CLEANING LABORATORY EVALUATION SUMMARY

SCL #: 2020

DateRun: 07/09/2020

Experimenters: Alicia McCarthy, Hayley Byra

ClientType: Aircraft Parts Manufacturer

ProjectNumber: Project #1

Substrates: Glass/Quartz

PartType: Coupon

Contaminants: Resins/Rosins

Cleaning Methods: Immersion/Soak

Analytical Methods: Gravimetric, Visual

Purpose: The purpose of this experiment is to determine the effectiveness of seven cleaners in removing rosin from glass substrates using heated immersion.

Experimental Procedure: Four glass coupons were obtained and weighed for each of the seven cleaners. One coupon was soiled with one rosin by applying the rosin to the bottom third of the coupon with a swab and a soiled weight was obtained. The cleaning solutions were prepared for heated immersion by the following concentrations and temperatures: Smart Solve 605 100% at 150°F, RB Degreaser Cleaner 20% at 180°F, Valtron SP 2275 2% at 150°F, SC Actisolv 50% at 120°F, Propylene carbonate 100% at 180°F, Dimethyl glutarate 100% at 180°F, and SC Maxisolv 100% at 120°F. Once cleaners reached the proper temperature, the coupons were submerged into their respective cleaners for 30 minutes. After 30 minutes had passed, coupons were allowed to air dry if needed and a final clean weight was obtained. Effectiveness of cleaning was determined for each solution.

Results:

Cleaner	Rosin	Initial Weight of cont.	Final Weight of cont.	% Cont. Removed	Overall % Removal
Smart Solve 605	1	0.5175	0.0048	99.07	97.01
	2	0.354	0.0138	96.10	
	3	0.549	0.0165	96.99	
	4	0.3649	0.015	95.89	
RB Degreaser Cleaner	1	0.3892	0.2438	37.36	27.93
	2	0.4618	0.4509	2.36	
	3	0.3554	0.1386	61.00	
	4	0.3068	0.273	11.02	
Valtron SP 2275	1	0.5012	0.4984	0.56	-0.52
	2	0.3369	0.3378	-0.27	
	3	0.3735	0.3769	-0.91	
	4	0.3732	0.3786	-1.45	
SC Actisolv	1	0.5025	0.5588	-11.20	0.24
	2	0.4586	0.5431	-18.43	
	3	0.6233	1.1493	-84.39	
	4	0.3824	-0.0573	114.98	
Propylene Carbonate	1	0.9206	0.7713	16.22	8.75
	2	0.5596	0.587	-4.90	
	3	0.4738	0.132	72.14	
	4	0.6335	0.9404	-48.45	
Dimethyl glutarate	1	0.6615	0.0017	99.74	97.47
	2	0.6277	0.0532	91.52	
	3	0.4443	0.005	98.87	
	4	0.6316	0.0017	99.73	
SC Maxisolv	1	0.3393	0.0087	97.44	73.24
	2	0.3788	0.3842	-1.43	
	3	0.6693	0.0282	95.79	
	4	0.3397	-0.004	101.18	

Summary:

Substrates:	Glass/Quartz

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Contaminants:	Resins/Rosins				
Company Name:	**Product Name:**	**Conc.:**	**Efficiency:**	**Effective:**	**Observations:**
United Laboratories International	Smart Solve 605	100%	97.01	☑	
Environmental Technology	RB Degreaser Cleaner	20%	27.93	☐	
Valtech Corporation	Valtron SP 2275	2%	-0.52	☐	
Gemtek Products	SC Actisolv Safety Solvent	50%	0.24	☐	
Fisher Scientific	Propylene carbonate 99.5% (CAS:108-32-7)	100%	8.75	☐	
Fisher Scientific	Dimethyl glutarate (CAS: 1119-40-0)	100%	97.46	☑	
Gemtek Products	Safe Care (SC) Maxi Solv	100%	73.24	☐	

Conclusion: Dimethyl glutarate and SmartSolve 605 were the only two cleaners that effectively removed all four rosin contaminants on the substrate within 30 minutes of heated immersion.