CLEANING LABORATORY EVALUATION SUMMARY

SCL #:	2007
DateRun:	11/15/2007
Experimenters:	Shweta Bansal
ClientType:	Lab
ProjectNumber:	Project #1
Substrates:	Ceramics, Fiberglass, Chrome
PartType:	Coupon
Contaminants:	Films, Soaps
Cleaning Methods:	Manual Wipe
Analytical Methods:	Gravimetric
Purpose:	Laboratory evaluations of alternative cleaning products

Experimental Procedure:

Basic cleaning performance testing was conducted using ASTM G122 as the bases for cleaning.

Several "do-it-yourself" home formulations were evaluated for performance on several substrates and typical soils for bathroom cleaning.

Cleaning: Spray cleaner on the coupons
30 secs Manual Wipe cleaning at 130 F
Contaminant SSL Soil 1 - Bathroom Soil
Substrate 2"x 4"x 0.06"
Chrome Plated
Ceramic Coupons
Fiberglass Coupons (3"x 4.5"x 0.125")

Bathroom Cleaners - Toilet
Home Formulation 17 - Baking soda and vinegar – sprinkle baking soda in bowl, then squirt with vinegar and scrub. Cleans & deodorizes

Home Formulation 18 - Borax and lemon juice or vinegar removes stubborn stains like toilet bowl ring. Make a paste with the borax and lemon juice. For a tough stain flush toilet to wet the bowl and then apply the paste to the stain and let sit for 2 hrs.

Home Formulation 19 - Denture tabs are good substitute for toilet cleaner. Drop 2 tablets in the bowl and scrub as usual.

Home Formulation 20 - Liquid castile soap and baking soda or borax & scrub toilet

Home Formulation 21 - Baking soda and Murphy’s oil soap. Sprinkle baking soda in the wet bowl. Add a couple drops of soap and scrub bowl. Flush toilet to rinse.

Results:

Product	Substrate	Average (%)
Formulation 17	Chrome Plated	-38.49
	Ceramic	-22.65
	Fiberglass	-175.30
Formulation 18	Chrome plated	-125.48
	Ceramic	-59.01
	Fiberglass	-18.04
Formulation 19	Chrome Plated	79.78
	Ceramic	46.38
	Fiberglass	104.75
Formulation 20	Chrome Plated	-332.75
	Ceramic	-287.95
	Fiber Glass	-438.26
Formulation 21	Chrome Plated	-346.59
	Ceramic	-274.46
	Fiber Glass	-494.98

Summary:

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

CLEANING LABORATORY EVALUATION SUMMARY

Company Name:	Product Name:	Conc.:	Efficiency:	Effective:	Observations:
No Specific Vendor	Home Formulation 17	100	-70.81	☐	
No Specific Vendor	Home Formulation 18	100	-67.51	☐	
No Specific Vendor	Home Formulation 19	100	76.97	☑	
No Specific Vendor	Home Formulation 20	100	-352.99	☐	
No Specific Vendor	Home Formulation 21	100	-372.01	☐	

Conclusion: Many of the mixtures left behind a lot of residue when using the standard laboratory procedures for commercial cleaning products. Modification of the cleaning process may improve the effectiveness of these "do-it-yourself" formulations. Formulation 19 was the only product to remove over 75% of the bathroom soil using manual wiping.