CLEANING LABORATORY EVALUATION SUMMARY

SCL #: 2023

DateRun: 10/13/2023

Experimenters: Tatyanna Moreland Junior

ClientType: Lab

ProjectNumber: Project #8

Substrates: Stainless Steel

PartType: Coupon

Contaminants: Oil

Cleaning Methods: Ultrasonics

Analytical Methods: Gravimetric

Purpose: To evaluate the effectiveness of SB-24 (92% Ektapro EEP, 8% t-butyl acetate), SB-32 (81% Ethyl Lactate, 19% Propylene Carbonate) and SB-41 (79% Ektapro EEP, 14%,ethyl lactate, 7% t-butyl acetate) in removing two production oils from stainless steel coupons as a potential replacement for TCE with an unheated ultrasonics cleaning method.

Experimental Procedure: Three stainless steel coupons were used for each cleaner and the two soils being tested, for a total of 18 coupons. The initial weights of each coupon were recorded. The bottom third of every coupon was soiled by applying the corresponding soil with a swab. The dirty weights of each coupon were then recorded. The coupons were then subjected to unheated ultrasonics in SB-24, SB-32, and the mixture for 15 minutes. After the coupons were cleaned, they were left to air dry over night. The next morning, the clean weights of each coupon were taken.

Results:

Soil	Cleaner	Initial Content Weight	Final Content Weight	Percent Content Removed	Average Percent Removed
CD Aero A	SB-24	0.0674	0.0053	92.14	90.22
		0.0388	0.0041	89.43	
		0.0403	0.0044	89.08	
	SB-32	0.0813	0.0037	95.45	85.65
		0.0454	0.0155	65.86	
		0.0391	0.0017	95.65	
	SB-41	0.0483	0.0012	97.52	96.30
		0.0324	0.0023	92.90	
		0.0657	0.0010	98.48	
CD Aero C	SB-24	0.0202	0.0023	88.61	91.36
		0.0303	0.0026	91.42	
		0.0202	0.0012	94.06	
	SB-32	0.0210	-0.0014	106.67	106.74
		0.0208	-0.0024	111.54	
		0.0444	-0.0009	102.03	
	SB-41	0.0506	0.0003	99.41	99.97
		0.0329	-0.0006	101.82	
		0.0076	0.0001	98.69	

Summary:

Substrates:	Stainless Steel
Contaminants:	Oil

Company Name:	**Product Name:**	**Conc.:**	**Efficiency:**	**Effective:**	**Observations:**
TURI Cleaning lab	SB-24	92% Ektapro EEP 8% t-butyl acetate	96.00	☑	on CD Aero soil A
TURI Cleaning lab	SB-24	92% Ektapro EEP 8% t-butyl acetate	91.00	☑	on CD Aero soil C
TURI Cleaning lab	SB-32	Ethyl Lactate 81% (CAS No: 97-64-3) + Propylene Carbonate 19% (CAS No: 108-32-7)	86.00	☑	on CD Aero soil A

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TURI Cleaning lab	SB-32	Ethyl Lactate 81% (CAS No: 97-64-3) + Propylene Carbonate 19% (CAS No: 108-32-7)	107.00	☐	on CD Aero soil C
TURI Cleaning lab	SB-41	Ektapro Ethyl 3-ethoxypropionate 79% (CAS No: 763-69-9) + t-Butyl Acetate 7% (CAS No: 540-88-5) + Ethyl lactate 14% (CAS No: 97-64-3)	96.00	☑	on CD Aero Soil A
TURI Cleaning lab	SB-41	Ektapro Ethyl 3-ethoxypropionate 79% (CAS No: 763-69-9) + t-Butyl Acetate 7% (CAS No: 540-88-5) + Ethyl lactate 14% (CAS No: 97-64-3)	100.00	☑	on CD Aero soil C

Conclusion: The cleaners seemed to be effective at removing the soil but when left to air dry, the coupons that were cleaned in SB-32 and the mixture did not dry completely.