

# CLEANING LABORATORY EVALUATION SUMMARY

SCL #: 2021  
 DateRun: 09/08/2021  
 Experimenters: Nicole Kebler, Edward Judge, Anjali Bhagat  
 ClientType:  
 ProjectNumber: Project #3  
 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 Podsy in the removal of Hucker's Soil from various substrates.

Experimental Procedure: A Podsy solution was created by placing a solution pod into a spray bottle and filling it with cold water (~50°F). This solution was allowed to sit for 2 minutes and then shaken to mix the solution parts together. Then, 3 coupons of each substrate (ceramic, plastic, painted metal) 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 Podsy 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<br>wt of<br>cont. | Final<br>wt of<br>cont. | %Cont<br>Removed | %<br>AVG | %<br>Overall |
|----------------|------------------|---------------------------|-------------------------|------------------|----------|--------------|
| Podsy          | Ceramic          | 0.2241                    | 0.0052                  | 97.68            | 96.82    | 96.32        |
|                |                  | 0.3799                    | 0.0088                  | 97.68            |          |              |
|                |                  | 0.4858                    | 0.0193                  | 96.03            |          |              |
|                | Plastic          | 0.5895                    | 0.0243                  | 95.88            | 95.16    |              |
|                |                  | 0.3758                    | 0.0217                  | 94.23            |          |              |
|                |                  | 0.5841                    | 0.0270                  | 95.38            |          |              |
|                | Painted<br>Metal | 0.4771                    | 0.0201                  | 95.79            | 96.99    |              |
|                |                  | 0.6506                    | 0.0164                  | 97.48            |          |              |
|                |                  | 0.7178                    | 0.0165                  | 97.70            |          |              |
| Formula<br>409 | Ceramic          | 0.3331                    | 0.0110                  | 96.70            | 94.34    | 94.57        |
|                |                  | 0.5190                    | 0.0387                  | 92.54            |          |              |
|                |                  | 0.4941                    | 0.0470                  | 90.49            |          |              |
|                | Plastic          | 0.5873                    | 0.0139                  | 97.63            | 94.25    |              |
|                |                  | 0.4561                    | 0.0304                  | 93.33            |          |              |
|                |                  | 0.7000                    | 0.0575                  | 91.79            |          |              |
|                | Painted<br>Metal | 0.642                     | 0.0119                  | 98.15            | 95.11    |              |
|                |                  | 0.8566                    | 0.0495                  | 94.22            |          |              |
|                |                  | 0.6970                    | 0.0491                  | 92.96            |          |              |

Podsy had an average effectiveness of 97% for ceramic, 95% for plastic and 97% for painted metal. Formula 409 had an average effectiveness of 94% for ceramic, 94% for plastic and 95% for painted metal. Podsy had a higher removal effectiveness for all three substrates.

Summary:

|                      |                                  |
|----------------------|----------------------------------|
| <b>Substrates:</b>   | Ceramics, Plastic, Painted metal |
| <b>Contaminants:</b> | Hucker's Soil                    |

## CLEANING LABORATORY EVALUATION SUMMARY

| Company Name:   | Product Name:                 | Conc.: | Efficiency: | Effective:                          | Observations:  |
|-----------------|-------------------------------|--------|-------------|-------------------------------------|--|
| Big 3 Packaging | Podsy Surface Cleaning System |        | 96.00       | <input checked="" type="checkbox"/> | Podsy effectively removed Huckers soil from all three substrates             |
| Clorox Company  | 409 (Multi-Surface Cleaner)   | RTU    | 95.00       | <input checked="" type="checkbox"/> | Formula 409 was effective at removing Huckers soil from all three substrates |

**Conclusion:**

Podsy was more effective in the removal of Hucker's Soil from ceramic, plastic, and painted metal substrates than the comparison product Formula 409.