CLEANING LABORATORY EVALUATION SUMMARY

SCL #: 2024

DateRun: 03/04/2024

Experimenters: Tatyanna Moreland Junior

ClientType: Lab

ProjectNumber: Project #8

Substrates: Brass, Copper

PartType: Coupon

Contaminants: Lubricating/Lapping Oils

Cleaning Methods: Ultrasonics

Analytical Methods: Gravimetric

Purpose: To evaluate the effectiveness of SB-2, SB-11, SB-22, and SB-23 in removing LMKT Lapping Compound from copper and brass coupons as a potential replacement for TCE with a heated ultrasonic cleaning method.

Experimental Procedure: Three copper and brass coupons were used for each cleaner being tested, for a total of 12 coupons per cleaner. The initial weights of each coupon were recorded. The bottom third of every coupon was soiled by applying the contaminate with a swab. The dirty weights of each coupon were then recorded. The coupons were then subjected to heated ultrasonic at 140 degrees Fahrenheit in the cleaners for 15 minutes. After the coupons were cleaned, they were left to air-dry overnight. The next morning, the clean weights of each coupon were taken.

Results:

Substrate	Cleaner	Coupon #	Initial weight of cont.	Final weight of cont.	%Cont Removed	Average % Removal
Copper	SB-2	4	0.0259	0.0416	-60.62	-208.76
		21	0.0184	0.0621	-237.50	
		39	0.0238	0.1019	-328.15	
	SB-11	2	0.0371	0.0356	4.04	-19.66
		3	0.0310	0.0508	-63.87	
		11	0.0352	0.0349	0.85	
	SB-22	16	0.0285	0.0017	94.04	96.08
		17	0.0312	0.0007	97.76	
		21	0.0311	0.0011	96.46	
	SB-23	6	0.0361	0.0135	62.60	45.39
		22	0.0361	0.0297	17.73	
		40	0.0326	0.0144	55.83	
Brass	SB-2	5	0.0175	0.0466	-166.29	-155.92
		11	0.0264	0.0374	-41.67	
		16	0.0112	0.0403	-259.82	
	SB-11	10	0.0226	0.021	7.08	-22.10
		18	0.0193	0.0244	-26.42	
		25	0.0213	0.0313	-46.95	
	SB-22	12	0.0155	-0.0055	135.48	121.77
		15	0.0162	-0.0034	120.99	
		18	0.0305	-0.0027	108.85	
	SB-23	7	0.0203	0.0087	57.14	21.71
		28	0.0196	0.0192	2.04	
		31	0.0319	0.03	5.96	

Summary:

Substrates:	Brass, Copper				
Contaminants:	Lubricating/Lapping Oils				
Company Name:	**Product Name:**	**Conc.:**	**Efficiency:**	**Effective:**	**Observations:**
TURI Cleaning lab	SB-2	100	-182.00	☐	
TURI Cleaning lab	SB-11	100	-21.00	☐	
TURI Cleaning lab	SB-22	100	109.00	☐	

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TURI Cleaning lab	SB-23	100	34.00	☐	

Conclusion: SB-2 and SB-11 did not dry properly overnight, and in some cases, their final contents were higher than their initials. SB-22 and SB-23 seemed like effective alternatives, but due to the "overcleaning" causing negative final weights, further testing can be done to determine the ideal range of cleaning time and contaminants added.