

CLEANING LABORATORY EVALUATION SUMMARY

SCL #: 2014

DateRun: 08/12/2014

Experimenters: Loc Nguyen, George Liang

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 three supplied products for all purpose cleaning following GS 37 requirements

Experimental Procedure: Three sets of nine ceramic, stainless steel, and polycarbonate coupons were weighed and then coated with the 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%, saline solution 2.7%) using a hand held swab and allowed to dry for 2 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 x60 reinforced paper towel was attached to the cleaning sled and soaked with 1 spray of cleaning solution. Each coupon was sprayed 1 time with the same cleaning solution. The cleaning unit was run for 20 cycles (~33 seconds). Final weights were recorded, efficiencies were calculated and recorded.

Chemistries Evaluated: Hydris Orange; Clorox 409;

Results:

| | Initial wt | Final wt | % Removed |
|---|---------------|-------------|--------------|
| hydrolysis orange_soil1_ceramic | 0.2776 | 0.1211 | 56.38 |
| hydrolysis orange_soil1_ceramic | 0.2740 | 0.0230 | 91.61 |
| hydrolysis orange_soil1_ceramic | 0.2833 | 0.0420 | 85.17 |
| | | | |
| hydrolysis orange_soil1_plastic | 0.2752 | 0.0276 | 89.97 |
| hydrolysis orange_soil1_plastic | 0.2798 | 0.0193 | 93.10 |
| hydrolysis orange_soil1_plastic | 0.2791 | 0.0614 | 78.00 |
| | | | |
| hydrolysis orange_soil1_painted steel | 0.2800 | 0.0970 | 65.36 |
| hydrolysis orange_soil1_painted steel | 0.2803 | 0.0350 | 87.51 |
| hydrolysis orange_soil1_painted steel | 0.2731 | 0.0651 | 76.16 |
| | | | |
| 409_soil1_ceramic | 0.2817 | 0.0228 | 91.91 |
| 409_soil1_ceramic | 2.2772 | 0.0385 | 98.31 |
| 409_soil1_ceramic | 0.2735 | 0.0422 | 84.57 |
| | | | |
| 409_soil1_plastic | 0.2799 | 0.0205 | 92.68 |
| 409_soil1_plastic | 0.2832 | 0.0168 | 94.07 |
| 409_soil1_plastic | 0.2776 | 0.0221 | 92.04 |
| | | | |

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|--------------------------|--------|--------|-------|
| 409_soil1_ painted steel | 0.2767 | 0.0592 | 78.60 |
| 409_soil1_ painted steel | 0.2777 | 0.0398 | 85.67 |
| 409_soil1_ painted steel | 0.2770 | 0.0472 | 82.96 |

Summary:

| | | | | | |
|----------------------|---------------------------------|---------------|--------------------|-------------------------------------|----------------------|
| Substrates: | Ceramics, Plastic, Steel | | | | |
| Contaminants: | Hucker's Soil | | | | |
| Company Name: | Product Name: | Conc.: | Efficiency: | Effective: | Observations: |
| EcoLab | Hydris Orange | 100 | 80.36 | <input checked="" type="checkbox"/> | |
| Clorox Company | Formula 409 All Purpose Cleaner | 100 | 88.98 | <input checked="" type="checkbox"/> | |

Conclusion:

The Hydris Orange formulation performed slightly below the level of acceptable cleanliness compared to Formula 409.