# CLEANING LABORATORY EVALUATION SUMMARY

| | |
|---|---|
| SCL #: | 2011 |
| DateRun: | 08/20/2011 |
| Experimenters: | Timothy Weil, Johnny Le, Mahima Tank |
| 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 supplied products for glass cleaning using manual cleaning |
| Experimental Procedure: | Preweighed chrome and glass coupons were coated with glass soap scum 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.<br>Three coupons were placed into a Gardner Straight Line Washability unit. A Wypall X60 reinforced wipe 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 20 cycles (~30 seconds). At the end of the cleaning, coupons were allowed to air dry for 24 hours and weighed for a final time. Efficiency was calculated for each coupon.<br><br>Filming Streaking<br>7 = high filming 7 = high streaking poor (performance)<br>1 = no visible filming 1 = no visible streaking (excellent performance) |
| Results: | Both the Clorox Glass Cleaner and Windex removed on average more than 96% of the glass soap scum. For glass surfaces, Clorox Glass Cleaner and Windex both removed on averaged above 98%. For chrome surfaces, Clorox Glass Cleaner removed over 99% of the soil and Windex removed over 96% of the soil. |

| | Initial wt | Final wt | % Removed | %Average |
|---|---|---|---|---|
| Clorox Green Works Natural Glass Cleaner Glass | 0.0858 | 0.0010 | 98.83 | 98.54 |
| | 0.0705 | 0.0007 | 99.01 | |
| | 0.0538 | 0.0012 | 97.77 | |
| Johnson & Johnson Windex Glass | 0.0988 | 0.0025 | 97.47 | 98.17 |
| | 0.0525 | 0.0008 | 98.48 | |
| | 0.0556 | 0.0008 | 98.56 | |
| Clorox Green Works Natural Glass Cleaner Chrome | 0.0645 | 0.0002 | 99.69 | 99.06 |
| | 0.0829 | 0.0010 | 98.79 | |
| | 0.0845 | 0.0011 | 98.70 | |
| Johnson & Johnson Windex Chrome | 0.0410 | 0.0024 | 94.15 | 96.82 |
| | 0.0835 | 0.0015 | 98.20 | |
| | 0.0799 | 0.0015 | 98.12 | |

Visual Evaluation

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| Streak | | | | | | |
|---|---|---|---|---|---|---|
| Cleaner | Observer 1 | Observer 2 | Observer 3 | Average | | Overall Ave |
| Clorox | 1 | 2 | 1 | 4 | 2.33 | 2.56 |
| Clorox | 2 | 2 | 2 | 3 | 2.33 | |
| Clorox | 3 | 2 | 3 | 4 | 3 | |
| J & J | 1 | 1 | 1 | 1 | 1 | 2.11 |
| J & J | 2 | 3 | 2 | 1 | 2 | |
| J & J | 3 | 4 | 3 | 3 | 3.33 | |
| Filming | | | | | | |
| Cleaner | Observer 1 | Observer 2 | Observer 3 | Average | | Overall Ave |
| Clorox | 1 | 1 | 1 | 1 | 1 | 2.22 |
| Clorox | 2 | 2 | 2 | 2 | 2 | |
| Clorox | 3 | 4 | 3 | 4 | 3.67 | |
| J & J | 4 | 3 | 2 | 4 | 3 | 2.22 |
| J & J | 5 | 1 | 2 | 2 | 1.67 | |
| J & J | 6 | 2 | 2 | 2 | 2 | |

Summary:

| **Substrates:** | Glass/Quartz, Chrome | | | | |
|---|---|---|---|---|---|
| **Contaminants:** | Films, Soaps | | | | |
| **Company Name:** | **Product Name:** | **Conc.:** | **Efficiency:** | **Effective:** | **Observations:** |
| Clorox Company | Green Works Natural Glass Cleaner | 3.3 | 98.80 | ☑ | |
| SC Johnson & Son Inc | Windex Glass & More Cleaner (Spray) | 100 | 97.50 | ☑ | |

Conclusion:

The Clorox product performed slightly better than the conventional product in gravimetric evaluations. Visual observations showed that the Clorox product had better performance in regard to streaking but in regard to filming, the products performed similarly. Further testing could be completed to address different scenarios in preparation, application and cleaning.