

CLEANING LABORATORY EVALUATION SUMMARY

SCL #: 2024
 DateRun: 10/23/2024
 Experimenters: Tatyanna Moreland Junior
 ClientType: Lab
 ProjectNumber: Project #8
 Substrates: Stainless Steel
 PartType: Coupon
 Contaminants: Greases
 Cleaning Methods: Ultrasonics
 Analytical Methods: Gravimetric

Purpose: To evaluate the effectiveness of SB-31 (t-Butyl Acetate 70% (CAS No: 540-88-5) and a mixture of (79% EEP + 7% Ethyl Lactate (CAS No: 97-64-3) + 14% t-Butyl Acetate 70% (CAS No: 540-88-5)) in removing lapping compound from stainless steel coupons as a potential replacement of TCE with a heated ultrasonic cleaning method.

Experimental Procedure: Three stainless steel coupons were used for each cleaner and soil combination, making a total of twelve coupons. The initial weights of each coupon were recorded, less than 0.1 g of each contaminant was added to the bottom third of the coupon with a swab, and the dirty weights of each coupon were then recorded. The coupons were then subjected to heated ultrasonics in the cleaner for 15 minutes at a temperature of 100 °F. After the coupons were cleaned, they were left to air dry overnight, and clean weights of each coupon were taken the following day.

Results:

Cleaner	Soil	Initial weight of content	Final weight of content	Percent Content Removed	Average Percent Removal	Average Cleaner Percent
SB-31	Dow Corning High Vacuum Grease	0.0852	0.0044	94.84	94.43	86.63
		0.0894	0.006	93.29		
		0.06	0.0029	95.17		
	Apiezon Grease Type M	0.0207	0.0074	64.25	78.83	
		0.0462	0.0083	82.03		
		0.0306	0.003	90.20		
MIXTURE	Dow Corning High Vacuum Grease	0.0474	0.0218	54.01	78.87	83.72
		0.0686	0.0069	89.94		
		0.0626	0.0046	92.65		
	Apiezon Grease Type M	0.0531	0.0056	89.45	88.58	
		0.0437	0.0055	87.41		
		0.0476	0.0053	88.87		

Summary:

Substrates:	Stainless Steel				
Contaminants:	Greases				
Company Name:	Product Name:	Conc.:	Efficiency:	Effective:	Observations:
TURI Cleaning lab	SB-31		86.63	<input checked="" type="checkbox"/>	

Conclusion: SB-31 was effective for Dow Corning, and the mixture was effective for Apiezon. Another test would need to be done to verify the cleaner's effectiveness for the opposite contaminant.