CLEANING LABORATORY EVALUATION SUMMARY

SCL #: 2024

DateRun: 07/23/2024

Experimenters: Tatyanna Moreland Junior

ClientType: Lab

ProjectNumber: Project #8

Substrates: Stainless Steel

PartType: Coupon

Contaminants: Buffing/Polishing Compounds

Cleaning Methods: Ultrasonics

Analytical Methods: Gravimetric

Purpose: To evaluate the effectiveness of SB-27 (t-Butyl Acetate 70% (CAS No: 540-88-5) + Benzyl Alcohol 30% (CAS No: 100-51-6)) and SB-32 (Ethyl Lactate 81% (CAS No: 97-64-3) + Propylene Carbonate 19% (CAS No: 108-32-7)) 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. Around 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 120 °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 cont.	Final weight of cont.	% Cont Removed	Average % Removal
SB-27	American Lapping Compound	0.1143	0.0733	35.87	41
		0.1	0.0686	31.4	
		0.0894	0.0406	54.59	
	LMKT Lapping Compound	0.0703	0.0011	98.44	96
		0.0394	0.0007	98.22	
		0.0603	0.0042	93.03	
SB-32	American Lapping Compound	0.1481	0.1356	8.44	17
		0.1210	0.0916	24.30	
		0.101	0.0809	19.9	
	LMKT Lapping Compound	0.0623	-0.0002	100.32	99
		0.0733	0.0007	99.05	
		0.122	0.0019	98.44	

Summary:

Substrates:	Stainless Steel				
Contaminants:	Buffing/Polishing Compounds				
Company Name:	**Product Name:**	**Conc.:**	**Efficiency:**	**Effective:**	**Observations:**
TURI Cleaning lab	SB-27		97.00	☑	Lapping compound
TURI Cleaning lab	SB-32		99.00	☑	Lapping compound

Conclusion: Both cleaners were effective in cleaning the LMKT Lapping Compound but struggled to remove the American Lapping Compound. Those coupons had thick bands of soil leftover, so the cleaners could potentially be more effective in removing thinner layers of American Lapping Compound.