CLEANING LABORATORY EVALUATION SUMMARY

SCL #:	2007
DateRun:	10/24/2007
Experimenters:	Jason Marshall, Shweta Bansal
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 reevaluate supplied products for all purpose cleaning using a newer soil mixture.

Experimental Procedure:

Upon review of the previous all purpose cleaning trial, the soil formulation was very old (over 1 year) which may have affected the cleaning performance for the conditions typically used for all purpose cleaning.

The supplied cleaning products were used at full strength.

Preweighed fiberglass, ceramic and chrome coupons were coated with a fresh batch of SSL Soil 3 (Hucker's Soil: Distilled water 45.8%, Evaporated milk 13.8%, Creamy peanut butter 9.2%, Salted butter 9.2%, Stone ground wheat flour 9.2%, Egg yolk 9.2%, Printer's ink with boiled linseed oil 0.9% and 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.

Three coupons were placed into a Gardner Straight Line Washability unit. A Kimberly-Clark WypAll X60 reinforced wipe 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:

The newer mixture of the Hucker's soil yielded efficiencies that were more consistent with previous testing results. Three products were found to remove less than 90%. Two of these products were thicker then typical water spray cleaners and left more residue behind after cleaning and wiping dry. The table lists the amount of soil added, the amount remaining, the efficiency for each coupon cleaned and the average removal from each substrate type.

Cleaner	Substrate	Initial wt	Final wt	% Removed	Substrate Ave	Product Ave
Clorox	Painted Steel	0.5119	0.0238	95.35	95.46	93.51
		0.1606	0.0102	93.65		
		0.2188	0.0057	97.39		
	Plastic	0.1923	0.0124	93.55	93.06	
		0.1972	0.0187	90.52		
		0.1823	0.0089	95.12		
	Ceramic	0.2674	0.0277	89.64	91.99	
		0.2057	0.0129	93.73		
		0.2649	0.0196	92.60		
Countertop	Painted Steel	0.2632	0.0150	94.30	95.58	93.49
		0.2028	0.0110	94.58		
		0.3424	0.0073	97.87		
	Plastic	0.1415	0.0127	91.02	91.28	
		0.2227	0.0178	92.01		
		0.1709	0.0157	90.81		
	Ceramic	0.3431	0.0296	91.37	93.59	
		0.3293	0.0159	95.17		
		0.2465	0.0142	94.24		
Seventh Kitchen	Painted Steel	0.1956	0.0092	95.30	95.31	90.35
		0.1471	0.0005	99.66		
		0.1165	0.0105	90.99		

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	Plastic	0.2002	0.0224	88.81	86.11	
		0.2959	0.0184	93.78		
		0.1380	0.0335	75.72		
	Ceramic	0.2667	0.0547	79.49	89.63	
		0.1914	0.0120	93.73		
		0.2515	0.0109	95.67		
Soft Scrub	Painted Steel	0.1668	0.0407	75.60	70.59	64.48
		0.2295	0.0661	71.20		
		0.2189	0.0767	64.96		
	Plastic	0.1580	0.1063	32.72	50.35	
		0.2024	0.0680	66.40		
		0.2453	0.1179	51.94		
	Ceramic	0.1355	0.0572	57.79	72.50	
		0.2893	0.0550	80.99		
		0.2632	0.0560	78.72		
Formula 409	Painted Steel	0.1969	0.0060	96.95	96.75	94.32
		0.0904	0.0041	95.46		
		0.3453	0.0075	97.83		
	Plastic	0.2429	0.0223	90.82	92.45	
		0.1923	0.0116	93.97		
		0.2664	0.0198	92.57		
	Ceramic	0.1086	0.0042	96.13	93.76	
		0.2270	0.0065	97.14		
		0.1176	0.0141	88.01		
Meyer All Purpose	Painted Steel	0.1274	0.0077	93.96	95.08	92.81
		0.1816	0.0130	92.84		
		0.1812	0.0028	98.45		
	Plastic	0.2305	0.0357	84.51	88.69	
		0.1281	0.0128	90.01		
		0.2836	0.0240	91.54		
	Ceramic	0.3158	0.0191	93.95	94.65	
		0.2479	0.0191	92.30		
		0.2870	0.0066	97.70		
Seventh All Purpose	Painted Steel	0.1482	0.0306	79.35	86.32	90.73
		0.1935	0.0032	98.35		
		0.0694	0.0130	81.27		
	Plastic	0.1478	0.01881	87.27	92.29	
		0.1420	0.0029	97.96		
		0.2749	0.0230	91.63		
	Ceramic	0.2727	0.0145	94.68	93.58	
		0.1959	0.0115	94.13		
		0.1807	0.0146	91.92		
DFC General Spray	Painted Steel	0.1938	0.0408	78.95	91.31	93.61
		0.1888	0.0024	98.73		
		0.1490	0.0056	96.24		
	Plastic	0.2282	0.0050	97.81	94.45	
		0.1478	0.0032	97.83		
		0.2408	0.0296	87.71		
	Ceramic	0.2281	0.0164	92.81	95.07	
		0.2418	0.0109	95.49		
		0.3986	0.0123	96.91		
DFC Kitchen	Painted Steel	0.2161	0.0097	95.51	95.36	90.79

