CLEANING LABORATORY EVALUATION SUMMARY

SCL #:	2009
DateRun:	09/20/2009
Experimenters:	Jason Marshall, Heidi Wilcox, Junhee Cho, Johnny Le
ClientType:	Cleaning Equipment Mfr
ProjectNumber:	Project #1
Substrates:	Glass/Quartz
PartType:	Coupon
Contaminants:	Films, Soaps
Cleaning Methods:	Manual Wipe
Analytical Methods:	Gravimetric, Visual
Purpose:	To evaluate supplied cleaning process with an traditional glass cleaning product.

Experimental Procedure:

All three products were used at the supplied concentration (100%) at room temperature.

Preweighed chrome and glass coupons were coated with SSL Soil 2 (Glass soap scum: Colgate Regular shaving cream 5.3%, Arid Extra Extra Spray Deodorant 3.5%, Suave Naturals Flexible Hold hair spray 3.7%, Aleeda Texturizing hair gel 25.6% Colgate Total toothpaste 10.4%, Water 51.5%) by pump spraying the mix. The soil was 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 microfiber cloth 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 cleaning unit was run for 5 cycles (~9 seconds).

At the end of the cleaning, coupons were wiped once with a dry paper towel. Final weights were recorded, efficiencies were calculated and recorded. Final weights were recorded and efficiencies were calculated and recorded. In addition, a panel of three staff members reviewed the cleaned coupons to determine the level of streaking and filming following CSPA DCC 09A. They ranked the two sets of cleaners based on which product had less streaking and filming.

Streaking and Filming Performance
Streaking is best identified as dried droplets or "spotting", usually found strung together into thin white line while filming is best recognized as "haziness" or overall "milkiness" Each mirror panel is evaluated separately for filming and streaking, (i.e., product residues without added soil), according to a scale of "1" to "7".

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

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

Results:

The supplied cleaning process was effective in removing the glass soap scum from the three surface materials. Even though water was able to remove over 85% of the soap scum, it left behind substantial amounts of filming on the surfaces. The first table lists the amount of soil added, the amount remaining and the efficiency for each coupon cleaned. The second table lists the visual observations made by the testing staff for streaking and smearing following the CSPA DCC09A methodology.

Cleaner	Initial wt	Final wt	% Removed
Windex glass			
	0.0235	0.0000	100.00
	0.0232	0.0006	97.41
	0.0232	0.0010	95.69
Windex chrome			
	0.0150	0.0006	96.00
	0.0172	0.0013	92.44
	0.0333	0.0017	94.89
Windex mirror			
	0.0162	0.0015	90.74
	0.0234	0.0012	94.87
	0.0171	0.0012	92.98
Activeion glass			
	0.0310	0.0003	99.03

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	0.0162	0.0005	96.91
	0.0197	0.0004	97.97
Activeion chrome			
	0.0184	0.0009	95.11
	0.0292	0.0008	97.26
	0.0298	0.0007	97.65
Activeion mirror			
	0.0170	0.0011	93.53
	0.0106	0.0009	91.51
	0.0190	0.0011	94.21
Water glass			
	0.0297	0.0030	89.90
	0.0114	0.0010	91.23
	0.0324	0.0063	80.56
Water chrome			
	0.0205	0.0021	89.76
	0.0239	0.0058	75.73
	0.0259	0.0021	91.89
Water mirror			
	0.0147	0.0014	90.48
	0.0134	0.0016	88.06
	0.0155	0.0016	89.68

Observations

Product	Streak 1	Streak 2	Streak 3	Film 1	Film 2	Film 3
Windex glass	3	5	2	2	6	6
	2	5	5	2	2	6
	2	5	4	1	3	6
Windex mirror	4	6	2	2	6	3
	1	2	2	3	6	3
	1	3	3	2	5	4
	2.2	4.3	3.0	2.0	4.7	4.7
Overall average			3.2			3.8
Activeion glass	2	5	5	1	4	2
	2	5	3	1	4	4
	4	6	6	1	4	3
Activeion mirror	3	4	7	1	2	4
	2	4	5	1	3	5
	2	4	4	1	3	4
	2.5	4.7	5.0	1.0	3.3	3.7
Overall average			4.1			2.7
Water glass	4	2	2	5	7	6
	3	2	3	6	7	6
	5	3	3	5	6	6
Water mirror	3	2	4	6	7	6
	3	2	5	6	7	7
	4	3	6	5	6	5
	3.7	2.3	3.8	5.5	6.7	6.0
Overall average			3.3			6.1

Summary

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Product	Streaking	Filming	Cleaning
Windex	3.2	3.8	95.00
Activeion	4.1	2.7	95.91
Water	3.3	6.1	87.48

Summary:

Substrates:	Glass/Quartz				
Contaminants:	Films, Soaps				
Company Name:	**Product Name:**	**Conc.:**	**Efficiency:**	**Effective:**	**Observations:**
SC Johnson & Son Inc	Windex Glass & More Cleaner (Spray)	100	95.00	☑	
Activeion Cleaning Solutions LLC	Activeion Pro	100	95.91	☑	
Water	Water	100	87.48	☑	

Conclusion: The supplied product was the most effective soap scum remover and had the lowest level of filming.