

# 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.

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.