CLEANING LABORATORY EVALUATION SUMMARY

SCL #:	2010
DateRun:	12/14/2010
Experimenters:	Jason Marshall, Heidi Wilcox, Fred Youngs, Timothy Weil, Kathleen Tenaglia
ClientType:	Cleaner Manufacturer
ProjectNumber:	Project #1
Substrates:	Glass/Quartz
PartType:	Coupon
Contaminants:	Films
Cleaning Methods:	Manual Wipe
Analytical Methods:	Visual
Purpose:	To evaluate supplied products for glass streaking and smearing

Experimental Procedure:

Supplied products were used at the supplied dilution at room temperature. The standard used for this test was the Consumer Specialty Products Association DCC- 09A (CSPA) Standard Guide for Evaluating Filming and Streaking of Glass Cleaners. Two products were included for comparative purposes, one conventional and one green product.

For this test, five mirrored glass panels measuring 4”x4” in size (for each solution) were cleaned and then coated with the test solutions using a cheese cloth wipe. Mirror panels are cleaned sequentially as follows:
1. Wash in warm water with hand dishwashing liquid, using a clean piece of cheesecloth as a washcloth.
2. Rinse with deionized water.
3. Rinse with acetone, reagent grade.
After the acetone rinse, any residual water was wiped off the mirror with a piece of new, dry cheesecloth. Water droplets were not allowed to dry on the panels.

Preparation of Standard Reference Streaking Solutions:
Three reference solutions were made fresh on the day of testing. The standard for a rating of “7” was made using 0.75% (actives) sodium lauryl sulfate in deionized water. For the “5” rating 0.5% (actives) sodium lauryl sulfate in deionized water was used. The final standard, “3” was made using 0.25% (actives) sodium lauryl sulfate in deionized water.

Preparation of Standard Reference Filming Solutions:
Three reference solutions were made fresh on the day of testing. First a stock solution comprised of 1.25 grams C9-C11-2.5EO nonionic surfactant was added to 1liter of deionized water. The resulting 0.125% nonionic surfactant mixture was turbid and was be kept stirred while making the following, subsequent dilutions:
The standard for a rating of “7” was made using 20 mL of nonionic stock solution added to 40 mL deionized water. The “5” standard was made using 20 mL of nonionic stock solution added to 60 mL deionized water. The final standard, “3” was made using 20 mL of nonionic stock solution is added to 80 mL deionized water.

On a clean 4-inch square mirror, 10 drops of test product were placed on the surface using a disposable pipette, with 8 drops forming approximately a 2½-inch circle, and the last 2 drops added side-by-side to the center of the circle. Immediately after application, the surface was wiped in 5 back and forth cycles of the cheesecloth wiper (total of 10 passes).

Five replicate tests were used to evaluate each test product and each reference. A new cheesecloth pad assembly was used for every mirror. A minimum of fifteen minutes was allowed for complete drying, and the panels were evaluated for filming and streaking performance within 4 to 6 hours. Evaluation was conducted against the prepared streaking and filming reference standards by a group of 5 panelists. Grading was on a scale of 1-7 (no visible streaking / high streaking and no visible filming/ high filming).

Results:

The three cleaning product that resulted in the lowest rating for streaking were Windex, 7Th Generation Glass Cleaner and Glassclene Pro. For filming, the top products were Glassclene Pro, Sanimaster and Windex. The two tap water samples were similar in performance resulting in little streaking or filming. The table lists the cleaners and the ranking given by panelists.

