CLEANING LABORATORY EVALUATION SUMMARY

SCL #: 2023

DateRun: 09/07/2023

Experimenters: Amelia Wagner

ClientType: Coatings Manufacturer

ProjectNumber: Project #1

Substrates: Stainless Steel

PartType: Coupon

Contaminants: Adhesive

Cleaning Methods: Immersion/Soak

Analytical Methods: Gravimetric

Purpose: To test the efficacy two solvents in removing two types of glue adhesives from stainless steel coupons using unheated immersion methods.

Experimental Procedure: Three pre weighed stainless steel coupons were used per each soil per cleaner for a total of 12 coupons. The coupons were then soiled with their respective adhesives, half being soiled with adhesive 5017 and half being soiled with adhesive 5024. The soils were heated to 245 degrees F in order to melt the adhesives to a degree that would allow for a small amount of adhesive to be picked up using a spatula. The adhesive on the spatula was then reheated using a heat gun in order for the adhesive to be able to spread on bottom third of the coupons. The dirty weights of the coupons were then recorded.

The coupons were then subjected to 45 minutes of unheated immersion with a stir bar set at 200 rpm in their respective cleaners. Once the coupons were removed from the cleaners, a manual wipe step was utilized (a singular wipe with a paper towel).

All coupons were allowed to air for 30 minutes before final weights were recorded.

Results:

Cleaner	Soil	Initial wt of cont.	Final wt of cont.	%Cont Removed	% AVG	% Overall
sec butyl acetate	adhesive 5017	0.3289	-0.0207	106.29	93.21	83.57
		0.4021	-0.0044	101.09		
		1.4065	0.3905	72.24		
	adhesive 5024	0.5201	0.1921	63.06	73.92	
		0.5239	0.1824	65.18		
		0.3394	0.0220	93.52		
tert butyl acetate	adhesive 5017	0.4816	0.2125	55.88	69.37	43.12
		0.5548	0.1712	69.14		
		0.7243	0.1224	83.10		
	adhesive 5024	0.8130	0.5512	32.20	43.12	
		0.5831	0.3390	41.86		
		0.6299	0.2815	55.31		

Summary:

Conclusion: Tert butyl acetate us not effective in removing either adhesive. Sec butyl acetate will need to be retested.