

SageWay Solutions, LLC
Project 20096
Glass Cleaners
HCPA DCC-09 & 09A
Cleaning, Streaking, Filming, Smearing

Living Clean (GLS)
Windex
Seventh Generation

April 22, 2020

Mr. Gregory van Buskirk
SageWay Solutions, LLC
65 Panorama Ct
Danville, CA 94506

Dear Gregory,

You sent us a sample of **Glass Cleaner** identified as **Living Clean, Glass Cleaner (GLS2)** for comparison against **Windex** and **Seventh Generation**. We tested the samples using HCPA DCC-09 & 09A Methodologies. A summary of the testing is below.

All the samples are comparable within the DCC-09 & DCC-09A Evaluations.

Samples	HCPA DCC-09A Filming	CSPA DCC-09 Cleaning
Windex	1.1	3.9
Living Clean (GLS2)	1.1	3.9
Seventh Generation	1.2	3.9

Descriptions of the test method and the sample information are attached.

Sincerely,



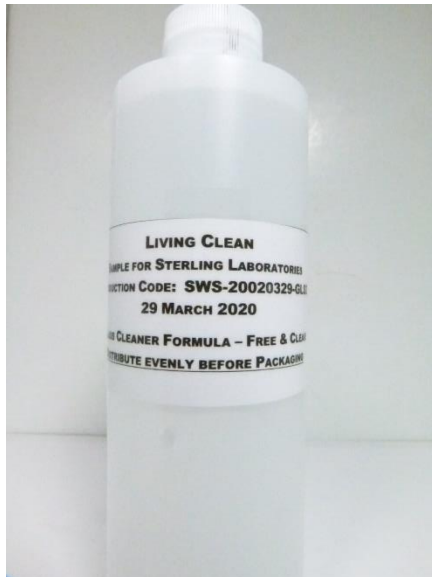
Tod Losey
Sterling Laboratories

Sample Information

Glass Cleaners

1. **Living Clean**, Glass Cleaner Formula - Free & Clear,
Production Code: SWS-20020329-GLS2, 29 March 2020,
Sample For Sterling Laboratories,
Received 4-1-20 from SageWay Solutions
2. **Windex**, Cleaner, Original, Unbeatable Streak-Free Shine,
Non-Toxic Formula, Bottle Made Of 100% Recycled Plastic,
Lot #: W297T 19:01, UPC: 0 1980000202 2,
Purchased 2-10-20 from Meijer, Toledo, OH
3. **Seventh Generation**, Glass Cleaner, Sparkling Seaside Scent,
Scents Made From 100% Essential Oils & Botanical Ingredients,
0% Synthetic Fragrances Or Dyes,
23 fl. oz. (680 mL) Trigger-Spray Bottle,
Lot #: AM19303222 A142400, UPC #: 7 3291344712 1,
Purchased 2-18-20 from Meijer, Toledo, OH

Photographs of Samples Tested
Glass Cleaners



Living Clean (GLS2)



Windex



Seventh Generation

Test Method

Glass Cleaners

HCPA DCC-09

Cleaning, Streaking, Smearing

Clean glass plates are soiled with an interior soil consisting of equal parts by weight of mineral oil, synthetic sebum and clay dispersed in a solvent system. The amount of soil per plate is 5.5 ± 1.0 grams. The plates are heated at 120° F for two hours and then cooled before cleaning.

Each plate is divided in half lengthwise with a strip of 1/2-inch masking tape. Then one half is covered to protect it from overspray and the uncovered half is sprayed with 2 grams (± 0.2) of test product. (Sample were tested as received, no dilutions.)

We allow the cleaner to penetrate for one (1) minute and then scrub it on a Gardner Straight Line Wash-Ability Apparatus with cheesecloth wrapped around a wooden block. The cheesecloth-wrapped block is then flipped over to the unused side and another 10 cycles is run again on the panel. The plates are treated in this same manner until there are three replicates.

Both halves of each cleaned plate are then rated for cleaning, streaking and smearing on a scale of 1-4 with 4 being best and 1 being poorest (See below). The scores for each set of replicates are averaged and tabulated. If the average scores are within 0.5 of a score value, they are said to be comparable.

HCPA DCC-09 Grading Scale			
Grade	Cleaning	Streaking	Smearing
4	Total Soil Removal	None	None
3	Good Soil Removal	Slight	Slight
2	Moderate Soil Removal	Moderate	Moderate
1	Poor Soil Removal	Severe	Severe

Performance Summary

Glass Cleaners
HCPA DCC-09

HCPA DCC-09 Glass Cleaning				
Sample	Cleaning	Streaking	Smearing	Overall Average
Windex	4.0	3.9	3.9	3.9
Seventh Generation	4.0	3.8	3.8	3.9
Living Clean (GLS2)	4.0	3.8	3.8	3.9
Sig. Dif.	0.0	0.3	0.5	

HCPA DCC-09 Grading Scale			
Grade	Cleaning	Streaking	Smearing
4	Total	None	None
3	Good	Slight	Slight
2	Moderate	Moderate	Moderate
1	Poor	Severe	Severe



Test Method

Glass Cleaners

HCPA DCC-09A

Filming, Streaking, Smearing

Clean mirrors (4 ½ x 4 ½) are tested as follows:

Wiper Assembly

9-inch square cheese cloth is folded into a wiper measuring 4½-inch x 2¼-inch according to the four-step folding scheme in the method. Two 1¼-inch binder clips, with the two clips touching one another are attached to the wiper across the 4 ½" edge. The binder clips are used as the "handles" for the cheesecloth wiper assembly used to spread the sample over the mirror. A new wiper is used for every mirror panel.

Visual Rating of Filming and Streaking Performance (in a Light Box)

Ten (10) drops of a test product are placed on the surface of the mirror, evenly spaced over a 2 ½ inch circle.

Immediately after application, the surface is "wiped" in five (5) back and forth cycles of the cheesecloth wiper assembly described in the previous section (10 total passes over the mirror). The cheesecloth wiper is pushed and pulled across the mirror, without the application of any downward pressure. There should be a slight liquid residue remaining on the mirror after the wiping procedure, that air dries momentarily afterwards. It is important to maintain a fixed length of time for the wiping procedure, throughout all products tested. Samples were allowed to air-dry at least 30 minutes before evaluating them.

HCPA DCC-09A Grading Scale			
Grade	Streaking	Filming	Smearing
1	No Streaking	No Filming	No Smearing
3	Slight Streaking	Slight Streaking	Slight Smearing
5	Moderate Streaking	Moderate Filming	Moderate Smearing
7	High Streaking	High Filming	High Smearing

Visual Rating of Smearing Performance

Smearing is the presence of remaining residue on the mirror. This is seen by drawing a figure "8" in the test areas, using a cotton swab, after grading the Filming & Streaking. This evaluates the presence of any transparent Residue remaining on the surface that would be a potential problem after the glass is cleaned

This was added to the testing to further the evaluations of the samples.

Performance Summary

Glass Cleaners
HCPA DCC-09A

HCPA DCC-09A				
Sample	Streaking	Filming	Smearing	Overall Average
Windex	1.1	1.1	1.1	1.1
Seventh Generation	1.1	1.2	1.2	1.2
Living Clean (GLS2)	1.1	1.1	1.1	1.1
Sig. Dif.	0.2	0.3	0.3	

HCPA DCC-09A Grading Scale			
Grade	Streaking	Filming	Smearing
1	No Streaking	No Filming	No Smearing
3	Slight Streaking	Slight Filming	Slight Smearing
5	Moderate Streaking	Moderate Filming	Moderate Smearing
7	High Streaking	High Filming	High Smearing