CLEANING LABORATORY EVALUATION SUMMARY

SCL #: 2023

DateRun: 11/14/2023

Experimenters: Amelia Wagner

ClientType: Brass Instrument Manufacturer

ProjectNumber: Project #2

Substrates: Brass

PartType: Coupon

Contaminants: Greases, Lubricating/Lapping Oils, Oil

Cleaning Methods: Ultrasonics

Analytical Methods: Gravimetric

Purpose: To evaluate the effectiveness of aqueous and non aqueous cleaners in removing a variety of oil and grease soils from brass.

Experimental Procedure: Twenty four brass coupons, three per soil per cleaner, were weighed to record their initial weights. The coupons were then soiled with their respective soils; american lapping compound, LMKT lapping compound, Honing oil, and slide gel lubricant. About 0.5 grams of each soil was spread on the bottom third of each coupon with a swab. The dirty weights of the coupons were then recorded. The coupons were then subjected to 20 minutes of unheated ultrasonics in their respective cleaners. Once cleaned, the coupons were left the air dry over night. The next day, the final weightss of the coupons were recorded.

Results:

Cleaner	Soil	Initial wt of cont.	Final wt of cont.	%Cont Removed	% AVG	% Overall
Micro 90 (100%)	american lapping compound	0.0581	0.0303	47.85	-18.02	-185.14
		0.0801	0.0656	18.10		
		0.0390	0.0858	-120.00		
	LMKT lapping compound	0.0257	0.0881	-242.80	-343.50	
		0.0197	0.0711	-260.91		
		0.0112	0.0702	-526.79		
	honing oil	0.0347	0.0558	-60.81	-174.03	
		0.0176	0.0730	-314.77		
		0.0230	0.0567	-146.52		
	slide gel lubricant	0.0578	0.0754	-30.45	-205.01	
		0.0352	0.1111	-215.62		
		0.0248	0.1163	-368.95		
SC Aircraaft and Metal Cleaner (100%)	american lapping compound	0.0880	0.0392	55.45	31.72	52.74
		0.0386	0.0263	31.87		
		0.0382	0.0352	7.85		
	LMKT lapping compound	0.0394	0.0022	94.42	64.05	
		0.0128	0.0122	4.69		
		0.0316	0.0022	93.04		
	honing oil	0.0163	0.0095	41.72	50.93	
		0.0133	0.0022	83.46		
		0.0373	0.0270	27.61		
	slide gel lubricant	0.0806	0.0122	84.86	64.27	
		0.0527	0.0159	69.83		
		0.0349	0.0216	38.11		

The Micro 90 left a very sticky and thick residue that could not be removed by air drying overnight or by using the heat gun as a drying step post cleaning. This accounts for the added weight of the coupons in the results.

Summary:

Conclusion: Neither the Micro 90 (1005) nor the SC Aircraft and Metal Cleaner (100%) are effective cleaners in removing any of the soil types.