | Slight gloss change        |
| 35       | Phosphoric Acid, 85%  | B      | 1      | Slight gloss change        |
| 36       | Silver Nitrate,<br>Saturated                                  | B      | 1      | Slight gloss change        |
| 37       | Sodium Hydroxide,<br>10%                                      | B      | 1      | Slight gloss change        |
| 38       | Sodium Hydroxide,<br>20%                                      | B      | 1      | Slight gloss change        |
| 39       | Sodium Hydroxide,<br>40%                                      | B      | 1      | Slight gloss change        |
| 40       | Sodium Hydroxide,<br>Flake                                    | B      | 1      | Slight gloss change        |
| 41       | Sodium Sulfide,<br>Saturated                                  | B      | 0      |                            |
| 42       | Sulfuric Acid, 33%  | B      | 1      | Slight gloss change        |
| 43       | Sulfuric Acid 77%   | B      | 2      | Gloss change               |
| 44       | Sulfuric Acid, 96%  | B      | 2      | Gloss change, color change |
| 45       | Sulfuric Acid, (77%)<br>and Nitric Acid (70%),<br>equal parts | B      | 2      | Gloss change               |
| 46       | Toluene   | A      | 0      |                            |
| 47       | Trichloroethylene   | A      | 0      |                            |
| 48       | Xylene  | A      | 0      |                            |
| 49       | Zinc Chloride,<br>Saturated                                   | B      | 0      |                            |

**Table 4: Max Compact Interior Plus Black Sample Summary Results Table:**

| TOTALS                 |                                      |                            |             |
|------------------------|--------------------------------------|----------------------------|-------------|
| ITEMS                  | REQUIREMENT                          | NO. REAGENT WITH 3 RATINGS | DISPOSITION |
| Volatile Subtotal:     | -                                    | 0                          | ---         |
| Non-volatile Subtotal: | -                                    | 3                          | ---         |
| Grand Totals:          | No More than Four Level 3 Conditions | 3                          | *Conforming |

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

**Table 5: Max Compact Interior Plus White Sample Chemical Spot Test Results**

| TEST NO. | CHEMICAL (% BY VOL.)         | METHOD | RATING | COMMENTS               |
|----------|------------------------------|--------|--------|------------------------|
| 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      | Slight color change    |
| 6        | Alcohol, Butyl               | A      | 0      |                        |
| 7        | Alcohol, Ethyl               | A      | 0      |                        |
| 8        | Alcohol, Methyl              | A      | 0      |                        |
| 9        | Ammonium Hydroxide,<br>28%   | B      | 0      |                        |
| 10       | Benzene                      | A      | 0      |                        |
| 11       | Carbon Tetrachloride         | A      | 0      |                        |
| 12       | Chloroform                   | A      | 0      |                        |
| 13       | Chromic Acid, 60%            | B      | 2      | Staining               |
| 14       | Cresol                       | A      | 0      |                        |
| 15       | Dichloroacetic Acid          | A      | 0      |                        |
| 16       | Dimethylformamide            | A      | 0      |                        |
| 17       | Dioxane                      | A      | 0      |                        |
| 18       | Ethyl Ether                  | A      | 0      |                        |
| 19       | Formaldehyde, 37%            | A      | 0      |                        |
| 20       | Formic Acid, 90%             | B      | 1      | Slight gloss change    |
| 21       | Furfural                     | A      | 2      | Staining               |
| 22       | Gasoline                     | A      | 0      |                        |
| 23       | Hydrochloric Acid, 37%       | B      | 1      | Slight gloss change    |
| 24       | Hydrofluoric Acid, 48%       | B      | 1      | Slight gloss change    |
| 25       | Hydrogen Peroxide,<br>30%    | B      | 0      |                        |
| 26       | Iodine, Tincture of          | B      | 2      | Staining               |
| 27       | Methyl Ethyl Ketone          | A      | 0      |                        |
| 28       | Methylene Chloride           | A      | 0      |                        |
| 29       | Monochlorobenzene            | A      | 0      |                        |
| 30       | Naphthalene                  | A      | 0      |                        |
| 31       | Nitric Acid, 20%             | B      | 3      | Surface swelling       |
| 32       | Nitric Acid, 30%             | B      | 3      | Surface swelling       |
| 33       | Nitric Acid, 70%             | B      | 3      | Surface swelling       |
| 34       | Phenol, 90%                  | A      | 0      |                        |
| 35       | Phosphoric Acid, 85%         | B      | 1      | Slight gloss change    |
| 36       | Silver Nitrate,<br>Saturated | B      | 2      | Staining, color change |
| 37       | Sodium Hydroxide,<br>10%     | B      | 2      | Staining, color change |



