

CLEANING LABORATORY EVALUATION SUMMARY

SCL #: 2008
DateRun: 08/11/2008
Experimenters: Jason Marshall, Shweta Bansal
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 supplied products against an industry standard product for all purpose cleaning following GS 37 guidelines.

Experimental Procedure: The three supplied cleaning products were used at full strength and a fourth industry standard product was diluted to vendor recommended concentration for all purpose cleaning (6.25%).

Prewriteed 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: Two of the three supplied products removed over 85% of the Hucker's soil using manual wiping. All three products performed comparably to the selected industry standard product. The table lists the substrate cleaned, the amount of soil added, the amount remaining and the efficiency for each coupon cleaned.

| Cleaner | Initial wt | Final wt | % Removed |
|--------------------------|------------|----------|-----------|
| Janitors Ceramic | 0.0685 | 0.0032 | 95.33 |
| | 0.1876 | 0.0053 | 97.17 |
| | 0.1559 | 0.0045 | 97.11 |
| Heavy Ceramic | 0.2752 | 0.0143 | 94.80 |
| | 0.0527 | 0.0139 | 73.62 |
| | 0.1599 | 0.0346 | 78.36 |
| CleanGreen Ceramic | 0.0834 | 0.0131 | 84.29 |
| | 0.1878 | 0.0483 | 74.28 |
| | 0.2195 | 0.0224 | 89.79 |
| Tough Job Ceramic | 0.0697 | 0.0106 | 84.79 |
| | 0.1744 | 0.0296 | 83.03 |
| | 0.2226 | 0.0424 | 80.95 |
| Janitors Painted Steel | 0.1465 | 0.0262 | 82.12 |
| | 0.1212 | 0.0476 | 60.73 |
| | 0.0964 | 0.0134 | 86.10 |
| Heavy Painted Steel | 0.0966 | 0.0184 | 80.95 |
| | 0.1730 | 0.0365 | 78.90 |
| | 0.0995 | 0.0351 | 64.72 |
| CleanGreen Painted Steel | 0.1189 | 0.0207 | 82.59 |
| | 0.1296 | 0.0157 | 87.89 |
| | 0.0819 | 0.0120 | 85.35 |

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| Tough Job Painted steel | 0.0774 | 0.0100 | 87.08 |
| | 0.0697 | 0.0180 | 74.18 |
| | 0.0979 | 0.0099 | 89.89 |
| Janitors Plastic | 0.0195 | 0.0018 | 90.77 |
| | 0.0350 | 0.0064 | 81.71 |
| | 0.0798 | 0.0201 | 74.81 |
| Heavy Plastic | 0.0774 | 0.0076 | 90.18 |
| | 0.0851 | 0.0057 | 93.30 |
| | 0.0858 | 0.0059 | 93.12 |
| CleanGreen Plastic | 0.1595 | 0.0077 | 95.17 |
| | 0.0709 | 0.0090 | 87.31 |
| | 0.0696 | 0.0109 | 84.34 |
| Tough Job Plastic | 0.0985 | 0.0025 | 97.46 |
| | 0.0521 | 0.0057 | 89.06 |
| | 0.0809 | 0.0065 | 91.97 |

Summary:

| Substrates: | Ceramics, Plastic, Steel | | | | |
|-------------------------------|---------------------------|--------|-------------|-------------------------------------|---------------|
| Contaminants: | Hucker's Soil | | | | |
| Company Name: | Product Name: | Conc.: | Efficiency: | Effective: | Observations: |
| Environmental Care and Share | Janitors Answer | 100 | 85.09 | <input checked="" type="checkbox"/> | |
| Environmental Care and Share | Heavy Duty Cleaner Answer | 100 | 83.11 | <input type="checkbox"/> | |
| Environmental Care and Share | Clean-N-Green | 100 | 85.67 | <input checked="" type="checkbox"/> | |
| Rochester Midland Corporation | EnviroCare Tough Job | 6.25 | 86.49 | <input checked="" type="checkbox"/> | |

Conclusion:

Two products had overall average efficiencies greater than 85% and would be considered effective based on the SSL testing methodology. The third product removed on average more than 80% of the soil from the various coupons.