CLEANING LABORATORY EVALUATION SUMMARY

SCL #:	2014
DateRun:	06/05/2014
Experimenters:	Jonathan Oljey, George Liang
ClientType:	Cleaner Manufacturer
ProjectNumber:	Project #1
Substrates:	Textile
PartType:	Coupon
Contaminants:	Inks, Oil, Food
Cleaning Methods:	Manual Wipe
Analytical Methods:	Visual
Purpose:	To evaluate supplied product for carpet stain cleaning following CRI TM 110 Section 1.

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

Chemistries Evaluated: Resolve, SR# 14-100C, Water

Results:

Dirty Analysis		Tester 1				Tester 2				Tester 3				Total
Cleaner	Soil	Dirty 1	2	3	Ave	Dirty 1	2	3	Ave	Dirty 1	2	3	Ave	Ave
Resolve	Mustard	2	2	2	2	3	3	3	3	2	2	2	2	2.3
	Catsup	2	2	3	2.3	3	3	3	3	2	2	3	2.3	2.5
	Hot Coffee	4	3	4	3.7	3	2	2	2.3	4	3	4	3.7	3.2

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CLEANING LABORATORY EVALUATION SUMMARY

	Grape	4	4	4	4	4	4	4	4	3	3	3	3	3.7
	Marker	1	1	1	1	2	2	2	2	1	1	1	1	1.3
	Chocolate	2	2	2	2	2	2	2	2	1	1	1	1	1.7
	Motor Oil	3	3	3	3	3	3	3	3	2	2	2	2	2.7
	AATCC Soil	4	3	4	3.7	3	3	3	3	3	2	2	2.3	3
	Pet Vomit	3	4	4	3.3	2	1	2	1.7	3	2	2	2.3	2.4
	Pet Urine	3.5	4	3.5	3.7	4	2	3	3	4	4	3.8	3.9	3.5
	Composite	28.5	28	30.5	28.7	29	25	27	27	25	22	23.8	23.5	26.4
SR# 14-100C	Mustard	2	3	2	2.3	2	2	2	2	2	2	3	2.3	2.2
	Catsup	2	2	2	2	2	2	3	2.3	2	3	3	2.7	2.3
	Hot Coffee	4	4	4	4	3	3	4	3.3	2	3	4	3	3.4
	Grape	3	4	4	3.7	3	4	4	3.7	2	3	3	2.7	3.4
	Marker	1	1	1	1	2	2	2	2	1	1	1	1	1.3
	Chocolate	2	2	2	2	1	2	2	1.7	1	1	1	1	1.6
	Motor Oil	3	3	3	3	3	2	2	2.3	2	2	3	2.3	2.5
	AATCC Soil	2	3	3	2.7	2	2	2	2	3	3	3	3	2.6
	Pet Vomit	3	3	2	2.7	1	1	3	1.7	3	3	2	2.7	2.4
	Pet Urine	3	3.5	3.5	3.3	3	4	4	3.7	4	4	3.8	3.9	3.6
	Composite	25	28.5	26.5	26.7	22	24	28	24.7	22	25	26.8	24.6	25.3
Water	Mustard	2	2	3	2.3	2	2	2	2	2	2	2	2	2.1
	Catsup	2	2	3	2.3	2	2	3	2.3	2	2	2	2	2.2
	Hot Coffee	4	4	4	4	2	3	3	2.7	2	3	3	2.7	3.1
	Grape	4	4	4	4	3	4	4	3.7	3	3	4	3.3	3.7
	Marker	1	1	1	1	2	3	2	2.3	1	1	1	1	1.4
	Chocolate	2	2	2	2	3	3	3	3	1	1	1	1	2
	Motor Oil	3	3	3	3	4	3	3	3.3	3	3	2	2.7	3
	AATCC Soil	3	2	2	2.3	4	4	4	4	2	2	3	2.3	2.9
	Pet Vomit	2	2	2	2	3	2	1	2	3	3	3	3	2.3
	Pet Urine	3	3	3	3	4	3	2	3	3	3	3	3	3
	Composite	26	25	27	25.9	29	29	27	28.3	22	23	24	23	25.7
Clean	Analysis	Tester 1				Tester 2				Tester 3				Total
Cleaner	Soil	Clean 1	2	3	Avg	Clean 1	2	3	Avg	Clean 1	2	3	Avg	Avg
Resolve	Mustard	1	1	1	1	3	2	2	2.3	3	4	4	3.7	2.3
	Catsup	4	4	4	4	3	3	4	3.3	4	4	5	4.3	3.9
	Hot Coffee	5	5	5	5	4	4	4	4	4	4	4	4	4.3
	Grape	5	5	5	5	5	5	5	5	5	5	5	5	5
	Marker	1	1	1	1	2	2	2	2	2	2	3	2.3	1.8
	Chocolate	5	5	5	5	5	5	5	5	5	5	5	5	5
	Motor Oil	4	4	4	4	4	4	4	4	3	3	3	3	3.7
	AATCC Soil	4	4	4	4	4	4	3	3.7	4	4	4	4	3.9
	Pet Vomit	4.8	4	4	4.3	5	5	4	4.7	4.5	4	4	4.2	4.4
	Pet Urine	4	4	4	4	5	5	5	5	4.5	4	4.5	4.3	4.4
	Composite	37.8	37	37	37.3	40	39	38	39	39	39	41.5	39.8	38.7
SR# 14-100C	Mustard	1	1	1	1	4	3	3	3.3	4	3	3	3.3	2.5
	Catsup	4	4	4	4	5	5	4	4.7	5	5	5	5	4.6
	Hot Coffee	5	5	5	5	3	4	3	3.3	3	3	4	3.3	3.9
	Purple Grape	5	5	5	5	5	5	5	5	5	5	5	5	5
	Black Marker	1	1	1	1	2	2	2	2	2	3	3	2.7	1.9
	Chocolate	5	5	5	5	5	5	5	5	5	5	5	5	5
	Motor Oil	4	4	4	4	3	4	4	3.7	3	4	4	3.7	3.8
	AATCC Soil	4	5	5	4.7	4	4	4	4	4	4	4	4	4.2
	Pet Vomit	4	4	5	4.3	5	4	5	4.7	4	4	4	4	4.3
	Pet Urine	5	5	5	5	5	5	5	5	4.5	5	4.8	4.8	4.9

