

CLEANING LABORATORY EVALUATION SUMMARY

SCL #: 0
 DateRun: 01/01/1970
 Experimenters: Loc Nguyen
 ClientType: Cleaner Manufacturer
 ProjectNumber: Project #2
 Substrates: Glass/Quartz, Chrome
 PartType: Coupon
 Contaminants: Films, Soaps
 Cleaning Methods: Manual Wipe
 Analytical Methods: Gravimetric, Visual
 Purpose: To evaluate supplied products for glass cleaning using manual cleaning

Experimental Procedure: Supplied products were diluted with room temperature water to the requested dilution. Prewedged Glass; Chrome; Mirror 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 (SLW) unit. A Wypall L20 reinforced wipe was attached to the cleaning sled and soaked with 1 spray of cleaning solution. Each coupon was sprayed 1-3 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 "miliness", 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

1 = high filming 1 = high streaking (poor performance)

7 = no visible filming 7 = no visible streaking (excellent performance)

Chemistries Evaluated: WC-3, Windex

Results:

| Cleaner | Initial wt | Final wt | % Removed |
|---------------|------------|----------|-----------|
| WCN 3 Glass | | | |
| | 0.1236 | 0.0008 | 99.35 |
| | 0.1377 | 0.0027 | 98.04 |
| | 0.1368 | 0.0058 | 95.76 |
| WCN 3 Chrome | | | |
| | 0.1268 | 0.0227 | 82.1 |
| | 0.147 | 0.0273 | 81.43 |
| | 0.1431 | 0.0189 | 86.79 |
| WCN 3 Mirror | | | |
| | 0.1346 | 0.0024 | 98.22 |
| | 0.1304 | 0.0061 | 95.32 |
| | 0.1435 | 0.0063 | 95.61 |
| Windex Glass | | | |
| | 0.1261 | 0.0488 | 61.3 |
| | 0.132 | 0.0331 | 74.92 |
| | 0.1246 | 0.0496 | 60.19 |
| Windex Chrome | | | |
| | 0.1288 | 0.0027 | 97.9 |
| | 0.1188 | 0.0075 | 93.69 |
| | 0.1216 | 0.0039 | 96.79 |
| Windex Mirror | | | |
| | 0.1305 | 0.0021 | 98.39 |
| | 0.1251 | 0.0032 | 97.44 |
| | 0.1317 | 0.0062 | 95.29 |

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Visual Analysis

| Cleaner | Coupon | F | S | F | S | F | S | Average F | Average S |
|---------------|--------|-----|-----|-----|-----|---|---|--------------|--------------|
| WCN Glass | 15 | 2 | 4 | 3.5 | 4 | 4 | 4 | 3.7 | 4.0 |
| WCN Glass | 8 | 1.5 | 2 | 3 | 4.5 | 3 | 5 | 2.5 | 3.8 |
| WCN Glass | 22 | 1.5 | 1.5 | 3.5 | 4.5 | 4 | 4 | 3.0 | 3.3 |
| WCN Mirror | 4 | 1 | 3 | 3.5 | 4 | 4 | 2 | 2.8 | 3.0 |
| WCN Mirror | 21 | 1 | 3.5 | 4 | 4 | 4 | 4 | 3.0 | 3.8 |
| WCN Mirror | 16 | 1 | 3 | 4 | 4.5 | 4 | 4 | 3.0 | 3.8 |
| Windex Glass | 34 | 4 | 2 | 4 | 4 | 1 | 5 | 3.0 | 3.7 |
| Windex Glass | 41 | 4 | 3 | 4 | 4 | 2 | 5 | 3.3 | 4.0 |
| Windex Glass | 45 | 3 | 3 | 3 | 3.5 | 2 | 5 | 2.7 | 3.8 |
| Windex Mirror | 114 | 3 | 3 | 2 | 2 | 2 | 5 | 2.3 | 3.3 |
| Windex Mirror | 2 | 4 | 4 | 2.5 | 2 | 2 | 5 | 2.8 | 3.7 |
| Windex Mirror | 4 | 3.5 | 4 | 3 | 1.5 | 4 | 4 | 3.5 | 3.2 |

Summary:

| | | | | | |
|-----------------------|-------------------------------------|---------------|--------------------|-------------------------------------|----------------------|
| Substrates: | Glass/Quartz, Chrome | | | | |
| Contaminants: | Films, Soaps | | | | |
| Company Name: | Product Name: | Conc.: | Efficiency: | Effective: | Observations: |
| ProNatural Brands LLC | WC 3 | 100 | 92.32 | <input checked="" type="checkbox"/> | |
| SC Johnson & Son Inc | Windex Glass & More Cleaner (Spray) | 100 | 81.83 | <input type="checkbox"/> | |

Conclusion:

Each of the cleaners exhibited the similar levels of soil removal for each surface with the WCN 3 removing more than Windex. Based on the filming and streaking table, we can see that Windex and WC3 were nearly identical.