CLEANING LABORATORY EVALUATION SUMMARY

SCL #:	2013
DateRun:	10/24/2013
Experimenters:	Loc Nguyen
ClientType:	Cleaning Equipment Mfr
ProjectNumber:	Project #2
Substrates:	Ceramics, Plastic, Steel
PartType:	Coupon
Contaminants:	Hucker's Soil
Cleaning Methods:	Manual Wipe
Analytical Methods:	Gravimetric
Purpose:	To evaluate ozone generator system for all purpose cleaning
Experimental Procedure:	Water and ozone generated water were used at full concentration (100%). Coupons were coated with wax three times for test. Before the cleaning, prepared VCT coupons were weighed. After then, the VCT coupons were soiled with Hucker's Soil Formulation (Jif Creamy 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:

Cleaner	Initial wt	Final wt	% Removed
painted metal 1			
	0.6249	0.3988	36.18
	0.9360	0.5207	44.37
	0.4018	0.2883	28.25
ceramic 1			
	0.6098	0.4029	33.93
	0.5138	0.2652	48.38
	0.7013	0.2603	62.88
plastic 1			
	0.7738	0.5793	25.14
	0.6635	0.3696	44.3
	0.6101	0.3095	49.27
painted metal 2			
	0.6590	0.3943	40.17
	0.7070	0.3637	48.56
	0.7329	0.3838	47.63
ceramic 2			
	0.5521	0.1621	70.64
	0.9061	0.5721	36.86
	0.4874	0.1663	65.88
plastic 2			
	0.7237	0.4719	34.79
	0.8017	0.4580	42.87
	0.6591	0.3725	43.48

Summary

	Coupon 1	Coupon 2	Coupon 3	Average	Overall Ave
Water - ceramic	34.41	47.26	24.71	35.46	40.92
Water plastic	30.79	43.41	51.09	41.76	

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Water painted metal	33.36	47.25	56.02	45.54	

Summary:

Substrates:	Ceramics, Plastic, Steel				
Contaminants:	Hucker's Soil				
Company Name:	**Product Name:**	**Conc.:**	**Efficiency:**	**Effective:**	**Observations:**
NSS Enterprises	Ozonated water	100	0.00	☐	

Conclusion: The ozonated water system had little success under the operating conditions of the testing trial.