CLEANING LABORATORY EVALUATION SUMMARY

SCL #:	2012
DateRun:	11/06/2012
Experimenters:	Anni Geng, Mina Le
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 the supplied tablet product for glass cleaning using manual wiping.

Experimental Procedure:

The supplied product was diluted with water to the requested dilution (1.5 grams/16 ounces). A comparative product was used at the ready-to-use concentration.

Preweighed chrome and three glass 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 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 1-2 sprays of cleaning solutions. Each coupon was sprayed 2-3 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:

Both products removed more than 85% of the glass soap scum using manual cleaning. The on-the-market product was slightly better at reducing any filming on the surface than the supplied product. Both had equal ratings for streaking. Filming had the supplied product at 3.2 and the on-the-market product at 2.8. Both products were rated on average at 3.6 for streaking on the 7-point scale. The first table lists the amount of soil added, the amount remaining and the efficiency for each coupon cleaned. The second table lists the ratings made for filming and streaking.

Cleaner	Initial wt	Final wt	% Removed
Sunstate - mirror			
	0.0153	0.0018	88.24
	0.0073	0.0026	64.38
	0.0152	0.0028	81.58
Sunstate - glass			
	0.0153	0.0019	87.58
	0.0124	0.0006	95.16
	0.0101	0.0001	99.01
Sunstate - chrome			
	0.0161	0.0021	86.96
	0.0185	0.0024	87.03
	0.0281	0.0024	91.46
Windex - mirror			
	0.0191	0.0040	79.06
	0.0136	0.0027	80.15
	0.0087	0.0024	72.41
Windex - glass			

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	0.0208	0.0014	93.27
	0.0217	0.0036	83.41
	0.0112	0.0006	94.64
Windex - chrome			
	0.0177	0.0025	85.88
	0.0365	0.0026	92.88
	0.0373	0.0035	90.62

Visual Observations

Filming	Observer									
Coupon	A			B			C			Coupon Ave	Product Ave
1A	4	5	4	4	4	4	4	4	4	4.1	3.2
1B	2	2	2	1	2	1	2	1	2	1.7	
1C	4	4	3	4	4	4	4	4	4	3.9	
2A	3	3	3	2	2	2	3	3	2	2.6	2.8
2B	2	2	3	2	2	2	2	2	2	2.1	
2C	3	3	4	4	3	4	4	4	4	3.7	
Streaking											
Coupon	A			B			C				
1A	5	5	4	4	4	4	5	4	4	4.3	3.6
1B	2	2	2	2	2	2	2	1	2	1.9	
1C	5	4	4	4	5	4	4	5	5	4.4	
2A	5	5	4	4	4	4	5	4	4	4.3	3.6
2B	2	2	3	3	3	3	3	2	3	2.7	
2C	3	3	3	4	4	4	4	4	4	3.7	

Summary:

Substrates:	Glass/Quartz, Chrome				
Contaminants:	Films, Soaps				
Company Name:	**Product Name:**	**Conc.:**	**Efficiency:**	**Effective:**	**Observations:**
SC Johnson & Son Inc	Windex Glass & More Cleaner (Spray)	100	85.81	☑	Filming - 2.8; Streaking 3.6
Sunstate Laboratory LLC	Sunstate All Purpose Cleaner Tablet	15	86.62	☑	Filming 3.2; Streaking 3.6

Conclusion: The supplied tablet glass cleaner worked as well as the on-the-market product for soil removal and streaking and was only marginal less in the amount of filming left behind.