CLEANING LABORATORY EVALUATION SUMMARY

SCL #:	2012
DateRun:	02/24/2012
Experimenters:	Jason Marshall, Junhee Cho, Timothy Weil
ClientType:	Cleaning Equipment Mfr
ProjectNumber:	Project #1
Substrates:	Vinyl Composite Tiles
PartType:	Coupon
Contaminants:	Hucker's Soil
Cleaning Methods:	Manual Wipe
Analytical Methods:	Gravimetric, Gloss-Color Meter
Purpose:	To compare the cleaning effectiveness between water, neutral cleaner, and ozone generated water.
Experimental Procedure:	Water and ozone generated water were used at full concentration (100%). One neutral cleaner was diluted to 0.78% with DI water. Eighteen VCT coupons were coated with Wax three times for test. Before the cleaning, prepared VCT coupons were weighed. Coupon's gloss levels were measured with gloss meter. After then, eighteen VCT coupons were soiled with Hucker's Soil Formulation (JifCreamy Peanut Butter 9.2%, Salted Butter 9.2%, Arrowhead Mills stone ground wheat flour 9.2%, Egg Yolk 9.2%, Evaporated milk 13.8%, Distilled water 45.8%, Printer's ink with boiled linseed oil 0.9%, Shaws saline solution 2.7%) using a hand held swab and allowed to dry for 24 hours at room temperature. The contaminated coupons were weighed again to determine the amount of soil added. Each VCT coupon was placed into a Gardner Straight Line Washability unit. A Kimberly-Clark Wypal reinforced paper towel was attached to the cleaning sled and soaked with 5 sprays of cleaning solutions ;10 ml of same cleaning solution were poured on each coupon. The cleaning unit was run for 20 cycles (~33 seconds). At the end of the cleaning, coupons were wiped once with a widow squeeze to remove residual cleaning solution. Final weights and gloss were recorded, efficiencies were calculated and recorded.
Results:	Results: the result of gravimetric analysis was not available since the initial coupon's weight were heaver than cleaned coupons' weights.

Gravimetric Table

Cleaner	Initial wt	Final wt	% Removed
water with paper towel			
	0.0231	-0.0036	115.58
	0.0516	-0.0054	110.47
	0.0809	-0.0516	163.78
cleaner with paper towel			
	0.0947	-0.1490	257.34
	0.0296	-0.0447	251.01
	-0.0156	-0.0787	-404.49
ozone water with paper towel			
	0.0198	-0.0247	224.75
	0.0040	-0.0209	622.5
	0.0110	-0.0568	616.36
water with red pad			
	0.0152	-0.0472	410.53
	0.0074	-0.0534	821.62
	0.0665	-0.0311	146.77
cleaner with red pad			
	0.0324	-0.0149	145.99
	0.0017	-0.0559	3388.24
	0.0897	-0.0487	154.29
ozone water with red pad			
	0.0042	-0.0795	1992.86

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	0.0166	-0.0769	563.25
	0.0469	-0.0564	220.26

OR

Visual Table (gloss)						
Cleaner	Wipe	unsoiled	soiled	cleaned	%DET	AVG
Water	paper towel	84.34	49.66	76.25	76.67	
Water	paper towel	82.67	40.12	76.54	85.59	
Water	paper towel	82.06	54.33	78.03	85.47	82.58
neutral cleaner	paper towel	85.14	40.97	81.05	90.74	
neutral cleaner	paper towel	84.73	37.23	74.78	79.05	
neutral cleaner	paper towel	80.42	46.59	79.38	96.93	88.91
ozone water	paper towel	83.45	51.26	76.62	78.78	
ozone water	paper towel	80.26	52.94	76.22	85.21	
ozone water	paper towel	82.54	52.72	75.44	76.19	80.06
Water	red pad	82.07	47.35	77.71	87.44	
Water	red pad	83.76	51.24	82.42	95.88	
Water	red pad	82.94	50.09	78.62	86.85	90.06
neutral cleaner	red pad	79.39	46.25	77.34	93.81	
neutral cleaner	red pad	78.66	51.12	80.71	107.44	
neutral cleaner	red pad	84.79	52.90	80.50	86.55	95.94
ozone water	red pad	83.93	45.66	74.38	75.05	
ozone water	red pad	82.66	53.61	73.49	68.43	
ozone water	red pad	85.10	38.46	75.94	80.36	74.61

Summary:

Conclusion: The test was not enough to compare the cleaning effectiveness based on certain limitation from the test method.