CLEANING LABORATORY EVALUATION SUMMARY

SCL #:	2015
DateRun:	02/11/2015
Experimenters:	Loc Nguyen, Nicholas Landberg
ClientType:	Cleaner Manufacturer
ProjectNumber:	Project #4
Substrates:	Ceramics, Plastic, White Board
PartType:	Coupon
Contaminants:	Hucker's Soil
Cleaning Methods:	Manual Wipe
Analytical Methods:	Gravimetric
Purpose:	To evaluate supplied products for all purpose cleaning following GS 37 requirements
Experimental Procedure:	Three sets of nine ceramic, stainless steel, and polycarbonate coupons were weighed and then coated with the 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%, saline solution 2.7%) using a handheld swab and allowed to dry for 2 hours at room temperature. The contaminated coupons were weighed again to determine the amount of soil added. Three coupons were placed into a Gardner Straight Line Washability unit. A Kimberly-Clark Wypal x60 reinforced paper towel was attached to the cleaning sled and soaked with 1 spray of cleaning solution. Each coupon was sprayed 1 time with the same cleaning solution. The cleaning unit was run for 20 cycles (~33 seconds). Final weights were recorded, efficiencies were calculated and recorded.

Results:

Cleaner	Initial wt	Final wt	% Removed
NFMRP 2V 1:128 – Ceramic			
	0.5016	0.0489	90.25
	0.5172	0.0121	97.66
	0.5055	0.0907	82.06
NFMRP 2V 1:128 – Plastic			
	0.4934	0.2565	48.01
	0.5096	0.0294	94.23
	0.5300	0.0242	95.43
NFMRP 2V 1:128 - Painted Steel			
	0.6084	0.0542	91.09
	0.5263	0.1335	74.63
	0.5058	0.1132	77.62
NFMRP 2V 1:64 – Ceramic			
	0.4868	0.2281	53.14
	0.5304	0.0960	81.90
	0.4955	0.0730	85.27
NFMRP 2V 1:64 – Plastic			
	0.4302	0.0024	99.44
	0.5311	0.0166	96.87
	0.4997	0.0260	94.80
NFMRP 2V 1:64 - Painted Steel			
	0.5100	0.0538	89.45
	0.5001	0.0385	92.30
	0.5013	0.1941	61.28
7th Generation – Ceramic			
	0.4811	0.0813	83.10

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	0.5314	0.0676	87.28
	0.5054	0.0563	88.86
7th Generation – Plastic			
	0.4530	0.0068	98.50
	0.4874	0.0032	99.34
	0.5124	0.0042	99.18
7th Generation - Painted Steel			
	0.4904	0.0447	90.88
	0.5296	0.0504	90.48
	0.4867	0.0329	93.24
409 –Ceramic			
	0.4572	0.0817	82.13
	0.5775	0.0428	92.59
	0.5718	0.0436	92.37
409 – Plastic			
	0.5184	0.0124	97.61
	0.4525	0.0105	97.68
	0.4993	0.0410	91.79
409 - Painted Steel			
	0.4873	0.0956	80.38
	0.5106	0.0292	94.28
	0.5134	0.0393	92.35

Summary:

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Contaminants:	Hucker's Soil

Company Name:	Product Name:	Conc.:	Efficiency:	Effective:	Observations:
ProNatural Brands LLC	NFMRP 2V	0.8	83.45	☑	
ProNatural Brands LLC	NFMRP 2V	1.6	83.83	☑	
Seventh Generation	Free & Clear All Purpose	100	92.32	☑	
Clorox Company	Formula 409 All Purpose Cleaner	100	91.24	☑	

Conclusion: The 1:64 dilution of NFMRP exhibited an effective level of cleaning for plastic, while the 1:128 dilution was effective on ceramic. The 409 and 7th Generation products exhibited effective cleaning for each surface.