CLEANING LABORATORY EVALUATION SUMMARY

SCL #: 2022

DateRun: 06/30/2022

Experimenters: Zoe Lawson, Tatyanna Moreland Junior, Alexander Symko

ClientType:

ProjectNumber: Project #5

Substrates: Ceramics, Plastic, Painted metal

PartType: Coupon

Contaminants: Hucker's Soil

Cleaning Methods: Manual Wipe

Analytical Methods: Gravimetric, Visual

Purpose: To test the efficiency of all-purpose 2.45g pods.

Experimental Procedure: A Podsy solution was created by placing a 2.45g solution pod into a spray bottle and filling it with 16oz of cold water (~50^{o}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 3 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. The same process was repeated with a comparative product, 409 Multi-Surface Cleaner, at the same time during testing.

Results: Efficiency testing results:

Product	Substrate	Initial wt of cont.	Final wt of cont.	%Cont Removed	Average	Overall Average
Podsy All-Purpose	Painted Metal	0.2512	0.0019	99.24	99.00	97.67
		0.4216	0.0022	99.48		
		0.0866	0.0015	98.27		
	Ceramic	0.1051	0.0074	92.96	95.89	
		0.1413	0.0004	99.72		
		0.0420	0.0021	95.00		
	Plastic	0.2294	0.0014	99.39	98.11	
		0.1464	0.0048	96.72		
		0.3496	0.0062	98.23		
409 All Purpose	Painted Metal	0.0797	0.0198	75.16	86.19	89.36
		0.1993	0.0055	97.24		
		0.0405	0.0056	86.17		
	Ceramic	0.0363	0.0095	73.83	87.33	
		0.2061	0.0059	97.14		
		0.0580	0.0052	91.03		
	Plastic	0.4729	0.0321	93.21	94.57	
		0.2153	0.0201	90.66		
		0.0585	0.0001	99.83		

Summary:

Substrates:	Ceramics, Plastic, Painted metal				
Contaminants:	Hucker's Soil				
Company Name:	**Product Name:**	**Conc.:**	**Efficiency:**	**Effective:**	**Observations:**
Big 3 Packaging	Podsy Surface Cleaning System	2.45g:16oz	97.67	☑	
Clorox Company	409 (Multi-Surface Cleaner)	RTU	89.63	☐	

Conclusion: The 2.45g Pod was extremely effective at removing Hucker's soil from painted metal, ceramic, and plastic with an overall average percent removal of 97.67%. The comparative product was less effective than the 2.45g Pod for all substrates and overall, only had an 89.36% average percent removal.

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