

CLEANING LABORATORY EVALUATION SUMMARY

SCL #: 2009

DateRun: 09/21/2009

Experimenters: Junhee Cho, Johnny Le

ClientType: Cleaning Equipment Mfr

ProjectNumber: Project #1

Substrates: Ceramics, Plastic, Steel

PartType: Coupon

Contaminants: Hucker's Soil

Cleaning Methods: Manual Wipe

Analytical Methods: Gravimetric

Purpose: To evaluate supplied equipment for all purpose cleaning as compared to a conventional cleaning product.

Experimental Procedure: The supplied cleaning equipment and product were used at the delivered concentrations. Prew weighed ceramic, plastic 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 microfiber cloth 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 solution was allowed to penetrate for 30 seconds followed by cleaning in the SLW unit for 20 cycles (~33 seconds). At the end of the cleaning, coupons were wiped once with a dry paper towel. Final weights were recorded and efficiencies were calculated and recorded.

Results: The supplied equipment that generates activated water worked better the cleaning product supplied for comparison. Each cleaning process had trouble cleaning the ceramic surfaces in the 30 seconds of cleaning that took place.

| Cleaner | Initial wt | Final wt | % Removed |
|-------------------------|------------|----------|-----------|
| Activeion ceramic | | | |
| | 0.2807 | 0.1108 | 60.53 |
| | 0.2212 | 0.0559 | 74.73 |
| | 0.0994 | 0.0346 | 65.19 |
| Activeion painted steel | | | |
| | 0.2034 | 0.0138 | 93.22 |
| | 0.1518 | 0.0122 | 91.96 |
| | 0.1010 | 0.0106 | 89.50 |
| Activeion plastic | | | |
| | 0.1621 | 0.0277 | 82.91 |
| | 0.1055 | 0.0032 | 96.97 |
| | 0.0942 | 0.0032 | 96.60 |
| Alpha HP ceramic | | | |
| | 0.1995 | 0.0758 | 62.01 |
| | 0.2051 | 0.0556 | 72.89 |
| | 0.1519 | 0.0528 | 65.24 |
| Alpha HP painted steel | | | |
| | 0.0278 | 0.0106 | 61.87 |
| | 0.1121 | 0.0218 | 80.55 |
| | 0.1088 | 0.0130 | 88.05 |
| Alpha HP plastic | | | |
| | 0.0828 | 0.0017 | 97.95 |
| | 0.1586 | 0.0138 | 91.30 |
| | 0.1675 | 0.0178 | 89.37 |

Summary:

CLEANING LABORATORY EVALUATION SUMMARY

| | | | | | |
|----------------------------------|----------------------------------|---------------|--------------------|--------------------------|----------------------|
| Substrates: | Ceramics, Plastic, Steel | | | | |
| Contaminants: | Hucker's Soil | | | | |
| Company Name: | Product Name: | Conc.: | Efficiency: | Effective: | Observations: |
| Activeion Cleaning Solutions LLC | Activeion Pro | 100 | 83.51 | <input type="checkbox"/> | |
| JohnsonDiversey | Multi Surface Cleaner (Alpha HP) | 1.5 | 78.80 | <input type="checkbox"/> | |

Conclusion:

Neither product achieved an average of 85% removal for the all-purpose soil. The Activeion unit was able to remove more than 90% on two of the three surfaces and had an overall average greater than the product selected for comparison.