CLEANING LABORATORY EVALUATION SUMMARY

SCL #:	2014
DateRun:	12/19/2014
Experimenters:	George Liang, Digvijay Devkota
ClientType:	Cleaner Manufacturer
ProjectNumber:	Project #6
Substrates:	Ceramics, Plastic, Steel
PartType:	Coupon
Contaminants:	Greases, Oil, Food
Cleaning Methods:	Manual Wipe
Analytical Methods:	Gravimetric
Purpose:	To evaluate three supplied products for all purpose cleaning following GS 37 requirements
Experimental Procedure:	The submitted cleaning products were diluted with cool DI water to vendor recommended concentration for all purpose cleaning.

Preweighed ceramic, plastic G-10 and painted steel coupons were coated with a mixture of three cooking oils/greases was made. A melt blend of 33% vegetable shortening, 33% lard, 33% vegetable oil and 1% carbon lampblack was made up fresh for the testing. Care was taken in the application of the soil onto the coupons so that light and heavy areas were avoided. The soiled tiles were allowed to dry for 24 hours at room temperature. Gravimetric readings were made for each of soiled tiles.

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 1 spray of cleaning solution. Each coupon was sprayed once 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.

Chemistries Evaluated: Multipurpose 1:16; Multipurpose HC 1:25.6; H2O2 Tile Grout HC 1:25.6; Proforce MC Pine_ceramic

Results: All three products were effective at removing the soil from the three surfaces using manual wiping. The Product 1 resulted in the lowest efficiency, removing around 90% of the soil. 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	Substrate Ave
Multipurpose 1:16_ceramic				
	0.1900	0.0070	96.38	
	0.1800	0.0067	96.21	
	0.2300	0.0009	99.60	97.40
Multipurpose 1:16_plastic				
	0.5300	0.0295	89.28	
	0.3200	0.0200	95.45	
	0.4000	0.0259	95.83	93.52
Multipurpose 1:16_painted steel				
	0.4000	0.0118	97.04	
	0.2600	0.0107	95.92	
	0.4800	0.0133	97.21	96.73
Multipurpose HC 1:25.6_ceramic				
	0.1800	0.0528	70.58	
	0.3800	0.0399	89.56	
	0.2800	0.0093	96.71	85.62
Multipurpose HC 1:25.6_plastic				
	0.4500	0.0649	85.64	

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	0.6000	0.0597	90.03	
	0.5600	0.0224	96.03	90.57
Multipurpose HC 1:25.6_painted steel				
	0.2800	0.0295	89.28	
	0.4400	0.0200	95.45	
	0.6200	0.0259	95.83	93.52
H2O2 Tile Grout 1:25.6_ceramic				
	0.2200	0.0047	97.82	
	0.6800	0.1897	72.17	
	0.8700	0.0397	95.46	88.48
H2O2 Tile Grout 1:25.6_plastic				
	0.7100	0.0575	91.88	
	0.6400	0.0454	92.95	
	0.4100	0.0600	85.20	90.01
H2O2 Tile Grout 1:25.6_painted steel				
	0.1900	0.0200	89.39	
	0.7500	0.0192	97.45	
	0.4100	0.0195	95.28	94.04
Proforce MC Pine_ceramic				
	0.4500	0.0400	91.38	
	0.5200	0.0000	99.44	
	0.2200	0.0200	92.28	94.37
Proforce MC Pine_plastic				
	0.4400	0.0400	91.28	
	0.5300	0.0400	93.32	
	0.2400	0.0200	92.29	92.29
Proforce MC Pine_painted steel				
	0.2900	0.0100	95.99	
	0.2000	0.0100	95.82	
	0.2300	0.0100	95.39	95.73

Summary:

Substrates:	Ceramics, Plastic, Steel
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Company Name:	Product Name:	Conc.:	Efficiency:	Effective:	Observations:
EnvirOx LLC	Multi-Purpose Hyper	6.25	95.80	☑	
EnvirOx LLC	Multi-Purpose Hyper	3.9	89.90	☑	
EnvirOx LLC	H2O2 Orange Tile and Grout Renovator	3.9	90.85	☑	
EcoLab	Proforce Multipurpose Pine Cleaner	6.25	94.13	☑	

Conclusion: The three submitted products were found to be effective at removing the grease soil mix from various surfaces using manual wiping. They compared well to the comparative cleaning product used for testing.