Streaking								
Product Name								
Glassclene Pro 12oz/ gal	Tile 1	Tile 2	Tile 3	Tile 4	Tile 5	Panelist Ave	Overall Ave	Std Dev
Panelist 1	2	2	2	2	2	2	1.88	0.67
Panelist 2	2	2	2	2	2	2		
Panelist 3	2	3	3	3	3	2.8		
Panelist 4	1	1	1	1	1	1		

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Panelist 5	1	2	2	1	2	1.6		
Windex RTU								
Panelist 1	1	1	1	1	1	1	1.44	0.58
Panelist 2	1	1	1	1	1	1		
Panelist 3	3	2	2	2	2	2.2		
Panelist 4	2	2	2	2	2	2		
Panelist 5	1	1	1	1	1	1		
Moby 1800µs pH-10.2								
Panelist 1	4	5	2	2	2	3	3.96	1.51
Panelist 2	4	4	3	3	3	3.4		
Panelist 3	6	7	5	3	3	4.8		
Panelist 4	3	4	3	2	3	3		
Panelist 5	6	7	5	5	5	5.6		
7Th Generation Glass Cleaner								
Panelist 1	1	1	1	1	1	1	1.6	1.23
Panelist 2	2	2	2	2	2	2		
Panelist 3	2	2	2	2	7	3		
Panelist 4	1	1	1	1	1	1		
Panelist 5	1	1	1	1	1	1		
Sanimaster 4 -1 oz/gal								
Panelist 1	2	3	2	2	3	2.4	5.24	1.86
Panelist 2	6	6	6	5	6	5.8		
Panelist 3	6	7	7	7	7	6.8		
Panelist 4	4	6	4	4	3	4.2		
Panelist 5	7	7	7	7	7	7		
Anolyte 300ppm pH 6.4								
Panelist 1	1	1	1	1	1	1	2.24	0.88
Panelist 2	3	3	3	2	3	2.8		
Panelist 3	3	3	3	2	2	2.6		
Panelist 4	2	2	2	1	2	1.8		
Panelist 5	3	3	4	2	3	3		
All Purpose CL2-5oz/ gal								
Panelist 1	2	2	3	4	3	2.8	3.68	1.41
Panelist 2	6	5	4	6	4	5		
Panelist 3	5	5	5	5	5	5		
Panelist 4	3	2	2	1	2	2		
Panelist 5	4	4	2	4	4	3.6		
Moby 1750 pH-10.2								
Panelist 1	6	3	2	6	7	4.8	5.36	1.71
Panelist 2	5	6	6	7	7	6.2		
Panelist 3	7	6	7	7	7	6.8		
Panelist 4	2	3	3	3	4	3		
Panelist 5	6	6	6	6	6	6		
Tap Water-Orbio								
Panelist 1	1	2	1	2	3	1.8	2	0.71
Panelist 2	2	3	2	3	2	2.4		
Panelist 3	2	3	3	2	3	2.6		
Panelist 4	1	1	2	1	1	1.2		

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Panelist 5	2	2	2	2	2	2		
Tap Water (TURI)								
Panelist 1	2	1	2	2	2	1.8	2.12	0.73
Panelist 2	3	2	3	2	3	2.6		
Panelist 3	3	2	3	3	2	2.6		
Panelist 4	1	2	1	1	1	1.2		
Panelist 5	3	2	3	2	2	2.4		

