

CLEANING LABORATORY EVALUATION SUMMARY

SCL #: 2011

DateRun: 03/25/2011

Experimenters: Junhee Cho, 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 the supplied product for all purpose cleaning.

Experimental Procedure: Pre-weighed ceramic, plastic G-10 and painted steel coupons were coated with Hucker's Soil Formulation (Jiff Creamy Peanut Butter, Salted Butter, Arrowhead Mills stone ground wheat flour, Egg Yolk, Evaporated milk, distilled water, Printer's ink with boiled linseed oil, Shaws saline solution) 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: Supplied cleaner (TAP Inc Groap) was effective at removing more than 95% of the Hucker's soil from two of the surfaces using manual wiping. However, for ceramic surface, supplied cleaner was only effective at removing more than 83% of the hucker's soil. The comparable products removed was effective at removing more than 85% of the Hucker's soil from three of the surfaces using manual wiping. The table lists the amount of soil added, the amount remaining after cleaning and the calculated efficiency for each of the ceramic, painted steel and plastic coupons cleaned.

| Cleaner | Initial wt | Final wt | % Removed |
|-------------------------------|------------|----------|-----------|
| TAP Ink Groap - Ceramic | | | |
| | 0.8661 | 0.0222 | 97.44 |
| | 0.5752 | 0.0751 | 86.94 |
| | 0.6272 | 0.2153 | 65.67 |
| TAP Ink Groap - Painted steel | | | |
| | 0.0753 | 0.0041 | 94.56 |
| | 0.0384 | 0.0027 | 92.97 |
| | 0.1217 | 0.0028 | 97.7 |
| TAP Ink Groap - Plastic GS-10 | | | |
| | 0.2306 | 0.0017 | 99.26 |
| | 0.1510 | 0.0019 | 98.74 |
| | 0.1215 | 0.0058 | 95.23 |
| MD Stetson - Ceramic | | | |
| | 0.1623 | 0.0256 | 84.23 |
| | 0.1463 | 0.0169 | 88.45 |
| | 0.1771 | 0.0142 | 91.98 |
| MD Stetson - Painted steel | | | |
| | 0.0713 | 0.0027 | 96.21 |
| | 0.1138 | 0.0014 | 98.77 |
| | 0.1005 | 0.0024 | 97.61 |
| MD Stetson - Plastic GS-10 | | | |

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| | 0.2088 | 0.0585 | 71.98 |
| | 0.1952 | 0.0040 | 97.95 |
| | 0.1436 | 0.0048 | 96.66 |

Summary:

| | | | | | |
|-----------------------|------------------------|--------------------------|--------------------|-------------------------------------|----------------------|
| Substrates: | | Ceramics, Plastic, Steel | | | |
| Contaminants: | | Hucker's Soil | | | |
| Company Name: | Product Name: | Conc.: | Efficiency: | Effective: | Observations: |
| Next-Gen Supply Group | 3R All Purpose Cleaner | 2 | 91.54 | <input checked="" type="checkbox"/> | |
| Tap Environment | Kitchen Grease Remover | 100 | 92.06 | <input checked="" type="checkbox"/> | |

Conclusion:

Gravimetric analysis showed that the TAP Inc product was as effective as the comparative product and would be considered an effective all-purpose cleaner.