

# CLEANING LABORATORY EVALUATION SUMMARY

SCL #: 2021  
 DateRun: 05/25/2021  
 Experimenters: Ross Goding, Edward Judge  
 ClientType: Lab  
 ProjectNumber: Project #4  
 Substrates: Ceramics, Plastic, Painted metal  
 PartType: Coupon  
 Contaminants: Hucker's Soil  
 Cleaning Methods: Manual Wipe  
 Analytical Methods: Gravimetric, Visual  
 Purpose: To test the effectiveness of Palmolive Dish Liquid in the removal of Hucker's Soil from various substrates

Experimental Procedure: A Palmolive dish liquid spray solution was created by mixing 1 part Palmolive Dish Liquid with 20 parts water. Then, 3 coupons of each substrate (ceramic, plastic, painted steel) were collected and initial weights were taken. Hucker's soil (Creamy Peanut Butter, Salted Butter, Wheat gluten, Egg Yolk, Evaporated milk, DI water, Printer's ink with boiled linseed oil, India Ink, Saline Solution) was applied to each coupon and allowed to air dry for 2 hours. After the 2 hour dry time, the weights of the newly contaminated coupons were measured. All coupons were placed into a Gardner-scrub Abrasion Tester machine. Wypall cleaning cloths were attached to each of the 3 cleaning blocks used for the test. Each Wypall cloth and all coupons received 2 sprays of the Palmolive Dish Liquid solution and the Gardner-scrub Abrasion Tester was run for 20 repetitions, simulating 20 manual wipes. Once cleaning concluded, the cleaned coupons were allowed to air dry for 24 hours. After 24 hours, the weights of the cleaned coupons were measured.

## Results:

| Cleaner               | Substrate     | Initial wt of cont. | Final wt of cont. | %Cont Removed | % AVG | % Overall |
|-----------------------|---------------|---------------------|-------------------|---------------|-------|-----------|
| Palmolive Dish Liquid | Ceramic       | 0.2295              | 0.0370            | 83.88         | 62.58 | 75.25     |
|                       |               | 0.2318              | 0.1400            | 39.60         |       |           |
|                       |               | 0.2668              | 0.0754            | 71.74         |       |           |
|                       | Plastic       | 0.3014              | 0.1353            | 55.11         | 84.28 |           |
|                       |               | 0.4247              | 0.0038            | 99.11         |       |           |
|                       |               | 0.5574              | 0.0077            | 98.62         |       |           |
|                       | Painted Metal | 0.3349              | 0.1629            | 51.36         | 78.90 |           |
|                       |               | 0.3633              | 0.0262            | 92.79         |       |           |
|                       |               | 0.3830              | 0.0285            | 92.56         |       |           |

## Summary:

|                           |                      |                                  |                    |                          |  |
|---------------------------|----------------------|----------------------------------|--------------------|--------------------------|--|
| <b>Substrates:</b>        |                      | Ceramics, Plastic, Painted metal |                    |                          |  |
| <b>Contaminants:</b>      |                      | Hucker's Soil                    |                    |                          |  |
| <b>Company Name:</b>      | <b>Product Name:</b> | <b>Conc.:</b>                    | <b>Efficiency:</b> | <b>Effective:</b>        | <b>Observations:</b>   |
| Colgate-Palmolive Company | Palmolive Dish Soap  | 1/20                             | 75.25              | <input type="checkbox"/> | Palmolive Dish Soap was not effective in the removal of Hucker's Soil from various substrates. |

## Conclusion:

In this analysis, the effectiveness of Palmolive Dish Liquid in the removal of Hucker's Soil from ceramic, plastic, and painted steel substrates was tested. Palmolive Dish Liquid was 62.58% effective in removing Hucker's soil from ceramic, 84.28% effective in removing Hucker's soil from Plastic, and 78.9% effective in removing Hucker's soil from painted steel. Overall, Palmolive Dish Liquid was 75.25% effective in removing Hucker's soil from all substrates used.