CLEANING LABORATORY EVALUATION SUMMARY

SCL #: 2024

DateRun: 01/18/2024

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: Eighteen brass coupons, three per soil per cleaner, were weighed to record their initial weights. The coupons were then soiled with their respective soils; 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 15 minutes of unheated ultrasonics in their respective cleaners. Once cleaned, each coupon was dried with the heat gun at high heat for about 30-45 seconds. After drying, the clean weights of the coupons were recorded.

Results:

Cleaner	soil	Initial wt of cont.	Final wt of cont.	%Cont Removed	% AVG	% Overall
Sta Sol ESS 159	LMKT Lapping Compound	0.0245	0.0046	81.22	91.66	90.94
		0.0329	0.0000	100.00		
		0.0032	0.0002	93.75		
	Honing Oil	0.0230	0.0005	97.83	93.35	
		0.0178	0.0022	87.64		
		0.0111	0.0006	94.59		
	Slide Gel	0.0400	0.0027	93.25	84.68	
		0.0133	0.0017	87.22		
		0.0246	0.0065	73.58		
Propylene Glycol Ether	LMKT Lapping Compound	0.0169	0.0008	95.27	94.08	90.45
		0.0529	0.0014	97.35		
		0.0154	0.0016	89.61		
	Honing Oil	0.0143	0.0016	88.81	86.56	
		0.0071	0.0012	83.10		
		0.0090	0.0011	87.78		
	Slide Gel	0.0529	0.0060	88.66	90.70	
		0.0433	0.0027	93.76		
		0.0542	0.0056	89.67		

Summary:

Conclusion: Both Sta Sol ESS 159 and Propylene Glycol Ether are effective in removing all soils from brass. Although they were effective on all soils, Sta Sol did not remove the slide gel soil to the same efficacy as the other two soils and the Propylene Glycol Ether did not remove the honing oil to the same efficacy as the other two soils. Future testing should include heated immersion to see if the addition of heat will improve the performance of both cleaners on those particular soils.