CLEANING LABORATORY EVALUATION SUMMARY

SCL #:	2019
DateRun:	07/15/2019
Experimenters:	Sabrina Apel, Justin Rainaud, Spencer Gifford, Phillip Demers
ClientType:	Cleaner Manufacturer
ProjectNumber:	Project #16
Substrates:	Carpet
PartType:	Coupon
Contaminants:	Carbon Deposits, Inks, Dirt, Clay, Food, Urine, Dog Vomit
Cleaning Methods:	Manual Wipe
Analytical Methods:	Visual
Purpose:	To evaluate supplied cleaners for carpet stain removal

Experimental Procedure:

Thirteen almond white tufted cut pile test carpet measuring 7 inch by 15 inch were stained with ten staining agents. Each staining agent was applied to the test carpet in triplicate, spaced out at .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 ten staining agents included mustard, ketchup, coffee, grape juice, black permanent marker (2 1” lines instead of 2.5 ml), chocolate syrup, dirty motor oil, AATCC synthetic soil, cat urine, and simulated dog vomit. 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 +/- 3° C	1 Teaspoon coffee to 175 mL water
Purple Grape Juice	Full concentration
Black Marker	N/A
Dirty Motor Oil	Full concentration
AATCC Synthetic Soil	0.5 grams/ 100 mL of water
Chocolate Syrup	1:4 chocolate: water

Following the overnight aging, any excess solid staining agent was removed from the test carpet. Cleaner 1 was applied to saturate set one. The process was repeated for Cleaner 2. The solutions were allowed to sit on the stain for two minutes. The saturated stain was blotted with a Kimberly Clark Reinforced wiper towel. Any transfer of the stain or cleaner to the towel was noted. Blotting continued until the stain was completely removed or three applications of the cleaning solution were performed. The total number of applications were recorded for each stain. The sets were allowed to sit for another 24 (+/- two hours) 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:	
1	No stain
2	Slight Stain
3	Noticeable Stain
4	Considerable Stain
5	Severe Stain

Results:

Result of Visual Analysis: Resolve Spot and Stain

Soil	Clean Visual			Avg. Clean Visual	Avg. Clean Visual	Overall Average
Mustard	4	3	3	3.33	3.44	2.27
	4	3	3	3.33		
	4	3	4	3.67		
Ketchup	3	2	2	2.33	2.00	
	2	2	1	1.67		
	2	2	2	2.00		

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Hot Coffee	1	1	1	1.00	1.00
	1	1	1	1.00	
	1	1	1	1.00	
Grape Juice	1	1	1	1.00	1.00
	1	1	1	1.00	
	1	1	1	1.00	
Black Marker	4	5	5	4.67	4.78
	4	5	5	4.67	
	5	5	5	5.00	
Motor Oil	2	2	1	1.67	1.78
	2	2	1	1.67	
	2	2	2	2.00	
Synthetic Soil	2	2	2	2.00	2.11
	2	3	2	2.33	
	2	2	2	2.00	
Chocolate Syrup	4	4	3	3.67	3.56
	4	3	3	3.33	
	4	4	3	3.67	
Urine	1	1	1	1.00	1.00
	1	1	1	1.00	
	1	1	1	1.00	
Dog vomit	2	2	2	2.00	2.00
	2	2	2	2.00	
	2	2	2	2.00	

Result of Visual Analysis: Shout Pets: Enzymatic Stain and Odor Remover

Soil	Clean Visual			Avg. Clean Visual	Avg. Clean Visual	Overall Average
Mustard	3	4	3	3.33	3.11	2.44
	3	3	3	3.00		
	3	3	3	3.00		
Ketchup	3	2	3	2.67	2.67	
	3	2	3	2.67		
	3	2	3	2.67		
Hot Coffee	1	1	1	1.00	1.00	
	1	1	1	1.00		
	1	1	1	1.00		
Grape Juice	1	1	1	1.00	1.22	
	2	1	1	1.33		
	1	1	2	1.33		
Black Marker	3	4	4	3.67	4.11	
	3	4	4	3.67		
	5	5	5	5.00		
Motor Oil	2	3	3	2.67	2.22	
	1	2	2	1.67		
	1	3	3	2.33		
Synthetic Soil	4	3	2	3.00	2.67	
	3	2	2	2.33		
	3	3	2	2.67		
Chocolate Syrup	4	4	5	4.33	4.33	
	4	4	5	4.33		
	4	4	5	4.33		
Urine	1	1	1	1.00	1.00	
	1	1	1	1.00		
	1	1	1	1.00		
	2	2	2	2.00	2.11	

