CLEANING LABORATORY EVALUATION SUMMARY

SCL #:	2010
DateRun:	01/14/2010
Experimenters:	Jason Marshall, Junhee Cho
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 supplied products for GS 37 al purpose cleaning performance
Experimental Procedure:	The supplied cleaning products were used at the recommended concentrations (4 oz per gallon). A third product, selected by the lab, was diluted with DI water to vendor recommended dilution (1:64) for all purpose cleaning. Preweighed ceramic, painted steel and plastic coupons were coated with Hucker's Soil Formulation (Jif Creamy Peanut Butter 8.8%, Salted Butter 8.8%, Arrowhead Mills stone ground wheat flour 8.8%, Egg Yolk 8.8%, Evaporated milk 13.3%, Distilled water 44.2%, Printer's ink with boiled linseed oil 0.9%, Shaws saline solution 2.7%, India Ink 3.7%) using a handheld 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 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 solution was allowed to penetrate for 30 seconds followed by cleaning in the SLW unit for 20 cycles (~33 seconds). At the end of the cleaning, coupons were wiped once with a dry paper towel. Final weights were recorded and efficiencies were calculated and recorded.
Results:	The two supplied DFC products removed more than 85% of the all-purpose soil (Hucker's soil) using manual cleaning simulation for 30 seconds. Both products worked better than the conventional product. The table lists the amount of soil added, the amount remaining and the removal efficiency for each coupon cleaned.

Cleaner	Initial wt	Final wt	% Removed
DFC Heavy Duty Ceramic			
	0.2098	0.0250	88.08
	0.1241	0.0209	83.14
	0.1407	0.0112	92.04
DFC Heavy Duty Painted Steel			
	0.2285	0.0176	92.30
	0.1552	0.0157	89.88
	0.1823	0.0145	92.05
DFC Heavy Duty Plastic			
	0.0926	0.0078	91.58
	0.0865	0.0100	88.44
	0.0952	0.0013	98.63
DFC 14000 Ceramic			
	0.0640	0.0060	90.63
	0.1241	0.0412	66.80
	0.1739	0.0121	93.04
DFC 14000Painted Steel			
	0.0953	0.0148	84.47
	0.2001	0.0224	88.81
	0.0712	0.0071	90.03
DFC 14000 Plastic			

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	0.1265	0.0241	80.95
	0.1029	0.0042	95.92
	0.0832	0.0096	88.46
Alpha HP Ceramic			
	0.0958	0.0210	78.08
	0.1018	0.0048	95.28
	0.1614	0.0073	95.48
Alpha HP Painted steel			
	0.1157	0.0165	85.74
	0.0483	0.0145	69.98
	0.0386	0.0154	60.10
Alpha HP Plastic			
	0.0895	0.0020	97.77
	0.0627	0.0035	94.42
	0.0389	0.0200	48.59

Summary:

Substrates:	Ceramics, Plastic, Steel				
Contaminants:	Hucker's Soil				
Company Name:	**Product Name:**	**Conc.:**	**Efficiency:**	**Effective:**	**Observations:**
Chemspec	DFC Heavy Duty Degreaser	3.125	90.68	☑	
Chemspec	DFC 14000	3.125	86.57	☑	
JohnsonDiversey	Multi Surface Cleaner (Alpha HP)	1.56	80.60	☐	

Conclusion: The DFC Heavy Duty Degreaser and the DFC 14000 both removed more than 85% of the soil and would be considered effective all-purpose cleaners.