CLEANING LABORATORY EVALUATION SUMMARY

SCL #:	2011
DateRun:	08/15/2011
Experimenters:	Jason Marshall, Timothy Weil, Johnny Le
ClientType:	Cleaner Manufacturer
ProjectNumber:	Project #1
Substrates:	Ceramics, Plastic, Steel
PartType:	Coupon
Contaminants:	Films, Soaps
Cleaning Methods:	Manual Wipe
Analytical Methods:	Gravimetric, Visual
Purpose:	To evaluate the supplied products for bathroom cleaning using manual cleaning
Experimental Procedure:	The supplied cleaning products, Clorox Green Works Natural Bathroom Cleaner and ChemCo Purple Tiger, were used at the recommended dilution (1:32, 1:8) 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 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 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 solution was allowed to penetrate for 30 seconds followed by cleaning in the SLW unit for 20 cycles (~33 seconds). Final weights were measured and efficiencies were calculated and recorded. A visual analysis was taken for the ceramic coupons because of their ability to absorb and retain moisture. Chemistries Evaluated: Clorox Green Works Natural Bathroom Cleaner; ChemCo Purple Tiger;
Results:	The Clorox Green Works Natural Bathroom cleaner out removed more than 92% of the bathroom soap scum soil from the ceramic and over 87% of the soil was removed from the chrome using manual cleaning. The ChemCo Purple Tiger removed more than 76% of the bathroom soil from the ceramic coupons and over 84% of the bathroom soil from the chrome coupons.

Cleaner	Initial wt	Final wt	% Removed	% Average
ChemCo Purple Tiger Ceramic				
	0.0171	0.0050	69.59	95.27
	0.0333	0.0091	72.67	
	0.0147	-0.0064	143.54	
Clorox Green Works Natural Bathroom Cleaner Chrome				
	0.0172	0.0021	87.79	87.72
	0.0235	0.0031	86.81	
	0.0306	0.0035	88.56	
ChemCo Purple Tiger Chrome				
	0.0251	0.0038	84.86	84.61
	0.0240	0.0032	86.67	
	0.0277	0.0049	82.31	
Clorox Green Works Natural Bathroom				

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Cleaner Fiberglass				
	0.0610	0.0296	51.48	61.55
	0.0574	0.0200	65.16	
	0.0372	0.0119	68.01	
ChemCo Purple Tiger Fiberglass				
	0.0445	0.0314	29.44	44.39
	0.0471	0.0229	51.38	
	0.0468	0.0223	52.35	

Visual Results

Visual Ranking	Ranking 1	Ranking 2	Ranking 3	Average
Clorox Green Works Natural	96.33	96	85.67	92.67
Bathroom Cleaner 1:32				
ChemCo Purple Tiger 1:8	73.33	76.67	78.33	76.11

Summary:

Substrates:	Ceramics, Plastic, Steel				
Contaminants:	Films, Soaps				
Company Name:	**Product Name:**	**Conc.:**	**Efficiency:**	**Effective:**	**Observations:**
Clorox Company	Green Works Bathroom Cleaner	100	92.67	☑	
Chemco	Purple Tiger All purpose cleaner	3.125	89.20	☑	

Conclusion: The Clorox Green Works Natural Cleaner was affective at removing bathroom soap scum off of ceramic and chrome substrates.