Dog Vomit

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	3	2	2	2.33		
	2	2	2	2.00		

Result of Visual Analysis: Woolite Heavy Traffic Carpet Foam

Soil	Clean Visual			Avg. Clean Visual	Avg. Clean Visual	Overall Average
Mustard	4	4	4	4.00	4.56	2.72
	5	4	5	4.67		
	5	5	5	5.00		
Ketchup	2	3	3	2.67	2.56	
	2	2	3	2.33		
	2	3	3	2.67		
Hot Coffee	1	1	1	1.00	1.00	
	1	1	1	1.00		
	1	1	1	1.00		
Grape Juice	2	1	1	1.33	1.33	
	2	1	1	1.33		
	2	1	1	1.33		
Black Marker	5	5	5	5.00	5.00	
	5	5	5	5.00		
	5	5	5	5.00		
Motor Oil	2	2	3	2.33	2.22	
	2	2	2	2.00		
	2	2	3	2.33		
Synthetic Soil	2	3	3	2.67	2.67	
	2	3	3	2.67		
	2	3	3	2.67		
Chocolate Syrup	5	5	4	4.67	4.67	
	5	5	4	4.67		
	5	5	4	4.67		
Urine	1	1	1	1.00	1.00	
	1	1	1	1.00		
	1	1	1	1.00		
Dog Vomit	2	2	2	2.00	2.22	
	3	2	2	2.33		
	3	2	2	2.33		

Result of Visual Analysis: Oxyclean Carpet & Area Rug

Soil	Clean Visual			Avg. Clean Visual	Avg. Clean Visual	Overall Average
Mustard	4	3	3	3.33	3.56	2.14
	4	3	4	3.67		
	4	3	4	3.67		
Ketchup	3	3	4	3.33	2.89	
	3	2	3	2.67		
	3	2	3	2.67		
Hot Coffee	1	1	1	1.00	1.00	
	1	1	1	1.00		
	1	1	1	1.00		
Grape Juice	1	1	1	1.00	1.11	
	1	1	1	1.00		
	1	2	1	1.33		
Black Marker	3	4	3	3.33	3.44	
	3	4	3	3.33		
	4	4	3	3.67		
Motor Oil	2	2	1	1.67	1.44	
	1	1	1	1.00		
	2	2	1	1.67		

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Synthetic Soil	1	2	1	1.33	2.11	
	3	3	2	2.67		
	2	2	3	2.33		
Chocolate Syrup	3	3	3	3.00	3.11	
	3	3	3	3.00		
	3	3	4	3.33		
Urine	1	1	1	1.00	1.00	
	1	1	1	1.00		
	1	1	1	1.00		
Dog Vomit	2	2	2	2.00	1.78	
	1	2	2	1.67		
	1	2	2	1.67		

Result of Visual Analysis: Woolite Insta Clean

Soil	Clean Visual			Avg. Clean Visual	Avg. Clean Visual	Overall Average
Mustard	3	3	3	3.00	3.33	2.21
	4	4	4	4.00		
	3	3	3	3.00		
Ketchup	2	3	3	2.67	2.56	
	2	3	3	2.67		
	2	3	2	2.33		
Hot Coffee	1	1	1	1.00	1.00	
	1	1	1	1.00		
	1	1	1	1.00		
Grape Juice	1	1	1	1.00	1.11	
	1	1	1	1.00		
	1	2	1	1.33		
Black Marker	3	3	3	3.00	3.00	
	3	3	3	3.00		
	3	3	3	3.00		
Motor Oil	2	3	3	2.67	2.33	
	2	2	2	2.00		
	2	3	2	2.33		
Synthetic Soil	3	3	2	2.67	2.78	
	3	3	3	3.00		
	3	3	2	2.67		
Chocolate Syrup	3	3	3	3.00	3.33	
	3	3	3	3.00		
	4	4	4	4.00		
Urine	1	1	1	1.00	1.00	
	1	1	1	1.00		
	1	1	1	1.00		
Dog Vomit	2	2	3	2.33	1.67	
	1	1	2	1.33		
	1	1	2	1.33		

