CLEANING LABORATORY EVALUATION SUMMARY

SCL #:	2014
DateRun:	12/18/2014
Experimenters:	Loc Nguyen, George Liang, Digvijay Devkota
ClientType:	Cleaner Manufacturer
ProjectNumber:	Project #6
Substrates:	Ceramics, Plastic, Chrome
PartType:	Coupon
Contaminants:	Films, Soaps
Cleaning Methods:	Manual Wipe
Analytical Methods:	Gravimetric
Purpose:	The purpose of this test is to check whether the cleaners Multipurpose, Multipurpose HC and Proforce Bathroom are effective in removing soil bathroom soil from the surface of the Ceramic, Fiber Glass and Chrome or not.
Experimental Procedure:	Preweighed chrome, ceramic and fiberglass, coupons were coated with SSL Soil 1 (Bathroom soap scum: All-in-one shampoo and conditioner 28.6%, Dry skin lotion 21.4%, Liquid hand soap 21.4%, Liquid body wash 14.3%, Deodorant bar soap 7.2% and water 7.1%.) 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 Wypall X60 reinforced wipe was attached to the cleaning sled and soaked with 2-3 sprays of cleaning solutions. Each coupon was sprayed 1-2 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 measured and efficiencies were calculated and recorded. Cleaners: Multipurpose; Multipurpose HC; Proforce Bathroom
Results:	The bathroom soil was already made and was soiled in the surface of the coupons. Coupons were left for 2 hours to dry. Dirty weight was recorded, and the coupons were cleaned using manual wipe and left overnight to dry. After cleaning, the weight was recorded, and percent removal was calculated. Based on the result, on average all cleaners were effective in removing soil from the surface of ceramic, fiber glass and chrome. The table lists the amount of soil added, the amount remaining after cleaning and the calculated efficiency for soil used.

Cleaner	Initial wt	Final wt	% Removed	Average
Multipurpose 1:16_ceramic	0.0467	0.0024	94.86	
Multipurpose 1:16_ceramic	0.0431	0.0025	94.20	
Multipurpose 1:16_ceramic	0.0739	0.0027	96.35	95.14
Multipurpose 1:16_plastic	0.0191	0.0111	79.17	
Multipurpose 1:16_plastic	0.0632	0.0940	65.22	
Multipurpose 1:16_plastic	0.0476	0.0508	85.82	76.74
Multipurpose 1:16_chrome	0.0535	0.0015	97.20	
Multipurpose 1:16_chrome	0.0660	0.0019	97.12	
Multipurpose 1:16_chrome	0.0944	0.0026	97.25	97.19
Multipurpose HC 1:25.6_ceramic	0.1881	0.0135	92.82	
Multipurpose HC 1:25.6_ceramic	0.0728	0.0009	98.76	
	0.1399	0.0053	96.21	95.93

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Multipurpose HC 1:25.6_ceramic				
Multipurpose HC 1:25.6_plastic	0.2219	0.0539	75.71	
Multipurpose HC 1:25.6_plastic	0.2727	0.0493	81.92	
Multipurpose HC 1:25.6_plastic	0.2579	0.0074	97.13	84.92
Multipurpose HC 1:25.6_chrome	0.0533	0.0111	79.17	
Multipurpose HC 1:25.6_chrome	0.2703	0.0940	65.22	
Multipurpose HC 1:25.6_chrome	0.3583	0.0508	85.82	76.74
Proforce Bathroom_ceramic	0.2907	0.0356	87.75	
Proforce Bathroom_ceramic	0.1868	0.0483	74.14	
Proforce Bathroom_ceramic	0.0877	0.0096	89.05	83.65
Proforce Bathroom_plastic	0.2322	0.0601	74.12	
Proforce Bathroom_plastic	0.1795	0.0340	81.06	
Proforce Bathroom_plastic	0.2476	0.0218	91.20	82.12
Proforce Bathroom_chrome	0.1156	0.0130	88.75	
Proforce Bathroom_chrome	0.2436	0.0342	85.96	
Proforce Bathroom_chrome	0.2320	0.0318	86.29	87.00

Summary:

Substrates:	Ceramics, Plastic, Chrome
Contaminants:	Films, Soaps

Company Name:	Product Name:	Conc.:	Efficiency:	Effective:	Observations:
EnvirOx LLC	Multi-Purpose Hyper	6.25	89.69	☑	
EnvirOx LLC	Multi-Purpose Hyper	3.9	85.86	☑	
EcoLab	Proforce Bathroom & Tile Cleaner with Bleach	100	84.26	☐	

Conclusion:

On average, all three cleaners were efficient in cleaning bathroom soil from all surfaces, but they were not effective on all individual surfaces. Multipurpose was not effective in cleaning plastic surfaces at 76.74% removal. Multipurpose HC was not effective in cleaning chrome surfaces at 76.74% removal. Proforce bathroom was not effective in cleaning ceramic and plastic surfaces but was very close to the 85% standard threshold with efficiencies of 83.65% and 82.12% respectively.