

CLEANING LABORATORY EVALUATION SUMMARY

SCL #: 2015

DateRun: 04/27/2015

Experimenters: Loc Nguyen, George Liang

ClientType: Cleaner Manufacturer

ProjectNumber: Project #1

Substrates: Ceramics, Plastic, Steel

PartType: Coupon

Contaminants: Greases, Food

Cleaning Methods: Manual Wipe

Analytical Methods: Gravimetric

Purpose: To evaluate the supplied product for all purpose cleaning

Experimental Procedure: Soil Preparation:
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. Allow the soiled tiles 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 1 spray of cleaning solution. Each coupon was sprayed 1 time with the same cleaning solution. The cleaning unit was run for 20 cycles (~33 seconds). Final weights were recorded, efficiencies were calculated and recorded.

Chemistries Evaluated: E-50, Formula 409, Water

Results:

| Cleaner_Substrate | Initial wt | Final wt | % Removed | % Avg. Removed |
|---------------------|------------|----------|-----------|----------------|
| E50_Ceramic | 0.4829 | 0.1313 | 72.81 | |
| | 0.5603 | 0.1623 | 71.03 | |
| | 0.4783 | 0.0836 | 82.52 | 75.45 |
| E50_plastic | 0.4953 | 0.0292 | 94.10 | |
| | 0.5174 | 0.0289 | 94.41 | |
| | 0.4912 | 0.0295 | 93.99 | 94.17 |
| E50_painted steel | 0.5313 | 0.1276 | 75.98 | |
| | 0.4680 | 0.1517 | 67.59 | |
| | 0.4649 | 0.0917 | 80.28 | 74.61 |
| Formula 409_Ceramic | 0.4688 | 0.1180 | 74.83 | |
| | 0.4647 | 0.1268 | 72.71 | |
| | 0.4761 | 0.0360 | 92.44 | 79.99 |
| Formula 409_plastic | 0.4736 | 0.0238 | 94.97 | |
| | 0.4691 | 0.0226 | 95.18 | |
| | 0.5048 | 0.0199 | 96.06 | 95.40 |
| Formula 409_painted | 0.4777 | 0.1109 | 76.78 | |
| | 0.4695 | 0.0659 | 85.96 | |
| | 0.4749 | 0.0633 | 86.67 | 83.14 |
| Water_Ceramic | 0.4669 | 0.0995 | 78.69 | |
| | 0.4706 | 0.1253 | 73.37 | |
| | 0.4662 | 0.1696 | 63.62 | 71.89 |
| Water_plastic | 0.4858 | 0.0272 | 94.40 | |
| | 0.4732 | 0.0631 | 86.67 | |
| | 0.4645 | 0.0432 | 90.70 | 90.59 |
| Water_painted steel | 0.4723 | 0.0903 | 80.88 | |
| | 0.4608 | 0.2208 | 52.08 | |

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| | 0.4613 | 0.1291 | 72.01 | 68.33 |
|--|--------|--------|-------|-------|

Summary Table:

| Cleaner: | % Avg. Removed |
|-------------|----------------|
| E-50 | 81.4 |
| Formula 409 | 86.2 |
| Water | 79.5 |

Summary:

| Substrates: | Ceramics, Plastic, Steel | | | | |
|--------------------------|---------------------------------|--------|-------------|-------------------------------------|---------------|
| Contaminants: | Greases, Food | | | | |
| Company Name: | Product Name: | Conc.: | Efficiency: | Effective: | Observations: |
| EcoLogic Solutions, Inc. | Deodorizing Cleaner E-50 | 100 | 81.40 | <input checked="" type="checkbox"/> | |
| Clorox Company | Formula 409 All Purpose Cleaner | 100 | 86.20 | <input checked="" type="checkbox"/> | |
| Water | Water | 100 | 79.50 | <input type="checkbox"/> | |

Conclusion:

The most effective cleaner was Formula 409. It had a rating of 86.2%. In addition to that E-50 had a rating of 81.4% removal rate. Even though E-50 was not considered to be an effective cleaner, it was still partially effective at removing most of the soil from the substrate. For all three cleaners, plastic substrates had the most contaminant removed from its surface. Overall, the best cleaner at removing grease soil contaminant from its surface is in the order of Formula 409, E-50 and Water.