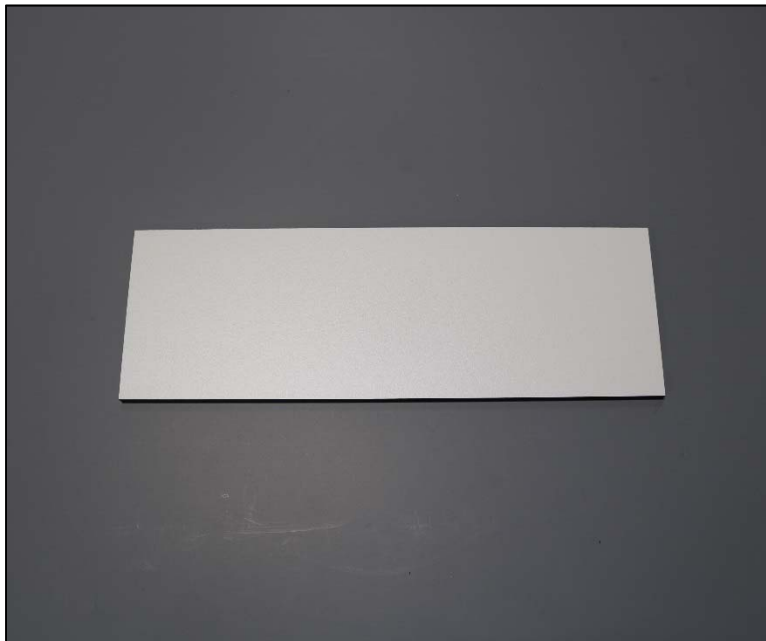
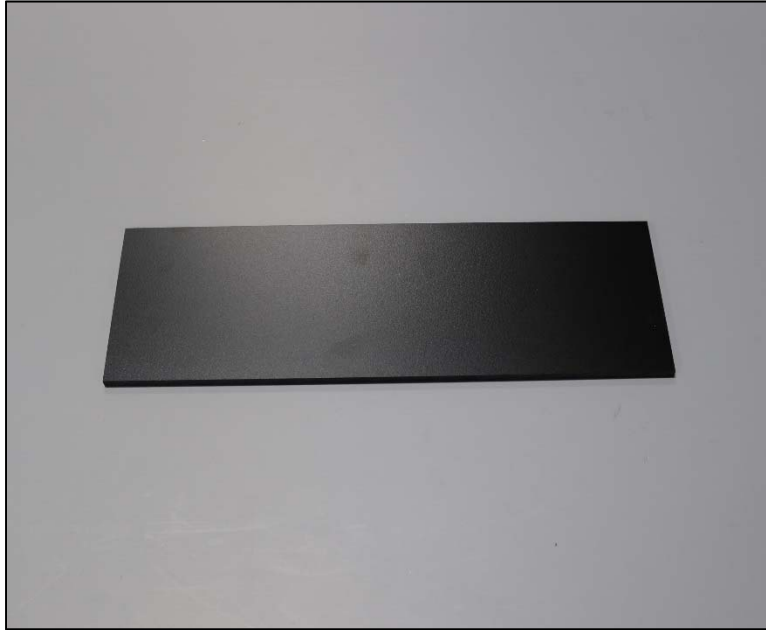
| TEST NO. | CHEMICAL (% BY VOL.)                                    | METHOD | RATING | COMMENTS            |
|----------|---|--------|--------|---------------------|
| 38       | Sodium Hydroxide, 20%                                   | B      | 0      |                     |
| 39       | Sodium Hydroxide, 40%                                   | B      | 0      |                     |
| 40       | Sodium Hydroxide, Flake                                 | B      | 0      |                     |
| 41       | Sodium Sulfide, Saturated                               | B      | 0      |                     |
| 42       | Sulfuric Acid, 33%                                      | B      | 1      | Slight gloss change |
| 43       | Sulfuric Acid 77%                                       | B      | 0      |                     |
| 44       | Sulfuric Acid, 96%                                      | B      | 1      | Slight gloss change |
| 45       | Sulfuric Acid, (77%) and Nitric Acid (70%), equal parts | B      | 2      | Color change        |
| 46       | Toluene   | A      | 0      |                     |
| 47       | Trichloroethylene                                       | A      | 0      |                     |
| 48       | Xylene  | A      | 0      |                     |
| 49       | Zinc Chloride, Saturated                                | B      | 0      |                     |