Result of Visual Analysis: Shout Carpet

Soil	Clean Visual			Avg. Clean Visual	Avg. Clean Visual	Overall Average
Mustard	3	3	3	3.00	2.89	2.58
	3	3	3	3.00		
	3	2	3	2.67		
Ketchup	2	2	3	2.33	2.33	
	2	2	3	2.33		
	2	2	3	2.33		
Hot Coffee	1	1	1	1.00	1.00	
	1	1	1	1.00		

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	1	1	1	1.00		
Grape Juice	1	2	2	1.67	1.56	
	2	1	2	1.67		
	1	1	2	1.33		
Black Marker	3	4	4	3.67	3.78	
	4	4	4	4.00		
	3	4	4	3.67		
Motor Oil	2	3	3	2.67	2.89	
	3	3	3	3.00		
	3	3	3	3.00		
Synthetic Soil	4	4	3	3.67	3.67	
	4	4	3	3.67		
	4	4	3	3.67		
Chocolate Syrup	3	4	5	4.00	4.11	
	3	4	5	4.00		
	4	4	5	4.33		
Urine	1	1	1	1.00	1.00	
	1	1	1	1.00		
	1	1	1	1.00		
Dog Vomit	3	2	3	2.67	2.56	
	3	2	3	2.67		
	3	2	2	2.33		

Result of Visual Analysis: Resolve Carpet Foam

Soil	Clean Visual			Avg. Clean Visual	Avg. Clean Visual	Overall Average
Mustard	3	3	4	3.33	3.11	2.38
	3	3	3	3.00		
	3	3	3	3.00		
Ketchup	3	2	2	2.33	2.22	
	3	2	2	2.33		
	2	2	2	2.00		
Hot Coffee	1	1	1	1.00	1.00	
	1	1	1	1.00		
	1	1	1	1.00		
Grape Juice	1	2	2	1.67	1.56	
	1	2	2	1.67		
	1	1	2	1.33		
Black Marker	4	4	3	3.67	3.56	
	4	3	3	3.33		
	4	4	3	3.67		
Motor Oil	3	3	2	2.67	2.00	
	2	2	1	1.67		
	2	2	1	1.67		
Synthetic Soil	2	3	2	2.33	2.56	
	3	3	2	2.67		
	3	3	2	2.67		
Chocolate Syrup	3	3	4	3.33	3.22	
	3	2	3	2.67		
	4	3	4	3.67		
Urine	1	1	1	1.00	1.00	
	1	1	1	1.00		
	1	1	1	1.00		
Dog Vomit	4	3	3	3.33	3.56	
	4	3	4	3.67		
	4	3	4	3.67		

Result of Visual Analysis: Clorox Urine Remover

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Soil	Clean Visual			Avg. Clean Visual	Avg. Clean Visual	Overall Average
Mustard	4	4	4	4.00	4.00	2.48
	4	4	4	4.00		
	4	4	4	4.00		
Ketchup	4	4	4	4.00	3.44	
	3	4	3	3.33		
	3	3	3	3.00		
Hot Coffee	1	1	1	1.00	1.00	
	1	1	1	1.00		
	1	1	1	1.00		
Grape Juice	1	1	2	1.33	1.22	
	1	2	1	1.33		
	1	1	1	1.00		
Black Marker	4	3	3	3.33	3.89	
	5	4	3	4.00		
	5	5	3	4.33		
Motor Oil	1	2	3	2.00	1.67	
	1	2	2	1.67		
	1	2	1	1.33		
Synthetic Soil	3	3	3	3.00	2.89	
	3	3	3	3.00		
	2	3	3	2.67		
Chocolate Syrup	3	4	4	3.67	3.67	
	3	4	4	3.67		
	3	4	4	3.67		
Urine	1	1	1	1.00	1.00	
	1	1	1	1.00		
	1	1	1	1.00		
Dog Vomit	2	2	2	2.00	2.00	
	2	2	2	2.00		
	2	2	2	2.00		

