CLEANING LABORATORY EVALUATION SUMMARY

SCL #:	2010
DateRun:	06/03/2010
Experimenters:	Jason Marshall, 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 possible reformulation products for glass cleaning.

Experimental Procedure:

The proposed formulation products were diluted using room temperature water to a concentration (96:1). A conventional product was used at full strength for glass cleaning. In addition, the supplied current formulation was used as a control to determine relative effectiveness of the proposed formulations.

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. 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 four five of the formulations had higher soil removal efficiency than at the higher concentrations. The streaking and filming again showed no real difference from one formulation to the next. All of the reformulations removed more soil than the control formulation.

Cleaner	Initial wt	Final wt	% Removed	Streaking	Filming	Ave S	Ave F
Nutrisol w/ Calsoft L40 Glass							
	0.0279	0.0004	98.57	1	1	1.3	1.3
	0.0250	0.0004	98.40	1	1		
	0.0217	0.0031	85.71	1	1		
Nutrisol w/ Calsoft L40 Chrome							
	0.0658	0.0020	96.96				
	0.0410	0.0023	94.39				
	0.0471	0.0063	86.62				
Nutrisol w/ Calsoft L40 Mirror							
	0.0596	0.0059	90.10	1	1		
	0.0475	0.0038	92.00	1	2		

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	0.0281	0.0036	87.19	3	2		
Nutrisol w/ Calsoft AOS40 Glass							
	0.0512	0.0009	98.24	3	3	2.0	2.3
	0.0520	0.0059	88.65	1	2		
	0.0458	0.0052	88.65	2	1		
Nutrisol w/ Calsoft AOS40 Chrome							
	0.0497	0.0013	97.38				
	0.0249	0.0067	73.09				
	0.0274	0.0009	96.72				
Nutrisol w/ Calsoft AOS40 Mirror							
	0.0166	0.0011	93.37	1	3		
	0.0242	0.0006	97.52	2	3		
	0.0211	0.0020	90.52	3	2		
Nutrisol w/ Mirataine H2CA Glass							
	0.0211	0.0029	86.26	2	2	1.7	1.8
	0.0313	0.0054	82.75	1	1		
	0.0223	0.0013	94.17	1	1		
Nutrisol w/ Mirataine H2CA Chrome							
	0.0245	0.0032	86.94				
	0.0378	0.0017	95.50				
	0.0250	0.0009	96.40				
Nutrisol w/ Mirataine H2CA Mirror							
	0.0252	0.0026	89.68	2	1		
	0.0286	0.0057	80.07	2	3		
	0.0360	0.0011	96.94	2	3		
Nutrisol w/ SugaFax D10 Glass							
	0.0165	0.0010	93.94	1	1	1.3	1.3
	0.0276	0.0014	94.93	1	2		
	0.0171	0.0012	92.98	1	1		
Nutrisol w/ SugaFax D10 Chrome							
	0.0398	0.0058	85.43				
	0.0239	0.0017	92.89				
	0.0472	0.0009	98.09				

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Nutrisol w/ SugaFax D10 Mirror							
	0.0167	0.0020	88.02	2	1		
	0.0315	0.0012	96.19	2	1		
	0.0280	0.0028	90.00	1	2		
Green Bridge Control 3-1 96-1 Glass							
	0.0178	0.0016	91.01	2	1	2.2	1.3
	0.0252	0.0005	98.02	2	1		
	0.0312	0.0024	92.31	1	1		
Green Bridge Control 3-1 96-1 Chrome							
	0.0228	0.0014	93.86				
	0.0294	0.0007	97.62				
	0.0298	0.0065	78.19				
Green Bridge Control 3-1 96-1 Mirror							
	0.0276	0.0133	51.81	3	1		
	0.0210	0.0051	75.71	3	2		
	0.0258	0.0012	95.35	2	2		
Nutrisol w/ SugaNate 160 Glass							
	0.0542	0.0001	99.82	2	1	1.5	2.0
	0.0444	-0.0012	102.70	1	1		
	0.0512	0.0004	99.22	1	1		
Nutrisol w/ SugaNate 160 Chrome							
	0.0669	0.0009	98.65	2	1		
	0.0476	0.0081	82.98	2	3		
	0.0534	0.0019	96.44	1	4		
Nutrisol w/ SugaNate 160 Mirror							
	0.0559	0.0046	91.77	2	3		
	0.1079	0.0097	91.01	1	3		
	0.0845	0.0174	79.41	2	3		

Summary:

Substrates:	Glass/Quartz, Chrome				
Contaminants:	Films, Soaps				
Company Name:	**Product Name:**	**Conc.:**	**Efficiency:**	**Effective:**	**Observations:**
Next-Gen Supply Group	Vision Glass Cleaner	100	88.11	☑	

Conclusion: The lower dilution for the glass cleaners resulted in improved soil removal with all products removing over 85% of the glass soap scum.