

# CLEANING LABORATORY EVALUATION SUMMARY

SCL #: 2022  
 DateRun: 06/23/2022  
 Experimenters: Zoe Lawson, Tatyanna Moreland Junior, Alexander Symko  
 ClientType: Cleaning Equipment Mfr  
 ProjectNumber: Project #1  
 Substrates: Glass/Quartz, Stainless Steel  
 PartType: Coupon  
 Contaminants: SSL Soil 2 Glass Soap Scum  
 Cleaning Methods: Manual Wipe  
 Analytical Methods: Gravimetric, Visual  
 Purpose: To test the efficiency of the Window Cleaning Cloth on glass and stainless steel substrates.

Experimental Procedure: Glass and stainless steel tiles were soiled with a mixture of common soap scum typically found on glass. The tiles were dried for 24 hours at room temperature. The soaked product was used to scrub a portion of the soiled substrate using a straight-line washability apparatus.

Three coupons were cleaned by each cleaning product being evaluated. Cleaning performance was taken visually evaluated by a panel of judges. 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.

In addition, gravimetric analysis was be conducted on all test panels to provide a secondary form of comparison. It consists of initial, soiled, and final clean weights. The amount of soil added was then compared to the amount removed (or remaining) to provide a percent removal.

Soil Preparation

A mixture of water (51.5%), hair gel (25.6%), toothpaste (10.4%), shaving cream (5.3%), hair spray (3.7%), and spray deodorant (3.5%) were distributed onto each coupon. Care was taken in the application of the soil onto the coupons so that light and heavy areas were avoided. The soiled tiles were then allowed to dry for 24 hours at room temperature.

Cleaning Test

A soiled tile was placed in the tray of the abrasion tester such that the direction of the soiling is perpendicular to the direction of the sponge. The supplied cleaning product was wet and wrung out, and the desired side facing down was attached to the cleaning instrument. For test method number one, only the waffled side of the cloth was used to clean the substrates. For test method number 2, both the waffle side and polish side of the cloth were utilized to clean the substrates. The cleaning was performed using Gardner Straightline washability unit and conducted for the prescribed 20 strokes.

Results: Cleaning data has been calculated as percent of contaminant removed using the following equation:

$$\%Cont\ Removed = ((Initial\ soil\ wt - Final\ Soil\ wt)/Initial\ Soil\ wt) *100$$

$$Initial\ Soil\ weight\ of\ contaminant = Contaminated\ wt - Baseline\ wt$$

$$Final\ wt\ of\ contaminant = Cleaned\ wt - Initial\ wt$$

Table 1: Window Cleaning Cloth Results

Product	Substrate	Initial wt of cont.	Final wt of cont.	%Cont Removed	Average	Overall Average
Window Cleaning Cloth (1061) - Test #1	Glass	0.0011	0.0001	90.91	90.31	94.34
		0.0062	0.0004	93.55		
		0.0037	0.0005	86.49		
	Stainless Steel	0.5081	0.0102	97.99	98.36	
		0.3119	0.0021	99.33		
		0.3019	0.0068	97.75		
Window Cleaning Cloth (1061) - Test #2	Glass	0.0190	0.0045	76.32	81.08	85.25
		0.0211	0.0043	79.62		
		0.0307	0.0039	87.30		
	Stainless Steel	0.2693	0.0153	94.32	89.43	
		0.1181	0.0171	85.52		
		0.1411	0.0163	88.45		

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In addition, each coupon was evaluated separately for filming and streaking, (i.e., product residues without added soil), according to a scale of "1" to "7" with:

Filming

Streaking

7 = high filming      7 = high streaking poor (performance)

1 = no visible filming    1 = no visible streaking (excellent performance)

Table 2: Filming Results

Cleaner	Substrate	Coupon	Participant 1	Participant 2	Participant 3	Average	Overall Average
Window Cleaning Cloth (1061) - Test #1	Glass	1	1	1	1	1	1.33
		2	1	1	1	1	
		3	2	2	2	2	
	Stainless Steel	1	1	1	1	1	1.00
		2	1	1	1	1	
		3	1	1	1	1	
Window Cleaning Cloth (1061) - Test #2	Glass	1	3	3	3	3	2.67
		2	3	3	3	3	
		3	2	2	2	2	
	Stainless Steel	1	1	1	1	1	1.17
		2	1	2	1.5	1.5	
		3	1	1	1	1	

Table 3: Streaking Results

Cleaner	Substrate	Coupon	Participant 1	Participant 2	Participant 3	Average	Overall Average
Window Cleaning Cloth (1061) - Test #1	Glass	1	2	2	2	2	1.83
		2	1.5	1	2	1.5	
		3	2	2	2	2	
	Stainless Steel	1	1	1	1	1	1.00
		2	1	1	1	1	
		3	1	1	1	1	
Window Cleaning Cloth (1061) - Test #2	Glass	1	4	5	3	4	3.17
		2	3	3	3	3	
		3	2.5	3	2	2.5	
	Stainless Steel	1	2	3	1	2	2.00
		2	3	3	3	3	
		3	1	1	1	1	

Summary:

Conclusion:

Test method number one for using the Window Cleaning Cloth was found to be more effective with an overall average percent removal of 94.34%. Test method number two was less effective with an overall average percent removal of 85.25%. The filming and streaking panels show similar results with test method number one consistently having lower more favorable scores while test method number two had slightly higher scores. Overall, both methods were effective at leaving little to no filming or streaking.