CLEANING LABORATORY EVALUATION SUMMARY

SCL #:	2012
DateRun:	04/08/2012
Experimenters:	Jason Marshall, Johnny Le, Loc Nguyen
ClientType:	Cleaner Manufacturer
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 following DfE requirements
Experimental Procedure:	The supplied cleaning product was diluted with water at room temperature to vendor recommended concentration for all purpose cleaning (128:1). The comparative product was used at the provided concentration. Preweighed ceramic, plastic G-10 and painted steel coupons were coated with Hucker's Soil Formulation (Jif 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. 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:	White Water resulted in removing 93% of the Hucker's soil within 30 seconds of cleaning and was found to be more effective than the comparative product. The table lists the amount of soil added, the amount remaining after cleaning and the calculated efficiency for each coupon cleaned.

Cleaner	Initial wt	Final wt	% Removed
White Water - ceramic			
	0.1134	0.0166	85.36
	0.0998	0.0038	96.19
	0.0851	0.0035	95.89
White Water - polycarbonate			
	0.0354	0.0041	88.42
	0.0836	0.0021	97.49
	0.0610	0.0042	93.11
White Water - painted steel			
	0.0688	0.0032	95.35
	0.0326	0.0023	92.94
	0.0353	0.0024	93.20
3R - ceramic			
	0.1444	0.0056	96.12
	0.0345	0.0064	81.45
	0.2001	0.0041	97.95
3R - polycarbonate			
	0.0488	0.0141	71.11
	0.0983	0.0083	91.56
	0.1523	0.0009	99.41
3R - painted steel			
	0.0543	0.0053	90.24
	0.0572	0.0064	88.81

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	0.0387	0.0047	87.86

Summary:

Substrates:	Ceramics, Plastic, Steel				
Contaminants:	Hucker's Soil				
Company Name:	**Product Name:**	**Conc.:**	**Efficiency:**	**Effective:**	**Observations:**
Next-Gen Supply Group	3R All Purpose Cleaner	100	89.39	☑	
US Formula Technology	White Water Multiuse Oxygen Cleaner	0.78	93.11	☑	

Conclusion: The supplied product was effective at removing the Hucker’s soil from the three surfaces using manual wiping.