# CLEANING LABORATORY EVALUATION SUMMARY

SCL #: 2019

DateRun: 03/26/2019

Experimenters: Sabrina Apel

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 compare the effectiveness of the supplied cleaner, Sample 1 Condensate, to the comparative cleaner, Windex, for cleaning SCL Soil 2 Glass from glass and chrome substrates using the Manual SLW unit.

Experimental Procedure: Nine pre-weighed coupons per cleaner (three glass, three chrome) were coated with one half of a gram of SCL Soil 2 Glass (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%), at room temperature, using a handheld swab. The contaminated coupons were air dried for 24 hours at room temperature and weighed again to determine the amount of soil added the following day.

Three coupons of each substrate were placed in the SLW unit, and a KC Wypal reinforced paper towel was attached to the cleaning sled and treated with two sprays of cleaning solution. Each coupon was sprayed twice with the same cleaning solution. The cleaning unit was run for 20 cycles (equivalent of 30 seconds of cleaning). Coupons were dried and final weights were recorded. Efficiencies were calculated and 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 set of coupons were evaluated by 3 lab technicians 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: The two cleaning products removed over 90% of SCL Soil 2 Glass on each substrate using the manual wipe unit.

Table 1: Gravimetric Analysis

| Cleaner | Substrate | Initial wt of cont. | Final wt of cont. | %Cont Removed | % Average |
|---|---|---|---|---|---|
| Sample 1 Condensate | Glass | 0.0947 | 0.0090 | 90.50 | 96.05 |
| | | 0.0945 | 0.0004 | 99.58 | |
| | | 0.0878 | 0.0017 | 98.06 | |
| | Chrome | 0.0795 | 0.0009 | 98.87 | 97.61 |
| | | 0.0783 | 0.0034 | 95.66 | |
| | | 0.0646 | 0.0011 | 98.30 | |
| Windex | Glass | 0.0795 | 0.0051 | 93.58 | 95.61 |
| | | 0.0891 | 0.0013 | 98.54 | |
| | | 0.0830 | 0.0044 | 94.70 | |
| | Chrome | 0.0970 | 0.0030 | 96.91 | 94.03 |
| | | 0.1017 | 0.0085 | 91.64 | |
| | | 0.1052 | 0.0068 | 93.54 | |

Table 2: Visual Analysis

| Cleaner | Coupon Type | Streaking | | | Average Streaking | Filming | | | Average Filming |
|---|---|---|---|---|---|---|---|---|---|
| Sample 1 Condensate | Glass | 2 | 2 | 2 | 2.00 | 2 | 1 | 1 | 1.33 |
| Windex | Glass | 4.5 | 3.5 | 3 | 3.67 | 4 | 1 | 2 | 2.33 |

Summary:

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|---|---|---|---|---|---|
| **Substrates:** | Glass/Quartz, Chrome | | | | |
| **Contaminants:** | Films, Soaps | | | | |
| **Company Name:** | **Product Name:** | **Conc.:** | **Efficiency:** | **Effective:** | **Observations:** |
| Ambrosia Industrial-Organic | Ambrosia Sample 1 Condensate | 100 | 96.83 | ☑ | |
| SC Johnson & Son Inc | Windex Glass & More Cleaner (Spray) | 100 | 94.82 | ☑ | |

Conclusion:

Sample 1 Condensate and Windex efficiently removed SCL Soil 2 Glass on glass and chrome substrates using the Manual SLW Unit. Sample 1 Condensate was more effective than the comparative cleaner, Windex, with respective removal rates of 96.83% and 94.82%. According to the visual analysis table for filming and streaking ratings, Sample 1 Condensate cleaner was determined to be the highest performing glass cleaner on glass and chrome substrates in both filming and streaking compared to Windex.