**Table 6: Max Compact Interior Plus White Sample Summary Results Table:**

| TOTALS                 |                                      |                            |             |
|------------------------|--------------------------------------|----------------------------|-------------|
| ITEMS                  | REQUIREMENT                          | NO. REAGENT WITH 3 RATINGS | DISPOSITION |
| Volatile Subtotal:     | -                                    | 0                          | ---         |
| Non-volatile Subtotal: | -                                    | 3                          | ---         |
| Grand Totals:          | No More than Four Level 3 Conditions | 3                          | *Conforming |

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

**PHOTOGRAPHS:**



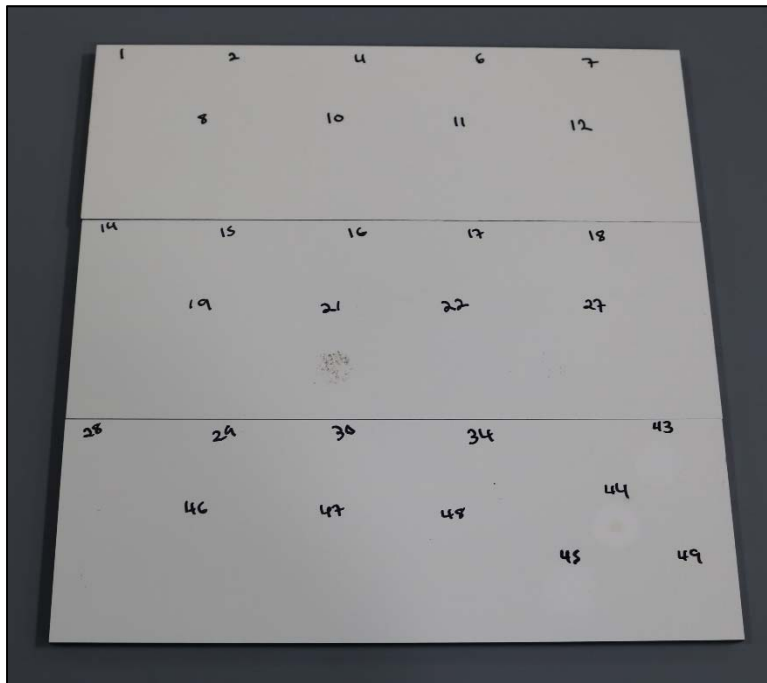
**Chemical Spot Test "As Received" Test Panels**



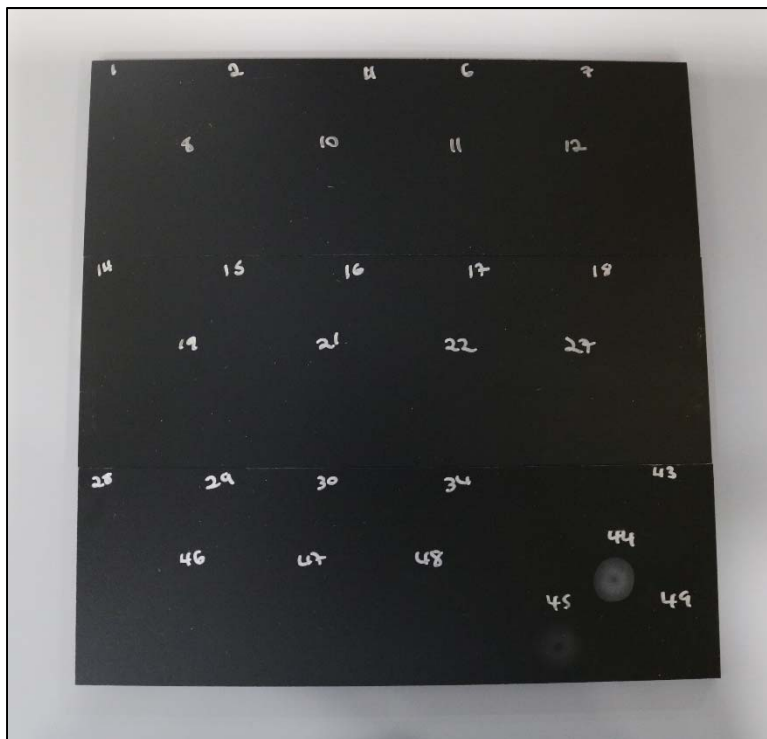
Representative Chemical Spot Test Volatile Chemical Set-up



