

# CLEANING LABORATORY EVALUATION SUMMARY

SCL #: 2023  
 DateRun: 09/29/2023  
 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-35 (67% D-limonene, 33% Benzyl Benzoate) in removing 2 oils from stainless steel coupons as a potential replacement for TCE 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 unheated ultrasonics in SB-24, SB-32, and the mixture 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:**

Soil	Cleaner	Initial Content Weight	Final Content Weight	Percent Content Removed	Average Percent Removed
Rustlick 50/50	SB-35	0.0299	0.0334	-11.71	11.01
		0.0564	0.0368	34.75	
		0.0351	0.0316	9.98	
	SB-24	0.0577	0.0167	71.06	71.59
		0.0493	0.0080	83.77	
		0.0407	0.0163	59.95	
	SB-32	0.0283	0.0176	37.81	54.79
		0.0494	0.0145	70.65	
		0.0474	0.0208	55.91	
Soluble Oil #35	SB-35	0.0287	0.0325	-13.24	-11.6
		0.0208	0.0296	-42.31	
		0.0448	0.3550	20.76	
	SB-24	0.0292	0.0147	49.66	65.15
		0.0433	0.0123	71.59	
		0.0399	0.0103	74.19	
	SB-32	0.0366	0.0236	35.52	29.3
		0.0356	0.0180	49.43	
		0.0239	0.0232	2.93	

**Summary:**

<b>Substrates:</b>		Stainless Steel			
<b>Contaminants:</b>		Oil			
Company Name:	Product Name:	Conc.:	Efficiency:	Effective:	Observations:
TURI Cleaning lab	SB-24	92% Ektapro EEP 8% t-butyl acetate	72.00	<input type="checkbox"/>	on Rustlik 50/50
TURI Cleaning lab	SB-24	92% Ektapro EEP 8% t-butyl acetate	65.00	<input type="checkbox"/>	on Soluble Oil #35
TURI Cleaning lab	SB-32	Ethyl Lactate 81% (CAS No: 97-64-3) + Propylene Carbonate 19% (CAS No: 108-32-7)	55.00	<input type="checkbox"/>	on Rustlik 50/50
TURI Cleaning lab	SB-32	Ethyl Lactate 81% (CAS No: 97-64-3) + Propylene Carbonate 19% (CAS No: 108-32-7)	29.00	<input type="checkbox"/>	on Soluble Oil #35

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TURI Cleaning lab	SB-35	D-Limonene 67% (CAS No: 5989-27-5) + Benzyl Benzoate 33% (CAS No: 120-51-4)	11.00	<input type="checkbox"/>	on Rustlik 50/50
TURI Cleaning lab	SB-35	D-Limonene 67% (CAS No: 5989-27-5) + Benzyl Benzoate 33% (CAS No: 120-51-4)	-11.00	<input type="checkbox"/>	on Soluble Oil #35

Conclusion:

None of the cleaners were effective at removing the soil. The SB-35 did not seem to air dry well and a small amount stayed on the coupons which skewed some of the final content weights.