CLEANING LABORATORY EVALUATION SUMMARY

SCL #:	2012
DateRun:	11/08/2012
Experimenters:	Loc Nguyen, Anni Geng
ClientType:	Cleaner Manufacturer
ProjectNumber:	Project #1
Substrates:	Glass/Quartz, Chrome
PartType:	Coupon
Contaminants:	Films, Soaps
Cleaning Methods:	Manual Wipe
Analytical Methods:	Gravimetric, Visual
Purpose:	To evaluate supplied products for glass cleaning using manual cleaning

Experimental Procedure:

Supplied products were diluted with room temperature water to the requested dilution. Preweighed glass, chrome and mirror coupons were coated with SSL Soil 2 (Glass soap scum: Water 51.5%, Hair gel 25.6%, Toothpaste 10.4%, Shaving cream 5.3%, Hair spray 3.7% and Spray deodorant 3.5%) 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 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 5 cycles (~10 seconds). At the end of the cleaning, coupons were wiped once with a dry paper towel. Final weights were recorded and efficiencies recorded. Visual observations were made on the coupons for spotting and filming following the general guidelines set forth in the CSPA DCC 09A. Filming is best recognized as "haziness" or overall "milkiness", while streaking is best identified as dried droplets or "spotting", usually found strung together into thin white lines. Each coupon was evaluated separately for filming and streaking, (i.e., product residues without added soil), according to a scale of "1" to "7" where;

Filming	Streaking
7 = high filming	7 = high streaking poor (performance)
1 = no visible filming	1 = no visible streaking (excellent performance)

Results:

All three products removed over 92% of the glass soap scum using manual cleaning.One product had filming and spotting levels below the acceptable level from Green Seal.The other two products had better results than the conventional product for filming and streaking. The table lists the amount of soil added, the amount remaining and the efficiency for each coupon cleaned.

	Initial wt of cont.	Final wt of cont.	%Cont Removed	Ave.Removed
Product1 glass				
	0.0060	0.0009	85.00	92.55
	0.0128	0.0006	95.31	
	0.0133	0.0004	96.99	
Product1 Chrome				
	0.0110	0.0005	95.45	
	0.0071	0.0007	90.14	
	0.0071	0.0007	90.14	
Product1 Mirror				
	0.0246	0.0018	92.68	92.19
	0.0092	0.0011	88.04	
	0.0083	0.0009	89.15	
Product2 Glass				
	0.0117	0.0008	93.16	
	0.0121	0.0001	99.17	
	0.0081	0.0003	96.29	

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Product2 Chrome				
	0.0090	0.0010	88.88	
	0.0068	0.0007	89.70	
	0.0081	0.0006	92.59	
Product2 Mirror				
	0.0082	0.0010	87.80	93.45
	0.0138	0.0016	88.40	
	0.0143	0.0010	93.00	
Product3 Glass				
	0.0085	0.0003	96.47	
	0.0065	0.0003	95.38	
	0.0047	0.0002	95.74	
Product3 Chrome				
	0.0082	0.0010	87.80	
	0.0138	0.0016	88.40	
	0.0143	0.0010	93.00	
Product3 Mirror				
	0.0114	0.0003	97.36	
	0.0117	0.0008	93.16	
	0.0111	0.0007	93.69	

Visual Observations

Filming				
Coupon	Tester 1	Tester 2	Tester 3	Ave
1A	1.67	2	1.67	1.93
1B	1.33	1.67	1.33	
1C	2.67	2.33	2.67	
2A	2.33	2	2.33	2.04
2B	1	1	1.33	
2C	2.67	3	2.67	
3A	2.33	2.33	2	1.78
3B	1	1	1	
3C	2	2	2.33	
Streaking				
Coupon	Tester 1	Tester 2	Tester 3	Ave
1A	2.67	2.67	2.33	2.3
1B	1	1.33	1.33	
1C	3.67	3	2.67	
2A	2.33	2.67	2.67	2.52
2B	1	1.33	1	
2C	3.67	4	4	
3A	3.67	4	4	2.7
3B	1	1	1	
3C	3.33	3.33	3	

Summary:

Substrates:	Glass/Quartz, Chrome
Contaminants:	Films, Soaps

Company Name:	Product Name:	Conc.:	Efficiency:	Effective:	Observations:
Seventh Generation	Natural Glass and Surface Cleaner	100	92.19	☑	Filming 2.04; Streaking 2.52
SC Johnson & Son Inc	Windex Glass & More Cleaner (Spray)	100	93.44	☑	Film 1.78; Streak 2.7
Common Good & Co	Glass Cleaner	100	92.30	☑	Filming 1.93; Streaking 2.3

Conclusion:

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The three products had an overall average removal efficiency greater than 85%. Filming and streaking observations for the supplied product were comparable to the conventional non-green product and the on-the-market green product.