

CLEANING LABORATORY EVALUATION SUMMARY

SCL #: 2002

DateRun: 11/13/2012

Experimenters: Loc Nguyen, Anni Geng

ClientType: Cleaner Manufacturer

ProjectNumber: Project #1

Substrates: Plastic, Steel, Porcelain

PartType: Coupon

Contaminants: Greases, Food

Cleaning Methods: Manual Wipe

Analytical Methods: Gravimetric

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

Experimental Procedure: The three products were used at full strength as recommended.

Prewriteed porcelain, painted steel and plastic coupons were coated with DCC-17 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.

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 2-3 sprays of cleaning solutions. Each coupon was sprayed 1-2 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, efficiencies were calculated and recorded.

ChemistriesEvaluated: Cleaner: 1. Common Good & Company All Purpose Cleaner; 2. 7th Generation ALL Purpose; 3. Formula 409

Results: All three products were NOT effective at removing the PCC-17 from the three surfaces using manual wiping. The Product 3 resulted in the lowest efficiency, removing just over 78% of the DCC-17. The table lists the amount of soil added, the amount remaining after cleaning and the calculated efficiency for each coupon cleaned.

A- Porcelain; B- Painted steel; C-Plastic

| Cleaner | Sub | Initial | Final | %Removed | Ave % Removed |
|---------|-----|---------|--------|----------|------------------|
| 1 | A | 0.0271 | 0.0050 | 80.44 | 77.55 |
| 1 | A | 0.0514 | 0.0065 | 87.35 | |
| 1 | A | 0.0330 | 0.0116 | 64.85 | |
| 1 | B | 0.0526 | 0.0041 | 92.21 | 91.76 |
| 1 | B | 0.0428 | 0.0041 | 90.42 | |
| 1 | B | 0.0545 | 0.0040 | 92.66 | |
| 1 | C | 0.0454 | 0.0087 | 80.84 | 76.52 |
| 1 | C | 0.0725 | 0.0169 | 76.69 | |
| 1 | C | 0.0311 | 0.0087 | 72.03 | |
| 2 | A | 0.0500 | 0.0092 | 81.60 | 64.38 |
| 2 | A | 0.0239 | 0.0109 | 54.39 | |
| 2 | A | 0.0217 | 0.0093 | 57.14 | |
| 2 | B | 0.0490 | 0.0024 | 95.10 | 94.60 |
| 2 | B | 0.0297 | 0.0017 | 94.28 | |
| 2 | B | 0.0340 | 0.0019 | 94.41 | |
| 2 | C | 0.0118 | 0.0026 | 77.97 | 76.68 |
| 2 | C | 0.0305 | 0.0115 | 62.30 | |
| 2 | C | 0.0382 | 0.0039 | 89.79 | |
| 3 | A | 0.0528 | 0.0084 | 84.09 | 73.00 |
| 3 | A | 0.0618 | 0.0232 | 62.46 | |
| 3 | A | 0.0345 | 0.0095 | 72.46 | |
| 3 | B | 0.0288 | 0.0026 | 90.97 | 93.05 |
| 3 | B | 0.0426 | 0.0025 | 94.13 | |
| 3 | B | 0.0420 | 0.0025 | 94.05 | |
| 3 | C | 0.0319 | 0.0009 | 97.18 | 84.44 |

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|---|---|--------|--------|-------|--|
| 3 | C | 0.0163 | 0.0070 | 57.06 | |
| 3 | C | 0.0220 | 0.0002 | 99.09 | |

Summary:

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|----------------------|---------------------------------|---------------------------|--------------------|-------------------------------------|----------------------|
| Substrates: | | Plastic, Steel, Porcelain | | | |
| Contaminants: | | Greases, Food | | | |
| Company Name: | Product Name: | Conc.: | Efficiency: | Effective: | Observations: |
| Seventh Generation | Free & Clear All Purpose | 100 | 78.55 | <input type="checkbox"/> | |
| Clorox Company | Formula 409 All Purpose Cleaner | 100 | 83.50 | <input checked="" type="checkbox"/> | |
| Common Good & Co | All purpose cleaner RTU | 100 | 81.94 | <input checked="" type="checkbox"/> | |

Conclusion:

None of the three products were found to remove more than 85% of the DCC-17 from various surfaces using manual wiping. The supplied product worked as well as the conventional cleaner and the on-the-market green cleaning product.