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		0.0977	0.0063	93.55		
		0.1502	0.0045	97.00		
	Plastic	0.2375	0.0324	86.36	92.55	
		0.2251	0.0125	94.45		
		0.2812	0.0089	96.83		
	Ceramic	0.0648	0.0136	79.01	84.48	
		0.1801	0.0079	95.61		
		0.2568	0.0544	78.82		
Comet	Painted Steel	0.1598	0.0616	61.45	84.60	89.60
		0.2139	0.0063	97.05		
		0.2440	0.0115	95.29		
	Plastic	0.2890	0.0127	95.61	95.01	
		0.2404	0.0110	95.42		
		0.1881	0.0113	93.99		
	Ceramic	0.2943	0.0300	89.81	89.19	
		0.1624	0.0178	89.04		
		0.1612	0.0182	88.71		
Meyer Shower	Painted Steel	0.1330	0.0073	94.51	96.27	91.37
		0.2745	0.0057	97.92		
		0.1734	0.0063	96.37		
	Plastic	0.2446	0.0310	87.33	90.10	
		0.1771	0.0048	97.29		
		0.1752	0.0251	85.67		
	Ceramic	0.1246	0.0106	91.49	87.74	
		0.2003	0.0148	92.61		
		0.1498	0.0313	79.11		
Seventh Bathroom	Painted Steel	0.1448	0.0126	91.30	94.03	94.53
		0.2847	0.0074	97.40		
		0.1994	0.0132	93.38		
	Plastic	0.1305	0.0010	99.23	98.06	
		0.1164	0.0016	98.63		
		0.1761	0.0065	96.31		
	Ceramic	0.2631	0.0073	97.23	91.51	
		0.1366	0.0240	82.43		
		0.2454	0.0126	94.87		
DFC Polish	Painted Steel	0.2495	0.0318	87.25	89.04	78.64
		0.1572	0.0197	87.47		
		0.2647	0.0201	92.41		
	Plastic	0.2046	0.0368	82.01	76.41	
		0.1821	0.0340	81.33		
		0.1639	0.0559	65.89		
	Ceramic	0.1371	0.0287	79.07	70.48	
		0.1606	0.0680	57.66		
		0.2040	0.0516	74.71		

Summary:

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

Company Name:	**Product Name:**	**Conc.:**	**Efficiency:**	**Effective:**	**Observations:**
Clorox Company	Clorox Kitchen Cleaner	100	93.51	☑	Rank - 5
Mrs Myers Clean Day	Mrs Meyers Lemon Multisurface Cleaner	100	93.49	☑	Rank - 6
Seventh Generation	Free & Clear Kitchen Cleaner	100	90.35	☑	Rank - 10
Henkel Corporation	Soft Scrub with Bleach	100	64.48	☐	Rank - 13
Clorox Company	Formula 409 All Purpose Cleaner	100	94.32	☑	Rank - 2

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Mrs Myers Clean Day	Mrs Meyers Lemon Multisurface Cleaner	100	92.81	☑	Rank - 7
Seventh Generation	Free & Clear All Purpose	100	93.93	☑	Rank - 3
Cogent Environmental Solutions	DFC General Spray	100	93.61	☑	Rank - 4
Cogent Environmental Solutions	DFC Kitchen Spray	100	90.79	☑	Rank - 9
Prestige Brands Inc	Comet Bathroom Cleaner	100	89.60	☑	Rank - 11
Mrs Myers Clean Day	Mrs Meyers Lavender Tub and Tile	100	91.37	☑	Rank - 8
Seventh Generation	Disinfecting Bathroom Cleaner	100	94.53	☑	Rank - 1
Cogent Environmental Solutions	DFC GPC Polish	100	78.64	☐	Rank - 12

Conclusion: Only the two thicker cleaning solutions removed under the 85% cut off point for effective all purpose cleaning.