CLEANING LABORATORY EVALUATION SUMMARY

SCL #:	2010
DateRun:	12/05/2010
Experimenters:	Jason Marshall, Junhee Cho, Timothy Weil, Johnny Le, Kathleen Tenaglia
ClientType:	Cleaner Manufacturer
ProjectNumber:	Project #1
Substrates:	Glass/Quartz, Plastic
PartType:	Coupon
Contaminants:	Films, Soaps
Cleaning Methods:	Manual Wipe
Analytical Methods:	Gravimetric
Purpose:	To evaluate supplied products for glass cleaning using manual cleaning
Experimental Procedure:	Supplied products were used at the supplied dilution with room temperature water to the requested dilution. Two products were included for comparative purposes, one conventional and one green product. To control for any residue that may be left behind from cleaning solutions, tap water that was used to dilute the products was included, one supplied from the company and the other from the TURI Lab. Preweighed chrome, mirror and 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 5-7 sprays of cleaning solutions. Each coupon was sprayed 7-10 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.
Results:	The top three products for glass cleaning were Glassclene, All Purpose CL2 and Moby - 1750. Each were more effective than Windex and Seventh Generation Glass & Surface cleaner (comparative products). The two tap water samples were among the bottom three in cleaning performance. The table lists the amount of soil added, the amount remaining and the efficiency for each coupon cleaned.

Cleaner	Initial wt	Final wt	% Removed
Glassclene Pro - glass			
	0.0119	0.0009	92.44
	0.0230	0.0006	97.39
	0.0483	0.0008	98.34
Glassclene Pro - chrome			
	0.0290	-0.0003	101.03
	0.0365	0.0027	92.60
	0.0196	0.0016	91.84
Glassclene Pro - mirror			
	0.0220	0.0004	98.18
	0.0243	0.0007	97.12
	0.0363	0.0021	94.21
Windex - glass			
	0.0343	0.0024	93.00
	0.0330	0.0006	98.18
	0.0244	0.0014	94.26
Windex - chrome			
	0.0374	0.0011	97.06
	0.0383	0.0001	99.74
	0.0382	0.0009	97.64
Windex - mirror			
	0.0233	0.0018	92.27

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	0.0150	0.0022	85.33
	0.0324	0.0026	91.98
Moby - 1800 - glass			
	0.0399	0.0020	94.99
	0.0392	0.0020	94.90
	0.0319	0.0014	95.61
Moby - 1800 - chrome			
	0.0257	0.0037	85.60
	0.0275	0.0041	85.09
	0.0343	0.0035	89.80
Moby - 1800 - mirror			
	0.0222	0.0029	86.94
	0.0304	0.0027	91.12
	0.0395	0.0003	99.24
Seventh Generation - glass			
	0.0402	0.0014	96.52
	0.0339	0.0014	95.87
	0.0281	0.0021	92.53
Seventh Generation - chrome			
	0.0437	0.0028	93.59
	0.0356	0.0035	90.17
	0.0370	0.0045	87.84
Seventh Generation - mirror			
	0.0237	0.0013	94.51
	0.0284	0.0014	95.07
	0.0200	0.0011	94.50
Anolyte - glass			
	0.0261	0.0011	95.79
	0.0248	0.0010	95.97
	0.0357	0.0026	92.72
Anolyte - chrome			
	0.0358	0.0056	84.36
	0.0485	0.0054	88.87
	0.0361	0.0052	85.60
Anolyte - mirror			
	0.0389	0.0033	91.52
	0.0266	0.0023	91.35
	0.0253	0.0028	88.93
Sanimaster - glass			
	0.0468	0.0022	95.30
	0.0209	0.0019	90.91
	0.0275	0.0016	94.18
Sanimaster - chrome			
	0.0367	0.0059	83.92
	0.0448	0.0035	92.19
	0.0299	0.0031	89.63
Sanimaster - mirror			
	0.0267	0.0014	94.76
	0.0270	0.0015	94.44
	0.0311	0.0014	95.50
All Purpose CL2 - glass			
	0.0142	0.0010	92.96

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	0.0145	0.0007	95.17
	0.0197	0.0009	95.43
All Purpose CL2 - chrome			
	0.0278	0.0017	93.88
	0.0243	0.0017	93.00
	0.0290	0.0017	94.14
All Purpose CL2 - mirror			
	0.0354	0.0010	97.18
	0.0458	0.0002	99.56
	0.0513	0.0010	98.05
Moby - 1750 - glass			
	0.0474	0.0006	98.73
	0.0390	0.0006	98.46
	0.0380	0.0011	97.11
Moby - 1750 - chrome			
	0.0525	0.0046	91.24
	0.0300	0.0045	85.00
	0.0560	0.0035	93.75
Moby - 1750 - mirror			
	0.0477	0.0007	98.53
	0.0460	0.0006	98.70
	0.0451	0.0013	97.12
Tap Water (Mn) - glass			
	0.0176	0.0031	82.39
	0.0122	0.0001	99.18
	0.0116	0.0002	98.28
Tap Water (Mn) - chrome			
	0.0163	0.0010	93.87
	0.0350	0.0033	90.57
	0.0202	0.0017	91.58
Tap Water (Mn) - mirror			
	0.0249	0.0015	93.98
	0.0149	0.0025	83.22
	0.0186	0.0030	83.87
Tap Water (MA) - glass			
	0.0154	0.0024	84.42
	0.0183	0.0015	91.80
	0.0179	0.0023	87.15
Tap Water (MA) - chrome			
	0.0247	0.0025	89.88
	0.0198	0.0026	86.87
	0.0353	0.0033	90.65
Tap Water (MA) - mirror			
	0.0202	0.0016	92.08
	0.0129	0.0014	89.15
	0.0246	0.0017	93.09

Summary:

Substrates:	Glass/Quartz, Plastic				
Contaminants:	Films, Soaps				
Company Name:	**Product Name:**	**Conc.:**	**Efficiency:**	**Effective:**	**Observations:**

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SC Johnson & Son Inc	Windex Glass & More Cleaner (Spray)	100	94.39	☑	
Seventh Generation	Natural Glass and Surface Cleaner	100	93.40	☑	
Water	Water	100	90.77	☑	MN
Water	Water	100	89.45	☑	Lowell
Servicemaster Clean	Glassclene Pro	3.9	95.91	☑	
Orbio Technologies	Orbio Moby		91.48	☑	
Orbio Technologies	Orbio Annolyte	100	90.57	☑	

Conclusion: All of the supplied products removed over 90% of the soil. Only the Anolyte product performed worse than the supplied tap water sample.