CLEANING LABORATORY EVALUATION SUMMARY

SCL #: 2016

DateRun: 02/01/2016

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ClientType: Cleaner Manufacturer

ProjectNumber: Project #5

Substrates: Ceramics, Plastic, White Board

PartType: Coupon

Contaminants: Greases, Food

Cleaning Methods: Manual Wipe

Analytical Methods: Gravimetric

Purpose: To evaluate 11 supplied samples and one competitor sample for an all purpose cleaning efficacy test.

Experimental Procedure: Nine coupons for each sample (three ceramic, three plastic, and three painted steel) were weighed for initial weights. Using a swab, coupons were then dirtied with .5 grams of DCC17 and air dried at 68F overnight.

Dirty weights were then collected the next day and cleaning samples were placed into a lab testing spray bottle. Three coupons were placed into a Gardner Straight Line Washability unit. A Wypall X60 reinforced wipe was attached to the cleaning sled and soaked with two sprays of cleaning solutions. Each coupon was sprayed two 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 (30 seconds of cleaning).

Coupons were placed back on the tray and then weighed for a final weight. If coupon's gravimetric final results were off, coupons were reweighed the next day to allow for air drying.

Results: Cleaner Substrate Initial Wt. Final Wt. %Cont Removed %Average %Overall

NAPCD-5						
‘1:128		Initial wt	Final wt	Removal	Average	Overall Ave
	Ceramic	0.5137	0.1062	79.33	90.35	
		0.5566	0.0627	99.41		
		0.5179	0.0398	92.32		
	Plastic	0.5457	0.1549	71.61	91.48	91.18
		0.543	0.0417	92.32		
		0.5067	-0.0532	110.5		
	Painted Steel	0.5111	0.033	93.54	91.72	
		0.535	0.0308	94.24		
		0.5353	0.0676	87.37		
NAPCD-5						
‘1:64						
	Ceramic	0.5337	0.0395	92.6	91.35	
		0.5458	0.0585	89.28		
		0.5427	0.0425	92.16		
	Plastic	0.5627	0.0274	95.13	94.04	92.81
		0.5222	0.0186	96.43		
		0.5119	0.0483	90.56		
	Painted Steel	0.5122	0.0268	94.76	93.06	
		0.5372	0.026	95.16		
		0.5353	0.0575	89.25		
NAPCD-6						
‘1:64						
	Ceramic	0.4665	0.0936	79.93	72.69	
		0.4128	0.1383	66.49		
		0.4552	0.129	71.66		
	Plastic	0.5251	0.1136	78.36	80.71	75.86
		0.5334	0.1206	77.39		

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		0.5128	0.0698	86.38		
	Painted Steel	0.5057	0.1099	78.26	74.18	
		0.4957	0.1481	70.12		
		0.5416	0.14	74.15		
NAPCD-6						
‘1:128						
	Ceramic	0.5825	0.0853	85.35	87.74	
		0.5813	0.1109	80.92		
		0.5371	0.0163	96.96		
	Plastic	0.5286	0.1594	69.84	75.08	84.53
		0.5722	0.1328	76.79		
		0.5298	0.1133	78.61		
	Painted Steel	0.4856	0.034	92.99	90.76	
		0.5792	0.0713	87.68		
		0.5058	0.0424	91.61		
NAPCD-7						
‘1:64						
	Ceramic	0.3843	0.0547	85.76	92.15	
		0.3561	0.006	98.31		
		0.411	0.0313	92.38		
	Plastic	0.4295	0.0121	97.18	95.84	93.74
		0.4394	0.0296	93.26		
		0.4268	0.0124	97.09		
	Painted Steel	0.4781	0.0195	95.92	93.25	
		0.4235	0.0351	91.71		
		0.3972	0.0312	92.14		
NAPCD-8						
‘1:64						
	Ceramic	0.2802	-0.0138	104.92	99.1	
		0.3755	0.0089	97.62		
		0.3959	0.0208	94.74		
	Plastic	0.476	0.0399	91.61	88.42	99.84
		0.373	0.0389	89.57		
		0.3879	0.0617	84.09		
	Painted Steel	0.3249	0.0107	96.7	96.16	
		0.3238	0.0053	98.36		
		0.3508	0.0231	93.41		
NAPCD-8						
‘1:128						
	Ceramic	0.3934	0.0377	90.41	96.55	
		0.3774	0.0024	99.36		
		0.4658	0.0158	96.6		
	Plastic	0.4098	0.0007	99.82	95.45	96.34
		0.4936	0.0052	98.94		
		0.3886	0.0482	87.59		
	Painted Steel	0.2911	-0.0111	103.81	97.03	
		0.4274	0.0377	91.17		
		0.5088	0.0198	96.1		
7th Generation						
All Purpose						
	Ceramic	0.5902	0.0335	94.32	90.97	
		0.2096	0.0264	87.4		
		0.3391	0.0299	91.18		

