CLEANING LABORATORY EVALUATION SUMMARY

SCL #:	2009
DateRun:	06/01/2009
Experimenters:	Jason Marshall, Junhee Cho, Timothy Weil
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 aerosol glass cleaners for soap scum removal
Experimental Procedure:	Preweighed glass and chrome 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 hand held 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 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 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 were calculated and recorded.
Results:	The table lists the amount of soil initially added and the amount remaining after cleaning and the product efficiency for each coupon cleaned. Visual observations for streaking and filming are recorded in the second table.

Cleaner	Initial wt	Final wt	% Removed	Streaking	Rating	Film/ Smear	Rating
Amrep A0122_Glass							
	0.0668	0.0002	99.70	none	4	no film	4
	0.0051	0.0000	100.00	none	4	no film	4
	0.0074	0.0003	95.95	very little <25%	3	no film	4
Amrep A0122_Chrome							
	0.0103	0.0000	100.00				
	0.0149	0.0004	97.32				
	0.0135	0.0000	100.00				
Amrep A00124_Glass							
	0.0069	-37.6499	545750.72				
	0.0079	-37.5557	475488.61				
	0.0091	-37.5920	413198.90				
Amrep A00124_Chrome							
	0.0190	-21.7713	114685.79				
	0.0098	-21.7405	221941.84				
	0.0080	-21.7230	271637.50				
3M Glass Cleaner_Glass							
	0.0071	0.0000	100.00	Some 25%	2	no film	4
	0.0068	0.0001	98.53	very little <25%	3	no film	4
	0.0076	0.0001	98.68	very little <25%	3	no film	4
3M Glass Cleaner_Chrome							
	0.0090	0.0001	98.89				
	0.0066	0.0000	100.00				

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	0.0099	0.0001	98.99				
Spartan Glass Cleaner_Glass							
	0.0151	0.0003	98.01	none	4	Some 25%	2
	0.0127	0.0004	96.85	none	4	Some 25%	2
	0.0077	0.0008	89.61	none	4	Some 25%	2
Spartan Glass Cleaner_Chrome							
	0.0062	0.0001	98.39				
	0.0069	0.0000	100.00				
	0.0058	0.0000	100.00				
Claire Gleme_Glass							
	0.0075	0.0005	93.33	very little <25%	3	no film	4
	0.0054	0.0009	83.33	Some 25%	4	no film	4
	0.0097	0.0005	94.85	Some 25%	4	no film	4
Claire Gleme_Chrome							
	0.0070	0.0003	95.71				
	0.0067	0.0001	98.51				
	0.0094	0.0000	100.00				
Johnson Windex_Glass							
	0.0062	0.0003	95.16	Some 25%	2	Some 25%	2
	0.0054	0.0002	96.30	Some 25%	2	Some 25%	2
	0.0068	0.0013	80.88	Some 25%	2	Some 25%	2
Johnson Windex_Chrome							
	0.0126	0.0009	92.86				
	0.0124	0.0000	100.00				
	0.0155	0.0001	99.35				

Summary:

Substrates:	Glass/Quartz, Chrome
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Company Name:	Product Name:	Conc.:	Efficiency:	Effective:	Observations:
Amrep Inc	Aspire Glass & Surface Cleaner A00122 Aerosol	100	98.83	☑	Streak/film rank = 1
Amrep Inc	Misty Heavy Duty Glass Cleaner Aerosol	100	90.01	☑	Streak/film rank = 3
3M	3M Glass Cleaner Aerosol	100	99.18	☑	Streak/film rank = 4
Spartan Chemical Company	Glass Cleaner - Aerosol	100	97.14	☑	Streak/film rank = 5
Claire Manufacturing	Gleme Glass Cleaner Aerosol	100	94.29	☑	Streak/film rank = 1
SC Johnson & Son Inc	Windex Glass & More Cleaner (Spray)	100	90.40	☑	Streak/film rank = 6

Conclusion:

All six products removed over 85% of the glass soap scum. Four of the six received good to best ratings. The 3M and Windex both had scores below 3. Four of the six products received the best ranking for filming. The Spartan and Windex products received the second lowest score for filming. The Aspire product had the second best cleaning efficiency and streaking. The product left no residue behind.