Representative Chemical Spot Test Non-volatile Chemical Set-up



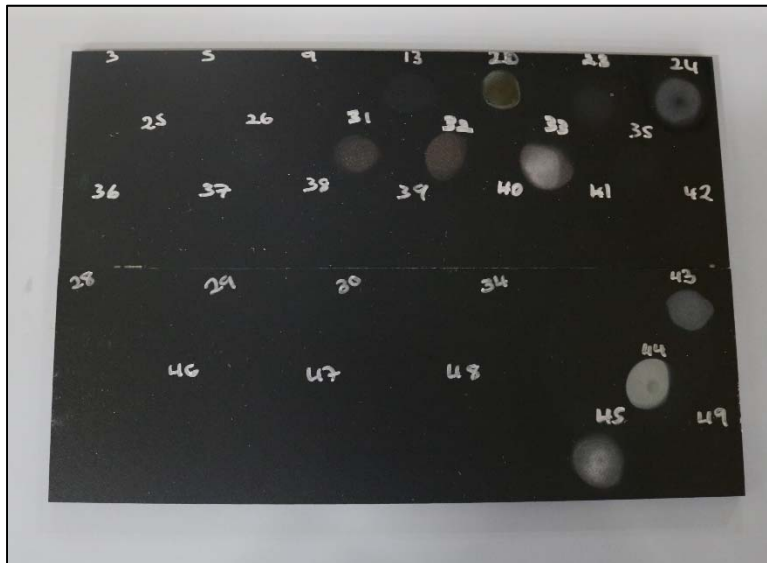
Chemical Spot Test Volatile after Exposure, White Sample



Chemical Spot Test Volatile after Exposure, Black Sample



Chemical Spot Test Non-volatile after Exposure, White Sample



Chemical Spot Test Non-volatile after Exposure, Black Sample



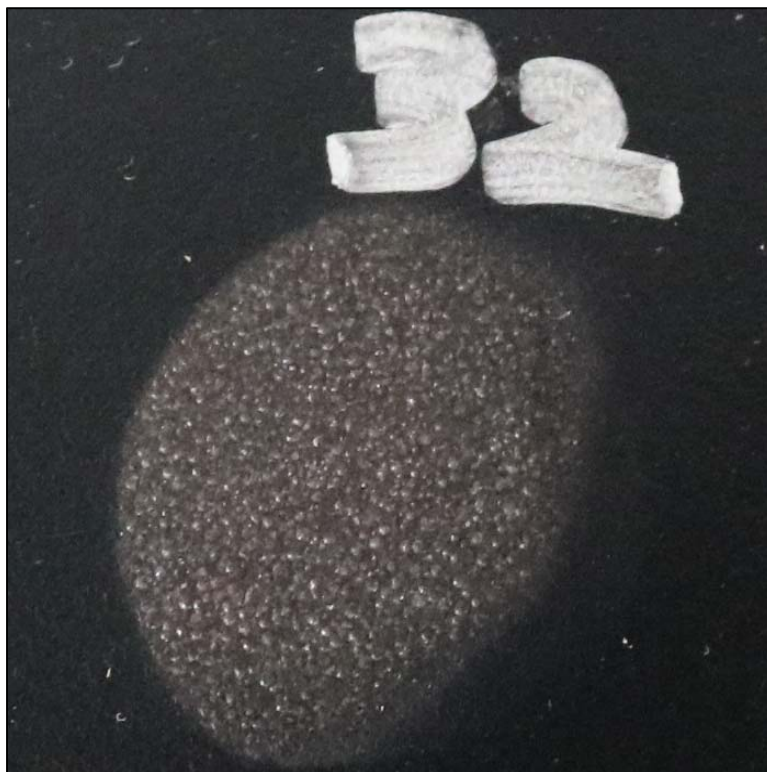
**Chemical Spot Test #20, Formic Acid (90%), Rating 2, Gloss change (Staining occurred by residual flow form chemical spot test #26, tincture of iodine, during rinsing.)**



