CLEANING LABORATORY EVALUATION SUMMARY

SCL #:	2024
DateRun:	06/24/2024
Experimenters:	Amelia Wagner
ClientType:	Cleaner Manufacturer
ProjectNumber:	Project #1
Substrates:	Plastic, Stainless Steel
PartType:	Coupon
Contaminants:	Food
Cleaning Methods:	Immersion/Soak
Analytical Methods:	Gravimetric, Visual
Purpose:	Benchmark testing of ICT 1648L for Craft Beverage project.
Experimental Procedure:	Three pre weighed coupons of each substrate, plastic and stainless steel, were used per soil for a total of 12 coupons per cleaner concentration tested. Half of the coupons were soiled with tea and tea leaves with a swab. The other half were soiled with coffee and coffee grounds with a swab. The coupons were then baked in the oven or 40 minutes at a temperature of 200 F to adhere the soils to the coupons and to initiate staining. The dirty weights of the coupons and visual rankings were then recorded. The coupons were then subjected to 10 minutes of unheated immersion in their respective cleaners with a stir bar set to 300 rpm. The cleaner was used at the vendor recommended concentrations (2% and 1%) . The coupons were then removed from the cleaner and the clean visual rankings were recorded. The coupons were allowed to dry overnight before clean weights were recorded. Visual rankings were based on the key below. Visual Rankings 1= 100% soil removed 2= 75% soil removed 3= 50% soil removed 4= 25% soil removed 5= 0% soil removed

Results: Gravimetric:

Cleaner	Substrate	Soil	Initial wt of cont.	Final wt of cont.	%Cont Removed	% AVG Soil	% AVG Substrate	% Overall
ICT 2%	Stainless Steel	Tea Leaves	0.2009	0.0000	100.00	98.68	94.95	97.00
			0.2443	0.0029	98.81			
			0.1921	0.0053	97.24			
		Coffee	0.0259	0.0044	83.01	91.21		
			0.1321	0.0046	96.52			
			0.2369	0.0140	94.09			
	Plastic	Tea Leaves	0.2396	-0.0012	100.50	100.44	99.05	
			0.2604	-0.0007	100.27			
			0.3901	-0.0022	100.56			
		Coffee	0.1022	0.0055	94.62	97.66		
			0.1177	0.0013	98.90			
			0.1529	0.0008	99.48			
ICT 1%	Stainless Steel	Tea Leaves	0.2318	0.0140	93.96	95.51	96.19	97.65
			0.2135	0.0025	98.83			
			0.1917	0.0120	93.74			
		Coffee	0.1188	0.0053	95.54	96.86		
			0.1456	0.0033	97.73			
			0.2499	0.0067	97.32			
	Plastic	Tea Leaves	0.2085	-0.0016	100.77	100.46	99.11	
			0.2651	-0.0006	100.23			
			0.2139	-0.0008	100.37			
		Coffee	0.1042	0.0008	99.23	97.76		
			0.1150	0.0011	99.04			

CLEANING LABORATORY EVALUATION SUMMARY

			0.0639	0.0032	94.99			

Visual:

Cleaner	Substrate	Soil	Clean Visual	AVG Visual Soil	AVG Visual Substrate	Overall Visual
ICT 2%	Stainless Steel	Tea Leaves	1	1.3	1.8	1.8
			1.5			
			1.5			
		Coffee	2.5	2.2		
			2			
			2			
	Plastic	Tea Leaves	1.5	1.3	1.9	
			1.5			
			1			
		Coffee	2.5	2.5		
			2.5			
			2.5			
ICT 1%	Stainless Steel	Tea Leaves	1.5	1.3	1.7	1.9
			1			
			1.5			
		Coffee	2	2.0		
			2			
			2			
	Plastic	Tea Leaves	1	1.3	2	
			1.5			
			1.5			
		Coffee	2.5	2.7		
			2.5			
			3			

Although both concentrations of the ICT cleaner were able to remove upwards of 90% of the weight of the coffee soil, there was a substantial amount of staining left from the coffee on the coupons after cleaning.

Summary:

Substrates:	Plastic, Stainless Steel
Contaminants:	Food

Company Name:	Product Name:	Conc.:	Efficiency:	Effective:	Observations:
Innovative Chemical Technologies, Inc.	Virdivis FB1000 (ICT 1648L)	2%	97.00	☑	
Innovative Chemical Technologies, Inc.	Virdivis FB1000 (ICT 1648L)	1%	97.65	☑	

Conclusion: Both ICT 1648L at 2% and ICT 1648L at 1% were highly successful in removing both tea leaves and coffee grounds from stainless steel and plastic. The two concentrations performed equally.