CLEANING LABORATORY EVALUATION SUMMARY

SCL #: 2003

DateRun: 08/06/2003

Experimenters: Jason Marshall

ClientType: Optical Manufacturer

ProjectNumber: Project #1

Substrates: Plastic

PartType: Coupon

Contaminants: Coatings

Cleaning Methods: Immersion/Soak

Analytical Methods: Gravimetric

Purpose: To identify cleaners that will be able to remove the polysiloxane based coating

Experimental Procedure: Eight cleaners were selected from the lab's database of testing based on client submitted data. Four aqueous products were diluted to 5% concentration using DI water in 600 ml beakers. Four semi-aqueous products were selected and used at full strength also 600 ml beakers. The client's current cleaning was used at the dilution sent to the lab (12%). All nine products were heated to 130 F on a hot plate. Twenty-seven preweighed plastic coupons were coated with PPG Industries, Inc. Hi-Gard 1035 coating (71-23-8, 67-56-1, 64-17-3) using a hand held swab. The coating was allowed to dry and then coupons were reweighed. Three coupons were immersed into a cleaning solution and allowed to soak for 5 minutes at 130 F. Coupons were then rinsed in DI water at room temperature for 15 seconds and dried via air blow off for 30 seconds at room temperature. Final weights were recorded and efficiencies were calculated.

Results: The four aqueous products removed nearly all of the coating within the 5 minutes of cleaning. The four semi aqueous products were not as effective, but three still removed over 90%. The client supplied cleaner was also less effective than the other aqueous products tested, removing just under 85%. The table below lists the amount of coating added and remaining for each product tested.

Cleaner	Initial wt	Final wt	% Removed
Hurrisafe 9575	0.1971	0.0004	99.80
	0.1188	-0.0003	100.25
	0.1904	-0.0001	100.05
Multikleen LX 1573	0.1423	-0.0003	100.21
	0.1669	0.0001	99.94
	0.1823	-0.0002	100.11
Shopmaster	0.1809	-0.0002	100.11
	0.2732	0.0019	99.30
	0.2208	0.0013	99.41
Polyspray Jet 790XS	0.1775	-0.0002	100.11
	0.2932	-0.0005	100.17
	0.2160	0.0002	99.91
Safer Stuff	0.1626	0.0164	89.91
	0.2844	0.0215	92.44
	0.1345	0.0160	88.10
Citrus Burst 7	0.1796	0.0043	97.61
	0.2705	0.0453	83.25
	0.2719	0.0221	91.87
Ionox HC2	0.2472	0.0164	93.37
	0.1602	0.0035	97.82
	0.1775	0.0145	91.83
Bio T Max	0.2315	0.1893	18.23
	0.2934	0.1581	46.11
	0.2857	0.0668	76.62
Caustic Pot Ash	0.2092	0.0212	89.87
	0.3246	0.0385	88.14
	0.2339	0.0561	76.02

Summary:

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Substrates:	Plastic
Contaminants:	Coatings

Company Name:	Product Name:	Conc.:	Efficiency:	Effective:	Observations:
PCI of America	Hurrisafe 9575	5	100.03	☑	
Heatbath Corporation	MultiKleen LX 1573	5	100.09	☑	
Buckeye International	Shopmaster	5	99.61	☑	
US Polychem Corporation	Polyspray Jet 790 XS	5	100.06	☑	
Finger Lakes Chemical	Safer Stuff	100	90.15	☑	
Florida Chemical Company	Citrus Burst 7	100	90.91	☑	
Kyzen Corporation	Ionox HC 2	100	94.34	☑	
Bio Chem Systems	Bio T Max	100	54.19	☐	
Univar USA Inc	Pot Ash Liquid	12	84.67	☐	

Conclusion: The four effective aqueous products will be used to clean the supplied parts (white plastic with stainless steel) using ultrasonic energy to ensure blind holes are being cleaned.