

# CLEANING LABORATORY EVALUATION SUMMARY

SCL #: 2003

DateRun: 08/01/2003

Experimenters: Jason Marshall, Heidi Wilcox

ClientType: State Agency

ProjectNumber: Project #2

Substrates: Ceramics, Plastic, Steel

PartType: Coupon

Contaminants: Hucker's Soil

Cleaning Methods: Manual Wipe

Analytical Methods: Gravimetric

Purpose: To reevaluate selected cleaner for all purpose cleaning at vendor recommended dilution ratio.

Experimental Procedure: The supplied cleaning products were diluted with DI water to vendor recommended dilutions for all purpose cleaning. Nine preweighed ceramic, Nine plastic G-10 and Nine 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.

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.

Product Dilution Ratio  
Super H2O2 128:1  
Free Fall 64:1  
All Purpose 128:1

Results: All three products were successful in removing the Hucker's soil from all three surfaces. The table below lists the amount of soil applied and removed from the coupons.

Table 1. Soil Removal

| Cleaner        | Initial wt | Final wt | % Removed |
|----------------|------------|----------|-----------|
| Cleanline Cer  | 0.0941     | 0.0035   | 96.28     |
|                | 0.0621     | 0.0078   | 87.44     |
|                | 0.0916     | 0.0091   | 90.07     |
| Clean Plastic  | 0.1287     | 0.0064   | 95.03     |
|                | 0.1362     | 0.0074   | 94.57     |
|                | 0.0894     | 0.0060   | 93.29     |
| Clean Steel    | 0.0933     | 0.0025   | 97.32     |
|                | 0.0894     | 0.0017   | 98.10     |
|                | 0.0716     | 0.0007   | 99.02     |
| Ramsey Ceramic | 0.0870     | 0.0052   | 94.02     |
|                | 0.0838     | 0.0107   | 87.23     |
|                | 0.0754     | 0.0104   | 86.21     |
| Ramsey Plastic | 0.1934     | 0.0017   | 99.12     |
|                | 0.1392     | 0.0014   | 98.99     |
|                | 0.1413     | 0.0025   | 98.23     |
| Ramsey Steel   | 0.0599     | 0.0005   | 99.17     |
|                | 0.0952     | -0.0003  | 100.32    |
|                | 0.1172     | 0.0004   | 99.66     |
| Roch Ceramic   | 0.0917     | 0.0063   | 93.13     |
|                | 0.1024     | 0.0067   | 93.46     |
|                | 0.1959     | 0.0110   | 94.38     |
| Roch Plastic   | 0.0963     | 0.0009   | 99.07     |
|                | 0.1089     | 0.0013   | 98.81     |
|                | 0.1260     | 0.0014   | 98.89     |

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|            |        |         |        |
|------------|--------|---------|--------|
| Roch Steel | 0.0911 | 0.0004  | 99.56  |
|            | 0.1337 | -0.0003 | 100.22 |
|            | 0.1532 | 0.0012  | 99.22  |

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>                            |
| Cleanline Products            | H2O2 Super Citrus Concentrate | 1                        | 94.57              | <input checked="" type="checkbox"/> | Ceramic - 91.26, Plastic - 94.29, Steel - 98.15 |
| Ramsey Company                | Free Fall                     | 2                        | 95.88              | <input checked="" type="checkbox"/> | Ceramic - 89.15, Plastic - 98.78, Steel - 99.71 |
| Rochester Midland Corporation | EnviroCare Tough Job          | 1                        | 97.41              | <input checked="" type="checkbox"/> | Ceramic - 93.66, Plastic - 98.92, Steel - 99.67 |

Conclusion:

The retested products were successful at the vendor recommended dilution ratios.