Result of Visual Analysis: Shout Pets Pro Strength Stain and Odor Remover

Soil	Clean Visual			Avg. Clean Visual	Avg. Clean Visual	Overall Average
Mustard	2	3	2	2.33	2.78	2.20
	3	3	3	3.00		
	3	3	3	3.00		
Ketchup	3	3	3	3.00	2.56	
	2	2	3	2.33		
	2	2	3	2.33		
Hot Coffee	1	1	1	1.00	1.00	
	1	1	1	1.00		
	1	1	1	1.00		
Grape Juice	3	3	2	2.67	2.89	
	3	3	3	3.00		
	3	3	3	3.00		
Black Marker	3	3	3	3.00	3.11	
	3	3	3	3.00		
	4	3	3	3.33		
Motor Oil	2	2	1	1.67	1.33	
	1	1	1	1.00		
	2	1	1	1.33		
Synthetic Soil	3	3	1	2.33	2.11	
	3	2	1	2.00		
	3	2	1	2.00		

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Chocolate Syrup	3	2	2	2.33	2.89
	4	3	4	3.67	
	3	2	3	2.67	
Urine	1	1	1	1.00	1.00
	1	1	1	1.00	
	1	1	1	1.00	
Dog Vomit	2	2	3	2.33	2.33
	2	2	3	2.33	
	2	2	3	2.33	

Result of Visual Analysis: Shout Carpet Urine Destroyer

Soil	Clean Visual:			Avg. Clean Visual	Avg. Clean Visual	Overall Average
Mustard	4	5	5	4.67	4.89	2.73
	5	5	5	5.00		
	5	5	5	5.00		
Ketchup	5	5	5	5.00	4.78	
	5	5	4	4.67		
	5	5	4	4.67		
Hot Coffee	1	1	1	1.00	1.00	
	1	1	1	1.00		
	1	1	1	1.00		
Grape Juice	1	1	1	1.00	1.11	
	1	1	1	1.00		
	2	1	1	1.33		
Black Marker	4	4	3	3.67	4.33	
	5	4	4	4.33		
	5	5	5	5.00		
Motor Oil	2	2	2	2.00	2.00	
	2	2	2	2.00		
	2	2	2	2.00		
Synthetic Soil	3	3	3	3.00	2.56	
	2	2	2	2.00		
	3	3	2	2.67		
Chocolate Syrup	3	3	2	2.67	2.67	
	3	3	2	2.67		
	3	3	2	2.67		
Urine	1	1	1	1.00	1.00	
	1	1	1	1.00		
	1	1	1	1.00		
Dog Vomit	3	3	3	3.00	3.00	
	3	3	3	3.00		
	3	3	3	3.00		

Result of Visual Analysis: Febreze Heavy Traffic Carpet Foam

Soil	Clean Visual			Avg. Clean Visual	Avg. Clean Visual	Overall Average
Mustard	4	3	3	3.33	3.22	2.34
	4	2	2	2.67		
	5	3	3	3.67		
Ketchup	3	3	2	2.67	2.33	
	2	2	2	2.00		
	2	3	2	2.33		
Hot Coffee	1	1	1	1.00	1.00	
	1	1	1	1.00		
	1	1	1	1.00		
Grape Juice	1	1	1	1.00	1.11	
	1	1	1	1.00		

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	1	2	1	1.33		
Black Marker	3	3	3	3.00	3.89	
	5	4	4	4.33		
	4	4	5	4.33		
Motor Oil	2	3	2	2.33	2.22	
	2	2	2	2.00		
	2	3	2	2.33		
Synthetic Soil	3	2	2	2.33	2.33	
	3	2	2	2.33		
	3	2	2	2.33		
Chocolate Syrup	3	3	3	3.00	3.33	
	3	3	3	3.00		
	4	4	4	4.00		
Urine	1	1	1	1.00	1.00	
	1	1	1	1.00		
	1	1	1	1.00		
Dog Vomit	3	3	3	3.00	3.00	
	3	3	3	3.00		
	3	3	3	3.00		

