CLEANING LABORATORY EVALUATION SUMMARY

SCL #:	2011
DateRun:	05/26/2011
Experimenters:	Jason Marshall, Junhee Cho, Johnny Le
ClientType:	General
ProjectNumber:	Project #1
Substrates:	Ceramics, Plastic, Steel
PartType:	Coupon
Contaminants:	Hucker's Soil
Cleaning Methods:	Manual Wipe
Analytical Methods:	Gravimetric
Purpose:	To evaluate three supplied products for all purpose cleaning as part of three part experiment to evaluate product at one concentration for multiple cleaning tasks.
Experimental Procedure:	Ceramic, Painted steel, and polycarbonate coupons were weighed and then coated with Hucker's Soil Formulation (Creamy peanut butter, salted butter, Arrowhead Mills stone ground wheat flour, egg yolk, evaporated milk, distilled water, printer's ink with boiled linseed oil, Shaws saline solution) 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. All three cleaners were diluted at 2.4 %. Three coupons were placed into a Gardner Straight Line Washability unit. A Kimberly-Clark Wypal reinforced paper towel was attached to the cleaning sled and soaked with 5-7 sprays of cleaning solutions. Each coupon was sprayed 7-10 times with the same cleaning solution. The cleaning unit was run for 20 cycles (~33 seconds). At the end of the cleaning, coupons were wiped once with a dry paper towel. Final weights were recorded, efficiencies were calculated and recorded.
Results:	All products were effective at removing more than 85% of the Hucker’s soil from two of the surfaces (painted steel and polycarbonate) using manual wiping. However, MD Stetson PC 220 and RMC DFE 401 were not effective at removing the Hucker's soil on ceramic surface. The table lists the amount of soil added, the amount remaining after cleaning and the calculated efficiency for each of the ceramic, painted steel and polycarbonate coupons cleaned.

Cleaner	Initial wt	Final wt	% Removed
MD Stetson PC 220_ceramic			
	0.3867	0.0696	82.00
	0.4443	0.1045	76.48
	0.3469	0.1057	69.53
MD Stetson PC 220_Painted steel			
	0.0613	0.0033	94.62
	0.0348	0.0014	95.98
	0.0375	0.0024	93.60
MD Stetson PC 220_polycarb			
	0.3455	0.0466	86.51
	0.2351	0.0402	82.90
	0.3404	0.0927	72.77
RMC DFE 401_ceramic			
	0.1733	0.0675	61.05
	0.1067	0.0458	57.08
	0.1026	0.0445	56.63
RMC DFE 401_Painted steel			
	0.0504	0.0045	91.07
	0.0628	0.0030	95.22
	0.0618	0.0038	93.85
RMC DFE 401_polycarb			
	0.0799	0.0279	65.08
	0.2251	0.0165	92.67
	0.3645	0.0280	92.32
MD Stetson PC 101_ceramic			
	0.1939	0.0203	89.53
	0.1160	0.0013	98.88

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	0.0839	0.0056	93.33
MD Stetson PC 101_Painted steel			
	0.0593	0.0031	94.77
	0.0892	0.0026	97.09
	0.0591	0.0031	94.75
MD Stetson PC 101_polycarb			
	0.0399	0.0086	78.45
	0.0719	0.0073	89.85
	0.0440	0.0026	94.09

Summary:

Substrates:	Ceramics, Plastic, Steel
Contaminants:	Hucker's Soil

Company Name:	Product Name:	Conc.:	Efficiency:	Effective:	Observations:
Next-Gen Supply Group	PC 101 Neutral and Glass Cleaner	2.4	92.30	☑	
Next-Gen Supply Group	PC 220 Peroxide Multipurpose Cleaner	2.4	83.82	☐	
Rochester Midland Corporation	DFE 401	2.4	78.33	☐	

Conclusion: MD Stetson PC 101 cleaner was effective to remove the Hucker's soil on various types of surfaces. Next step will be to evaluate products at the same concentration for bathroom cleaning.