CLEANING LABORATORY EVALUATION SUMMARY

SCL #:	2009
DateRun:	09/27/2009
Experimenters:	Jason Marshall, Junhee Cho
ClientType:	Cleaning Equipment Mfr
ProjectNumber:	Project #1
Substrates:	Textile
PartType:	Coupon
Contaminants:	Inks, Oil, Food
Cleaning Methods:	Manual Wipe
Analytical Methods:	Visual, Gloss-Color Meter
Purpose:	To evaluate supplied equipment for carpet stain removal as compared with water.
Experimental Procedure:	The purpose of this evaluation was to assess effectiveness of spot and stain removal chemicals by rating the removal of specific staining agents. Two almond white tufted cut pile test carpet measuring 18 inch by 24 inch were stained with eight staining agents. Each staining agent was applied to the test carpet in triplicate, spaced out at 2.5 inches. 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 spray was focused within a staining ring measuring 1.5 inches wide by 1.2 inches high. The eight staining agents included mustard, catsup, coffee, grape juice, black permanent marker (2 1” lines 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 Catsup 1:3 catsup:water Hot Coffee 60 deg +/-3C 1 teaspoon coffee to 175 ml water Purple Grape Juice Full concentration Black Permanent Marker-Chisel Point N/A Dirty Motor Oil 1:1 oil:heptane* AATCC Synthetic Soil 0.5 grams/100 ml water Chocolate Syrup 1:4 chocolate:water *heptane used in place of tetradecane The staining agent mixture was poured into the spray bottle. The nozzle of the bottle was centered inside the staining ring and three pumps of the spray bottle were performed to deliver the 2.5 ml of mixture to the test carpet. The staining ring was left in place until the staining agent was completely soaked into the test carpet. The ring was rinsed in between each staining location. The two 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. Any transfer of the stain/cleaning agent to the towel was noted. Blotting continued until all evidence of liquid transfer was gone. At this point, the cleaning solution was applied to the surface and blotted until the stain was completely removed or 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: Rating Key 5 No Stain 4 Slight Stain 3 Noticeable Stain 2 Considerable Stain 1 Severe Stain Due to the nature of the supplied cleaning process, a follow up carpet stain cleaning was performed so that cleaning could take place during the active cycle of the solution. The equipment was used to apply 4-6 seconds of activated water to the stain and cleaned immediately (without the 2-3 minute dwell time as in the first test). The number of applications was recorded and the stain level was then assessed again.
Results:	The Activeion product removed more of the stain than regular water for all but two soils using the standardized testing methodology requiring a 2-3 minute soak. Follow up testing using no soak time for the Activeion cleaning resulted in a vast improvement of the initial process. Results for both cleaning processes are listed below.

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	Chemical												
	Lab 1			Lab 2			Lab 3			Lab 4			
Stain type	Spot 1	Spot 2	Spot 3	Spot 1	Spot 2	Spot 3	Spot 1	Spot 2	Spot 3	Spot 1	Spot 2	Spot 3	Overall Average
Mustard	3	3	2	2	2	2	3	3	3	2.5	3	3	2.6
Catsup	4	3	4	3	3	3	4	3	3	4	4.5	4	3.5
Hot Coffee 60 deg +/-3C	3	3	3	3	3	3	2	3	2	3	3.5	3	2.9
Purple Grape Juice	2	2	2	1	1	1	2	2	2	3	3	2.5	2.0
Black Permanent Marker	2	1	2	2	2	2	1	1	1	1	1	1	1.4
Dirty Motor Oil	4	4	4	4	4	4	4	4	4	4	4.5	4	4.0
AATCC Synthetic Soil	1	2	2	3	3	3	2	2	2	2.5	3	2.5	2.3
Chocolate Syrup	4	4	4	4	4	4	4	3	4	4.5	4	4.5	4.0
	Water												
Mustard	2	2	2	2	2	2	2	2	2	2	1.5	2	2.0
Catsup	3	3	3	3	3	3	3	3	3	3	3.5	3	3.0
Hot Coffee 60 deg +/-3C	3	3	2	3	3	3	3	3	3	3.5	3.5	3	3.0
Purple Grape Juice	3	3	2	2	2	2	3	3	2	3.5	3	3	2.6
Black Permanent Marker	1	1	1	1	1	1	1	1	1	1	1	1	1.0
Dirty Motor Oil	4	4	3	4	4	4	4	4	3	4	3.5	3.5	3.8
AATCC Synthetic Soil	1	1	1	3	3	3	2	2	2	2	2	2	2.0
Chocolate Syrup	2	2	2	3	3	3	2	2	2	3	2.5	3	2.5

Summary

Overall Averages	Activeion	Water	Activeion without soak
Mustard	2.6	2.0	3.0
Catsup	3.5	3.0	3.9
Hot Coffee 60 deg +/-3C	2.9	3.0	4.1
Purple Grape Juice	2.0	2.6	3.0
Black Permanent Marker	1.4	1.0	2.2
Dirty Motor Oil	4.0	3.8	4.1
AATCC Synthetic Soil	2.3	2.0	3.8
Chocolate Syrup	4.0	2.5	4.2

Summary:

Substrates:	Textile				
Contaminants:	Inks, Oil, Food				
Company Name:	**Product Name:**	**Conc.:**	**Efficiency:**	**Effective:**	**Observations:**

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Activeion Cleaning Solutions LLC	Activeion Pro	100	0.00	☑	
Water	Water	100	0.00	☐	

Conclusion: Using the modified cleaning process resulted in the Activeion achieving higher stain removal scores. Seven of the eight stains resulted in a ranking in the slight to noticeable level. When using the soaking time, the Activeion unit had six of the eight stain fall in the noticeable to considerable range. Water had seven of the stains in the noticeable to considerable range.