CLEANING LABORATORY EVALUATION SUMMARY

SCL #:	2008
DateRun:	03/23/2008
Experimenters:	Jason Marshall
ClientType:	Electro-Optical Devices
ProjectNumber:	Project #1
Substrates:	Glass/Quartz
PartType:	Coupon
Contaminants:	Resins/Rosins
Cleaning Methods:	Manual Wipe
Analytical Methods:	Gravimetric
Purpose:	To evaluate successful products on second supplied contaminant.
Experimental Procedure:	Five products were selected from the previous trial. Each product was used at full strength and room temperature. In addition, the current cleaning solvent, IPA, was included for comparative purposes. Eighteen preweighed glass coupons were contaminated with a strip of the supplied EVA material. Coupons were weighed again to determine the amount of contamination added. Three coupons were then cleaned with each solution. Cleaning was performed by soaking a WypAll X60 reinforced paper towel with the cleaning solution. The coupons were then manually wiped for unto 1 minute followed by a 5 second wipe with a dry towel. Visual observations were made and recorded during cleaning. Once dry, the coupons were weighed a final time and removal efficiencies were calculated for each product.
Results:	Three of the alternatives and the IPA removed the EVA film in under a minute, with most requiring under 30 seconds. One product removed the film from 2 of the three coupons. The IPA caused the EVA film to ball up on itself, whereas the other effective products caused the EVA film to be removed in one piece, apparently breaking the bond between the glass and the film. The last product only removed the film from one coupon. The table below lists the amount of EVA added, the amount remaining, and the observations made for each coupon cleaned.

Cleaner	Initial wt	Final wt	% Removed	Observations
Solsafe 245	0.9640	0.9343	3.08	little removal
	1.0701	1.0352	3.26	little removal
	0.7437	0.0012	99.84	removed in one long piece from one coupon
Shopmaster RC	0.9017	0.0007	99.92	peel off in 1 piece at 1 minute
	1.0626	0.0005	99.95	off in 15 seconds
	1.0177	0.0008	99.92	off in 11 seconds
SC Actisolv	0.8145	-0.0004	100.05	peel off in 1 piece at 9 seconds
	0.9594	0.0004	99.96	peel off in 1 piece at 18 seconds
	0.8028	-0.0001	100.01	peel off in 1 piece at 12 seconds
Ionox HC 2	0.8090	0.0000	100.00	peel off in 1 piece at 5 seconds
	0.9910	0.0002	99.98	peel off in 1 piece at 5 seconds
	0.8121	-0.0002	100.02	

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				peel off in 1 piece at 2 seconds
DS 144	0.8931	0.0003	99.97	peel off in 1 piece at 36 seconds
	0.7463	0.0009	99.88	peel off in 1 piece at 18 seconds
	0.9123	0.9140	-0.19	only started to peel off at corners
IPA	0.9303	0.0005	99.95	rolled up into ball at 38 seconds
	0.7740	0.0010	99.87	rolled up into ball at 36 seconds
	0.8420	0.0001	99.99	rolled up into ball at 22 seconds

Summary:

Substrates:	Glass/Quartz				
Contaminants:	Resins/Rosins				
Company Name:	**Product Name:**	**Conc.:**	**Efficiency:**	**Effective:**	**Observations:**
Bio Chem Systems	Solsafe 245	100	35.39	☐	
Buckeye International	Shopmaster RC	100	99.93	☑	
Gemtek Products	SC Actisolv Safety Solvent	100	100.01	☑	
Kyzen Corporation	Ionox HC 2	100	100.00	☑	
Dysol	DS 144S Wipe Solvent	100	66.55	☐	
Fisher Scientific	Isopropanol a459-4 70% VV (CAS: 67-63-0)	100	99.94	☑	

Conclusion:

The top three performing products (Shopmaster RC -28 seconds, SC Actisolv - 13 seconds and Ionox HC 2 - 4 seconds) removed the EVA film in less time than the IPA - 32 seconds.