CLEANING LABORATORY EVALUATION SUMMARY

SCL #:	2014
DateRun:	09/18/2014
Experimenters:	Jason Marshall, Loc Nguyen, George Liang
ClientType:	Cleaner Manufacturer
ProjectNumber:	Project #5
Substrates:	Ceramics, Plastic, Steel
PartType:	Coupon
Contaminants:	Hucker's Soil
Cleaning Methods:	
Analytical Methods:	Gravimetric
Purpose:	To evaluate three supplied products for all purpose cleaning following GS 37 requirements
Experimental Procedure:	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 handheld swab and allowed to dry for 2 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 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: H2 Orange 2 Tile Grout Hyper Concentrated, Tile Grout Hyper Concentrated, Multipurpose Hyper Concentrated

Results:

Cleaner	Initial wt	Final wt	% Removed	%Average Removed
H2 Orange 2 Tile (1:12.8) - ceramic	0.7282	0.4689	35.61	
H2 Orange 2 Tile (1:12.8) - ceramic	0.4694	0.2927	37.64	
H2 Orange 2 Tile (1:12.8) - ceramic	0.4448	0.2622	41.05	38.1
H2 Orange 2 Tile(1:12.8) - plastic	0.4279	0.0645	84.93	
H2 Orange 2 Tile(1:12.8) - plastic	0.522	0.1206	76.9	
H2 Orange 2 Tile(1:12.8) - plastic	0.5373	0.0635	88.18	83.33
H2 Orange 2 Tile (1:12.8) - painted steel	0.5178	0.1613	68.85	
H2 Orange 2 Tile (1:12.8) - painted steel	0.5368	0.1692	68.48	

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H2 Orange 2 Tile (1:12.8) - painted steel	0.0359	0.2541	52.58	63.3
Tile Grout HC (1:25.6) - ceramic	0.7164	0.162	77.39	
Tile Grout HC (1:25.6) - ceramic	0.3472	0.0092	97.35	
Tile Grout HC (1:25.6) - ceramic	0.8322	0.1725	79.27	84.67
Tile Grout HC (1:25.6) - plastic	0.5787	0.1192	79.4	
Tile Grout HC (1:25.6) - plastic	0.5249	0.1631	68.93	
Tile Grout HC (1:25.6) - plastic	0.5115	0.2831	44.65	64.33
Tile Grout HC (1:25.6) - painted steel	0.5142	0.203	60.52	
Tile Grout HC (1:25.6) - painted steel	0.4955	0.1146	76.87	
Tile Grout HC (1:25.6) - painted steel	0.5321	0.171	67.86	68.42
Multi-Purp HC (1:25.6)- ceramic	0.6462	0.1352	79.08	
Multi-Purp HC (1:25.6)- ceramic	0.5938	0.2118	64.33	
Multi-Purp HC (1:25.6)- ceramic	0.5795	0.237	59.1	67.5
Multi-Purp HC (1:25.6) - plastic	0.5448	0.0115	97.89	
Multi-Purp HC (1:25.6) - plastic	0.6317	0.1335	78.87	
Multi-Purp HC (1:25.6) - plastic	0.6559	0.1649	74.86	83.87
Multi-Purp HC (1:25.6)- painted steel	0.5769	0.1509	73.84	
Multi-Purp HC (1:25.6)- painted steel	0.5948	0.2324	60.93	
Multi-Purp HC (1:25.6)- painted steel	0.6008	0.2157	64.1	66.29

Summary:

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Company Name:	Product Name:	Conc.:	Efficiency:	Effective:	Observations:
EnvirOx LLC	H2 Orange 2 Tile	8	61.58	☐	
EnvirOx LLC	H2O2 Orange Tile and Grout Renovator	4	72.47	☑	
EnvirOx LLC	Multi-Purpose Hyper	4	72.56	☑	

Conclusion:

The overall results of the cleaners were not effective at cleaning the Huckers soil. However, H2 Orange2 Tile and Multipurpose Hyper Concentrated were effective at removing the Huckers soil from plastic substrates with an efficiency of 83%. Alternatively Tile Grout Hyper Concentrated is effective at removing Huckers soil from ceramic substrates at an efficiency of 85%. Overall, it has the lowest efficiency of 62% on average at removing all types of substrates. In addition to this Tile Grout Hyper Concentrated and Multipurpose Hyper Concentrated has shown to both have the best efficiency in removing the Huckers soil with an average efficiency of 73% removal of contaminants.