# CLEANING LABORATORY EVALUATION SUMMARY

SCL #: 2021

DateRun: 06/08/2021

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 Pine Sol Multi-Surface Cleaner in the removal of Hucker's Soil from various substrates

Experimental Procedure: A Pine Sol Multi-Surface Cleaner solution was created by mixing 1 part Pine Sol with 64 parts water. 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 Pine Sol Multi-Surface Cleaner 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 |
|---|---|---|---|---|---|---|
| Pine Sol Multi-Surface Cleaner | Ceramic | 0.0688 | 0.0051 | 92.59 | 96.10 | 84.08 |
| | | 0.1228 | 0.0044 | 96.42 | | |
| | | 0.1281 | 0.0055 | 95.71 | | |
| | Plastic | 0.1221 | 0.0004 | 99.67 | 86.29 | |
| | | 0.1286 | 0.0074 | 94.25 | | |
| | | 0.1298 | 0.0455 | 64.95 | | |
| | Painted Metal | 0.1313 | 0.0034 | 97.41 | 69.87 | |
| | | 0.1292 | 0.0105 | 91.87 | | |
| | | 0.1112 | 0.0886 | 20.32 | | |

Summary:

| **Substrates:** | Ceramics, Plastic, Painted metal | | | | |
|---|---|---|---|---|---|
| **Contaminants:** | Hucker's Soil | | | | |
| **Company Name:** | **Product Name:** | **Conc.:** | **Efficiency:** | **Effective:** | **Observations:** |
| Clorox Company | Pine Sol | 1/64 | 84.08 | ☑ | Pine Sol was effective in the removal of Hucker's Soil from various substrates. |

Conclusion: Pine Sol Multi-Surface Cleaner was effective in the removal of Hucker's Soil from ceramic, plastic, and painted metal substrates