CLEANING LABORATORY EVALUATION SUMMARY

	Composite	38	39	40	39	41	41	40	40.7	39.5	41	41.8	40.8	40.2
Water	Mustard	1	1	1	1	3	3	4	3.3	3	3	4	3.3	2.5
	Catsup	4	4	4	4	5	4	5	4.7	5	4	5	4.7	4.5
	Hot Coffee	5	5	5	5	3	4	4	3.7	3	4	4	3.7	4.1
	Purple Grape	5	5	5	5	5	5	5	5	5	5	5	5	5
	Black Marker	1	1	1	1	2	2	3	2.3	3	3	3	3	2.1
	Chocolate	5	5	5	5	5	5	5	5	5	5	5	5	5
	Motor Oil	4	4	4	4	4	4	4	4	4	4	4	4	4
	AATCC Soil	4	4	4	4	4	4	4	4	4	4	4	4	4
	Pet Vomit	5	4	4.5	4.5	5	4	5	4.7	4	4	4.5	4.2	4.5
	Pet Urine	4.5	4.5	4.5	4.5	5	5	5	5	4.8	4.8	4.8	4.8	4.8
	Composite	38.5	37.5	38	38	41	40	44	41.7	40.78	40.8	43.3	41.7	40.5

For each staining substance, the supplied product had a higher rating. The overall average for the stain removal for the supplied products and water are in the next table.

Averages			
Cleaner	Dirty Composite	Clean Composite	Clean - Dirty
Resolve	26.4	38.7	12.3
SR# 14-100C	25.3	40.2	14.8
Water	25.7	40.5	14.7

Summary:

Substrates:	Textile				
Contaminants:	Inks, Oil, Food				
Company Name:	**Product Name:**	**Conc.:**	**Efficiency:**	**Effective:**	**Observations:**
Brand Buzz	SR# 14-100C	100	0.00	☑	
Reckitt Benckiser	Resolve High Traffic Foam Carpet Cleaner	100	0.00	☑	
Water	Water	100	0.00	☐	

Conclusion:

SR# 14-100C was the most effective at removing the stains, followed closely by water and Resolve. Resolve underperformed compared to a straight water addition.