CLEANING LABORATORY EVALUATION SUMMARY

SCL #:	2023
DateRun:	08/14/2023
Experimenters:	Amelia Wagner
ClientType:	Tool Manufacturer
ProjectNumber:	Project #2
Substrates:	Steel
PartType:	Coupon
Contaminants:	Adhesive, Resins/Rosins
Cleaning Methods:	Immersion/Soak
Analytical Methods:	Gravimetric
Purpose:	To see if previously identified solvent/cleaner successful with unheated ultrasonics will also be successful in removing varnish from steel coupons with unheated immersion.
Experimental Procedure:	Three steel coupons were used for each cleaner tested, for a total of six coupons. Initial weights of coupons were taken. The varnish was heated to 350 F on a hot plate. Each coupon was placed on the hot plate for a total of 30 seconds. The varnish was then applied to the heated coupons with a metal scraper in order to achieve a thin layer of varnish on the bottom third of the coupons. Once the varnish had solidified, dirty weights of each coupon were taken. Coupons were then subjected to 15 minutes of unheated immersion with a stir bar set at 200 rpm. The chosen solvents/cleaners tested were A. D Limonene 85% + Dimethyl Glutarate 15%, and B. Metalnox 6386 100%. After air drying, clean weights were taken.

Results:

Cleaner	Initial wt of cont.	Final wt of cont.	%Cont Removed	% AVG
D Limonene 85% + Dimethyl Glutarate 15%	0.0544	0.0012	97.79	93.50
	0.0413	0.0020	95.16	
	0.0650	0.0081	87.54	
Metalnox 6386 100%	0.0409	0.0395	3.42	7.44
	0.0201	0.0163	18.91	
	0.0287	0.0287	0.00	

Summary:

Conclusion: A. D Limonene 85% + Dimethyl Glutarate 15% is an effective solvent in removing varnish from steel coupons using unheated immersions. B. Metalnox 6386 100% is not an effective aqueous cleaner in removing varnish from steel coupons using unheated immersion.