CLEANING LABORATORY EVALUATION SUMMARY

SCL #: 2020

DateRun: 10/07/2020

Experimenters: Hayley Byra

ClientType: Cleaner Manufacturer

ProjectNumber: Project #10

Substrates: Glass/Quartz, Chrome

PartType: Coupon

Contaminants: Glass

Cleaning Methods: Manual Wipe

Analytical Methods: Gravimetric, Visual

Purpose: The purpose of this experiment was to evaluate the effectiveness of glass cleaning spot and stain removal chemicals by calculating the percent removal and visually rating the removal of specific cleaning agents.

Experimental Procedure: Pre-weighed glass, chrome and mirror coupons were soiled with one gram of SSL Soil 2 glass soap scum using a handheld swab. The glass soap scum is made from a blend of water 51.5%, hair gel 25.6%, Toothpaste 10.4%, shaving cream 5.3%, hair spray 3.7% and spray deodorant 3.5%. The coupons were allowed to dry for 24 hours at room temperature before re-weighing for the amount of contaminated added onto the coupons. Three of the same type of coupons were placed into a Gardner Straight Line Washability unit. A Wypall X60 reinforced wipe was attached to the cleaning sled and soaked with one spray of cleaning solutions. Each coupon was sprayed once with the same cleaning solution. Both cleaning solutions was made by using the premeasured packets provided by the vendor and diluting it with one quart of water and shook to mix. The solution was allowed to penetrate for 30 seconds followed by cleaning in the SLW unit for five cycles (~10 seconds). The coupons were left to sit at room temperature overnight and re-weighted again to obtain the number of contaminants removed. Three testers were used to do a visual ranking to measure the visual efficacy of the cleaning agents. The visual ranking of the cleaned coupons was in accordance with the following ratings:

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" meaning;

Filming Streaking
7 = high filming 7 = high streaking poor (performance)
1 = no visible filming 1 = no visible streaking (excellent performance)

Results:

Cleaner	Initial wt of Cont	Final wt of Cont	%Cont Removed	%AVG	Streaking	Filming
Windex	0.0797	0.003	96.23	96.99	5.67	5.33
	0.0821	0.002	97.56		5	5
	0.078	0.0022	97.18		5	5.33
	0.0862	0.007	91.88	94.87		
	0.0796	0.003	96.23			
	0.0797	0.0028	96.49			
Seventh Generation Free & Clear	0.0789	0.0027	96.58	96.19	4	3
	0.0784	0.0036	95.41		5.33	5.33
	0.0847	0.0029	96.58		4.67	3.67
	0.08	0.0048	94	95.19		
	0.0763	0.0037	95.15			
	0.0808	0.0029	96.41			
Envirox Storm	0.0764	0.0019	97.51	97.39	4.83	3.67
	0.0796	0.002	97.49		3	2.33
	0.0777	0.0022	97.17		3	2.33
	0.0811	0.0012	98.52	97.43		
	0.079	0.0005	99.37			
	0.0804	0.0045	94.4			

Summary:

Substrates:	Glass/Quartz, Chrome
Contaminants:	Glass

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Company Name:	Product Name:	Conc.:	Efficiency:	Effective:	Observations:
SC Johnson & Son Inc	Windex Glass Original w/ Ammonia-D	RTU	95.93	☑	S 5.2, F 5.2
Seventh Generation	Natural Glass and Surface Cleaner	100	95.69	☑	S 4.5; F 4
EnvirOx LLC	EnvirOx Storm	100	97.41	☑	S 3.6; F2.7

Conclusion: Envirox Storm performed the best with an average percent removal of 97.39% for chrome substrates and 97.43% for glass substrates. Envirox Storm also had the better overall streaking and filming scores compared to Windex and Seventh Generation.