**Chemical spot test #24, Hydrofluoric Acid (48%), Rating 2, Gloss change**



**Chemical spot test #31, Nitric Acid (20%), Rating 3, Surface swelling**



**Chemical spot test #32, Nitric Acid (30%), Rating 3, Surface swelling**

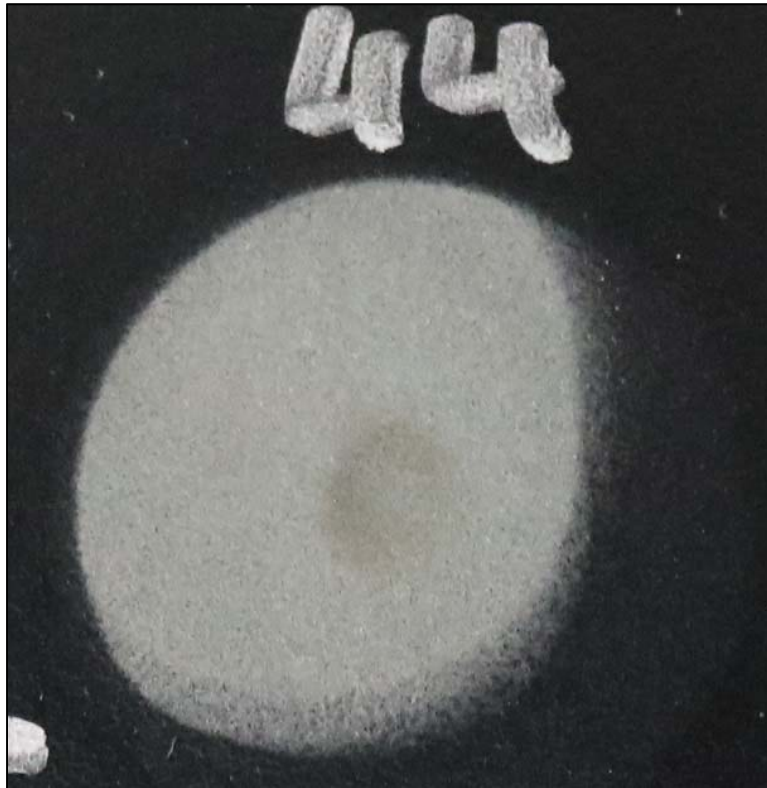


**Chemical spot test #33, Nitric Acid (70%), Rating 3, Surface swelling**

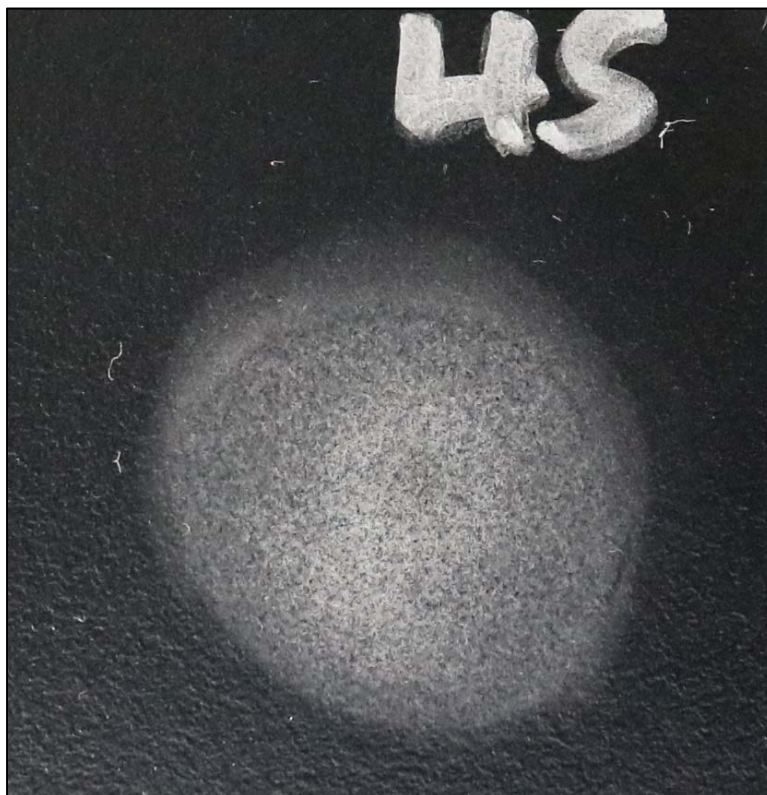


