

CLEANING LABORATORY EVALUATION SUMMARY

SCL #: 2011

DateRun: 02/23/2011

Experimenters: Johnny Le

ClientType: General

ProjectNumber: Project #1

Substrates: Ceramics, Porcelain

PartType: Coupon

Contaminants: Hucker's Soil

Cleaning Methods: Manual Wipe

Analytical Methods: Gravimetric

Purpose: To evaluate an additional set of cleaners for toilet bowl cleaning

Experimental Procedure: Pre-weighed ceramic, porcelain coupons were coated with Hucker's Soil Formulation (Jiffy 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 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.

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.

Products were selected based on toilet bowl cleaning needs and health and safety options.

Results: All of the products tested performed better on the porcelain surface as compared with the ceramic. Only one product, PC 101 had an overall average greater than 85% for the combined surface cleanings. The table lists the amount of soil added, the amount remaining and the efficiency for each coupon cleaned.

| Cleaner | Initial wt | Final wt | % Removed | Surface Efficiency | Overall efficiency % |
|--------------------------------|------------|----------|-----------|--------------------|----------------------|
| Ceramic TMI bathroom cleaner | | | | | |
| | 0.0665 | 0.0403 | 39.40 | 32.41 | 58.76 |
| | 0.0799 | 0.0398 | 50.19 | | |
| | 0.0758 | 0.0700 | 7.65 | | |
| Porcelain TMI bathroom cleaner | | | | | |
| | 0.0847 | 0.0105 | 87.60 | 85.11 | |
| | 0.0509 | 0.0076 | 85.07 | | |
| | 0.0519 | 0.0090 | 82.66 | | |
| Ceramic Clorox 409 | | | | | |
| | 0.0557 | 0.0273 | 50.99 | 63.34 | 77.20 |
| | 0.0969 | 0.0113 | 88.34 | | |
| | 0.0584 | 0.0288 | 50.68 | | |
| Porcelain Clorox 409 | | | | | |
| | 0.0606 | 0.0142 | 76.57 | 91.06 | |
| | 0.1825 | 0.0053 | 97.10 | | |
| | 0.1060 | 0.0005 | 99.53 | | |
| Ceramic RMS Tough Job | | | | | |
| | 0.1234 | 0.0196 | 84.12 | 75.60 | 78.95 |
| | 0.0302 | 0.0085 | 71.85 | | |
| | 0.1052 | 0.0307 | 70.82 | | |
| Porcelain RMS Tough Job | | | | | |
| | 0.0591 | 0.0094 | 84.09 | 82.31 | |
| | 0.0379 | 0.0052 | 86.28 | | |
| | 0.0891 | 0.0209 | 76.54 | | |
| Ceramic Delta | | | | | |
| | 0.0821 | 0.0308 | 62.48 | 57.92 | 73.44 |
| | 0.0859 | 0.0236 | 72.53 | | |

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|----------------------------|--------|--------|-------|-------|-------|
| | 0.0480 | 0.0294 | 38.75 | | |
| Porcelain Delta | | | | | |
| | 0.0736 | 0.0033 | 95.52 | 88.95 | |
| | 0.0528 | 0.0086 | 83.71 | | |
| | 0.0517 | 0.0064 | 87.62 | | |
| Ceramic MD Stetson PC101 | | | | | |
| | 0.0619 | 0.0062 | 89.98 | 80.63 | 86.62 |
| | 0.0537 | 0.0189 | 64.80 | | |
| | 0.0968 | 0.0125 | 87.09 | | |
| Porcelain MD Stetson PC101 | | | | | |
| | 0.0632 | 0.0066 | 89.56 | 92.62 | |
| | 0.0571 | 0.0059 | 89.67 | | |
| | 0.0440 | 0.0006 | 98.64 | | |
| Ceramic Active Ion | | | | | |
| | 0.0559 | 0.0386 | 30.95 | 44.88 | 66.50 |
| | 0.0767 | 0.0383 | 50.07 | | |
| | 0.0897 | 0.0416 | 53.62 | | |
| Porcelain Active Ion | | | | | |
| | 0.0452 | 0.0050 | 88.94 | 88.11 | |
| | 0.0360 | 0.0034 | 90.56 | | |
| | 0.0330 | 0.0050 | 84.85 | | |

Summary:

| | | | | | |
|----------------------------------|--|---------------|--------------------|-------------------------------------|----------------------|
| Substrates: | Ceramics, Porcelain | | | | |
| Contaminants: | Hucker's Soil | | | | |
| Company Name: | Product Name: | Conc.: | Efficiency: | Effective: | Observations: |
| Clorox Company | Formula 409 All Purpose Cleaner | 100 | 77.20 | <input type="checkbox"/> | |
| DeltaGreen LLC | DeltaGreen Concentrate All Purpose and Degreaser | 3 | 73.34 | <input type="checkbox"/> | |
| Rochester Midland Corporation | EnviroCare Tough Job | 6.25 | 78.95 | <input type="checkbox"/> | |
| Next-Gen Supply Group | PC 101 Neutral and Glass Cleaner | 2 | 86.62 | <input checked="" type="checkbox"/> | |
| Activeion Cleaning Solutions LLC | Activeion Pro | 100 | 66.50 | <input type="checkbox"/> | |

Conclusion:

One product had an overall average greater than 85% for the toilet bowl soil removal.