CLEANING LABORATORY EVALUATION SUMMARY

SCL #:	2019
DateRun:	06/03/2019
Experimenters:	Justin Rainaud
ClientType:	
ProjectNumber:	Project #1
Substrates:	Carpet
PartType:	Coupon
Contaminants:	Inks, Dirt, Oil, Food
Cleaning Methods:	Manual Wipe
Analytical Methods:	Light Meter, Visual
Purpose:	To evaluate supplied product's ability to remove contaminants from carpet surfaces

Experimental Procedure:

Eight almond white tufted cut pile test carpet measuring 18 inch by 24 inch were stained with eight staining agents. The staining agent was applied to the surface using a trigger pump spray bottle capable of delivering 2.5 +/- 0.5 ml of stain mixture. The eight staining agents included mustard, ketchup, coffee, grape juice, black permanent marker (2*2 squares instead of 2.5 ml), dirty motor oil, AATCC synthetic soil, and chocolate syrup. These staining agents were used according to the dilution ratios listed in the table below.

Staining Agent	Dilution ratio
Mustard	1:2 mustard: water
ketchup	1:3 ketchup: water
Hot Coffee 60 deg +/-3C	1 teaspoon coffee to 175 ml water
Purple Grape Juice	Full concentration
Black Permanent Marker	N/A
Dirty Motor Oil	Full concentration
AATCC Synthetic Soil	0.5 grams/100 ml water
Chocolate Syrup	1:4 chocolate: water

The staining agent mixture was poured into the spray bottle. The nozzle of the bottle was centered on the carpet and three pumps of the spray bottle were performed to deliver the 2.5 ml of mixture to the test carpet. The completed test carpets were allowed to dry for 24 hours +/- 2 hours before conducting the stain removal procedure. Following the overnight drying, any excess solid staining agent was removed from the test carpet. The cleaning agent was applied to the surface so that the stain was saturated. The solution was allowed to sit on the stain for 2 minutes. The saturated stain was blotted with a clean dry Kimberly Clark Reinforced wiper towel for 30 times. The cleaning solution was applied to the surface and for three applications of the cleaning solution were performed. The total number of applications was recorded for each stain. The test carpet was allowed to sit for another 24 +/-2 hours to dry before evaluating the stains. A minimum of three lab personnel were used to evaluate the stain removal efficacy which were then averaged together for the final rating. The evaluations were based on the following scale:

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Clean Rating Key

5	No Stain
4	Slight Stain
3	Noticeable Stain
2	Considerable Stain
1	Severe Stain

The Test solution had a PH value of 9.15, a chlorine concentration of 310 ppm, and was used at a temperature of 22°C.

Results:

Result of Light Analysis:

Soil	Light* Initial	Light* Dirty	Light* Final	% Change	Avg. % DET
Mustard	68.91	66.55	66.55	5.08	
	69.25	71.76	70.47	51.39	-55.37
	72.48	71.55	69.48	-222.58	
Ketchup	74.44	68.61	73.41	82.33	
	75.35	63.12	63.77	5.31	533.38

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	65.86	65.7	68.12	1512.50	
Hot Coffee	75.87	77.51	76.94	34.76	
	65.61	69.10	69.67	-22.06	17.21
	68.10	60.11	63.22	38.92	
Grape Juice	76.17	66.78	74.03	77.21	
	75.77	63.14	71.35	65.00	82.38
	68.92	60.19	69.35	104.93	
Black Marker	66.61	49.79	63.07	78.95	
	71.16	55.32	57.25	12.18	34.64
	73.98	54.36	56.87	12.79	
Motor Oil	68.69	58.1	68.69	100.00	
	69.96	65.22	67.45	47.05	67.13
	72.8	63.38	68.5	54.35	
Synthetic Soil	73.22	55.32	63.75	47.09	
	68.48	55.21	59.51	32.40	21.20
	75	60.65	58.37	-15.89	
Chocolate Syrup	72.05	60.64	68.43	68.27	
	75.14	58.75	71.27	76.39	66.54
	71.34	62.17	67.21	54.96	

Result of Visual Analysis:

Soil	Clean Visual:			Avg. Clean Visual	Avg. Clean Visual	Overall average
Mustard	2	2	3	2.33		
	2	2	3	2.33	2.22	
	2	2	2	2.00		
Ketchup	2	3	3	2.66		
	3	3	4	3.33	3.11	
	3	3	4	3.33		
Hot Coffee	5	5	5	5		
	5	5	5	5	4.78	
	5	4	4	4.33		
Grape Juice	4	4	5	4.33		
	3	3	4	3.33	4.11	
	5	4	5	4.66		
Black Marker	1	1	2	1.33		3.026
	1	1	2	1.33	1.33	
	1	1	2	1.33		
Motor Oil	3	3	3	3.00		
	3	3	4	3.33	3.44	
	4	4	4	4.00		
Synthetic Soil	1	3	3	2.33		
	1	3	2	2.00	2.11	
	1	3	2	2.00		
Chocolate Syrup	2	3	3	2.67		
	3	3	4	3.33	3.11	
	3	3	4	3.33		

Summary: E-mop with 3g of salt was effective at cleaning hot coffee and grape juice with visuals rating over 4. It was less effective against synthetic soil, black marker, and mustard with visual ratings below 2.5. The overall rating was 3.026. The light reading showed that the stains were being removed by the cleaning which is consistent with the visual results.

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Conclusion: E-mop with 3g of salt was effective in removing coffee, and grape juice stains. It however was less effective on black marker and synthetic soils stains.

Summary:

Substrates:	Carpet				
Contaminants:	Inks, Dirt, Oil, Food				
Company Name:	**Product Name:**	**Conc.:**	**Efficiency:**	**Effective:**	**Observations:**
Thane Direct Inc	E Mop	100	0.00	☑	

Conclusion:

During the evaluation using the color changes, several readings showed wide variance in cleaning performance (most prominent were highlighted in yellow. With some soils and cleaners, the surface can become darker in some areas but lighter in others depending upon how much the soil spreads (bleeding) when the cleaning product is applied. For this reason, the lab also includes a second method of observation.