CLEANING LABORATORY EVALUATION SUMMARY

SCL #:	2014
DateRun:	02/18/2014
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 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 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 supplied products removed over 90% 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.

Cleaner	Initial wt	Final wt	% Removed
Scrubs - Mirror			
	0.0510	0.0019	96.27
	0.0656	0.0107	83.69
	0.0716	0.0052	92.74
Scrubs - Glass			
	0.0651	0.0014	97.85
	0.0572	0.0023	95.98
	0.0425	0.0008	98.12
Scrubs - Chrome			
	0.0451	0.0027	94.01
	0.0646	0.0037	94.27
	0.0665	0.0020	96.99
Windex - Glass			
	0.0547	0.0035	93.60
	0.0451	0.0007	98.45
	0.0406	0.0006	98.52
Windex - Mirror			
	0.0763	0.0018	97.64
	0.1352	0.0021	98.45
	0.0604	0.0014	97.68
Windex - Chrome			

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	0.0566	0.0091	83.92
	0.0903	0.0042	95.35
	0.0967	0.0051	94.73

Visual Ratings

Cleaner		Filming	Ave. Filming	Streaking	Ave. Streaking
Scrubs	Glass	2.3	2		
		2.7	2.6	2	2.1
		2.7	2.3		
	Mirror	4	6		
		4.3	4.1	6	5.9
		4	5.7		
Windex	Glass	4	5		
		2	3	6	5.7
		3	6		
	Mirror	5	4		
		4	4.2	6	5.1
			3.7		5.3

Summary:

Substrates:	Glass/Quartz, Chrome				
Contaminants:	Films, Soaps				
Company Name:	**Product Name:**	**Conc.:**	**Efficiency:**	**Effective:**	**Observations:**
Scrubs Organics	Scrubs Glass Cleaner	100	94.44	☑	
SC Johnson & Son Inc	Windex Glass & More Cleaner (Spray)	100	95.37	☑	

Conclusion:

The three products had an overall average removal efficiency greater than 90% and as well as the conventional cleaning product. Only one product PC 200 had acceptable filming and streaking levels. However, all three supplied products had better results than the conventional product.