CLEANING LABORATORY EVALUATION SUMMARY

SCL #: 2023

DateRun: 08/21/2023

Experimenters: Tatyanna Moreland Junior

ClientType: Lab

ProjectNumber: Project #8

Substrates: Stainless Steel

PartType: Coupon

Contaminants: Oil

Cleaning Methods: Immersion/Soak

Analytical Methods: Gravimetric

Purpose: To evaluate the effectiveness of SB-22 (79% Ektapro EEP, 14% t-butyl acetate, 7% propylene carbonate), SB-24 (92% Ektapro EEP, 8% t-butyl acetate) and SB-41 (79% EEP, 7% t-butyl acetate and 14% ethyl lactate) in removing oils from stainless steel coupons as a potential replacement for TCE unheated immersion cleaning method.

Experimental Procedure: Three stainless coupons were used for each soil for both cleaners for a total of eighteen coupons. The initial weights of each coupon were recorded. The bottom third of every coupon was soiled by applying the soils with a swab. The dirty weights of each coupon were then recorded. The coupons were then subjected unheated immersion in SB-22, SB-24, and SB-41 with the stir bar at 240rpm for 15 mins. 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:

Cleaner	Soil	Initial wt of cont.	Final wt of cont.	%Cont Removed	% AVG	% Overall
SB-22	Expoxidized Soybean Oil	0.6891	0.0467	93.22	91.67	94.14
		0.5951	0.0438	92.64		
		0.5512	0.0599	89.13		
	Canola Oil	0.4963	0.0195	96.07	96.61	
		0.5339	0.0156	97.08		
		0.5099	0.0170	96.67		
SB-24	Expoxidized Soybean Oil	0.4415	0.0343	92.23	97.07	97.83
		0.7678	0.0027	99.65		
		0.7930	0.0053	99.33		
	Canola Oil	0.5132	0.0118	97.70	98.59	
		0.5436	0.0040	99.26		
		0.4671	0.0056	98.80		
SB-41	Expoxidized Soybean Oil	0.7437	0.0081	98.91	97.36	90.30
		0.6580	0.0231	96.49		
		0.5619	0.0186	96.69		
	Canola Oil	0.3567	0.0745	79.11	83.24	
		0.3066	0.0568	81.47		
		0.5000	0.0544	89.12		

Coupons soiled with Canola oil, did not air dry overnight

Summary:

Substrates:	Stainless Steel				
Contaminants:	Oil				
Company Name:	**Product Name:**	**Conc.:**	**Efficiency:**	**Effective:**	**Observations:**
TURI Cleaning lab	SB-22	79% Ektapro EEP 14% t-butyl acetate 7% propylene carbonate	92.00	☑	on the Expoxidized Soybean Oil
TURI Cleaning lab	SB-22	Ektapro Ethyl 3-ethoxypropionate 79% (CAS No: 763-69-9) + t-Butyl Acetate 7% (CAS No: 540-88-5) + Propylene Carbonate 14% (CAS No: 108-32-7)	97.00	☑	on Canola oil, These did not air dry well overnight

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TURI Cleaning lab	SB-24	Ektaprop Ethyl 3-ethoxypropionate 92% (CAS No: 763-69-9) + t-Butyl Acetate 8% (CAS No: 540-88-5)	97.00	☑	on Expoxidized Soybean Oil
TURI Cleaning lab	SB-24	Ektaprop Ethyl 3-ethoxypropionate 92% (CAS No: 763-69-9) + t-Butyl Acetate 8% (CAS No: 540-88-5)	93.00	☑	on Canola oil. Coupons did not dry well overnight
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)	93.00	☑	on the Expoxidized Soybean Oil
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)	83.00	☑	on Canola oil. Coupons did not dry well overnight

Conclusion: All three solvent mixtures were effective in removing both soils from stainless steel coupons using unheated immersion.