

# CLEANING LABORATORY EVALUATION SUMMARY

SCL #: 2020  
 DateRun: 08/10/2020  
 Experimenters: Justin Kiander  
 ClientType: Cleaner Manufacturer  
 ProjectNumber: Project #10  
 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 EnvirOx Storm against Green Works AP for all purpose cleaning.

Experimental Procedure: All ceramic, plastic and painted metal coupons were pre-weighed and had 0.5 g of Hucker's soil (44.2% Distilled water, 13.5% Evaporated milk, 8.8% Salted butter, 8.8% Stone ground wheat flour, 8.8% Egg yolk, 0.9% Printer's ink with boiled linseed oil, 2.7% Saline solution, 3.5% India ink) distributed onto each coupon. The dirty weights were recorded after the coupons had dried for two hours at room temperature (68°F). Three coupons of the same substrate were aligned into a Single Line Washing Unit (SLW) with Wypall X60 attached to the cleaning sled. The Wypall X60 reinforced wipe along with the coupons were all sprayed three times with the cleaner and then allowed to soak for 30 seconds. Afterwards the Single Line Washing Unit (SLW) was activated and cleaned for 20 cycles. The clean coupons were all then allowed to dry overnight at room temperature before the final weights were recorded.

| Cleaner        | Substrate     | Coupon | Initial wt. of cont. | Final wt. cont. | % Cont. Removed | Average |
|----------------|---------------|--------|----------------------|-----------------|-----------------|---------|
| EnvirOx Storm  | Ceramic       | 1      | 0.1478               | 0.0398          | 73.07           | 70.37   |
|                |               | 2      | 0.2292               | 0.0431          | 81.20           |         |
|                |               | 3      | 0.174                | 0.0751          | 56.84           |         |
|                | Plastic       | 1      | 0.7991               | 0.0608          | 92.39           | 86.98   |
|                |               | 7      | 0.6063               | 0.0622          | 89.74           |         |
|                |               | 9      | 0.4798               | 0.1017          | 78.80           |         |
|                | Painted Steel | 1      | 0.3243               | 0.0732          | 77.43           | 76.37   |
|                |               | 2      | 1.0027               | 0.0539          | 94.62           |         |
|                |               | 3      | 0.5248               | 0.2254          | 57.05           |         |
| Green Works AP | Ceramic       | 4      | 0.4534               | 0.0456          | 89.94           | 67.59   |
|                |               | 5      | 0.3675               | 0.0454          | 87.65           |         |
|                |               | 6      | 0.2709               | 0.2027          | 25.18           |         |
|                | Plastic       | 19     | 0.537                | 0.072           | 86.59           | 90.02   |
|                |               | 41     | 0.3237               | -0.0115         | 103.55          |         |
|                |               | 47     | 0.6953               | 0.1397          | 79.91           |         |
|                | Painted Steel | 4      | 0.3272               | 0.0567          | 82.67           | 73.16   |
|                |               | 5      | 0.4788               | 0.0462          | 90.35           |         |
|                |               | 6      | 1.0404               | 0.557           | 46.46           |         |

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> |
| EnvirOx LLC          | EnvirOx Storm                                   | 100                              | 77.91              | <input checked="" type="checkbox"/> |                      |
| Clorox Company       | Green Works General Purpose Cleaner Concentrate | 100                              | 77.12              | <input checked="" type="checkbox"/> |                      |

Conclusion:

The EnvirOX Storm in comparison to Green Works AP, did remove more from the ceramic and painted steel surfaces, but not by a significant margin. Overall, both cleaners were only effective in the removal of the containment on plastic coupons and performed very similar to each other on all three substrates.