CLEANING LABORATORY EVALUATION SUMMARY

SCL #:	2024
DateRun:	02/22/2024
Experimenters:	Amelia Wagner
ClientType:	Lab
ProjectNumber:	Project #13
Substrates:	Stainless Steel
PartType:	Coupon
Contaminants:	Food
Cleaning Methods:	Ultrasonics
Analytical Methods:	Gravimetric, Visual
Purpose:	Benchmark Testing of BevSafe products: Unheated Ultrasonics
Experimental Procedure:	Three pre weighed coupons were used per soil for two cleaners for a total of 12 coupons. 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 ultrasonics in their respective cleaners. The cleaners were used at the vendor recommended concentrations (BevSafe descaler 1%, BevSafe tank and line cleaner 4.5%). 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:

Cleaner	Soil	Initial wt of cont.	Final wt of cont.	%Cont Removed	% AVG	% Overall
BevSafe Descaler 1%	Pigeon Cove Tea Leaves	0.1984	0.0002	99.90	99.13	97.66
		0.1022	0.0000	100.00		
		0.1079	0.0027	97.50		
	Coffee	0.0073	0.0002	97.26	96.19	
		0.0179	0.0004	97.77		
		0.0031	0.0002	93.55		
BevSafe Line and Tank Cleaner 4.5%	Pigeon Cove Tea Leaves	0.0663	0.0028	95.78	97.82	84.44
		0.0970	0.0010	98.97		
		0.0466	0.0006	98.71		
	Coffee	0.0053	0.0019	64.15	71.06	
		0.0090	0.0030	66.67		
		0.0136	0.0024	82.35		

Cleaner	Soil	Dirty Visual	Clean Visual	AVG Clean Visual	AVG Overall
BevSafe Descaler 1%	Pigeon Cove Tea Leaves	5	1	1	1
		5	1		
		5	1		
	Coffee	5	1	1	
		5	1		
		5	1		
BevSafe Line and Tank Cleaner 4.5%	Pigeon Cove Tea Leaves	5	1.5	1.3	1.17
		5	1.5		
		5	1		

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	Coffee	5	1	1	
		5	1		
		5	1		

The BevSafe Cleaner needs to be retested. Although the gravimetric data shows that it did not clean the coffee off the coupons effectively, visually those same coupons looked perfectly clean with no film left on the coupons.

Summary:

Conclusion: The BevSafe Descaler is highly effective in removing both soils utilizing unheated ultrasonics. The BevSafe Cleaner is highly effective in removing the tea leaves and staining from the coupons utilizing unheated ultrasonics. The BevSafe Cleaner will be retested on the coffee utilizing unheated ultrasonics due to unusual data.