CLEANING LABORATORY EVALUATION SUMMARY

SCL #:	2024
DateRun:	02/23/2024
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: Heated 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 heated ultrasonics in their respective cleaners at 140 F. 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	0.0715	0.0000	100.00	99.29	85.00
		0.1044	0.0005	99.52		
		0.0976	0.0016	98.36		
	Coffee	0.0035	0.0022	37.14	70.71	
		0.0009	0.0000	100.00		
		0.0040	0.0010	75.00		
BevSafe Line and Tank Cleaner 4.5%	Pigeon Cove Tea Leaves	0.1788	0.0019	98.94	97.64	61.68
		0.0709	0.0014	98.03		
		0.0567	0.0023	95.94		
	Coffee	0.0028	0.0026	7.14	25.73	
		0.0019	0.0013	31.58		
		0.0013	0.0008	38.46		

Cleaner	Soil	Dirty Visual	Clean Visual	AVG Clean Visual	AVG Overall
BevSafe Descaler 1%	Pigeon Cove Tea Leaves	5	1.0	1.0	1.00
		5	1.0		
		5	1.0		
	Coffee	5	1.0	1.0	
		5	1		
		5	1		
BevSafe Line and Tank Cleaner 4.5%	Pigeon Cove Tea Leaves	5	1	1.0	1.50
		5	1		
		5	1		

CLEANING LABORATORY EVALUATION SUMMARY

	Coffee	5	2	2.0	
		5	2		
		5	2		

When the cleaner became discolored from the soil removed from coupons in previous test, this soil remained on the cleaned coupons after they dried. This likely accounts for the low soil removal measured. This is likely the cause of the unusual results in the previous tests. The cleaner may require a rinse step.

Summary:

Conclusion: The BevSafe Descaler 1% is effective in removing both soils from the coupons utilizing heated ultrasonics. The BevSafe Line and Tank Cleaner 4.5% will be retested with all four methods adding a rinse step post cleaning to see if this will improve performance results.