CLEANING LABORATORY EVALUATION SUMMARY

SCL #:	2009
DateRun:	10/26/2009
Experimenters:	Jason Marshall, Junhee Cho, Scott Nadolna
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 product for glass cleaning for GS 37 standard.

Experimental Procedure:

The supplied product was used at the recommended concentration (0.39%) for glass cleaning at room temperature.

Preweighed chrome, glass and mirror 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 Kimberly Clark reinforced paper towel 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 measured, 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. 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
Super H2O2 - Glass	0.0199	0.0002	98.99
	0.0383	0.0000	100.00
	0.0348	0.0027	92.24
Super H2O2 - Chrome	0.0193	0.0009	95.34
	0.0255	0.0011	95.69
	0.0289	0.0007	97.58
Super H2O2 - Mirror	0.0314	0.0021	93.31
	0.0274	0.0024	91.24
	0.0455	0.0029	93.63
Windex - glass	0.0158	0.0003	98.10
	0.0138	0.0012	91.30

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	0.0125	0.0009	92.80
Windex - Chrome	0.0162	0.0004	97.53
	0.0139	0.0001	99.28
	0.0056	0.0008	85.71
Windex - Mirror	0.0045	0.0020	55.56
	0.0114	0.0011	90.35
	0.0040	0.0017	57.50

Visual Rankings

Product	Streak 1	Streak 2	Streak 3	Film 1	Film 2	Film 3
Super H2O2 Glass	2	2	1	3	2	2
	2	2	1	2	2	2
	5	5	4	4	5	5
Super H2O2 Mirror	2	4	2	4	4	4
	3	3	1	3	3	3
	5	5	5	4	4	4
	3.2	3.5	2.3	3.3	3.3	3.3
Overall average			3.0			3.3
Windex Glass	1	1	1	2	1	1
	1	1	1	1	1	1
	3	2	3	2	2	2
Windex Mirror	1	2	2	2	2	2
	1	1	1	1	2	2
	2	2	3	1	2	2
	1.5	1.5	1.8	1.5	1.7	1.7
Overall average			1.6			1.6

Summary of Results

Product	Streaking	Filming	Cleaning
Super H202	3.0	3.3	95.34
Windex	1.6	1.6	85.35

Summary:

Substrates:	Glass/Quartz, Chrome				
Contaminants:	Films, Soaps				
Company Name:	**Product Name:**	**Conc.:**	**Efficiency:**	**Effective:**	**Observations:**
Cleanline Products	H2O2 Super Citrus Concentrate	0.39	95.34	☑	
SC Johnson & Son Inc	Windex Glass & More Cleaner (Spray)	100	85.35	☑	

Conclusion: The Super H2O2 had higher removal efficiency than the conventional product but had lower ratings for streaking and filming.