**Chemical spot test #43, Sulfuric Acid (77%), Rating 2, Gloss change**





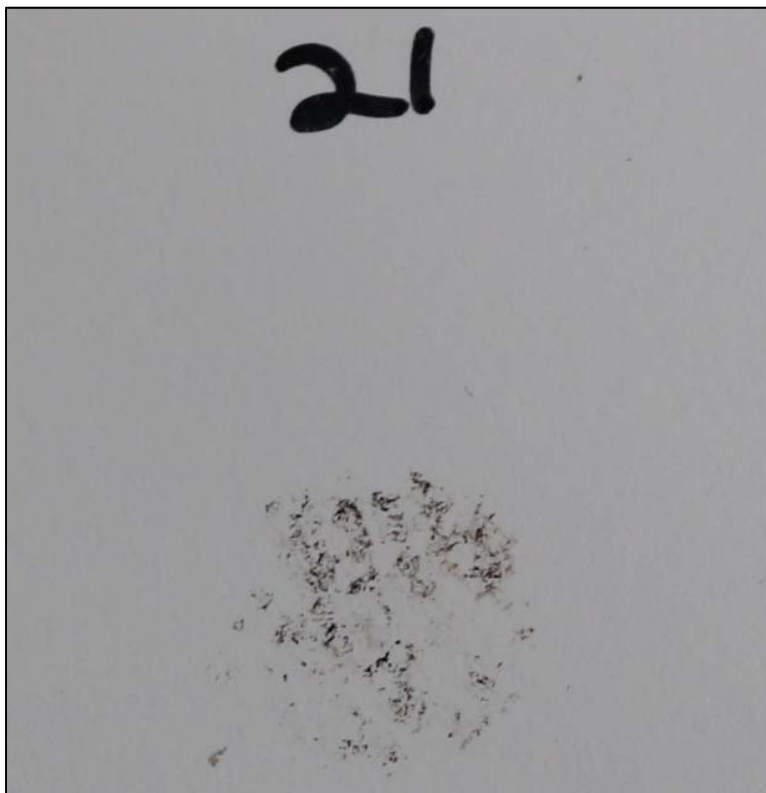
**Chemical spot test #44, Sulfuric Acid (96%), Rating 2, Gloss change, color change**



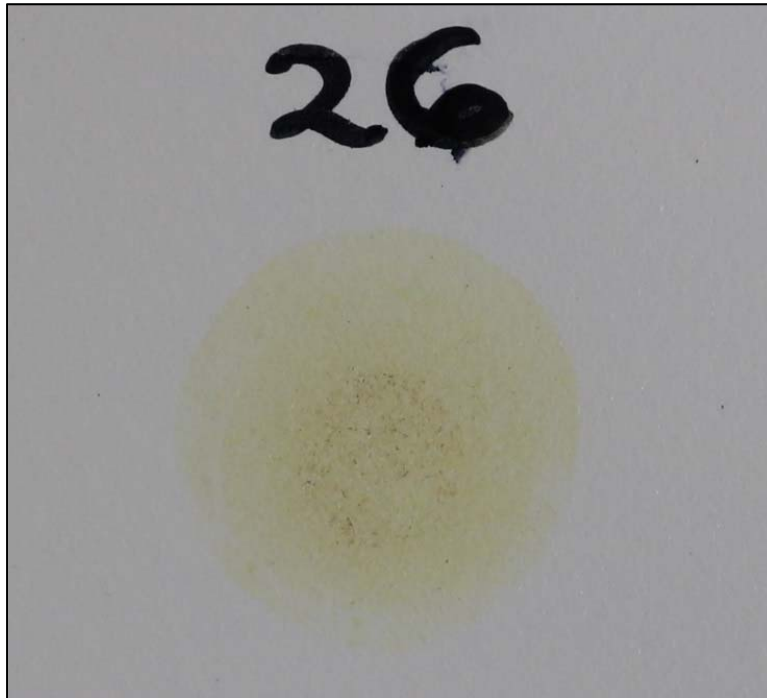
**Chemical spot test #45, Sulfuric Acid (77%) and Nitric Acid (70%), equal parts, Rating 2, Gloss change**



