

CLEANING LABORATORY EVALUATION SUMMARY

SCL #: 2009

DateRun: 06/02/2009

Experimenters: Jason Marshall, Junhee Cho, Timothy Weil

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 evaluate aerosol glass cleaners for soap scum removal

Experimental Procedure: Prew weighed glass and chrome 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 hand held 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 unit. A Kimberly Clark Reinforced paper towel was attached to the cleaning sled and soaked with 5-7 sprays of cleaning solutions. Each coupon was sprayed 7-10 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 were calculated and recorded.

Results: The table lists the amount of soil initially added and the amount remaining after cleaning and the product efficiency for each coupon cleaned. Visual observations for streaking and filming are recorded in the second table.

| Cleaner | Initial wt | Final wt | % Removed | Streaking | Rating | Film/Smear | Rating |
|-------------------------|------------|----------|-----------|------------------|--------|------------|--------|
| Amrep A0122_Glass | | | | | | | |
| | 0.0668 | 0.0002 | 99.70 | none | 4 | no film | 4 |
| | 0.0051 | 0.0000 | 100.00 | none | 4 | no film | 4 |
| | 0.0074 | 0.0003 | 95.95 | very little <25% | 3 | no film | 4 |
| Amrep A0122_Chrome | | | | | | | |
| | 0.0103 | 0.0000 | 100.00 | | | | |
| | 0.0149 | 0.0004 | 97.32 | | | | |
| | 0.0135 | 0.0000 | 100.00 | | | | |
| Amrep A00124_Glass | | | | | | | |
| | 0.0069 | -37.6499 | 545750.72 | | | | |
| | 0.0079 | -37.5557 | 475488.61 | | | | |
| | 0.0091 | -37.5920 | 413198.90 | | | | |
| Amrep A00124_Chrome | | | | | | | |
| | 0.0190 | -21.7713 | 114685.79 | | | | |
| | 0.0098 | -21.7405 | 221941.84 | | | | |
| | 0.0080 | -21.7230 | 271637.50 | | | | |
| 3M Glass Cleaner_Glass | | | | | | | |
| | 0.0071 | 0.0000 | 100.00 | Some 25% | 2 | no film | 4 |
| | 0.0068 | 0.0001 | 98.53 | very little <25% | 3 | no film | 4 |
| | 0.0076 | 0.0001 | 98.68 | very little <25% | 3 | no film | 4 |
| 3M Glass Cleaner_Chrome | | | | | | | |

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|------------------------------|--------|--------|--------|------------------|---|----------|---|
| | 0.0090 | 0.0001 | 98.89 | | | | |
| | 0.0066 | 0.0000 | 100.00 | | | | |
| | 0.0099 | 0.0001 | 98.99 | | | | |
| Spartan Glass Cleaner_Glass | | | | | | | |
| | 0.0151 | 0.0003 | 98.01 | none | 4 | Some 25% | 2 |
| | 0.0127 | 0.0004 | 96.85 | none | 4 | Some 25% | 2 |
| | 0.0077 | 0.0008 | 89.61 | none | 4 | Some 25% | 2 |
| Spartan Glass Cleaner_Chrome | | | | | | | |
| | 0.0062 | 0.0001 | 98.39 | | | | |
| | 0.0069 | 0.0000 | 100.00 | | | | |
| | 0.0058 | 0.0000 | 100.00 | | | | |
| Claire Gleme_Glass | | | | | | | |
| | 0.0075 | 0.0005 | 93.33 | very little <25% | 3 | no film | 4 |
| | 0.0054 | 0.0009 | 83.33 | Some 25% | 4 | no film | 4 |
| | 0.0097 | 0.0005 | 94.85 | Some 25% | 4 | no film | 4 |
| Claire Gleme_Chrome | | | | | | | |
| | 0.0070 | 0.0003 | 95.71 | | | | |
| | 0.0067 | 0.0001 | 98.51 | | | | |
| | 0.0094 | 0.0000 | 100.00 | | | | |
| Johnson Windex_Glass | | | | | | | |
| | 0.0062 | 0.0003 | 95.16 | Some 25% | 2 | Some 25% | 2 |
| | 0.0054 | 0.0002 | 96.30 | Some 25% | 2 | Some 25% | 2 |
| | 0.0068 | 0.0013 | 80.88 | Some 25% | 2 | Some 25% | 2 |
| Johnson Windex_Chrome | | | | | | | |
| | 0.0126 | 0.0009 | 92.86 | | | | |
| | 0.0124 | 0.0000 | 100.00 | | | | |
| | 0.0155 | 0.0001 | 99.35 | | | | |

Summary:

| | | | | | | |
|--------------------------|---|---------------|--------------------|-------------------------------------|----------------------|--|
| Substrates: | Glass/Quartz, Chrome | | | | | |
| Contaminants: | Films, Soaps | | | | | |
| Company Name: | Product Name: | Conc.: | Efficiency: | Effective: | Observations: | |
| Amrep Inc | Aspire Glass & Surface Cleaner A00122 Aerosol | 100 | 98.83 | <input checked="" type="checkbox"/> | Streak/film rank = 1 | |
| Amrep Inc | Misty Heavy Duty Glass Cleaner Aerosol | 100 | 90.01 | <input checked="" type="checkbox"/> | Streak/film rank = 3 | |
| 3M | 3M Glass Cleaner Aerosol | 100 | 99.18 | <input checked="" type="checkbox"/> | Streak/film rank = 4 | |
| Spartan Chemical Company | Glass Cleaner - Aerosol | 100 | 97.14 | <input checked="" type="checkbox"/> | Streak/film rank = 5 | |
| Claire Manufacturing | Gleme Glass Cleaner Aerosol | 100 | 94.29 | <input checked="" type="checkbox"/> | Streak/film rank = 1 | |
| SC Johnson & Son Inc | Windex Glass & More Cleaner (Spray) | 100 | 90.40 | <input checked="" type="checkbox"/> | Streak/film rank = 6 | |

Conclusion:

All six products removed over 85% of the glass soap scum. Four of the six received good to best ratings. The 3M and Windex both had scores below 3. Four of the six products received the best ranking for filming. The Spartan and Windex products received the second lowest score for filming. The Aspire product had the second best cleaning efficiency and streaking. The product left no residue behind.