CLEANING LABORATORY EVALUATION SUMMARY

SCL #: 2022

DateRun: 05/10/2022

Experimenters: Zoe Lawson

ClientType: Adhesive Manufacturer

ProjectNumber: Project #3

Substrates: Stainless Steel

PartType: Coupon

Contaminants: Adhesive

Cleaning Methods: Manual Wipe

Analytical Methods: Gravimetric, Visual

Purpose: Test the effectiveness of Stasol ESS 160 against Toluene on adhesives.

Experimental Procedure: Twelve pre-weighed stainless steel coupons, two for each adhesive, were soiled for each contaminant tested. Approximately 0.25 g of the soil was applied using a hand held swab. Each set of coupons were manually wiped with a cloth of the same material, one dipped into unheated Sta-Sol® ESS 160 100% and another in Toluene. During this process, any noticeable soil removal was observed and recorded. Coupons were allowed were wiped with a paper towel to ensure no residue of the cleaner, and afterwards final weights were recorded. The efficiency of removal was calculated for each coupon cleaned.

Results: Stasol struggled to remove the adhesive AC-059. Although it was almost as effective as Toluene at removing AC-054 and minorly more effective at removing AC-163, it overall was less effective than Toluene.

Cleaner	Substrate/ Contaminant	Initial wt of cont.	Final wt of cont.	%Cont Removed	Average % Removal	Overall % Removal
Stasol 100%	AC-059 (Phenolic)	0.2310	0.1681	27.23	26.13	63.39
		0.3808	0.2855	25.03		
	AC-054 (Silicone)	0.2709	0.0372	86.27	90.03	
		0.2546	0.0158	93.79		
	AC-163 (Acrylic)	0.2465	0.0701	71.56	74.01	
		0.2638	0.0621	76.46		
Toluene 100%	AC-059 (Phenolic)	0.4260	0.0036	99.15	98.95	87.51
		0.5393	0.0068	98.74		
	AC-054 (Silicone)	0.2207	0.0281	87.27	91.60	
		0.3302	0.0134	95.94		
	AC-163 (Acrylic)	0.2504	0.1063	57.55	71.98	
		0.2341	0.0318	86.42		

Summary:

Substrates:	Stainless Steel				
Contaminants:	Adhesive				
Company Name:	**Product Name:**	**Conc.:**	**Efficiency:**	**Effective:**	**Observations:**
JR Hess & Co., Inc.	Sta-Sol ESS 160	100	63.39	☐	
Fisher Scientific	Toluene (CAS: 108-88-3)	100	87.51	☐	

Conclusion: Stasol ESS 160 was not on par with Toluene for adhesive removal and is considered a non-ideal replacement. The next trial(s) will test a list of HSPiP solvents for their effectiveness against the adhesives provided and narrow down possible replacements for Toluene.