

CLEANING LABORATORY EVALUATION SUMMARY

SCL #: 2004
 DateRun: 10/26/2004
 Experimenters: Jason Marshall
 ClientType: General
 ProjectNumber: Project #1
 Substrates: Ceramics, Plastic
 PartType: Coupon
 Contaminants: Hucker's Soil
 Cleaning Methods: Manual Wipe
 Analytical Methods: Gravimetric
 Purpose: To evaluate biobased products for cleaning toilet bowls

Experimental Procedure: Six products were selected from the lab's inventory of biobased cleaning products. The client's current product was also included for comparative purposes. Five of the products were diluted with water to the vendor-recommended concentration. Pre-weighed coupons of ceramic (3) and plastic were coated with a diluted Hucker's Soil and allowed to dry overnight at ambient temperature. The contaminated coupons were weighed using a Denver Instrument Model A-250 analytical balance to determine the amount of soil added (i.e., initial weight).

The coupons were placed in a Gardner Straight Line Washability unit, as referenced in ASTM International (formerly the American Society for Testing and Materials) standards and by CSPA, the Consumer Specialty Products Association's (formerly CSMA) detergent compendium. 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 (approx. 33 seconds). The coupons were wiped once with a dry paper towel. Gravimetric weights were recorded once more, from which the remaining soil (i.e., final weight) can be determined.

Results: Nearly all of the products tested removed over 80% of the diluted Hucker's soil from the two substrates. The table list the amount of soil added, the amount remaining and the percent removed for each coupon.

| Cleaner | Conc. % | Ceramic Results | | | Plastic Results | | |
|-------------------|---------|-----------------|----------|-----------|-----------------|----------|-----------|
| | | Initial wt | Final wt | % Removed | Initial wt | Final wt | % Removed |
| Husky TBC | 100 | 0.048 | 0.0032 | 93.33 | 0.0417 | 0.0088 | 78.9 |
| | 0.0838 | 0.0182 | 78.28 | 0.0264 | 0.0014 | 94.7 | |
| | 0.0228 | 0.0001 | 99.56 | 0.0134 | 0.0032 | 76.12 | |
| SC TBC | 2.5 | 0.0191 | 0.0027 | 85.86 | 0.0134 | 0.0032 | 76.12 |
| | 0.0215 | 0.0024 | 88.84 | 0.0195 | 0.0029 | 85.13 | |
| | 0.0537 | 0.0018 | 96.65 | 0.0339 | 0.0011 | 96.76 | |
| Super H2O2 | 3.9 | 0.0466 | 0.0009 | 98.07 | 0.0255 | 0.0021 | 91.76 |
| | 0.0985 | 0.0078 | 92.08 | 0.0154 | 0.0026 | 83.12 | |
| | 0.0822 | 0.0379 | 53.89 | 0.0249 | 0.0043 | 82.73 | |
| H2Orange2 | 1.6 | 0.1501 | 0.0609 | 59.43 | 0.0215 | 0.0159 | 26.05 |
| | 0.0367 | 0.0066 | 82.02 | 0.0222 | 0.0089 | 59.91 | |
| | 0.0354 | 0.0048 | 86.44 | 0.0365 | 0.004 | 89.04 | |
| Grout Safe | 1.6 | 0.0372 | 0.0012 | 96.77 | 0.034 | 0.0057 | 83.24 |
| | 0.0326 | 0.0017 | 94.79 | 0.0204 | 0.0025 | 87.75 | |
| | 0.0179 | 0.0019 | 89.39 | 0.0306 | 0.0022 | 92.81 | |
| Ecogent GPC 2.5 | 0.0342 | 0.0096 | 71.93 | 0.0266 | 0.005 | 81.2 | |
| | 0.0468 | 0.0008 | 98.29 | 0.0248 | 0.002 | 91.94 | |
| | 0.0263 | 0.0018 | 93.16 | 0.025 | 0.0038 | 84.8 | |
| Soy Cream Cleaner | 100 | 0.0233 | 0.0009 | 96.14 | 0.018 | 0.0035 | 80.56 |
| | 0.0287 | 0.0051 | 82.23 | 0.0128 | 0.0014 | 89.06 | |
| | 0.0397 | 0.0028 | 92.95 | 0.0338 | 0.0027 | 92.01 | |

Summary:

| | | | | | | |
|----------------------|----------------------|---------------|--------------------|-------------------|----------------------|--|
| Substrates: | Ceramics, Plastic | | | | | |
| Contaminants: | Hucker's Soil | | | | | |
| Company Name: | Product Name: | Conc.: | Efficiency: | Effective: | Observations: | |

CLEANING LABORATORY EVALUATION SUMMARY

| | | | | | |
|--------------------------------|-------------------------------------|-----|-------|-------------------------------------|--|
| Mishua Industries Inc | Husky Toilet Bowl Cleaner | 100 | 84.28 | <input type="checkbox"/> | |
| Gemtek Products | SC Toilet Bowl Cleaner | 2 | 88.23 | <input checked="" type="checkbox"/> | |
| Cleanline Products | H2O2 Super Citrus Concentrate | 4 | 83.61 | <input type="checkbox"/> | |
| EnvirOx LLC | H2Orange2 | 2 | 67.15 | <input type="checkbox"/> | |
| EnvirOx LLC | Grout Safe | 2 | 90.79 | <input checked="" type="checkbox"/> | |
| Bi-O-Kleen Industries | Soy Cream Cleaner | 100 | 86.89 | <input checked="" type="checkbox"/> | |
| Cogent Environmental Solutions | Ecogent General All Purpose Cleaner | 2 | 88.83 | <input checked="" type="checkbox"/> | |

Conclusion: Four products tested averaged 85% removal of the soil from the two substrates.