CLEANING LABORATORY EVALUATION SUMMARY

SCL #: 2023

DateRun: 11/09/2023

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 cleaners in removing several soils from brass coupons.

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
Metalnox M6345 (current cleaner for comparison)	american lapping compound	0.0700	0.0574	18.00	13.59	40.92
		0.1205	0.0966	19.83		
		0.1676	0.1627	2.92		
	LMKT lapping compound	0.1842	0.0248	86.54	81.08	
		0.1377	0.0559	59.40		
		0.0862	0.0024	97.29		
	honing oil	0.0234	0.0083	73.82	43.03	
		0.0355	0.0246	30.70		
		0.0619	0.0467	24.56		
	slide gel lubricant	0.0676	0.0360	46.75	25.99	
		0.0398	0.0398	26.43		
		0.0584	0.0556	4.79		
Shopmaster LPH (50%)	american lapping compound	0.0958	0.0197	79.44	47.47	38.78
		0.0862	0.0766	11.14		
		0.0791	0.0381	51.83		
	LMKT lapping compound	0.0866	0.0408	52.89	49.69	
		0.0624	0.0249	60.10		
		0.1291	0.0825	36.10		
	honing oil	0.0406	0.0183	54.93	43.22	
		0.0463	0.0163	64.79		
		0.0281	0.0281	9.94		
	slide gel lubricant	0.0585	0.0346	40.85	14.73	
		0.0478	0.0475	0.63		
		0.0538	0.0538	2.71		

Summary:

Conclusion: Metalnox M6345 is only an effective cleaner in removing the LMKT lapping compound and is not an effective cleaner for any of the other soils. The Shopmaster LPH at 50% concentration is not an effective cleaner in removing any of the soils.