CLEANING LABORATORY EVALUATION SUMMARY

SCL #:	2014
DateRun:	09/15/2014
Experimenters:	Loc Nguyen, Digvijay Devkota
ClientType:	Cleaning Equipment Mfr
ProjectNumber:	Project #1
Substrates:	Glass/Quartz
PartType:	Coupon
Contaminants:	Films, Soaps
Cleaning Methods:	Manual Wipe
Analytical Methods:	Gravimetric, Visual
Purpose:	Comparative product was used at the supplied ready to use dilution.

Experimental Procedure:

Preweighed 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 spray of cleaning solutions. Each coupon was sprayed 1 time 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 measured 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)

Chemistries Evaluated: Force of Nature; Windex;

Results:

Cleaner	Initial wt	Final wt	% Removed
ForceOfNature_SSLSoil2_Glass			
	0.0416	0.0031	92.55
	0.0452	0.0036	92.04
	0.0385	0.0017	95.58
ForceOfNature_SSLSoil2_Glass			
	0.0769	0.0036	95.32
	0.0561	0.0030	94.65
	0.0790	0.0034	95.7
ForceOfNature_SSLSoil2_Glass			
	0.0747	0.0017	97.72
	0.0691	0.0015	97.83
	0.0522	0.0008	98.47
Windex_SSLSoil2_Glass			
	0.1006	0.0071	92.94
	0.0740	0.0058	92.16
	0.0814	0.0036	95.58
Windex_SSLSoil2_Glass			
	0.0921	0.0097	89.47
	0.0618	0.0039	93.69
	0.1034	0.0036	96.52
Windex_SSLSoil2_Glass			
	0.0499	0.0017	96.59

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	0.0490	0.0021	95.71
	0.0637	0.0039	93.88

Visual Observations

Cleaners	Subs	S1	F1	S2	F2	S3	F3	Avg. S	Avg. F
Force of Nature	Glass	5	3	5	2.5	4	2	4.67	2.5
Force of Nature	Glass	4	2	5	2	3	2	4	1.5
Force of Nature	Glass	3	3	4.5	1.5	2	1.5	3.17	1.5
Force of Nature	Glass	4	4	4	3	5	4	4.33	2.75
Force of Nature	Glass	5	4	3	3	4	4	4	2.75
Force of Nature	Glass	3	2	3	2.5	3	3	3	1.88
Force of Nature	Glass	2	2	3	2	2	2	2.33	1.5
Force of Nature	Glass	2	1	2.5	2	1.5	1.5	2	1.13
Force of Nature	Glass	2	1	2	1.5	1.5	1.5	1.83	1
Windex	Glass	4	3	3.5	3.5	4	3.5	3.83	2.5
Windex	Glass	3	3	4	3	3	3.5	3.33	2.38
Windex	Glass	4	5	4	5	4	5	4	3.75
Windex	Glass	6	4	6	4	6	4	6	3
Windex	Glass	4	2	5	3	4.5	3	4.5	2
Windex	Glass	3	6	4	6	5	6	4	4.5
Windex	Glass	4	6	4	6	4	6	4	4.5
Windex	Glass	6	2	6	4	6	3	6	2.25
Windex	Glass	6.5	3	6	3	6.5	4	6.33	2.5

Summary:

Substrates:	Glass/Quartz				
Contaminants:	Films, Soaps				
Company Name:	**Product Name:**	**Conc.:**	**Efficiency:**	**Effective:**	**Observations:**
Healthier Cleaning Innovations	Force of Nature	100	95.54	☑	Film - 1.83; Streak 3.26
SC Johnson & Son Inc	Windex Glass & More Cleaner (Spray)	100	94.06	☑	Film 3.04; Streak 4.67

Conclusion:

The Force of Nature cleaning solution cleaned a little bit more than the Windex comparative product. This translated to a much better rating for both streaking and filming, showing that Force of Nature performed as a better glass cleaning product.