CLEANING LABORATORY EVALUATION SUMMARY

SCL #: 2023

DateRun: 09/28/2023

Experimenters: Alexander Symko, Amelia Wagner

ClientType: University

ProjectNumber: Project #2

Substrates: Aluminum

PartType: Coupon

Contaminants: Greases, Waxes

Cleaning Methods: Ultrasonics

Analytical Methods: Gravimetric

Purpose: To evaluate the effectiveness of multiple cleaners in removing both the grease and wax contaminants from aluminum 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 were assigned to each cleaner for each substrate for a total of 18 aluminum coupons. Half of the 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 other half of the 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 unheated ultrasonics 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	0.1806	0.1091	39.59	58.42	76.64
		0.0693	0.0117	83.12		
		0.0942	0.0447	52.55		
	Royco 27A Grease	0.1195	0.0068	94.31	94.86	
		0.1045	0.0039	96.27		
		0.0533	0.0032	94.00		
Aerokleen Aviation Solvent	Glyconol Wax	0.0940	0.0340	63.83	46.44	48.66
		0.1543	0.1463	5.18		
		0.0835	0.0248	70.30		
	Royco 27A Grease	0.0470	0.0045	90.43	50.88	
		0.0534	0.0521	2.43		
		0.0870	0.0350	59.77		
Aquavantage 815GD	Glyconol Wax	0.2192	0.1712	21.90	14.56	59.90
		0.2052	0.1838	10.43		
		0.1135	0.1006	11.37		
	Royco 27A Grease	0.1098	0.0628	42.81	45.37	
		0.0768	0.0410	46.61		
		0.0713	0.0380	46.70		

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 Aquavantage 815GD are not effective cleaners in removing either soil.