

CLEANING LABORATORY EVALUATION SUMMARY

SCL #: 2010

DateRun: 10/07/2010

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ClientType: Cleaner Manufacturer

ProjectNumber: Project #1

Substrates: Ceramics, Plastic, Steel

PartType: Coupon

Contaminants: Hucker's Soil

Cleaning Methods: Manual Wipe

Analytical Methods: Gravimetric, Visual

Purpose: To evaluate three supplied products for all purpose cleaning

Experimental Procedure: 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: One of the products, Seventh Generation, was effective at removing more than 85% of the Hucker's soil from two of the surfaces using manual wiping. The remaining products removed in excess of 80% and more than tap water. The table lists the amount of soil added, the amount remaining after cleaning and the calculated efficiency for each of the ceramic and painted steel coupons cleaned.

| Cleaner | Initial wt | Final wt | % Removed |
|-----------------------------------|------------|----------|-----------|
| Seventh Generation -ceramic | | | |
| | 0.2151 | 0.0164 | 92.38 |
| | 0.0662 | 0.0105 | 84.14 |
| | 0.1299 | 0.0135 | 89.61 |
| Seventh Generation -painted steel | | | |
| | 0.2491 | 0.0414 | 83.38 |
| | 0.2205 | 0.0146 | 93.38 |
| | 0.0658 | 0.0020 | 96.96 |
| Light Duty - 0.25 - ceramic | | | |
| | 0.1852 | 0.0151 | 91.85 |
| | 0.0682 | 0.0111 | 83.72 |
| | 0.0508 | 0.0121 | 76.18 |
| Light Duty - 0.25 - painted steel | | | |
| | 0.2004 | 0.0356 | 82.24 |
| | 0.2026 | 0.0206 | 89.83 |
| | 0.0570 | 0.0134 | 76.49 |
| Moby 1800 -ceramic | | | |
| | 0.0918 | 0.0132 | 85.62 |
| | 0.0436 | 0.0052 | 88.07 |
| | 0.0536 | 0.0056 | 89.55 |
| Moby 1800 -painted steel | | | |
| | 0.1772 | 0.0333 | 81.21 |
| | 0.0482 | 0.0138 | 71.37 |

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| | | | |
|---|--------|--------|-------|
| | 0.1645 | 0.0331 | 79.88 |
| Light Duty - 0.50 - ceramic | | | |
| | 0.1525 | 0.0283 | 81.44 |
| | 0.1352 | 0.0154 | 88.61 |
| | 0.1360 | 0.0214 | 84.26 |
| Light Duty - 0.50 - painted steel | | | |
| | 0.0684 | 0.0091 | 86.70 |
| | 0.0394 | 0.0076 | 80.71 |
| | 0.1091 | 0.0239 | 78.09 |
| Sanimaster -ceramic | | | |
| | 0.1354 | 0.0146 | 89.22 |
| | 0.1269 | 0.0099 | 92.20 |
| | 0.0782 | 0.0208 | 73.40 |
| Sanimaster -painted steel | | | |
| | 0.0480 | 0.0129 | 73.12 |
| | 0.0542 | 0.0144 | 73.43 |
| | 0.1800 | 0.0225 | 87.50 |
| All Purpose CL2 5 oz/gal -ceramic | | | |
| | 0.0878 | 0.0089 | 89.86 |
| | 0.0410 | 0.0053 | 87.07 |
| | 0.1380 | 0.0097 | 92.97 |
| All Purpose CL2 5 oz/gal -painted steel | | | |
| | 0.1046 | 0.0270 | 74.19 |
| | 0.0407 | 0.0110 | 72.97 |
| | 0.0623 | 0.0102 | 83.63 |
| Moby 1750 -ceramic | | | |
| | 0.2474 | 0.0208 | 91.59 |
| | 0.0718 | 0.0075 | 89.55 |
| | 0.0403 | 0.0063 | 84.37 |
| Moby 1750 -painted steel | | | |
| | 0.0497 | 0.0150 | 69.82 |
| | 0.0783 | 0.0204 | 73.95 |
| | 0.1034 | 0.0174 | 83.17 |
| Tap water - MN - ceramic | | | |
| | 0.1096 | 0.0280 | 74.45 |
| | 0.1383 | 0.0272 | 80.33 |
| | 0.1320 | 0.0273 | 79.32 |
| Tap water - MN - painted steel | | | |
| | 0.1171 | 0.0300 | 74.38 |
| | 0.0737 | 0.0193 | 73.81 |
| | 0.0590 | 0.0129 | 78.14 |

Summary:

| | | | | | |
|----------------------|--------------------------|---------------|--------------------|-------------------------------------|----------------------|
| Substrates: | Ceramics, Plastic, Steel | | | | |
| Contaminants: | Hucker's Soil | | | | |
| Company Name: | Product Name: | Conc.: | Efficiency: | Effective: | Observations: |
| Seventh Generation | Free & Clear All Purpose | 100 | 89.97 | <input checked="" type="checkbox"/> | |
| Water | Water | 100 | 76.74 | <input type="checkbox"/> | |
| Orbio Technologies | Orbio Moby | 100 | 82.62 | <input type="checkbox"/> | |
| EcoLink | Sanimaster | 100 | 81.48 | <input type="checkbox"/> | |

Conclusion:

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Gravimetric and visual rankings showed that the Seventh Generation product as being the most effective at removing the Hucker's soil. The gravimetric analysis had the All Purpose CL2 as being the second most effective product but visually this product was rated as the 6th cleanest by all three members of the panel. A follow up test will be conducted on the plastic tiles in an effort to determine a calculated soil removal.