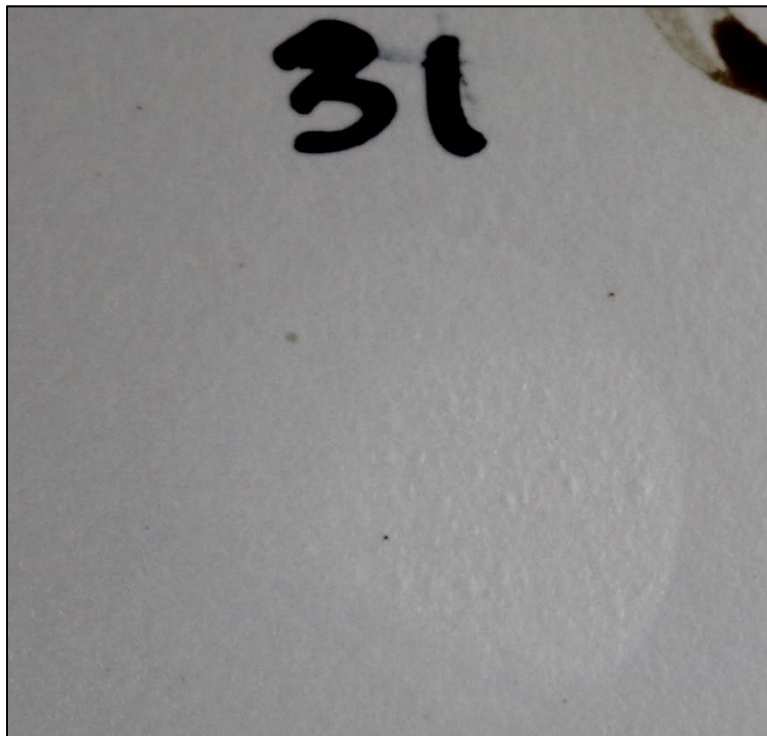
**Chemical spot test #13, Chromic Acid (60%), Rating 2, Staining**



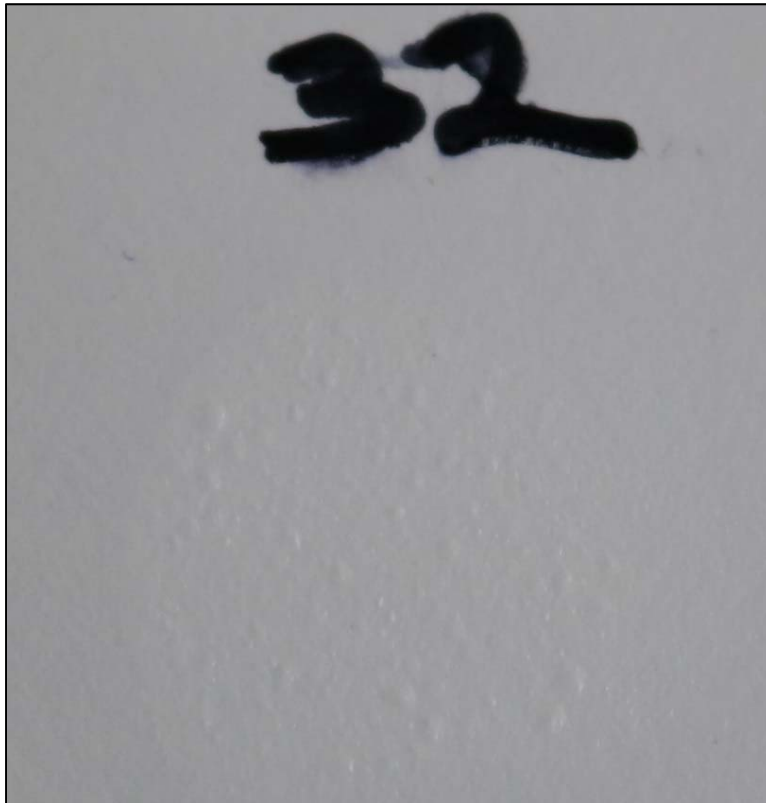
**Chemical spot test #21, Furfural, Rating 2, Staining**



**Chemical spot test #26, Iodine, Rating 2, Staining**



**Chemical spot test #31, Nitric Acid (20%), Rating 3, Surface swelling**



**Chemical spot test #32, Nitric Acid (30%), Rating 3, Surface swelling**



**Chemical spot test #33, Nitric Acid (70%), Rating 3, Surface swelling**



**Chemical spot test #36, Silver Nitrate, Saturated, Rating 2, Staining, color change**



**Chemical spot test #37, Sodium Hydroxide (10%), Rating 2, Staining, color change**



**Chemical spot test #45, Sulfuric Acid (77%) and Nitric Acid (70%), equal parts, Rating 2,  
Color change**