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	Plastic	0.4997	0.16	67.98	81.48	88.94
		0.4034	0.0204	94.94		
		0.3435	0.0634	81.54		
	Painted Steel	0.3595	-0.001	100.27	94.95	
		0.2565	0.0445	82.65		
		0.226	-0.0044	101.94		
DG-23						
‘1:64						
	Ceramic	0.5059	0.0712	85.92	81.61	
		0.4363	0.0726	83.36		
		0.4068	0.0994	75.56		
	Plastic	0.4297	0.0454	89.43	81.22	84.49
		0.4948	0.0576	88.35		
		0.4459	0.1522	65.86		
	Painted Steel	0.4471	0.036	91.94	90.64	
		0.4056	0.0377	90.7		
		0.4389	0.047	89.29		
DG-23						
‘1:128						
	Ceramic	0.4471	0.0696	84.43	85.22	
		0.409	0.0994	75.69		
		0.3929	0.0176	95.52		
	Plastic	0.4005	0.0535	86.64	84.59	86.95
		0.4096	0.1162	71.63		
		0.3842	0.0172	95.52		
	Painted Steel	0.428	0.0374	91.26	91.05	
		0.4435	0.0257	94.2		
		0.3442	0.0424	87.68		

Summary:

Substrates:	Ceramics, Plastic, White Board
Contaminants:	Greases, Food

Company Name:	Product Name:	Conc.:	Efficiency:	Effective:	Observations:
ProNatural Brands LLC	NAPCD-5 All Purpose Cleaner	0.8	91.18	☑	
ProNatural Brands LLC	NAPCD-5 All Purpose Cleaner	1.6	92.81	☑	
ProNatural Brands LLC	NAPCD-6 All Purpose Cleaner	0.8	75.86	☐	
ProNatural Brands LLC	NAPCD-6 All Purpose Cleaner	0.8	84.53	☑	
ProNatural Brands LLC	NAPCD-7 All Surface Cleaner	1.6	93.74	☑	
ProNatural Brands LLC	NAPCD-7 All Surface Cleaner	0.78	92.92	☑	
ProNatural Brands LLC	NAPCD-8 All Surface Cleaner	1.6	99.84	☑	
ProNatural Brands LLC	NAPCD-8 All Surface Cleaner	0.78	96.34	☑	
Fisher Scientific	Absolute Ethanol	0	0.00	☐	
Seventh Generation	Free & Clear All Purpose	100	88.94	☑	
Fisher Scientific	Absolute Ethanol	0	0.00	☐	
ProNatural Brands LLC	DG-23	1.6	84.49	☑	
ProNatural Brands LLC	DG-23	0.78	86.95	☑	

Conclusion:

The cleaner that performed the best for removal of DCC17 was NAPCD-8 1:64. NAPCD-6 1:64 performed the worst at removing DCC17. In comparison to the competitor sample 7th Generation All Purpose Cleaner, both dilution versions of NAPCD-5, NAPCD-7, NAPCD-8 performed equal or better.