Filming

Product Name								
Glassclene Pro 12oz/ gal	Tile 1	Tile 2	Tile 3	Tile 4	Tile 5	Panelist Ave	Overall Ave	Std Dev
Panelist 1	1	1	1	1	1	1	1.28	0.46
Panelist 2	1	1	1	1	1	1		
Panelist 3	2	2	2	2	2	2		
Panelist 4	2	2	1	1	1	1.4		
Panelist 5	1	1	1	1	1	1		
Windex RTU								
Panelist 1	3	2	2	1	2	2	2.48	0.59
Panelist 2	3	3	2	3	3	2.8		
Panelist 3	3	3	2	2	3	2.6		
Panelist 4	3	2	2	2	3	2.4		
Panelist 5	2	2	3	3	3	2.6		
Moby 1800µs pH-10.2								
Panelist 1	2	1	2	1	1	1.4	2.44	0.92
Panelist 2	3	3	3	2	2	2.6		
Panelist 3	2	3	3	2	2	2.4		
Panelist 4	4	5	3	3	3	3.6		
Panelist 5	2	3	2	2	2	2.2		
7th Generation Glass Cleaner								
Panelist 1	2	2	2	2	2	2	3.48	1.61
Panelist 2	4	6	5	6	7	5.6		
Panelist 3	3	3	3	4	5	3.6		
Panelist 4	1	2	2	2	2	1.8		
Panelist 5	4	4	5	4	5	4.4		
Sanimaster 4 -1 oz/gal								
Panelist 1	2	2	2	2	2	2	3.32	1.07
Panelist 2	2	3	4	3	5	3.4		
Panelist 3	3	4	4	3	5	3.8		
Panelist 4	4	5	5	3	5	4.4		
Panelist 5	3	3	3	3	3	3		
Anolyte 300ppm pH 6.4								
Panelist 1	1	1	2	1	1	1.2	2.08	0.70
Panelist 2	2	2	2	2	2	2		

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Panelist 3	2	2	2	2	2	2		
Panelist 4	3	3	4	3	3	3.2		
Panelist 5	2	2	2	2	2	2		
All Purpose CL2-5oz/ gal								
Panelist 1	3	5	3	3	2	3.2	2.76	0.72
Panelist 2	3	3	3	3	2	2.8		
Panelist 3	3	3	2	2	2	2.4		
Panelist 4	4	3	2	3	3	3		
Panelist 5	3	2	2	3	2	2.4		
Moby 1750 pH-10.2								
Panelist 1	1	1	1	1	1	1	2.72	1.24
Panelist 2	3	3	3	3	3	3		
Panelist 3	3	3	3	3	4	3.2		
Panelist 4	4	5	3	5	5	4.4		
Panelist 5	2	2	2	2	2	2		
Tap Water-Orbio								
Panelist 1	1	2	2	2	2	1.8	1.96	0.20
Panelist 2	2	2	2	2	2	2		
Panelist 3	2	2	2	2	2	2		
Panelist 4	2	2	2	2	2	2		
Panelist 5	2	2	2	2	2	2		
Tap Water (TURI)								
Panelist 1	1	1	2	2	1	1.4	1.8	0.41
Panelist 2	2	2	2	2	2	2		
Panelist 3	2	2	2	2	2	2		
Panelist 4	2	2	2	2	2	2		
Panelist 5	2	1	2	2	1	1.6		

Summary

Product Name	Streaking	Filming
Glassclene Pro 12oz/gal	1.9	1.3
Windex RTU	1.4	2.1
Moby 1800µs pH-10.2	4.0	3.0
7Th Generation Glass Cleaner	1.6	3.0
Anolyte 300ppm pH 6.4	5.2	4.0
Sanimaster 4 -1 oz/gal	2.2	2.0
All Purpose CL2-5oz/gal	3.7	2.8
Moby 1750 pH-10.2	5.4	3.2
Tap Water-Orbio	2.0	1.8
Tap Water (TURI)	2.1	1.8

Summary:

Substrates:	Glass/Quartz				
Contaminants:	Films				
Company Name:	**Product Name:**	**Conc.:**	**Efficiency:**	**Effective:**	**Observations:**
SC Johnson & Son Inc	Windex Glass & More Cleaner (Spray)	100	0.00	☑	
Seventh Generation	Natural Glass and Surface Cleaner	100	0.00	☐	
Water	Water	100	0.00	☐	
Servicemaster Clean	Glassclene Pro	10	0.00	☑	

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Orbio Technologies	Orbio Annolyte	100	0.00	☐	
Orbio Technologies	Orbio Moby	100	0.00	☐	
EcoLink	Sanimaster	100	0.00	☑	

Conclusion: The top three supplied products for the least amount of streaking and filming on the mirror were Glassclene Pro, Sanimaster 4 and All Purpose CL2.