

CLEANING LABORATORY EVALUATION SUMMARY

SCL #: 2014

DateRun: 11/14/2015

Experimenters: Loc Nguyen, George Liang

ClientType: Cleaning Equipment Mfr

ProjectNumber: Project #1

Substrates: Ceramics, Porcelain

PartType: Coupon

Contaminants: Hucker's Soil

Cleaning Methods: Manual Wipe

Analytical Methods: Gravimetric

Purpose: To evaluate three supplied products for all purpose cleaning following GS 37 requirements

Experimental Procedure: Prewieghed ceramic and porcelain were coated with Hucker's Soil Formulation (Jif 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 1 spray of cleaning solution. Each coupon was sprayed once 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.

Chemistries Evaluated: Force Of Nature, Scrubbing Bubbles; Lysol Power Bathroom Cleaner;

Summary Substrates: Ceramics; Porcelain;

Contaminants: Hucker Soil;

Force of Nature
Ph = 6.67
Concentration = 250 ppm

Results:

| Cleaner | Initial wt | Final wt | % Removed |
|-------------------------------|------------|----------|-----------|
| Force of Nature - Porcelain | | | |
| | 0.5386 | 0.142 | 73.64 |
| | 0.6876 | 0.1881 | 72.64 |
| | 0.6837 | 0.0952 | 86.08 |
| | 0.8661 | 0.0586 | 93.23 |
| | 0.7426 | 0.0913 | 87.71 |
| | 0.5814 | 0.1372 | 76.4 |
| | 0.7928 | 0.144 | 81.84 |
| | 0.7348 | 0.079 | 89.25 |
| | 0.8147 | 0.0669 | 91.79 |
| Force of Nature - Ceramic | | | |
| | 0.4588 | 0.1595 | 65.24 |
| | 0.8262 | 0.141 | 82.93 |
| | 0.6465 | 0.2153 | 66.7 |
| | 0.6763 | 0.099 | 85.36 |
| | 0.6627 | 0.0691 | 89.57 |
| | 0.8799 | 0.1192 | 86.45 |
| | 0.7092 | 0.0985 | 86.11 |
| | 0.6504 | 0.1516 | 76.69 |
| | 2.3559 | 0.6558 | 72.16 |
| Scrubbing Bubbles - Porcelain | | | |
| | 0.8725 | 0.1046 | 88.01 |
| | 0.8302 | 0.0873 | 89.48 |
| | 0.8357 | 0.0616 | 92.63 |

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| | | | |
|------------------------------|--------|--------|-------|
| | 0.6964 | 0.0379 | 94.56 |
| | 0.9796 | 0.0668 | 93.18 |
| | 0.9116 | 0.0679 | 92.55 |
| | 0.8444 | 0.062 | 92.66 |
| | 0.5454 | 0.0949 | 82.6 |
| | 0.7978 | 0.0322 | 95.96 |
| Scrubbing Bubbles - Ceramic | | | |
| | 0.5787 | 0.0161 | 97.22 |
| | 0.6276 | 0.0116 | 98.15 |
| | 0.5949 | 0.0275 | 95.38 |
| | 0.5595 | 0.0325 | 94.19 |
| | 0.3997 | 0.0087 | 97.82 |
| | 0.6348 | 0.0164 | 97.42 |
| | 0.7418 | 0.0123 | 98.34 |
| | 0.6386 | 0.0215 | 96.63 |
| | 1.1978 | 0.0373 | 96.89 |
| Lysol Power Bath - Porcelain | | | |
| | 0.7964 | 0.0837 | 89.49 |
| | 0.5573 | 0.0833 | 85.05 |
| | 0.7773 | 0.0872 | 88.78 |
| | 0.6711 | 0.0878 | 86.92 |
| | 0.9591 | 0.064 | 93.33 |
| | 0.8897 | 0.0765 | 91.4 |
| | 0.8962 | 0.1311 | 85.37 |
| | 0.7767 | 0.1044 | 86.56 |
| | 0.7755 | 0.1277 | 83.53 |
| Lysol Power Bath - Ceramic | | | |
| | 0.3031 | 0.131 | 56.78 |
| | 0.5232 | 0.2247 | 57.05 |
| | 0.5377 | 0.1775 | 66.99 |
| | 0.7134 | 0.1001 | 85.97 |
| | 0.9334 | 0.1223 | 86.9 |
| | 0.7306 | 0.1355 | 81.45 |
| | 0.7918 | 0.1416 | 82.12 |
| | 0.7578 | 0.2734 | 63.92 |
| | 1.0322 | 0.2627 | 74.55 |

Summary:

| | | | | | |
|--------------------------------|---------------------------------|---------------|--------------------|-------------------------------------|----------------------|
| Substrates: | Ceramics, Porcelain | | | | |
| Contaminants: | Hucker's Soil | | | | |
| Company Name: | Product Name: | Conc.: | Efficiency: | Effective: | Observations: |
| Healthier Cleaning Innovations | Force of Nature | 100 | 95.02 | <input checked="" type="checkbox"/> | |
| Clorox Company | Formula 409 All Purpose Cleaner | 100 | 69.83 | <input type="checkbox"/> | |

Conclusion:

Scrubbing Bubbles was the most efficient and consistent cleaner. Scrubbing Bubbles was statistically more effective than Force of Nature. Lysol Power Bathroom cleaner and the Force of Nature were comparable to each other in performance, with FON having more consistent cleaning.