

CLEANING LABORATORY EVALUATION SUMMARY

SCL #: 2010

DateRun: 08/13/2010

Experimenters: Jason Marshall, Timothy Weil

ClientType: Cleaner Manufacturer

ProjectNumber: Project #1

Substrates: Ceramics, Plastic, Steel

PartType: Coupon

Contaminants: Hucker's Soil

Cleaning Methods: Manual Wipe

Analytical Methods: Gravimetric

Purpose: To evaluate three supplied products for all purpose cleaning using manual cleaning.

Experimental Procedure: The supplied cleaning products were used at the vendor recommended concentration for all purpose cleaning. Preweighed ceramic, plastic G-10 and painted steel coupons were coated with Hucker's Soil Formulation (Jif Creamy Peanut Butter 9.2%, Salted Butter 9.2%, Arrowhead Mills stone ground wheat flour 9.2%, Egg Yolk 9.2%, Evaporated milk 13.8%, Distilled water 45.8%, Printer's ink with boiled linseed oil 0.9%, Shaws saline solution 2.7%) 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 unit. A Kimberly-Clark Wypal 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 cleaning unit was run for 20 cycles (~33 seconds). At the end of the cleaning, coupons were wiped once with a dry paper towel. Final weights were recorded, efficiencies were calculated and recorded.

Results: All three products were effective on the four surfaces tested using manual cleaning. The two supplied products worked as well as the conventional product for all purpose soil removal. The table below lists the amount of soil added, the amount remaining and the efficiency for each coupon cleaned.

| Cleaner | Initial wt | Final wt | % Removed |
|--------------------------------------|------------|----------|-----------|
| Formula 409 - ceramic | | | |
| | 0.0785 | 0.0020 | 97.45 |
| | 0.0586 | 0.0045 | 92.32 |
| | 0.0885 | 0.0037 | 95.82 |
| Formula 409 - painted steel | | | |
| | 0.0471 | 0.0088 | 81.32 |
| | 0.0710 | 0.0072 | 89.86 |
| | 0.1346 | 0.0098 | 92.72 |
| Formula 409 - plastic | | | |
| | 0.0596 | 0.0031 | 94.80 |
| | 0.0499 | 0.0044 | 91.18 |
| | 0.0469 | 0.0036 | 92.32 |
| Formula 409 - porcelain | | | |
| | 0.0584 | 0.0031 | 94.69 |
| | 0.0364 | 0.0030 | 91.76 |
| | 0.0544 | 0.0042 | 92.28 |
| New Leaf All Purpose - ceramic | | | |
| | 0.0618 | 0.0013 | 97.90 |
| | 0.0894 | 0.0020 | 97.76 |
| | 0.0776 | 0.0048 | 93.81 |
| New Leaf All Purpose - painted steel | | | |
| | 0.0449 | 0.0040 | 91.09 |

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|----------------------------------|--------|--------|-------|
| | 0.0390 | 0.0036 | 90.77 |
| | 0.0450 | 0.0032 | 92.89 |
| New Leaf All Purpose - plastic | | | |
| | 0.0363 | 0.0047 | 87.05 |
| | 0.0327 | 0.0025 | 92.35 |
| | 0.0509 | 0.0021 | 95.87 |
| New Leaf All Purpose - porcelain | | | |
| | 0.0449 | 0.0036 | 91.98 |
| | 0.0312 | 0.0052 | 83.33 |
| | 0.0514 | 0.0061 | 88.13 |
| New Leaf Granite - ceramic | | | |
| | 0.0820 | 0.0011 | 98.66 |
| | 0.0808 | 0.0032 | 96.04 |
| | 0.0963 | 0.0014 | 98.55 |
| New Leaf Granite - painted steel | | | |
| | 0.0508 | 0.0105 | 79.33 |
| | 0.0452 | 0.0073 | 83.85 |
| | 0.0437 | 0.0080 | 81.69 |
| New Leaf Granite - plastic | | | |
| | 0.0392 | 0.0053 | 86.48 |
| | 0.0458 | 0.0044 | 90.39 |
| | 0.0615 | 0.0053 | 91.38 |
| New Leaf Granite - porcelain | | | |
| | 0.0443 | 0.0043 | 90.29 |
| | 0.0590 | 0.0036 | 93.90 |
| | 0.0378 | 0.0035 | 90.74 |

Summary:

| Substrates: | Ceramics, Plastic, Steel | | | | |
|----------------------|------------------------------|--------|-------------|-------------------------------------|---------------|
| Contaminants: | Hucker's Soil | | | | |
| Company Name: | Product Name: | Conc.: | Efficiency: | Effective: | Observations: |
| Clorox Company | Clorox Kitchen Cleaner | 100 | 92.21 | <input checked="" type="checkbox"/> | |
| New Leaf Clean LLC | New Leaf All Purpose Cleaner | 100 | 91.91 | <input checked="" type="checkbox"/> | |
| New Leaf Clean LLC | New Leaf Granite Cleaner | 100 | 90.11 | <input checked="" type="checkbox"/> | |

Conclusion:

The supplied products were found to be effective for removing the Hucker's soil from various surfaces using manual wiping removing more than 85% of the soil. It compared well to the conventional cleaning product.