

# CLEANING LABORATORY EVALUATION SUMMARY

SCL #: 2007

DateRun: 07/03/2007

Experimenters: Jason Marshall, Shweta Bansal, Andrea Cheeseman

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 at two concentrations using manual cleaning.

Experimental Procedure: The supplied cleaning product was used at the delivered concentrations (0.78% and 0.39%). Six preweighed ceramic, six plastic and six 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. AA Wypall X60 reinforced wipe 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 table lists the amount of soil added and the amount remaining after cleaning and the product efficiency for each coupon cleaned.

| Cleaner       | Initial wt | Final wt | % Removed |
|---------------|------------|----------|-----------|
| 1:128 Steel   | 0.0606     | 0.0050   | 91.75     |
|               | 0.1925     | 0.0161   | 91.64     |
|               | 0.0876     | 0.0131   | 85.05     |
| 1:256 Steel   | 0.1592     | 0.0313   | 80.34     |
|               | 0.1934     | 0.0117   | 93.95     |
|               | 0.0777     | 0.0055   | 92.92     |
| 1:128 Ceramic | 0.9172     | 0.0576   | 93.72     |
|               | 0.4495     | 0.0422   | 90.61     |
|               | 0.3588     | 0.0232   | 93.53     |
| 1:256 Ceramic | 0.7129     | 0.0470   | 93.41     |
|               | 0.2151     | 0.0864   | 59.83     |
|               | 0.3346     | 0.1555   | 53.53     |
| 1:128 Plastic | 0.1701     | 0.0080   | 95.30     |
|               | 0.0869     | 0.0034   | 96.09     |
|               | 0.0830     | 0.0031   | 96.27     |
| 1:256 Plastic | 0.1244     | 0.0098   | 92.12     |
|               | 0.1208     | 0.0066   | 94.54     |
|               | 0.1597     | 0.0270   | 83.09     |

|          |   |                                      |               |                    |                                     |                      |
|----------|---|--------------------------------------|---------------|--------------------|-------------------------------------|----------------------|
| Summary: | <b>Substrates:</b> Ceramics, Plastic, Steel |                                      |               |                    |                                     |                      |
|          | <b>Contaminants:</b> Hucker's Soil          |                                      |               |                    |                                     |                      |
|          | <b>Company Name:</b>                        | <b>Product Name:</b>                 | <b>Conc.:</b> | <b>Efficiency:</b> | <b>Effective:</b>                   | <b>Observations:</b> |
|          | Next-Gen Supply Group                       | PC 120 Peroxide Mulitsurface Cleaner | 0.78          | 92.66              | <input checked="" type="checkbox"/> |                      |
|          | Next-Gen Supply Group                       | PC 120 Peroxide Mulitsurface Cleaner | 0.39          | 82.64              | <input type="checkbox"/>            |                      |

Conclusion: The product at the higher dilution had an overall average efficiency over 85% and would be considered effective according to the Mass EPP protocol for an all-purpose cleaner.