CLEANING LABORATORY EVALUATION SUMMARY

SCL #:	2023
DateRun:	06/01/2023
Experimenters:	Amelia Wagner, Mei Jin
ClientType:	Tool Manufacturer
ProjectNumber:	Project #2
Substrates:	Stainless Steel
PartType:	Coupon
Contaminants:	Greases, Oil
Cleaning Methods:	Ultrasonics
Analytical Methods:	Gravimetric
Purpose:	To test two solvents in cleaning oil and grease from stainless steel as an alternative to TCE using heated ultrasonics.
Experimental Procedure:	Two solvents were identified previously using the Hspip software; SB-33 (D-limonene 85% +Dimethyl glutarate 15%) and SB-31 (Benzyl alcohol 63% + Ethyl lactate 37%). Twelve stainless steel coupons were chosen and initial weights of each were recorded. Half of the coupons were soiled with Hocut 795 and half were soiled with RI-780. The soils were applied to the bottom third of each coupon using a swab. The coupons were then cleaned by their respective solvent using a method of heated ultrasonics. The coupons were immersed and subjected to ultrasonics agitation for 15 minutes at 130 degrees Farenheit. The coupons were then removed and left to dry overnight. (Coupons dried for a week before weights were taken). Clean weights were recorded.

Results:

Cleaner	Soil	Substrate	Initial wt of cont.	Final wt of cont.	%Cont Removed	% AVG	% Overall
SB-33	1	Stainless Steel	0.0191	0.0038	80.10	88.20	0.88
		Stainless Steel	0.0374	0.0040	89.30		
		Stainless Steel	0.0729	0.0035	95.20		
	2	Stainless Steel	0.0279	0.0012	95.70	87.63	
		Stainless Steel	0.0453	0.0042	90.73		
		Stainless Steel	0.0204	0.0048	76.47		
SB-31	1	Stainless Steel	0.1060	0.0016	98.49	98.98	0.96
		Stainless Steel	0.1202	0.0006	99.50		
		Stainless Steel	0.0662	0.0007	98.94		
	2	Stainless Steel	0.0284	0.0004	98.59	93.19	
		Stainless Steel	0.0123	0.0016	86.99		
		Stainless Steel	0.0100	0.0006	94.00		

Coupons were left for a week after cleaning and were able to airdry during that time

Summary:

Conclusion: SB-33 is an effective solvent in removing the soils from stainless steel coupons using heated ultrasonics. SB-31 is an effective solvent in removing the soils from stainless steel coupons using heated ultrasonics.