

CLEANING LABORATORY EVALUATION SUMMARY

SCL #: 2021
 DateRun: 07/23/2021
 Experimenters: Nicole Kebler, Edward Judge
 ClientType: Cleaner Manufacturer
 ProjectNumber: Project #2
 Substrates: Ceramics, Plastic, Painted metal
 PartType: Coupon
 Contaminants: Hucker's Soil
 Cleaning Methods: Manual Wipe
 Analytical Methods: Gravimetric, Visual

Purpose: To evaluate the effectiveness of all-purpose cleaners on ceramic, painted metal, and plastic.

Experimental Procedure: One provided tablet was dissolved completely in 32 oz. of warm tap water inside a provided spray bottle to prepare the Amazon Aware All-Purpose Cleaner. Prewieghed ceramic, plastic, and painted steel coupons, three of each substrate per cleaner, were coated with 0.5 grams of Hucker's soil and air-dried at room temperature (68F) for two hours before recording dirty weights. Three coupons of the same substrate were placed on the Gardner Straight Line Washability (SLW) unit and a Kimberly-Clark Wypal was attached to the cleaning sled. The Wypal and coupons were treated each with two sprays of the specified cleaner before running the SLW unit for 20 cycles (30 seconds of cleaning). Cleaned coupons were air-dried overnight and final weights were recorded the following day.

Results: The SLW unit failed to properly clean the 3rd coupon (bolded in the table below) of all tested cleaners which resulted in a lower average percent removal for all products. An average using only the first and second coupon percent removal showed a higher percent removal that was more consistent with visual observations.

Cleaners:

A) Amazon Aware All-Purpose Cleaner

B) Formula 409

Substrates:

1. Ceramic

2. Painted Metal

3. Plastic

| Cleaner | Substrate | Initial weight | Dirty weight | % Removal | Average % Removal | Overall % Removal |
|---------|-----------|----------------|--------------|-----------|-------------------|-------------------|
| A | 1 | 0.1243 | 0.0057 | 95.41 | 92.82 | 87.09 |
| | | 0.0952 | 0.0055 | 94.22 | | |
| | | 0.1842 | 0.0206 | 88.82 | | |
| | 2 | 0.1283 | 0.0099 | 92.28 | 87.08 | |
| | | 0.2013 | 0.0084 | 95.83 | | |
| | | 0.1441 | 0.0387 | 73.14 | | |
| | 3 | 0.2024 | 0.0137 | 93.23 | 81.37 | |
| | | 0.2282 | 0.015 | 93.43 | | |
| | | 0.2888 | 0.1229 | 57.44 | | |
| B | 1 | 0.112 | 0.008 | 92.86 | 87.52 | 81.70 |
| | | 0.1463 | 0.0078 | 94.67 | | |
| | | 0.1013 | 0.0253 | 75.02 | | |
| | 2 | 0.1473 | 0.0059 | 95.99 | 80.04 | |
| | | 0.1528 | 0.0059 | 96.14 | | |
| | | 0.3178 | 0.1653 | 47.99 | | |
| | 3 | 0.232 | 0.0344 | 85.17 | 77.55 | |
| | | 0.2797 | 0.0345 | 87.67 | | |
| | | 0.3191 | 0.1282 | 59.82 | | |

Summary:

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|----------------------|----------------------------------|
| Substrates: | Ceramics, Plastic, Painted metal |
| Contaminants: | Hucker's Soil |

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| Company Name: | Product Name: | Conc.: | Efficiency: | Effective: | Observations: |
|-------------------------|-------------------------------------|--------|-------------|-------------------------------------|--|
| Sunstate Laboratory LLC | Sunstate All Purpose Cleaner Tablet | 100% | 95.00 | <input checked="" type="checkbox"/> | Sunstate All-Purpose was effective at removing Huckers soil from ceramic, painted metal, and chrome. |
| Clorox Company | Formula 409 All Purpose Cleaner | 100% | 93.00 | <input checked="" type="checkbox"/> | Formula 409 was effective at removing Huckers soil from ceramic and painted metal. |

Conclusion: Amazon Aware All-Purpose Cleaner using one tablet was more effective than the comparative product overall at removing Hucker's soil from all three substrates.