

# CLEANING LABORATORY EVALUATION SUMMARY

SCL #: 2003  
 DateRun: 04/23/2003  
 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, Photography  
 Purpose: To evaluate third supplied cleaner on remaining soil and three substrates.

Experimental Procedure: The supplied cleaning product was diluted with DI water to 0.8% for all purpose cleaning. Three preweighed ceramic, three plastic G-10 and three 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 and a second set of photographs were taken. Efficiencies were calculated and recorded.

Results: The product was successful in removing the soil from the two of the three substrates. Then cleaner had difficulty in removing the soil from the plastic coupons. The table below lists the amount of soil applied and removed from the coupons.

Table 1. Soil Removal

| Cleaner       | Initial wt | Final wt | % Removed |
|---------------|------------|----------|-----------|
| Ceramic       | 0.0082     | -0.0003  | 103.66    |
|               | 0.0155     | -0.0001  | 100.65    |
|               | 0.0126     | 0.0009   | 92.86     |
| Plastic       | 0.0430     | 0.0040   | 90.70     |
|               | 0.0444     | 0.0044   | 90.09     |
|               | 0.0429     | 0.0040   | 90.68     |
| Painted Steel | 0.0641     | 0.0020   | 96.88     |
|               | 0.0604     | 0.0023   | 96.19     |
|               | 0.0598     | 0.0025   | 95.82     |

|          |                      |                          |               |                    |                                     |                      |
|----------|----------------------|--------------------------|---------------|--------------------|-------------------------------------|----------------------|
| 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> |
|          | Envirox LLC          | Grout Safe               | 1             | 99.05              | <input checked="" type="checkbox"/> | Ceramic              |
|          | Envirox LLC          | Grout Safe               | 1             | 90.49              | <input checked="" type="checkbox"/> | Plastic              |
|          | Envirox LLC          | Grout Safe               | 1             | 96.30              | <input checked="" type="checkbox"/> | Steel                |

Conclusion: The overall efficiency for the general cleaner, Grout Safe (0.8%) was 95.28 passing the cut off of 85%. All three products from vendor were successful in removing the three types of soils from the various substrates.