CLEANING LABORATORY EVALUATION SUMMARY

SCL #:	2022
DateRun:	07/14/2022
Experimenters:	Zoe Lawson, Tatyanna Moreland Junior, Alexander Symko
ClientType:	Cleaner Manufacturer
ProjectNumber:	Project #1
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 three different Ascend formulations (Ware-washing, All Purpose TM09, and Hard Surface) with three different main ingredient variations (EDTA, DS IDA, and NTA) with All Purpose Testing.
Experimental Procedure:	The following experiment conducted was the All Purpose TM09 formulation with EDTA, DS IDA, and NTA. The formulation consisted of 0.56 parts Citric Acid, 24 parts Glucapon 420, 5 parts (EDTA/DS IDA/NTA), and 70.44 parts water. Nine pre-weighed coupons, three of each substrate per cleaner, were soiled with Hucker's Soil Formulation (Jiff Creamy Peanut Butter 9.2%, Salted Butter 9.2%, Arrowhead Mills stone-ground wheat flour 9.2%, Egg Yolk 9.2%, Evaporated milk 13.8%, Distilled water 45.8%, Printer's ink with boiled linseed oil 0.9%, Shaws saline Solution 2.7%) that was distributed onto each coupon using a swab. 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 SLW was activated and the coupons were cleaned for 20 cycles. Cleaned coupons dried overnight at room temperature before the final weights were recorded.

Results:

Table 1: All Purpose TM09 Results

Product	Substrate	Initial wt of cont.	Final wt of cont.	% Cont Removed	Average	Overall Average
EDTA	Ceramic	0.0993	0.0173	82.58	83.10	86.53
		0.0840	0.0150	82.14		
		0.1129	0.0174	84.59		
	Painted Metal	0.1639	0.0185	88.71	87.93	
		0.1100	0.0156	85.82		
		0.1646	0.0177	89.25		
	Plastic	0.2329	0.0159	93.17	88.56	
		0.1468	0.0225	84.67		
		0.1613	0.0196	87.85		
DS IDA	Ceramic	0.1108	0.0207	81.32	84.17	86.90
		0.1431	0.0176	87.70		
		0.1846	0.0305	83.48		
	Painted Metal	0.1585	0.0331	79.12	82.29	
		0.2616	0.0411	84.29		
		0.2475	0.0409	83.47		
	Plastic	0.1658	0.0118	92.88	94.26	
		0.2326	0.0076	96.73		
		0.1781	0.0122	93.15		
NTA	Ceramic	0.1961	0.0186	90.52	92.07	89.71
		0.2249	0.0141	93.73		
		0.1853	0.0149	91.96		
	Painted Metal	0.2266	0.0474	79.08	85.65	
		0.2107	0.0278	86.81		
		0.1890	0.0169	91.06		
	Plastic	0.2947	0.0228	92.26	91.40	
		0.2901	0.0252	91.31		

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		0.2529	0.0237	90.63		

Summary:

Conclusion: The overall average removal results of the TM09 All Purpose formulation were all consistently close to 90% removal. NTA was slightly more effective than EDTA and DS IDA at 89% overall average removal. The effectiveness of the TM09 All Purpose formulation is promising with its high removal yields.