

CLEANING LABORATORY EVALUATION SUMMARY

SCL #: 2023

DateRun: 10/02/2023

Experimenters: Alexander Symko, Amelia Wagner

ClientType: University

ProjectNumber: Project #2

Substrates: Aluminum, Fiberglass

PartType: Coupon

Contaminants: Greases, Waxes

Cleaning Methods: Ultrasonics

Analytical Methods: Gravimetric

Purpose: To evaluate the effectiveness of multiple cleaners in removing both a grease soil from aluminum coupons and a wax soil from composite fiberglass coupons.

Experimental Procedure: Three cleaning products were chosen using previous testing data on their performance for removing other waxes and greases. Three pre weighed aluminum coupons and three pre weighed fiberglass composite coupons were assigned to each cleaner for each substrate for a total of 18 coupons. The fiberglass composite coupons were soiled with the glyconol wax soil (about 0.5 grams) by placing a small ball of wax onto the bottom third of the coupon, heating it with a heat gun to melt the wax, and then spreading the wax into a strip across the bottom third of the coupons. The aluminum coupons were soiled with the royco 27A grease (about 0.5 grams) by applying to soil to the bottom third of the coupons with a swab. After soiling, the dirty weights of the coupons were recorded. The coupons were then subjected to 20 mins of heated ultrasonics at 130 degrees F in their respective cleaners. The coupons were left to air dry overnight before the clean weights were recorded.

Results:

Cleaner	Soil	Initial wt of cont.	Final wt of cont.	%Cont Removed	% AVG	% Overall
SC Aircraft and Metal Cleaner	Glyconol Wax on Fiberglass	0.0491	0.0549	-11.81	31.16	62.32
		0.1498	0.1114	25.63		
		0.1637	0.0333	79.66		
	Royco 27A Grease on Aluminum	0.0819	0.0066	91.94	93.47	
		0.0890	0.0061	93.15		
		0.1284	0.0060	95.33		
Aerokleen Aviation Solvent	Glyconol Wax on Fiberglass	0.1192	0.0201	83.14	89.91	93.86
		0.0773	0.0050	93.53		
		0.1166	0.0081	93.05		
	Royco 27A Grease on Aluminum	0.1282	0.0032	97.50	97.80	
		0.0891	0.0026	97.08		
		0.1090	0.0013	98.81		
Soyclear 1500	Glyconol Wax on Fiberglass	0.0929	0.0031	96.66	94.98	90.02
		0.0486	0.0049	89.92		
		0.0672	0.0011	98.36		
	Royco 27A Grease on Aluminum	0.0671	0.0176	73.77	85.06	
		0.0623	0.0067	89.25		
		0.0779	0.0061	92.17		

Although both the Aerokleen Aviation Solvent and the Soyclear 1500 removed a high percentage of the wax from the fiberglass coupons, some of the wax visibly remained on the coupons.

Summary:

Conclusion: SC Aircraft and Metal Cleaner is an effective cleaner in removing the royco grease but not effective in removing the wax. Aerokleen Aviation Solvent and Soyclear 1500 are effective cleaners in removing the grease soil from the aluminum coupons, and are both somewhat effective cleaners in removing the wax soil from the fiberglass coupons.