CLEANING LABORATORY EVALUATION SUMMARY

SCL #: 2020

DateRun: 07/15/2020

Experimenters: Alicia McCarthy, Hayley Byra

ClientType: Aircraft Parts Manufacturer

ProjectNumber: Project #1

Substrates: Glass/Quartz

PartType: Coupon

Contaminants: Coatings, Pitch

Cleaning Methods: Immersion/Soak

Analytical Methods: Gravimetric, Visual

Purpose: The purpose of this experiment was to determine the effectiveness of heated immersion with a stir bar for the removal of pitch and protect-o-coat contaminants.

Experimental Procedure: Two glass coupons were obtained for each of the six cleaners tested at the following concentrations and temperatures; Smart Solve 605 (100% 150°F), RB Degreaser (20% 180°F), SC Actisolv (50% 120°F), Propylene carbonate (100% 180°F), Dimethyl glutarate (100% 180°F) and SC Maxisolv (100% 120°F). One coupon was soiled with pitch and the other with the protect-o-coat soil and a dirty weight was obtained. When cleaning solutions reached proper temperatures, coupons were inserted along with a stir bar to cause agitation for 30 minutes. When 30 minutes had passed, coupons were removed and allowed to air dry for 24 hours. After the dry step a final clean weight was obtained. Effectiveness of cleaners was determined.

Results:

Cleaner	Initial wt of cont.	Final wt of cont.	% Cont. Removed	%AVG
Smart Solve 605	0.5585	0.0029	99.48	94.04
	0.0079	0.0009	88.61	
RB Degreaser	0.4033	0.3378	16.24	16.24
	0.0169	N/A	N/A	
SC Actisolv	0.5851	0.4175	28.64	13.78
	0.0223	0.0331	-1.08	
Propylene carbonate	0.438	0.2545	41.9	41.90
	0.0269	N/A	N/A	
Dimethyl glutarate	0.4575	0.0005	99.89	78.58
	0.0206	0.0088	57.28	
SC Maxisolv	0.7662	0.0007	99.91	95.49
	0.0112	0.001	91.07	

Summary:

Substrates:	Glass/Quartz				
Contaminants:	Coatings, Pitch				
Company Name:	**Product Name:**	**Conc.:**	**Efficiency:**	**Effective:**	**Observations:**
United Laboratories International	Smart Solve 605	100%	94.04	☑	Worked really well, 1:30 mins to remove.
Environmental Technology	RB Degreaser Cleaner	20%	16.24	☐	Did not work well, did not test on protect-o-coat.
Gemtek Products	SC Actisolv Safety Solvent	50%	13.78	☐	Did not work well
Fisher Scientific	Propylene carbonate 99.5% (CAS:108-32-7)	100%	41.90	☐	Did not work, did not test on protect-o-coat.
Fisher Scientific	Dimethyl glutarate (CAS:1119-40-0)	100%	78.58	☐	Worked very well on pitch, but not on protect-o-coat.
Gemtek Products	Safe Care (SC) Maxi Solv	100%	95.49	☑	Worked really well.

Conclusion: SC Maxisolv was the most effective cleaner in removing both the pitch and protect-o-coat soils with an average of 95.49% removal. Smart Solve 605 was the second most effective removing an average of 94.04%. Next step would be to discuss with the company about further testing either in the lab or on-site.