

CLEANING LABORATORY EVALUATION SUMMARY

SCL #: 2004
 DateRun: 07/07/2004
 Experimenters: Jason Marshall, Heidi Wilcox
 ClientType: Chemical Company
 ProjectNumber: Project #1
 Substrates: Ceramics
 PartType: Coupon
 Contaminants: Hucker's Soil
 Cleaning Methods: Manual Wipe
 Analytical Methods: Gravimetric, Photography
 Purpose: To evaluate vendor product as an all purpose cleaner.

Experimental Procedure: The supplied cleaning product was used at the supplied concentration. A second product, selected by the lab, was diluted with DI water to vendor recommended dilution (128:1) for all purpose cleaning. Six preweighed ceramic 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 of the dirty coupons 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 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 cleaned coupons were photographed. Efficiencies were calculated and recorded.

Product Dilution Ratio
 Castle Int. RTU
 Super H2O2 128:1

Results: Both products were effective in removing the soil with a manual wiping action. The table lists the amount of soil initially added and the amount remaining after cleaning and the product efficiency for each coupon cleaned. Dirty and clean pictures are also provided below.

| Cleaner | Initial wt | Final wt | % Removed |
|-------------|------------|----------|-----------|
| ion.a.clean | 0.3623 | 0.0001 | 99.97 |
| | 0.7336 | 0.0006 | 99.92 |
| | 0.3627 | -0.0003 | 100.08 |
| Super H2O2 | 0.6469 | 0.0036 | 99.44 |
| | 0.7837 | 0.0044 | 99.44 |
| | 0.7604 | -0.0010 | 100.13 |

Summary:

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|----------------------|-------------------------------|---------------|--------------------|-------------------------------------|----------------------|
| Substrates: | | Ceramics | | | |
| Contaminants: | | Hucker's Soil | | | |
| Company Name: | Product Name: | Conc.: | Efficiency: | Effective: | Observations: |
| Castle International | ion.a.Clean | 100 | 99.99 | <input checked="" type="checkbox"/> | |
| Cleanline Products | H2O2 Super Citrus Concentrate | 1 | 99.67 | <input checked="" type="checkbox"/> | |

Conclusion: Initial testing of the supplied product was found to be comparable to one of the products previously tested by the lab for All Purpose cleaning applications.