Result of Visual Analysis: Urine Gone

Soil	Clean Visual			Avg. Clean Visual	Avg. Clean Visual	Overall Average
Mustard	4	4	3	3.67	3.78	2.31
	4	4	3	3.67		
	4	4	4	4.00		
Ketchup	4	3	3	3.33	3.33	
	4	3	3	3.33		
	4	3	3	3.33		
Hot Coffee	1	1	1	1.00	1.00	
	1	1	1	1.00		
	1	1	1	1.00		
Grape Juice	2	2	2	2.00	1.78	
	2	1	1	1.33		
	2	2	2	2.00		
Black Marker	3	3	3	3.00	2.78	
	2	2	3	2.33		
	3	3	3	3.00		
Motor Oil	1	1	1	1.00	1.11	
	1	1	1	1.00		
	2	1	1	1.33		
Synthetic Soil	2	2	2	2.00	2.00	
	2	2	2	2.00		
	2	2	2	2.00		
Chocolate Syrup	3	3	3	3.00	3.11	
	3	3	3	3.00		
	3	3	4	3.33		
Urine	1	1	1	1.00	1.00	
	1	1	1	1.00		
	1	1	1	1.00		
Dog Vomit	3	3	3	3.00	3.22	
	3	4	4	3.67		
	3	3	3	3.00		

Result of Visual Analysis: Resolve Urine Destroyer

Soil	Clean Visual			Avg. Clean Visual	Avg. Clean Visual	Overall Average
Mustard	4	4	4	4.00	3.89	2.46

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	4	4	3	3.67	
	4	4	4	4.00	
Ketchup	3	3	3	3.00	3.00
	3	3	3	3.00	
	3	3	3	3.00	
Hot Coffee	1	1	1	1.00	1.00
	1	1	1	1.00	
	1	1	1	1.00	
Grape Juice	2	2	1	1.67	1.44
	1	1	1	1.00	
	2	2	1	1.67	
Black Marker	4	4	4	4.00	4.11
	4	3	4	3.67	
	4	5	5	4.67	
Motor Oil	1	2	2	1.67	1.44
	1	1	1	1.00	
	1	2	2	1.67	
Synthetic Soil	3	3	3	3.00	2.67
	3	2	2	2.33	
	2	3	3	2.67	
Chocolate Syrup	3	4	4	3.67	3.67
	4	4	3	3.67	
	3	4	4	3.67	
Urine	1	1	1	1.00	1.00
	1	1	1	1.00	
	1	1	1	1.00	
Dog Vomit	2	2	3	2.33	2.33
	2	2	3	2.33	
	2	2	3	2.33	

Summary:

Substrates:	Carpet
Contaminants:	Carbon Deposits, Inks, Dirt, Clay, Food, Urine, Dog Vomit

Company Name:	Product Name:	Conc.:	Efficiency:	Effective:	Observations:
Reckitt Benckiser	Resolve Spot and Stain Remover-Carpet Cleaner	100%	2.27	☑	Visual Rating
SC Johnson & Son Inc	Shout Pets Enzymatic Hard Surface Stain and Odor Remover	100%	2.44	☑	Visual Rating
BISSELL Homecare Inc	Woolite Pet Stain & Odor Remover	100%	2.72	☑	Visual Rating
Church & Dwight Co Inc.	OxiClean™ Carpet & Area Rug Stain Remover	100%	2.14	☑	Visual Rating
BISSELL Homecare Inc	Woolite INSTAclean Pet Stain Remover	100%	2.21	☑	Visual Rating
Brand Buzz	Shout Carpet Cleaner (New Sample)	100%	2.58	☑	Visual Rating
Reckitt Benckiser	Resolve High Traffic Foam Carpet Cleaner	100%	2.38	☑	Visual Rating
Clorox Company	Clorox Urine Remover	100%	2.48	☑	Visual Rating
SC Johnson & Son Inc	Shout for Pets Carpet and Upholstery Cleaner in Fresh Scent	100%	2.20	☑	Visual Rating
SC Johnson & Son Inc	Shout Urine Destroyer Carpet	100%	2.73	☑	Visual Rating
BISSELL Homecare Inc	Febreze Gain Original Heavy Traffic Carpet Foam	100%	2.34	☑	Visual Rating
Top Dog Direct	Urine Gone Stain & Odor Eliminator	100%	2.31	☑	Visual Rating
Reckitt Benckiser	Resolve Urine Destroyer Spray Stain & Odor Remover	100%	2.46	☑	Visual Rating

Conclusion: The thirteen cleaning products were effective and similar in performance overall of removing staining agents from carpet.