

CLEANING LABORATORY EVALUATION SUMMARY

SCL #: 2006
 DateRun: 02/07/2006
 Experimenters: Jason Marshall
 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 product for all purpose cleaning application

Experimental Procedure: The supplied cleaning product was diluted with DI water to vendor recommended concentration for all purpose cleaning (10%). Prewieghed 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 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. Photographs were taken.

Three coupons were placed into a Gardner Straight Line Washability unit. A Professional Painter's Rag 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: The three substrates were effectively cleaned with the supplied product. The table below list the amount of soil added, the amount reaming and the efficiency for each substrate. Additional results for glass cleaning using water was also included for comparative purposes.

| | Surface Material | Initial wt | Final wt | % Removed |
|--------|------------------|------------|----------|-----------|
| Soil 3 | Ceramic | 0.3111 | 0.0226 | 92.74 |
| | | 0.3663 | 0.0177 | 95.17 |
| | | 0.3546 | 0.0311 | 91.23 |
| | Plastic | 0.2017 | 0.0025 | 98.76 |
| | | 0.2249 | 0.0033 | 98.53 |
| | | 0.6356 | 0.0020 | 99.69 |
| | Steel | 0.7503 | 0.0952 | 87.31 |
| | | 0.6240 | 0.0443 | 92.90 |
| | | 0.5378 | 0.0447 | 91.69 |

Control

| | | | | |
|-------|-------|--------|--------|-------|
| Water | Steel | 0.2401 | 0.0297 | 87.63 |
| | | 0.4770 | 0.0744 | 84.40 |
| | | 0.1596 | 0.0283 | 82.27 |

Summary:

| | | | | | |
|----------------------|----------------------|--------------------------|--------------------|-------------------------------------|----------------------|
| Substrates: | | Ceramics, Plastic, Steel | | | |
| Contaminants: | | Hucker's Soil | | | |
| Company Name: | Product Name: | Conc.: | Efficiency: | Effective: | Observations: |
| Oxford Micelles | 5009 | 10 | 94.22 | <input checked="" type="checkbox"/> | |
| Water | Water | 100 | 84.77 | <input type="checkbox"/> | |

Conclusion: All purpose cleaning was above the 85% cut-off for acceptable cleaning.