

CLEANING LABORATORY EVALUATION SUMMARY

SCL #: 2007

DateRun: 11/27/2007

Experimenters: Shweta Bansal

ClientType: Lab

ProjectNumber: Project #1

Substrates: Ceramics, Fiberglass, Chrome

PartType: Coupon

Contaminants: Films, Soaps

Cleaning Methods: Manual Wipe

Analytical Methods: Gravimetric

Purpose: Laboratory evaluations of alternative cleaning products

Experimental Procedure: Basic cleaning performance testing was conducted using ASTM G122 as the bases for cleaning. Several "do-it-yourself" home formulations were evaluated for performance on several substrates and typical soils for bathroom cleaning.

Cleaning: Spray cleaner on the coupons
10 secs Manual Wipe cleaning at 130 F
Contaminant SSL Soil 1 - Bathroom Soil
Substrate 2"x 4"x 0.06
Chrome Plated Coupons
Ceramic Coupons
Fiberglass Coupons (3"x 4.5"x 0.125")
Bathroom Cleaners -Tub & Tile Cleaners
Home Formulation 22 - Baking soda, sprinkle it on the tub/tile and scrub with a damp sponge.
Home Formulation 23 - Vinegar and baking soda will remove film buildup on the tub. Apply vinegar on a sponge and wipe tiles. Use baking soda as you would scouring powder. Rinse thoroughly.
Home Formulation 24 - ¼ cup vinegar in gallon water to use on surfaces that have films or need more cleaning.
Home Formulation 25 - Baking soda and water paste to clean grout. Put paste on grout with toothpaste or sponge, scrub grout and then rinse and throw rest of paste away
Home Formulation 26 - Rub area to be cleaned with half a lemon dipped in borax. Rinse well and dry with soft cloth
Home Formulation 27 - Baking soda and Murphy's oil. Use baking soda in place of scouring powder. Sprinkle baking soda on wet tub and rub. Then add some soap and continue scrubbing. Rinse well.

Results:

| Product | Substrate | Average (%) |
|----------------|---------------|-------------|
| Formulation 22 | Chrome Plated | -135.31 |
| | Ceramic | -114.7 |
| | Fiberglass | -196.55 |
| Formulation 23 | Chrome Plated | -168.64 |
| | Ceramic | -172.14 |
| | Fiberglass | -46.52 |
| Formulation 24 | Chrome Plated | 82.24 |
| | Ceramic | 46.93 |
| | Fiberglass | 99.44 |
| Formulation 25 | Chrome Plated | 10.27 |
| | Ceramic | -346.15 |
| | Fiberglass | -250.63 |
| Formulation 26 | Chrome Plated | -20.44 |
| | Ceramic | -261.92 |
| | Fiberglass | -246.5 |

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|----------------|---------------|---------|
| Formulation 27 | Chrome Plated | -110.2 |
| | Ceramic | -208.47 |
| | Fiberglass | -166.09 |

Summary:

| | | | | | |
|----------------------|------------------------------|---------------|--------------------|-------------------------------------|----------------------|
| Substrates: | Ceramics, Fiberglass, Chrome | | | | |
| Contaminants: | Films, Soaps | | | | |
| Company Name: | Product Name: | Conc.: | Efficiency: | Effective: | Observations: |
| No Specific Vendor | Home Formulation 22 | 100 | -145.85 | <input type="checkbox"/> | |
| No Specific Vendor | Home Formulation 23 | 100 | -129.10 | <input type="checkbox"/> | |
| No Specific Vendor | Home Formulation 24 | 100 | 76.20 | <input checked="" type="checkbox"/> | |
| No Specific Vendor | Home Formulation 25 | 100 | -195.50 | <input type="checkbox"/> | |
| No Specific Vendor | Home Formulation 26 | 100 | -176.29 | <input type="checkbox"/> | |
| No Specific Vendor | Home Formulation 27 | 100 | -162.59 | <input type="checkbox"/> | |

Conclusion:

Many of the mixtures left behind a lot of residue when using the standard laboratory procedures for commercial cleaning products. Modification of the cleaning process may improve the effectiveness of these "do-it-yourself" formulations. Formulation 24 was the only product to remove over 75% of the bathroom soil using manual wiping.