

# CLEANING LABORATORY EVALUATION SUMMARY

SCL #: 2023  
 DateRun: 02/06/2023  
 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 of a solvent 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 for a total of 6 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
Ethyl 3-Ethoxypropionated	adhesive 5017	0.3024	0.0141	95.34	87.63	85.32
		0.4733	0.1327	71.96		
		0.6286	0.0278	95.58		
	adhesive 5024	0.7066	0.1325	81.25	83.02	
		0.3111	0.0267	91.42		
		0.5606	0.1323	76.40		

Summary:

Conclusion: Ethyl 3-Ethoxypropionated seems to be somewhat effective in removing both adhesives from stainless steel, however it may not perform to the needs and specifications of the client. There are also a few outliers. This test may need to be redone to confirm these findings.