

CLEANING LABORATORY EVALUATION SUMMARY

SCL #: 2014

DateRun: 12/19/2014

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ClientType: Cleaner Manufacturer

ProjectNumber: Project #6

Substrates: Ceramics, Plastic, Steel

PartType: Coupon

Contaminants: Greases, Oil, Food

Cleaning Methods: Manual Wipe

Analytical Methods: Gravimetric

Purpose: To evaluate three supplied products for all purpose cleaning following GS 37 requirements

Experimental Procedure: The submitted cleaning products were diluted with cool DI water to vendor recommended concentration for all purpose cleaning.

Prewriteed ceramic, plastic G-10 and painted steel coupons were coated with a mixture of three cooking oils/greases was made. A melt blend of 33% vegetable shortening, 33% lard, 33% vegetable oil and 1% carbon lampblack was made up fresh for the testing. Care was taken in the application of the soil onto the coupons so that light and heavy areas were avoided. The soiled tiles were allowed to dry for 24 hours at room temperature. Gravimetric readings were made for each of soiled tiles.

Three coupons were placed into a Gardner Straight Line Washability unit. A Kimberly-Clark Wypal reinforced paper towel was attached to the cleaning sled and soaked with 1 spray of cleaning solution. Each coupon was sprayed once 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.

Chemistries Evaluated: Multipurpose 1:16; Multipurpose HC 1:25.6; H2O2 Tile Grout HC 1:25.6; Proforce MC Pine_ceramic

Results: All three products were effective at removing the soil from the three surfaces using manual wiping. The Product 1 resulted in the lowest efficiency, removing around 90% of the soil. The table lists the amount of soil added, the amount remaining after cleaning and the calculated efficiency for each coupon cleaned.

| Cleaner | Initial wt | Final wt | % Removed | Substrate Ave |
|---------------------------------|------------|----------|-----------|---------------|
| Multipurpose 1:16_ceramic | | | | |
| | 0.1900 | 0.0070 | 96.38 | |
| | 0.1800 | 0.0067 | 96.21 | |
| | 0.2300 | 0.0009 | 99.60 | 97.40 |
| Multipurpose 1:16_plastic | | | | |
| | 0.5300 | 0.0295 | 89.28 | |
| | 0.3200 | 0.0200 | 95.45 | |
| | 0.4000 | 0.0259 | 95.83 | 93.52 |
| Multipurpose 1:16_painted steel | | | | |
| | 0.4000 | 0.0118 | 97.04 | |
| | 0.2600 | 0.0107 | 95.92 | |
| | 0.4800 | 0.0133 | 97.21 | 96.73 |
| Multipurpose HC 1:25.6_ceramic | | | | |
| | 0.1800 | 0.0528 | 70.58 | |
| | 0.3800 | 0.0399 | 89.56 | |
| | 0.2800 | 0.0093 | 96.71 | 85.62 |
| Multipurpose HC 1:25.6_plastic | | | | |
| | 0.4500 | 0.0649 | 85.64 | |

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|---|--------|--------|-------|-------|
| | 0.6000 | 0.0597 | 90.03 | |
| | 0.5600 | 0.0224 | 96.03 | 90.57 |
| Multipurpose HC 1:25.6_painted steel | | | | |
| | 0.2800 | 0.0295 | 89.28 | |
| | 0.4400 | 0.0200 | 95.45 | |
| | 0.6200 | 0.0259 | 95.83 | 93.52 |
| H2O2 Tile Grout 1:25.6_ceramic | | | | |
| | 0.2200 | 0.0047 | 97.82 | |
| | 0.6800 | 0.1897 | 72.17 | |
| | 0.8700 | 0.0397 | 95.46 | 88.48 |
| H2O2 Tile Grout 1:25.6_plastic | | | | |
| | 0.7100 | 0.0575 | 91.88 | |
| | 0.6400 | 0.0454 | 92.95 | |
| | 0.4100 | 0.0600 | 85.20 | 90.01 |
| H2O2 Tile Grout 1:25.6_painted steel | | | | |
| | 0.1900 | 0.0200 | 89.39 | |
| | 0.7500 | 0.0192 | 97.45 | |
| | 0.4100 | 0.0195 | 95.28 | 94.04 |
| Proforce MC Pine_ceramic | | | | |
| | 0.4500 | 0.0400 | 91.38 | |
| | 0.5200 | 0.0000 | 99.44 | |
| | 0.2200 | 0.0200 | 92.28 | 94.37 |
| Proforce MC Pine_plastic | | | | |
| | 0.4400 | 0.0400 | 91.28 | |
| | 0.5300 | 0.0400 | 93.32 | |
| | 0.2400 | 0.0200 | 92.29 | 92.29 |
| Proforce MC Pine_painted steel | | | | |
| | 0.2900 | 0.0100 | 95.99 | |
| | 0.2000 | 0.0100 | 95.82 | |
| | 0.2300 | 0.0100 | 95.39 | 95.73 |

Summary:

| Substrates: | Ceramics, Plastic, Steel | | | | |
|----------------------|--------------------------------------|--------|-------------|-------------------------------------|---------------|
| Contaminants: | Greases, Oil, Food | | | | |
| Company Name: | Product Name: | Conc.: | Efficiency: | Effective: | Observations: |
| Envirox LLC | Multi-Purpose Hyper | 6.25 | 95.80 | <input checked="" type="checkbox"/> | |
| Envirox LLC | Multi-Purpose Hyper | 3.9 | 89.90 | <input checked="" type="checkbox"/> | |
| Envirox LLC | H2O2 Orange Tile and Grout Renovator | 3.9 | 90.85 | <input checked="" type="checkbox"/> | |
| EcoLab | Proforce Multipurpose Pine Cleaner | 6.25 | 94.13 | <input checked="" type="checkbox"/> | |

Conclusion:

The three submitted products were found to be effective at removing the grease soil mix from various surfaces using manual wiping. They compared well to the comparative cleaning product used for testing.